Arguing about the world's cardinality: Priority, existence, and metaphysical necessity[1]

Argumentando sobre a cardinalidade do mundo: prioridade, existência e necessidade metafísica

Sebastián Briceño[2]

ABSTRACT

Metaphysicians still discuss about the number of things. According to monists, there is one thing, either fundamental (Priority Monism) or exclusionary (Existence Monism). According to pluralists, there are many things, either fundamental (Priority Pluralism) or exclusionary (Existence Pluralism). The claims of cardinality of these views are, presumably, metaphysical claims, which means, presumably, that they are necessarily true, if true at all. In this paper, I unravel a common pattern of some of the main arguments used by the parties involved and challenge their assumptions. By doing this, I intend to show that those arguments are all equally impotent to settle the question about the number of things because their conclusions are not necessary truths as they are meant to be. These views, at the very most, can be presented and defended as consistent ways of saying how many things, apparently, might be.

Keywords: cardinality, fundamentality, existence, monism, pluralism, nihilism.

RESUMO

Metafísicos ainda discutem sobre o número das coisas. De acordo com os monistas, há uma coisa, seja fundamental (Monismo Prioritário) ou excludente (Monismo de Existência). De acordo com os pluralistas, há muitas coisas, seja fundamental (Pluralismo Prioritário) ou excludente (Pluralismo de Existência). As alegações de cardinalidade dessas visões são, presumivelmente, afirmações metafísicas, o que significa, presumivelmente, que elas são necessariamente verdadeiras, se são verdadeiras. Neste artigo, desvelo um padrão comum de alguns dos principais argumentos usados pelas partes envolvidas e questiono suas suposições. Ao fazer isso, pretendo mostrar que esses argumentos são igualmente impotentes para resolver a questão sobre o número das coisas, porque suas conclusões não são verdades necessárias como pretendem ser. Essas visões, no máximo, podem ser apresentadas e defendidas como formas consistentes de dizer quantas coisas, aparentemente, podem ser.

Palavras-chave: cardinalidade, fundamentalidade, existência, monismo, pluralismo, niilismo.

[2] Universidad de Concepción. Víctor Lamas 1290, Casilla 160-C, Concepción, Chile. E-mail: jsbricen@gmail.com

The world's cardinality

Let W be our concrete material world. Let the *pps* be all the concrete material individuals/ objects/ things (I will use these expressions interchangeably) that compose it. W is the cosmos itself; the *pps* are its many planets, pebbles, particles, etc. Now quantify over W. Are there many things or only one thing?

Priority Monism (PM), the view that has been championed by Schaffer (2009, 2010), says that both the *pps* and W exist, but that W is *metaphysically prior* to the *pps*. The parts are *grounded* in the whole. Fundamentality has a top-down direction. In contrast, Priority Pluralism (PP) answers, just like PM, that both the *pps* and W exist, but with the opposite qualification: the *pps* are *metaphysically prior* to W. The whole is *grounded* in the parts. Fundamentality has a bottom-up direction. We can attribute this view to Kim (1993, 1998) and to Oppenheim and Putnam (1991).[3] PP honours the Newtonian tradition that appeals to the smallest bodies as the building blocks of all larger bodies: the fundamental ontological level of W consists in many atomic *pps*, many externally related point-like individuals, presumably space-time points or point-like particles, upon which all composite individuals, including W itself, are *grounded*.

PM and PP are not the only possible answers. There is also Existence Monism (EM) and Existence Pluralism (EP). EM rejects the assumed *pps*. EM understands the *pps* as *fictions of decomposition* of W, and answers that there is, *really*, only one individual, W, which is a mereological

simple, a metaphysical atom. Of course, without rejecting such assumption, EM would be a non-starter. This was, according to some (e.g., Bennett, 2001, ch. 7), the view held by Spinoza (1994); it is now the view defended by Horgan and Potrč (2008); and it is recognised by Rea (2001) as a perfectly coherent and tenable alternative. Since W is not a composite object, its local variation is not in virtue of its distinct proper parts instantiating distinct properties. "Rather, it is a matter of [W] itself instantiating in spatiotemporally local ways various properties and relations" (Horgan and Potrč, 2008, p. 169). Strictly speaking, there are no planets, but only W being *planet-lish there-ishly*. EM can paraphrase the talk of middle sized goods in terms of "complex adverbial qualifications of the world" (Schaffer, 2007, p. 179n). Objects shorter than W are not individuals, but only Spinozistic *finite modes* or *affections* of W. They only count as individuals in virtue of distinctions of reason or imagination, not in virtue of *real* distinctions.[4]

