

Analytic metaphysics should not go

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Abstract: Recently, analytic metaphysics has been attacked from a scientist's perspective. In *Everything Must Go*, James Ladyman and Don Ross argued that analytic metaphysics should be dismissed and replaced with a naturalized metaphysics. In this paper, I critically discuss the arguments proposed in the book in order to determine whether this critique of analytic metaphysics is successful. In particular, Ladyman and Ross elaborate on three main points: the role of intuitions and the ensuing misunderstanding of science, the demarcation of science from non science, and the exclusive theoretical authority of science. I argue that none of their arguments succeeds in excluding analytic metaphysics from the list of respectable theoretical disciplines.

Keywords: Meta-Metaphysics; Naturalism; Philosophical Methodology.

1. *Analytic metaphysics should go*

In *Everything Must Go*, James Ladyman and Don Ross engaged in a fierce attack against contemporary analytic metaphysics. Spitefully calling it 'neo-scholastic metaphysics', they argued that it should be replaced with a kind of naturalized metaphysics which is strictly based on and closely interacts with the best current natural science and physics in particular. This criticism has caused great concern and many nervous reactions, as analytic metaphysicians have been accused of wasting their time and research funding. In spite of that, although several replies have been proposed on behalf of analytic metaphysics (see, for instance Hawley (2010), Dorr (2010) or Morganti and Tahko (Forthcoming)), a systematic discussion of the 'infuriating' arguments is missing.¹ This lack of critical evaluation is most likely the reason why many, even among analytic metaphysicians, have the impression that Ladyman and Ross's attack is largely successful, or, at least, mostly so: analytic metaphysics is less or more fruitless and should be replaced with a fertile kind of naturalized

¹ The expression 'infuriating' is used by Hawley (2010).

metaphysics, if not abandoned completely. Of course, this is not to say that research in analytic metaphysics is declining or that works in the discipline are dwindling. Quite the contrary, indeed, as analytic metaphysics is now flourishing as never before. At the same time, however, when analytic philosophers are asked about Ladyman and Ross's book they tend to dismiss the problem without paying careful attention to the details of their arguments. Thus, although they are clearly annoyed by the criticism, instead of elaborating on systematic objections, they often prefer just to ignore them and keep doing metaphysics as they had been.² The shared and implicit view seems to be that either the attack has been completely unsuccessful or, in any case, analytic metaphysics still retains some unspecified role to play. An explicit discussion and assessment, however, is hardly offered.

This paper is intended to help fix the aforementioned situation by critically discussing the arguments put forward by the authors. Ladyman and Ross develop their arguments by elaborating on three main points: the role of intuitions and the ensuing misunderstanding of science, the demarcation of science from non science, and the exclusive theoretical authority of science. I discuss these points in order to determine whether a rejection of analytic metaphysics is justified on such a basis. As we are going to see, the result is quite the opposite of the one the authors pursue.³ I should notice, however, that I do not intend to provide either a full defense of analytic metaphysics or counter-arguments against every potential objection against it. Instead, my discussion is focused solely on the criticisms put forward by Ladyman and Ross. Given the prominence and impact that such arguments have had on contemporary debates, I believe that this contribution, while limited, is significant and, most importantly, needed. Analogously, I leave a fully developed positive characterization of how analytic metaphysics should be understood as well as an analysis of its relationship with naturalized metaphysics as a subject for a different work.

² For instance, to an explicit question at a public conference, one of the most prominent analytic philosophers just replied that the criticism was laughable. Another one conceded that Ladyman and Ross have a point, but claimed that analytic metaphysics still has some valuable contribution to offer. He did not specify, however, in what such a contribution could consist. (I prefer to omit the names of the philosophers).

³ In the book, the authors (Ladyman and Ross 2007: 29) also lay down a positive principle (the principle of naturalistic closure) that is designed to shape the legitimate forms of metaphysics that should be pursued, and then they proceed to give a substantial contribution to the field so redefined. In this paper I do not discuss directly this positive characterization of naturalized metaphysics because I am primarily interested in the arguments against traditional analytic metaphysics which lead to the definition of that principle.

2. *Against Analytic metaphysics*

Ladyman and Ross start their accusation of analytic metaphysics by pointing out what a surprising phenomenon our theoretical ability is. Human beings, which are finite animals with a cognitive apparatus constrained by its evolution to a very limited environment should not, apparently, be able to grasp the structure of reality. Such a capacity conflicts with our natural limitations, contrasting the very purpose for which our cognitive abilities evolved. That human beings can understand the nature of reality is an idea we should skeptically dismiss. This radically pessimistic attitude clearly challenges not just the emergence of metaphysics or pseudo-science but also that of science itself. The authors, however, are quick to stress two basic points that save science at the expense of (analytic) metaphysics. A first point is that mathematics, which is essential for natural science, abstracting away from our familiar environment and our cognitive limitations, makes scientific knowledge possible. Mathematics enables us to push our knowledge beyond our initial limitations. This is certainly an interesting observation as the importance of mathematics for the success of science is hard to overemphasize. However, at the same time, the authors leave the source of mathematical knowledge a complete mystery. Given the naturalist story they tell, one should think that also mathematics is impossible for human beings, since, insofar as mathematics tries to abstract away from our familiar environment, it cannot have any reliability. The authors, however, have a reply also to this worry. The reply, which leads to their second point, is not intended, as one might expect, to show how mathematics is possible. Rather, it is a *de facto* argument. Mathematics proved to be successful and thus possible. Full stop. According to Ladyman and Ross, the success of mathematics is evident for its progress (including the consensus exhibited among its practitioners) and for the progress of the natural sciences in which it is essentially applied. Indeed, mathematics is traditionally taken to be a model of scientific knowledge and to provide an ideal standard for the rest of science, so that its status should be taken for granted even in the absence of adequate epistemological treatment. Moreover, the very rise of modern science has been made possible by the application of mathematical methods. Thus, the scientific pedigree of mathematics cannot be questioned without criticizing the idea of scientific knowledge itself. Under the light of this second argument, it might be suspected that the force of the first observation is lost. If mathematics is legitimized by its successful applications in natural sciences, then we cannot say that science is made possible by the resort to mathematics, otherwise we enter circular reasoning. This tension, however, is illusory. Science is made, at least partially, possible by mathematics, whereas

mathematics itself is possible for unknown reasons. We just recognize that mathematics is possible thanks to its progress and its successful application in the natural sciences. Thus, natural sciences give us an epistemological justification, whereas, to use a word the authors would perhaps find objectionable, metaphysically, the order is the other way around.

One might conjecture that the case of mathematics could be replicated. If we are able to abstract away in the case of mathematics, we could perhaps do the same in the case of metaphysics. Thus, also metaphysics should be possible and legitimate. This is a point analytic philosophers often make (Williamson 2008: 8, for instance), but the second observation is crucial here. In principle, the possibility of metaphysics can be admitted; but, for analytic metaphysics, we seem to lack the same epistemic justification we have for mathematics. We cannot consider analytic metaphysics successful (according to the authors at least) since its practitioners do not usually reach agreement⁴ and it does not have a record of fruitful applications in the natural sciences as mathematics does. This shows that mathematics and metaphysics have two completely different pedigrees. While the former can be justified, so that we know that it is possible because it is successful, analytic metaphysics is unjustified. Indeed, while we cannot explain why mathematics is possible (or at least the authors do not offer such an explanation), we can nonetheless show that metaphysics has no epistemic value. According to the authors, the main culprits are the role of intuition and the consequent misunderstanding of current science.

3. *Intuitions, common sense and metaphysics*

The success of science is partly due to mathematics, which did away with our cognitive limitations. By contrast, analytic metaphysics essentially relies on spontaneous intuitions that are legitimated, if they are at all, only when limited to our familiar environment for which they adapted. The authors concede that intuitions are likely to have some reliability in tracking truth relatively to the environment in which human intelligence developed, yet stress that there is no reason to think that our ordinary intuitions have any efficacy beyond that. Moreover, Ladyman and Ross observe that intuitions are highly dependent on species, cultural and individual learning histories, which account for their sheer diversity across different groups, as research in experimental philosophy and cognitive anthropology have repeatedly shown. These considerations deprive intuitions of any evidential role, even when limited to their natural con-

⁴ Both points can be challenged. I will return to them below when discussing the issue of demarcation of science from non science.

text. Moreover, the common sense of analytic philosophers is usually shaped by classical physics, so that analytic metaphysics is often centered on a level between the manifest image and the current scientific image. It is, however, in contrast with both, so that it can serve no role, if not that of being a metaphysics slightly inspired by the natural science of several centuries ago. Our current physics is more far removed from our spontaneous intuitions than classical physics. As a result, such intuitions were perhaps well suited then to shape natural philosophy before the scientific revolution, but they are completely out of place with respect to current science. Indeed, when contemporary science is at stake, accordance with intuitions is a likely sign that the method's underlying theory is faulty. Metaphysicians, instead, try to preserve most of them, regarding the violation of our natural intuitions as a theoretical cost. Examples of philosophers arguing against certain views on the basis of (counter)intuitiveness are also reported by the authors.

One might think that, if we should choose among two theories which are equally powerful and simple in explanation, with the only difference being the matching of our spontaneous intuitions to differing degrees, then the most intuitive theory should still be preferred, so that intuitions should have some role in theory choice. The criticism, however, is deeper. Since intuitions are a contingent product of our cognitive story, that science concerns areas in which natural intuitions are unsuited, and that plenty of clashes between intuitions and scientific discoveries confirming their lack of reliability can be provided, agreement with intuition cannot be considered a *theoretical* virtue of a theory. A theory with intuitive appeal has no more chance of being true than one lacking such appeal. Being intuitive or not makes no difference regarding the truth. Since there is no reason to imagine that our habitual intuitions and inferential responses are well designed for science or for metaphysics, they cannot be taken to provide any kind of evidential support. In this form, the intuitive appeal of a theory is not a *theoretical* virtue but, at most, merely a *pragmatic* one. A theory matching our intuitions is easier to handle than a highly counter-intuitive one, but is nothing more than that.⁵ Indeed, reliance on intuition can also lead to a 'domestication' of science, according to which science is made familiar by forcing it into folk categories which misunderstand and oversimplify the real content of scientific results. An example of this process is provided by the metaphysics of containment, which sees the world as a kind of container bearing objects that change location and properties over time. The idea of

⁵ There are uses of intuitions in science that the authors admit. One is the usage exploited to investigate our 'naive physics'. A task that can be useful in cognitive science and in researches in artificial intelligence. The other is the one made by experts in their relevant fields, such as the intuitions of economists about certain economical matters. See also Kriegel (2013).

containment, already found in ancient pre-socratic philosophy, is represented, in a modern form, by contemporary mereology. However, the attempt to domesticate twenty-first century science by reference to the metaphor of containment is faulty and far removed from the high level of abstraction exhibited by contemporary science and physics.