In contrast, EP rejects all composite objects, including W itself, as *fictions of composition*, and answers that there are, *really*, only many *pps*, which are mereological simples, metaphysical atoms. Typically, it is the view embraced by compositional nihilists like Rosen and Dorr (2002), Sider (2013), and van Inwagen (1990, 1994, 2002)[5]—though we should keep in mind that EM is also a variant of compositional nihilism, the most parsimonious available (cf. Schaffer, 2007). Many *pps* never compose a distinct object. What happens is that the *pps* instantiate lots of different properties and relations, they are arranged in many different ways, but, strictly speaking, there are no planets, but

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[3] Oppenheim and Putnam claim, without providing any arguments, that "there must be several levels", and that "there must be a unique lowest level", which they identify with the level of "elementary particles" (Oppenheim and Putnam, 1991, p. 409). Kim, on the other hand, defends a worldview that understands the world as an "array of levels"; the structure of it is given by "the mereological relation *being part of*: entities belonging to a given layer are mereologically composed of entities belonging to the lower levels, and this relation generates a hierarchical ordering of the levels"; and it "carries the assumption that there is a bottom tier, a layer of entities that have no physically significant parts" (Kim, 1993, p. 337; cf. Kim, 1998, p. 15). For more textual evidence and examples, see Schaffer (2003). With qualifications, I think we can also see an instance of PP in Lewis's "Humean Supervenience" thesis (1986a, 1986b). I say "with qualifications" because the attribution demands reconciling some aspects of Lewis's thesis with the understanding that PP and PM, *qua* variants of metaphysical foundationism, have of *grounding* (cf. Bliss and Trogdon, 2016). First, Lewis's alleged "ontologically innocent" understanding of both *supervenience* and *composition* would need to be rejected, since it is incompatible with the metaphysical foundationist understanding of *grounding*, which takes the *relata* of the latter relation as distinct existents, in such a way that, when mapped in terms of parthood, either the whole *grounds* the parts (PM) or the parts *ground* the whole (PP), yet both the whole and the parts exist (more on this later). Second, we should exclude the possibility according to which *supervenience* could be understood as a *symmetric* relation (cf. Hall, 2016), since the metaphysical foundationist understanding of *grounding* takes it as an *asymmetric* relation (more on this also later). Another way to attribute PP to Lewis could be by appealing to his notion of "naturalness", and understand that the relation *being more natural than* can play the same role of *grounding* as understood by metaphysical foundationism. But it is doubtful that Lewis understood it like that. For start, although he did rank *properties* in terms of *naturalness*, it does not seem that he intended to rank *individuals* in those very same terms (cf. Lewis, 1999; Hall, 2016).

[4] That fragmentary understandings of W are not the results of *real* distinctions, but the result of distinctions of reason, seems to have been Spinoza's position. Thus, he writes to Meyer: "[F]rom the fact that we separate the affections of Substance from Substance itself, and arrange them in classes so that we can easily imagine them as far as possible, there arises Number, whereby we delimit them. Hence, it can clearly be seen that Measure, Time and Number are nothing other than modes of thinking, or rather, modes of imagining" (Spinoza, 2002, p. 789; cf. Spinoza, 1994, Part I, Appendix).

[5] I include van Inwagen as a compositional nihilist, although his position is not strictly this one. He thinks that two things never compose a third thing *unless* this third thing is a *living organism*. But, leaving aside living organisms, it is quite clear that van Inwagen does support compositional nihilism. His concrete material world is a world of atoms and living organisms. No tables, planets or pebbles around.

only some *pps arranged planet-wise*; there is no *W*, but only the *pps arranged W-wise*.[6]

The expression "fiction of decomposition" is borrowed from Schaffer (2007). The expression "fiction of composition" is borrowed from Rosen and Dorr (2002). Before taking any further step, it is important to highlight the important role of these two expressions. EP and EM embrace compositional nihilism. Strictly speaking, according to them, there are none of the middle-sized goods that populate Moorean appearances (e.g., hands, chairs, cars, stones, planets). But both acknowledge that we do need, somehow, to find a place for them in our ontology. Although they obviously reject the route of mereological complexity and metaphysical foundationism embraced by PP and PM, they also, at least implicitly, reject the route of straight eliminativism. This latter route would be *madness* (cf. Schaffer, 2009). Thus, EP and EM recognise the existence of many composite objects, such as hands and chairs, at least as fictions, illusions, or the like. They do so by adding a fictional operator (or something along these lines) to their existential claims about them. Thus, as it can be appreciated, in the debate about the number of things, the parties make, at least implicitly, the following restrictions to the existential quantifier. First, they restrict quantification to *our concrete material world*, whose existence is presupposed.[7] Second, they restrict quantification to what *really* exists,[8] and this *reality* is meant to include our concrete material world and exclude fictions, illusions and the like. So, when we make these presuppositions explicit, it happens that PM, PP, EM, and EP do not argue about how many things exist *simpliciter*; they argue about how many things exist *really* or *fundamentally* at *W*. PM and PP both agree that the *pps* and *W* exist *simpliciter* and *really*; their