In some form or another, Ladyman and Ross's attack on the extensive and uncritical use of intuitions and common sense in analytic metaphysics is rather sharable. Although the significance of the results found in experimental philosophy can be undermined (Bengson 2013), the general evidential value of intellectual intuitions is hard to defend in general. It should be noted, however, that the appeal to intuitions made by analytic metaphysicians is sometimes based on refined frameworks intended to defend the legitimacy of this practice. This is the case, for example, of Bealer (1998), Chalmers (2014) or Bengson (2015). Ladyman and Ross's considerations do not seem to extend easily to such views. Thus, it is not clear whether the general conclusion should be that no resort to intuitions in metaphysical investigations is to be permitted, or, instead, that only a refined appeal to them is legitimate. Moreover, as Dyke and Maclaurin (2012) claim, despite their opposition to analytic metaphysics, the debate on the legitimacy of rational intuitions is still ongoing, so that the argument cannot be considered completely conclusive.

There is no need to develop this kind of reply in detail, however, since a more radical and clear move on behalf of analytic metaphysics can be offered. The authors, in fact, assume that the role of intuitions and common sense is essential and widespread, but not only are there important works in analytic metaphysics in which intuitions play little or no role at all (*Modal Logic as Metaphysics* by Williamson (2013) is a shining recent example), but the very idea that analytic philosophy essentially relies on intuitions is itself a controversial claim. Recently, several authors have argued extensively that the idea that intuitions play a serious role in analytic philosophy is a meta-philosophical myth based on a folkloristic and inaccurately superficial picture. For instance, Capelen (2012) and Deutsch (2015) provide a number of considerations against such a conception. I cannot rehearse their arguments in detail here; but, for our polemical point, it is enough to mention the three main observations which can be put forward to undermine the myth of the role of intuitions in analytic metaphysics. The first point is a radical interpretative thesis, according to which intuitions, far from being the peculiar evidence on which philosophers base their views, are never seriously invoked by analytic philosophers. This surprising idea is actually the conclusion that is seemingly drawn from careful textual considerations of paradigmatic works in which an appeal to intuitions is usually thought to be made (such as Kripke's arguments for the rigidity of proper names or Gettier's argument against the identification of knowledge

with justified true belief). Indeed, it can also be shown that the very expression ‘intuitions’ or its cognates hardly occur in the original texts. Moreover, when it does, and this is the second point, it is usually employed to mean something deeply different from what Ladyman and Ross and the experimental philosophers have in mind in their attack on this philosophical practice. Expressions for intuitions are used, for instance, to avoid an arrogant tone in exposition and to introduce an assumption in a more gentle manner (Dorr 2010). If a metaphysician wants to assume P, or thinks that P is the case, it would often sound rude to the reader if he just crudely claimed P’s unequivocal truth. To avoid this, expressions like ‘intuitively’ or the like are used. Such uses of an intuition vocabulary, however, do not have an evidential force but rather reflect rhetoric and stylistic traits. In other cases, the expression is merely used to mean something akin to *prima facie*, to express the idea that a certain claim does not seem plainly incoherent with what we already know. Perhaps here ‘seem’ does include a reference to intuitions, but with it a metaphysician does not provide a proof of a claim nor give any evidence. Instead, it is a way to introduce a hypothesis in the process of investigation. Abandoning or changing the claim after further research or objections is not a theoretical cost at all but instead something that is a possible and innocuous effect of subsequent studies. This innocent and not evidential reliance on intuitions is just a consequence of the fact that we have to start somewhere and the alternative choice of starting from hypotheses that already appear false is not, from a mere pragmatic point of view, the best way to proceed.

The opponents of analytic metaphysics might argue that an appeal to intuitions is implicitly made when metaphysicians advance their assumptions or put forward claims not explicitly supported by arguments. For instance, when they propose thought experiments and then conclude with a certain judgment about a fictional scenario, what they offer is an *intuitive* claim about a hypothetical case (think, again, of Kripke’s argument or Gettier’s). Accordingly, that expressions for intuitions are explicitly used or not is irrelevant, since the resort to intuitions is implicitly embodied in the very practice of analytic philosophy. This seems a reasonable claim in accordance with how analytic philosophy, and metaphysics in particular, is conducted. However, it is far from obvious that this is the correct interpretation of such a practice. Of course, analytic philosophers often make judgments about hypothetical scenarios and in a philosophical paper there are many claims which are not explicitly justified. However, this is not equivalent to an implicit evidential resort to intuitions. When, in fact, analytic philosophers judge, for instance, that P with respect to a certain imagined scenario, they are not forced to convert it into the problematic claim that *intuitively* P (Williamson 2004; 2011; 2013b). One might think that this is the natural and correct paraphrase of their judgements,

making explicit why they judge that P, but this is not so. When it is judged that P without further specifications, it is simply because no further reasons are added. Already for a simple matter of space, not every judgement can be justified in every paper and many unjustified statements are reported in every article in every branch of science, as it is easy to check. There is nothing problematic or peculiar about philosophy or metaphysics here. The same phenomenon can be found also in physics or chemistry as well. Indeed, also papers in experimental philosophy, intended to undermine the legitimacy of intuitions in metaphysics, are filled with statements non explicitly justified.⁶ Should we think that also physics or chemistry make an implicit and illegitimate resort to intuition? No. In fact, that it is judged that P without explicit reasons does not mean that no reason can be provided. From the fact that a judgement is unjustified it does not follow that the judgement is unjustifiable, or that it can only be justified by invoking intuitions. It just means that the philosopher does not feel that, in that context, the statement needs a particular explicit justification. For instance, because all readers are supposed to agree on P, or because a justification is easily recovered by every well informed reader, or because the justification is trivial. If criticisms or positive objections to P were put forward, new arguments supporting the claim should be elaborated. These arguments, however, need not rely on intuitions at all. Indeed, objections to particular metaphysical views are continually proposed, but no one thinks that simply insisting on the intuitive nature of a certain view would be an adequate reply. Analogously, no one thinks that Lewis's modal realism has been refuted by its counter-intuitiveness or by incredulous stares.⁷ If a statement is challenged with arguments, counter-arguments must be provided. If an author has good reasons to think that there are no such arguments, however, she can often save ink and time avoiding explicit and redundant discussions.

As Dorr points out, most metaphysicians would probably agree that their opponents often rely on unjustified premises, but this is neither controversial nor a basis for a 'mission of disciplinary rescue'. Metaphysicians are often concerned just with the validity of certain arguments. For instance, a typical, and despised, metaphysical problem is provided by arguments such as: 'the statue on my desk was made this morning; the lump of clay on my desk has existed for a long time; so the statue on my desk is distinct from the lump of clay on my desk; so distinct material objects sometimes spatially coincide'. This is a case where no justification of the (possible) truth of the premises is put forward because, clearly, it would be completely trivial. So trivial that requiring a scientific justification or a real experiment to prove it would sound ridiculous. If this is a typical case where the premises of philosophical argu-

⁶ See Williamson 2004.

⁷ Although this might provide *motivations* to explore alternative views.

ments are justified by intuition, the resort to intuition seems to rely on nothing (or little) more than linguistic competence (we know, e.g., what ‘statue’ means and how to apply it in certain uncontroversial cases).⁸ Indeed, as Williamson (2004) noticed, what are called ‘intuitions’ here are just applications of our ordinary capacities for judgment. We think of them as intuitions only because a special kind of skepticism about those capacities is at stake. Thus, to follow this route, Ladyman and Ross should adopt a radical skeptical view toward judgment that risks undermining also the legitimacy of scientific investigation. To avoid this outcome, we could perhaps try to interpret Ladyman and Ross’s skepticism as directed only toward the value of common-sensical and natural language claims.⁹ Accordingly, being formulated in naive terms, our ordinary talk would exhibit a mix of vagueness, falsity and meaninglessness. This would make it too confusing and therefore a poor subject for serious investigation. However, such a general and bold claim should be supported by strong and systematic considerations about natural language that the authors do not supply. Moreover, in any case, metaphysicians usually agree that metaphysical issues are often ill defined and confused. It is exactly the task of metaphysics and philosophers in general to fix and clarify them. If, following the authors reasoning, we had to dismiss the problem for this reason, we would be ‘instructed to ignore a very large class of arguments without telling us anything about where they fail’ (Dorr 2010).¹⁰

The three observations above should be enough to show that the idea that the methodology of analytic metaphysics is essentially based on a problematic resort to intuition is disputable, if not simply false. Perhaps, claiming that analytic metaphysicians never seriously appeal to intuitions and common sense in a serious or problematic way is also an overstatement, exactly like claiming that intuitions are absolutely essential to metaphysics, but the crucial point is that a case can be made, and has independently been made, that not all analytic metaphysics relies or must rely on intuitions. If Ladyman and Ross want to insist that analytic metaphysics cannot be freed from some kind of illegitimate resort to intuitions, they have to enter this different debate, offering specific arguments and considerations. In the meantime, we have a lot of good reasons to resist this idea and think that if not all analytic metaphysics is pursued independently from a problematic appeal to intuition, in some important form it is conducted in this way or, at least, it can be.

⁸ See also Eklund 2015.

⁹ Alternatively, they might object that these topics are uninteresting and sterile. This, however, is a different objection.

¹⁰ All of this without mentioning the historical role that such kind of philosophical clarifications have had in allowing the rise of modern science (think of physics, economy or psychology). An impact on science that should be already able to vindicate the theoretical value of metaphysics.

The kind of radical and neat response I am proposing is straightforward, but it has serious costs too. This view, in fact, concedes to Ladyman and Ross that an uncritical reliance on intuitions is often illegitimate and, in general, should be prevented, when the practice of analytic metaphysics is present. This, at least potentially, forces the rejection of certain pieces of analytic metaphysics as bad metaphysics and the admission that Ladyman and Ross are basically right in one respect: intuitions and common sense cannot uncritically be used as a source of (metaphysical) evidence. Their mistake is just that of assuming that analytic metaphysics entirely or necessarily relies on such bad intuitions.