disagreement is about what grounds what. EP and EM both agree that the *pps* and *W* exist *simpliciter*, but they disagree about which of these *really* exist; yet they agree that, once this latter question is settled, there is no question about what grounds what, because *real* existents have equal ontological rights.

There is wide agreement among the participants of this debate on the idea that metaphysical claims are necessarily true, if true at all, and on the idea that the claims about cardinality that they happen to defend or attack are indeed metaphysical claims (cf. Rosen, 2006; Schaffer, 2010; Sider, 1993; Tallant, 2013; van Inwagen, 1990; Williams, 2006). A second basic shared commitment is the idea that, *prima facie*, if something is conceivable and logically possible, then it is metaphysically possible—yet there is no need to think that conceivability *entails* metaphysical possibility (cf. Schaffer, 2010, p. 61). We can state these assumptions thus:

(A1) Metaphysical claims are necessarily true, if true at all. Claims about the number of things are metaphysical claims.
(A2) Conceivability and logical possibility are, considered jointly, our best guides to metaphysical possibility.

For now and for the sake of argument, let's assume that PM, PP, EM, and EP collectively exhaust the possible answers to the question of which is the number of things. How can we decide between them? Not at all clear. The four alternatives, *prima facie*, make sense; at least none of them seems to be logically inconsistent. But since all of them claim to be necessarily true, if true at all, then only one of them can be true. Which one? PM and PP need, as a condition of sense, the existence of a fundamental layer of being.

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[6] One could say that a planet is "nothing over and above" some *pps arranged planet-wise*, or that a planet just *is* some *pps* taken collectively and, conversely, that some *pps* taken collectively just *are* a planet. That is, one could embrace the idea that composition *is* identity, on the understanding that mereology, unlike set theory, is "ontologically innocent" (cf. Armstrong, 1997, p. 11-13; Baxter, 1988; Lewis, 1991, § 3.6). But this would not do. If we take the thesis that composition is identity in its weaker form, that is, if we understand that composition is *like* identity in many respects, but not strictly identity, the thesis is not "ontologically innocent", because being committed to many things (some *pps*) and being committed to one thing (a planet) are two distinct commitments, even if they happen to be invariant across possible worlds. In contrast, if we take it literally, in its stronger form, the thesis is contradictory, since some parts *are* many things, that is, not one; yet a whole *is* one thing, that is, not many. There is no such thing as a plural object: many things are not one thing, composition is not identity, and composition, even when modally invariant, is not ontologically innocent, on pain of contradiction (cf. Priest, 2014, p. 51; Yi, 1999a, 2014). Appealing to some mechanism of plural reference represents no way out from this contradiction, because "[t]he machinery does not allow us to refer to objects that are plural, but to a plurality of objects. Thus, when we say that Russell and Whitehead wrote *Principia*, we are not referring to some strange object, *Russell and Whitehead*; we are referring to Russell and to Whitehead" (Priest, 2014, p. 51). It seems that the only way left is that the relation *being arranged planet-wise* were, as Baxter puts it, a "one-making relation", that is, a relation capable of making many things one thing (cf. Baxter, 1996). But this route faces Bradley's dilemma. On one hand, if we take the relation as actually relating, then we simply beg the question about how the many are one, since we have posited a mysterious creature to account for oneness without explaining in virtue of what it is capable of making many things (including itself) one thing. On the other hand, if we take the relation in itself, as distinct from the many relata, then it is quite obvious that it doesn't make the many things one thing, unless we either again beg the question by saying that it does so because it does so, or embark ourselves in a vicious regress: the one-making relation makes many things one thing in virtue of a second one-making relation, and so on, *ad infinitum* (cf. Bradley, 1930, ch. II). Under the influence of Yi (1999a, 1999b, 2014), I have partially changed my previous stance on these matters (cf. Briceño, 2016).

[7] Schaffer claims not to be "concerned" with things that are concrete but not material, or with things that exist but are non-concrete, such as *abstracta* or *possibilia* (cf. Schaffer, 2010, p. 33; in similar vein, Bohn, 2012; van Inwagen, 1990). In what follows, I assume, following Williamson (2013) and *pace* Lewis (1986a), that we cannot make full sense of *possibilia* only in terms of *concreta*.