4. *Pseudo-naturalized metaphysics*

Analytic metaphysicians often think that metaphysics can be pursued with a general scientific methodology that measures the theoretical virtues of rival theories. This view, according to Ladyman and Ross, falls victim to two main problems: 1. metaphysicians frequently ignore relevant actual science and 2. they proceed completely a-priori. Given the observations offered by the authors, the latter point amounts to the idea that intuition are not a reliable source of information. In fact, although logic and mathematics can be considered a priori disciplines that are successfully applied in natural science, the a priori methodology of metaphysics is not characterized by the resort to mathematical and logical reasoning (which, nonetheless, can be present) but by an appeal to intuition. It is in this limited sense and form that a priori investigations are illegitimate. We have already discussed the criticism of such a reliance on intuition, but the idea that analytic metaphysics proceeds independently from current actual science remains to be discussed.

Ladyman and Ross support the idea that metaphysicians do not pay attention to scientific results with a bunch of notable examples. Also in this case, however, their attack fails. First of all, it is not clear whether metaphysicians really ignore actual scientific results or, instead, simplification of those results is usually enough to get a premise for a metaphysical argument. This is made clear already by the example about the lump of clay mentioned above. Clearly, it is not important that we consider a statue instead of, say, a hammer, and clay instead of, say, iron. Analogously it often makes no difference whether a scientific result concerns, for instance, the color of a quark, insofar as it can be read, more generally, as being about a certain object having a certain property.¹¹ Of course, if scientific results, with all their details, make a difference for metaphysical debates, there is no reason to disagree with the general moral: when

¹¹ See Morganti 2009.

an investigation, metaphysical or not, engages with phenomena for which scientific results are relevant, such results should be taken into account and well understood. This, however, is just a consequence of the fact that when a certain topic is studied, all the relevant data should be considered. Thus the crucial question becomes how relevant detailed scientific results are for metaphysics. The authors think that their importance is pervasive, however, in most typical areas of metaphysics, empirical sciences seem simply irrelevant.¹² Think, for instance, of the problem of realism about properties or, again, the problem of material constitution. Can natural science determine whether a metaphysics of tropes is wrong? And what can the role of science be in the argument about the lump of clay? Although it is not excluded that results in natural science might have important roles, it is usually not clear what kind of contribution they could offer. Indeed, even in those cases in which natural science seems important (think of the metaphysics of time), it is not easy to show that scientific results are incompatible with some metaphysical view, perhaps just after some adjustment.¹³ It would certainly be nice to have some explanation of why metaphysics appears to be often indifferent to specific empirical findings, and to have a principled differentiation between cases in which science is or is not relevant. It would also be important to have an explanation and a defense of the theoretical value of a discipline that investigates the world but seems severed from it. However, I must leave this interesting and difficult topic for a different work.¹⁴ For our purposes, in fact, it is enough to note that the relevance of empirical results is hard to see in many cases, so that the burden to show that the opposite is the case is on Ladyman and Ross's shoulders. Science can be relevant in principle, but, *de facto*, its relevance seems to be much less pervasive than the authors claim.

The criticism of mereology and the current debate about the nature of composition provides a different example of the situation just described. The authors complain that there is no such a thing as a general notion of parthood, and that in different areas we have different notions with different features, so that having a metaphysical debate about parthood in general is irremediably mistaken. A significant part of most of the special sciences, in fact, regards

¹² See also Hawley 2006.

¹³ For instance, although relativity is certainly relevant for the metaphysics of time, it is not clear that it is scientifically established that presentism is to be abandoned.

¹⁴ A possibility is that (following Morganti and Tahko forthcoming) metaphysics is concerned with the most general features of reality, so that the views are often indifferent to what level of reality is considered. All the data that can be provided by micro-physics are often already available at a macro level. See also Nolan 2015 for a view undermining the idea that metaphysics is really a purely a priori discipline.

the specific notion of parthood and composition relevant to their respective domains. According to Ladyman and Ross, “metaphysicians do not dirty their hands with such details” and “we have no reason to believe that an abstract composition relation is anything other than an entrenched philosophical fetish” (Ladyman and Ross 2009: 21). The main problem of this view is that their hasty considerations are not enough to undermine the legitimacy of a general notion of composition as found in the work of analytic metaphysicians. The authors, sadly, do not bother to consider this. Moreover, the view that this general notion is lacking is indeed a live option in the debate about mereology (see Fine 2010), so that the dispute has not much to do with the status of mereology in general but rather with a specific metaphysical thesis about composition. Their quick negative evaluation, thus, is again directed against a straw man which seems to be a mere superficial caricature of what analytic metaphysics actually is. Perhaps Ladyman and Ross’s point is just that, also on a pluralist understanding of parthood, contemporary views fail to appreciate important scientific results. This, however, on the one hand is far from being an obvious claim and, on the other hand, it could, at most, provide a motivation to write a wonderful paper about mereology, rather than a paragraph against it.¹⁵ In general, the examples the authors provide can only be taken, at most, as examples of poor or wrong metaphysics, not as proofs that metaphysics is wrong as such. Notice also that, if mereology did not find applications in certain domains such as micro-physics (a claim that should be proven and that, again, is far from obvious),¹⁶ this would not be a proof of its futility. Mereology could well be a source of knowledge even if it is not applied in *every* field. For instance, mereology might have no role to play in micro-physics but it may be naturally applied in a different natural science, such as, for instance, biology.