[8] We can take them as adhering to something like the primitive sense of *reality* used by Fine (2001, 2009).

This need is more or less clear: without a fundamental layer of being, no objects would exist, because there would be no ground for them. But there is at least one of them, namely: I, since I am thinking now. So either I am fundamental or I am grounded in one or many other fundamental objects. On the other hand, EM and EP need, as a condition of sense, the existence of either one or many simples. This need is also more or less clear: without it, no objects would exist. But there is at least one of them, namely: I, since I am thinking now. So, either one or many simples exist: either I am a simple, or there is one simple being *I-lish here-ishly*, or there are many simples *arranged I-wise* (cf. van Inwagen, 1990, p. 73; Rosen and Dorr, 2002, p. 159).

But how can these views guarantee that their particular conditions of sense actually obtain? In what follows I will try to show that some of the main arguments of the parties involved are all equally impotent to answer the question. The alternatives, at most, can be presented and defended as equally consistent ways of saying how many things, apparently, might be—given certain crucial but quite arbitrary assumptions that presuppose already a minimal answer to the question. This should not be surprising. From the armchair we can reflect on the internal coherence of these alternative views and on the conditions that each of them needs to meet in order to make sense at all. We can also clarify what possibilities represent a threat for the obtainment of those conditions. But we cannot tell what the number of things is, at least not if this is supposed to be necessarily true, if true at all. This seems crystal clear to me. But the supporters of these theses seem to think differently. Let's check their credentials.[9]

The ways of priority and mereological complexity

Let's start by examining PM and PP, who share, at least implicitly, the following assumptions:[10]

(A3) *W* and the *pps really* exist and stand in some relation of composition.

(A4) Composition is not identity. A whole is never identical to its parts.[11]

(A5) *W* and the *pps* instantiate at least one *grounding* relation. *Grounding* is a relation that "imposes a strict partial ordering (SPO) on the entities in its domain: grounding is irreflexive, asymmetric, and transitive" (Bliss and Trogdon, 2016). This hierarchical metaphysical structure can be mapped in terms of parthood.

(A6) *Grounding* is a well-founded relation: there is a fundamental level of being. There are no circular or infinite chains of *grounding*.[12]

(A7) Fundamental objects leave no gaps and do not overlap. They cover the whole world in a sufficient and non-redundant way.

Given (A1)-(A7), PM and PP are the two jointly exhaustive and mutually exclusive answers to the question about the number of (fundamental) things. But there is an argument that favours PM over PP, since it puts into question the alleged necessary character of PP. This is the argument based on the possibility of *gunk* (cf. Schaffer, 2010; Sider, 1993; Zimmerman, 1996).

A *gunky* world is a world in which everything has proper parts, an atomless world that enjoys mereological complexity *all the way down*. Schaffer's version of the argument from *gunk* includes the following supplementary assumption:

(A8) *W* is a unique maximal object, the one fusion of all the *pps*.[13]

The existence of *W qua* unique maximal object follows from the standard mereological principle of unrestricted composition, according to which any collection of objects always composes an object, a whole, namely: their fusion or mereological sum. This principle is also meant to be necessarily true, if true at all. Thus, *necessarily*, the collection of *every* object composes *one* object. *W*, regardless of how many *pps* it has, is not a proper part of other object. It is a maximal whole.

Given (A1)-(A8), the argument goes like this: If PP is true, then mereological atomism is true. If mereological atomism is true, then it is necessarily true. But *gunk* is possible. And if *gunk* is possible, then PP is not necessarily true as it is meant to be. In contrast, if *W* is the one fundamental object,

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[9] Each party involved has more arguments than the ones I will discuss here. Those arguments typically appeal to empirical considerations and theoretical virtues such as parsimony or explanatory power. I cannot address all these considerations here. I have chosen those arguments that seem to me most typically metaphysical and more central to the debate. These arguments aspire to convince with independence of those other secondary considerations.

[10] These assumptions are made explicit by Schaffer (2010), and I follow him closely; but they can also be traced in Lewis's "Humean Supervenience" thesis, once we qualify it (cf. *supra*, fn 3; Lewis, 1986a, 1986b).

[11] Cf. *supra*, fn 6. If whole and parts are distinct things, we are pressed to give an account of how they are so intimately related. This is precisely what PM and PP attempt to do in the next assumptions.

[12] (A5)-(A6) express a dominant way of understanding *grounding*. Cf. Bliss and Trogdon (2016), and Correia and Schnieder (2012).