One might think that such counterreplies go exactly in the direction of a naturalized metaphysics of the kind Ladyman and Ross favor. In fact, once we renounce to intuitions and start paying the right attention to the actual details of the natural sciences, it might be suspected that metaphysicians can only build their theories taking material from those sciences, so that the outcome is just some version of naturalized metaphysics. I do not think, however, that a general endorsement of a naturalized analytic metaphysics is the only conclusion to draw. First of all, the areas of metaphysics mentioned above, namely those that are recalcitrant to be empirically assessed, are the typical realm of metaphysics. Thus, a naturalization seems hardly viable in the most traditional

¹⁵ For a criticism of this attack to mereology in science see Calosi *et al.* 2011, Calosi and Graziani 2014.

¹⁶ See Calosi and Graziani 2014.

cases.¹⁷ Moreover, natural sciences are not the only possible source of evidence once common sense and naive intuitions have been put aside. Analytic metaphysics can also be defended by promoting a partnership not with the natural sciences but with a-priori scientific disciplines such as logic and mathematics on the one hand and language analysis and linguistics on the other. Indeed, this is also in clear accordance with how contemporary analytic metaphysics is pursued, so that the result of this interpretation is both non revisionary and very different from the one proposed by Ladyman and Ross. Analytic metaphysicians have a high interest and respect for results in sciences such as logic, mathematics and linguistics.¹⁸ Indeed, emphasis should be put on the fact that more and more areas of metaphysics are coupled with a corresponding field in philosophical logic. Contrasting Ladyman and Ross's view of metaphysics as an enterprise that needs naturalization, I want to gesture towards an alternative way of looking at analytic metaphysics that is free from intuitions, based on our best science (although mostly in the sense of formal sciences instead of empirical sciences) and in basic accordance with many of the current and well established methodologies in contemporary metaphysics.

5. *Analytic metaphysics and the Problem of demarcation*

Against the view sketched above, Ladyman and Ross could insist that if metaphysical questions are not susceptible to empirical testability or lack any potential impact on empirical sciences, then there is no point in speculating and therefore analytic metaphysics should, once again, be dismissed. However, two remarks are in order. First of all, it should be noted that metaphysical conceptions elaborated in purely a-priori environments proved sometimes useful in applications to science, for instance in the interpretation of certain physical theories (see, e.g., Dorato and Esfeld 2010 or Morganti and Tahko forthcoming for a general defense of this point), so that analytic metaphysics could sometime receive an indirect legitimization also with respect to strict scientific standards.¹⁹ Indeed, collaboration between philosophers and natural

¹⁷ See for example French and McKenzie 2012 or Morganti and Tahko forthcoming.

¹⁸ Ladyman (2012: 49) seems to criticize a view close to the one I have in mind here by claiming that “even if logic and pure mathematics are entirely constructed, it is fair to say their structure is usually of far greater intricacy and intellectual beauty than that of metaphysical theories”. However, it is easy to discard such a criticism. One may question the fact that mathematical theories have a more intricate structure, or point out that metaphysical theories are simpler but not less profound, or even just stress that one can have a different taste in matters of intellectual beauty.

¹⁹ It might be objected that such rare examples of applications of metaphysics are incomparable with the constant application of mathematics. The role of metaphysics in science, however, is different

scientists is often fruitful, as, for example, the case of neurophilosophy and theoretical biology proves.²⁰ Secondly, although a radically empirical approach would be the most effective way to exclude analytic metaphysics, the problem is how to motivate such a severe naturalistic view, given that criticisms based on intuitions and ignorance of relevant science fail. To defend naturalistic scientism, one should embrace a neo-positivist stance or promote a demarcation of science in strongly naturalistic terms. Unfortunately, there is neither hope of recovering neo-positivism, nor it is clear how a radically naturalistic criterion of demarcation could be developed and defended. The problem of demarcation is itself a huge problem in the philosophy of science, a problem that many philosophers deem irremediably doomed, so that having a further desideratum (namely that of excluding analytic metaphysics) renders the enterprise even worse off. Indeed, not every way of separating science from pseudo science would work. The desired principle must also classify metaphysics as a pseudo-science. Ladyman and Ross, however, take the issue seriously and propose a solution. If their reinforced criterion of demarcation were successful, we would have a final and fatal reason to dismiss analytic metaphysics as a waste of time independently from the accusation of being misled by intuitions or by the ignorance of actual science. As we are going to see, however, the final result of Ladyman and Ross's arguments is quite the opposite: if their principle works, it does include analytic metaphysics among the sciences.

Given the failure of neo-positivism and subsequent attempts in the philosophy of science,²¹ Ladyman and Ross explicitly claim that their stance is based on a demarcation of science that is grounded in a pragmatic *methodological* attitude and on an *epistemological* claim. The epistemological claim is that, since science is authoritative in every domain, it is the only source of legitimate knowledge also with respect to metaphysical matters. Thus, given that both analytic metaphysics and science (physics) concern the deep structure of reality, only science is authoritative and autonomous metaphysics must be excluded. According to the methodological claim, there is no such thing as a scientific method but rather just general principles characterizing all sound reasoning. Thus, science is individuated neither by its content, nor by its methods. Instead, it is indicated merely by the nature of the institutional norms governing the scientific practice. Such norms (like peer reviews or the respect for rigor

from that of mathematics. Metaphysics often provides explanations and critical analysis of assumptions and notions explicitly or implicitly employed in certain areas of science. Although different and less pervasive than the role of mathematics, also these cases should count as applications to science.

²⁰ See, e.g., Ruse ed. 2008 for the philosophy of biology or the classic Churchland 1986 for neuroscience.

²¹ See the philosophy of pseudo-science (Pigliucci and Boudry 2013).

and observations) are basically motivated by the need for cooperation that is essential to overcome our limits as finite natural individuals. Ladyman (2013) adds to this picture an emphasis on the interconnections among different specific sciences. A single scientific discipline usually needs results from and is applied in other fields, yielding a sort of mutual cooperation and entanglement. Such a connection cannot be found in non sciences or in pseudo sciences. It is important to notice that this demarcation of science does not lead, however, to a form of naturalism in which only empirical questions are genuine or in which only disciplines impacting on natural sciences are valuable. Thus, although the authors seem to flirt sometimes with a neo-positivist attitude according to which only hypotheses with empirical content are worth considering, the position they actually defend is another. Indeed, given the failure of neo-positivism, they follow another route for very good reasons.²²

Let me start with a discussion of the methodological claim (namely the institutional principle of demarcation) and postpone the epistemological issue to the next section. The problem with the institutional demarcation of science proposed by Ladyman and Ross is straightforward, since the very same criterion seem to legitimate analytic metaphysics instead of excluding it. If there is a characteristic trait of contemporary analytic metaphysics, this is exactly the fact that it is the product of an intense social cooperation which exhibits the same core institutional features of ordinary sciences and respect for the same norms (peer review, respect for rigor and observation etc.). This is one of the main features that distinguish, in the history of philosophy, contemporary analytic metaphysics from other trends like, for instance, English idealism or the naturalistic philosophy of Italian Renaissance. Also the interconnection with other disciplines is clear. Of course the connections are usually with other branches of philosophy or limited to certain areas (typically logic and linguistics) and seldom (but not never) to the natural sciences. However, any science has its natural partners. Perhaps such an interdisciplinary cooperation should be improved and more connections pursued, but, in any case, this is a trend that is growing on its own.

To stress the institutional nature of the demarcation of science from non science, the authors note that the epistemic legitimacy of a theoretical project is to

²² An attempt at recovering a strong naturalist attitude has been recently proposed by Dyke and Maclaurin (2012). The attempt has been efficaciously criticized by Meleod and Parsons (2013), who showed that the strategy falls victim of the very same problems of a verificationist proposal put forward by Ayer. This confirms the idea that behind contemporary anti-metaphysical attitudes there is often a kind of neo-positivist spirit who forgets the untenability of a full neo-positivist stance. Dyke and Maclaurin (2013) tried to reply to the objection proposing a different approach which, however, basically collapses on Ladyman and Ross principle of naturalistic closure.

be decided by the institutional community of experts. To illustrate the point, the authors sarcastically invite the reader to imagine a physicist writing a grant proposal to investigate the idea that the universe is made of hypergunk (Ladyman and Ross 2010: 33n35). The authors claim that, clearly, the proposal would not be financed. I fail to appreciate the sarcasm, though. Poorly described, every enterprise is laughable. Indeed, although the notion of hypergunk is proposed as a typical example of a sterile neo-scholastic notion, its futility is exactly what must be proved and cannot simply be presupposed. Ladyman and Ross take for granted that the community would not take a project on hypergunk seriously. This conclusion, however, is correct only, and at most, if the community of experts includes only physicists or, more generally, excludes experts in metaphysics; but, to exclude metaphysicians from the community of experts, we should already be able to conclude that metaphysics is not a science. We thus find ourselves in a vicious circle: to establish the pedigree of a certain project we ask the experts; but to know who the respectable experts are we need to know the pedigree of the project they work on. To break the circle we need criteria for defining the community of experts independently from the specific content of their disciplines. According to the authors, this criterium consists in the purely institutional and methodological demarcation mentioned above. This criterium, however, includes metaphysics among the sciences so that metaphysicians should count as members of the community of experts. Moreover, if the theoretical legitimacy of a research project depends merely on the verdict of the experts, then there is no reason to think that only physicists should be consulted. Exactly as research projects in physics should be evaluated by physicists instead of experts working in other fields, metaphysical projects should be evaluated by experts in metaphysics. If this, as it seems, is the correct way to articulate Ladyman and Ross's proposal, then the project on hypergunk²³ should be submitted to the judgement not of physicists but of the metaphysicians who, would possibly finance it. If the principle of demarcation is the one the authors defend, then analytic metaphysics is to be regarded as a legitimate science and metaphysicians as respectable experts. If the opponents of analytic metaphysics do not like this result, then a different demarcation must be found. It is not clear, however, what such an alternative demarcation could be.

The authors do not seem completely stable on such issues, however. When Hawley (2010: 175-176), for instance, listed several alleged examples of achievements made by metaphysicians in order to defend the idea that analytic metaphysics meets scientific standards by exhibiting inner progress, Ladyman and

²³ Morganti and Tahko (forthcoming) notice that the notion of gunk actually does find scientific legitimization in Hans Dehmel's alternative model of particle physics.

Ross (2010) did not reply by appealing to their institutional criterion. Instead, they pointed out that the mentioned examples are utterly dissimilar from the ones the scientists take seriously. They also rhetorically asked what kind of empirical predictions arise, e.g., from antirealism or realism about numbers, or what kind of scientific researches such views have motivated. Therefore, they claim that “only if an antirealism about mathematics inspires a program that contributes to the subject is it worth taking seriously” (2010: 180). This reply, however, is very weak. First of all, that the kind of claims metaphysicians consider is dissimilar from the ones scientists take seriously is a non starter. We should be told, in fact, how to tell scientists apart from metaphysicians; but, as long as we only have the institutional standard we must apparently include analytic metaphysicians, so that we should admit that their claims are among the ones that some ‘scientists’ do take seriously. Indeed, we could make the same observation by confronting the claims made by historians and economists with the ones made by physicists. These observations seem to have some force just because it is taken for granted that we are able to tell science apart from non science while excluding metaphysics in advance. The lack of empirical predictive power is equally puzzling. Requiring that a position in the philosophy of mathematics be capable of empirical predictions is out of place. Analogously, what kind of empirical predictions do mathematics or logic, on their own, make? Moreover, are the authors changing their demarcation criterion by proposing that only theories capable of empirical predictions should be considered theoretically respectable in the face of the institutional demarcation? Clearly, this changes the game, besides posing other well known problems of demarcation. At bottom, it seems that the authors are once again flirting with a neo-positivist attitude they cannot afford. Equally weak is the claim that only if antirealism about mathematics inspires a program that contributes to the subject it is worth taking seriously. Apart from the fact that the idea that forms of antirealism never contributed to a program in mathematics is disputable (as intuitionism shows²⁴), why on earth should this be the case? Why cannot we take seriously a position in philosophy of mathematics even if it does not contribute to mathematics? A position in philosophy of mathematics is supposed to contribute, primarily, to the philosophy of mathematics not to mathematics itself. Should a historian of mathematics show that their work promotes progress in the field of mathematics instead of the history of mathematics? Such a demand would clearly be unreasonable.

²⁴ The authors could perhaps reply that antirealism played a role in the context of the “discovery” of intuitionism, not in that of its justification. This line of argument, however, should be carefully discussed. Metaphysical justifications, in fact, usually take place at the meta-theoretical level, challenging the coherence of the theoretical assumptions of a certain conception.

6. *Only science is authoritative*

If the criterion to demarcate science from non science in terms of compliance of institutional norms does not provide a way to exclude analytic metaphysics, the epistemological claim according to which science is the only authoritative source of knowledge in every domain remains to be discussed. Once such a principle, which is considered independently attractive, is assumed, we see that only science can help us understand the fundamental structure of reality and no place is left for an autonomous role of metaphysics. This could also motivate the idea, mentioned above, that the legitimacy of metaphysical research should be subjected to the evaluation of physicists. However, this apparently straightforward line of reasoning is also problematic. First of all, metaphysics, as argued above, meets the criterion of demarcation proposed by the authors, so that the outcome is, at most, that we can have two competing sciences in the same domain, making it unclear why we should favor one at the expense of the other. Even putting this worry aside, the argument does not carry much force, since it only seems to work if formulated in vague terms. It is certainly true that both metaphysics and physics have the same subject in the broad sense of being concerned with the nature of reality, but it is very hard to argue that physics or natural sciences investigate the same aspects of reality. Analytic metaphysics traditionally focuses on problems like the nature of modality, causation, properties and so on. None of these provides direct subjects of research in physics, although appeal to those notions can be made, explicitly or implicitly, in it. Thus, it seems that, carefully characterized, the topic of analytic metaphysics can be, and often is, other from that of physics, so that no competition between the authorities of the two disciplines is easily found (Paul 2012). Indeed, given that analytic metaphysics has means to pass the demarcation test for genuine sciences, and given that it seems to have its own specific subject, then we should conclude that, in its domain, it is the only authoritative source of knowledge. This conclusion is opposite from the one Ladyman and Ross pursued.

7. *Conclusion*

I have discussed the arguments proposed by Ladyman and Ross to exclude analytic metaphysics from the list of valuable contributions to our knowledge of the world and shown how this reasoning fails. The arguments are based on three main points: the role of intuitions in analytic metaphysics and the ignorance of actual science; the demarcation of science from non science and the exclusive authority of science. None of these objections are able to provide enough

grounds to undermine analytic metaphysics. First of all, although intuitions and common sense apparently play a role in many works of metaphysics, it is debatable whether they must play or actually do play such a role except in degenerate cases. A similar point can be made about the ignorance of actual science. In its more typical areas, in fact, empirical science appears to be simply irrelevant. Finally, analytic metaphysics could only be condemned if some suitable strategy to demarcate science from non science were available. The criterion proposed by the authors, based on the compliance of institutional norms, however, does include analytic metaphysics. This poses a problem also for the last point (the exclusive authority of science): since analytic metaphysics meets the criterion, it must be considered a science that is authoritative in its own domain.

Perhaps, as Ladyman and Ross argue, every thing must go. But, if other, better, arguments against analytic metaphysics are not provided, analytic metaphysics should stay.

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