[13] Note that PM does not understand *W* as a *set* of objects. First, because sets are *abstracta*, not *concreta*. Second, because according to standard set theory (Zermelo-Frankel), there is no such thing as a unique maximal set, since for every number of objects there is always a set containing a greater number of objects.

as PM claims, the possibility of *gunk* can be accommodated. Since, given assumptions (A1)-(A8), PM is the only other alternative to PP, then PM is true, and necessarily so.[14]

Mereological atomism receives support from (A1) and (A6) and from the fact that a view that admits many non-overlapping middle-sized composite objects as fundamental seems to be intolerably arbitrary, because at what molecular level should we draw the line to distribute the privileges of fundamentality? It is no coincidence that our most consistent pluralists have been atomists. Arguments for the metaphysical possibility of *gunk* are also available. *Gunk* has been conceived in logically consistent ways (e.g., Descartes, 1985, II.20). *Gunk* seems also to be an empirically open scenario and science sometimes seems to point in that direction (cf. Schaffer, 2003, with references). Finally, mereology has coherent *gunky* models (cf. Simons, 1987, § 1.6). Thus, it seems that PM, unlike PP, can offer an object that is not a proper part of other object, an object that is capable of accommodating the possibility of *gunk* and, alternatively, the possibility of mereological atomism. Of course, the argument only works under the supplementary assumption that *W* is a maximal whole—(A8). Otherwise, such a whole would not be basic: it would be a proper part of other object, so it would overlap with it and would need supplementation to cover everything—*contra* (A7).

The argument is valid, but doubtfully sound. Its weakness surely lies at the heart of its assumptions. Let's start with the last one introduced by PM: (A8).

By hypothesis, the supporter of PP accepts (A1)-(A7). However, why should he also accept (A8)? Isn't PM just begging the question, or at least taking for granted a very important part of the answer by the mere stipulation of (A8)? After all, there seems to be no privileged reason to assume the existence of one maximal object as an axiom rather than assuming the existence of many minimal objects as a distinct axiom. So, as a first objection, the supporter of PP might attempt to even the score. While PM may introduce as an axiom the existence of a maximal object, PP can introduce as an axiom the existence of many minimal objects, i.e., many mereological simples or atoms, through an alternative supplementary assumption:

(A9) There are many minimal *pps* that compose both *W* and every other composite object.

Obviously, (A9) is not a proof of PP *simpliciter* but only the (key!) assumption of the existence of many minimal objects, just like (A8) is not a proof of PM *simpliciter*, but only the (key!) assumption of the existence of one maximal object. PM and PP are both interested in what grounds what. But if PM can introduce (A8) to grant the existence of a maximal object and then argue for a top-down direction of priority, there is no reason why PP shouldn't be allowed to introduce (A9) to grant the existence of many minimal objects and then argue for a bottom-up direction of priority. PM might complain and say that PP cannot exclude the possibility of *gunk* by decree, so there must be something wrong in assuming (A9). Of course it seems wrong to exclude the possibility of *gunk* by decree! But then, for the very same reason, PP might complain against PM. After all, PM is also using a decree (namely, the product of (A2) and the possibility of *gunk*) to exclude the possibility of mereological simples, and another decree (namely, (A8)) to include a maximal object that excludes an analogous possibility to that of *gunk*, namely: the possibility of *junk*.

A *junky* world is a world in which everything is a proper part of something else, a world that is not a maximal whole, a world that enjoys mereological complexity *all the way up*. In a *junky* world there is no such thing as the fusion of everything. And since a *junky* world still has mereological structure, only some form of restricted composition can take place (cf. Bohn, 2009a, 2009b). Thus, a *junky* world is irreducibly plural.[15] While a *gunky* world lacks minimal parts, a *junky* world lacks a maximal whole. And the metaphysical possibility of *junk* seems straightforward. In fact, *junk* has been conceived in logically consistent ways (e.g., Descartes, 1985, II.21); its existence also seems to be an empirically open scenario, and science, now and then, has pointed in that direction (as the history of science shows, the pendulum seems to go back and forth, from a closed universe to an open universe; cf. Koyré, 1957); and mereology has coherent non-standard models for it (cf. Bohn, 2009a, 2009b, 2012; Simons, 1987, ch. 2).

Thus, PP can raise the argument of the possibility of *junk* against PM in more or less the same fashion as PM raises the argument of the possibility of *gunk* against PP. In fact, admitting (A1)-(A7) as a common ground, PP can introduce (A9) instead of (A8) and then argue in the opposite direction: If PM is true, then *W* is a unique maximal object. If *W* is a unique maximal object, then it is necessarily so. But *junk* is possible. And if *junk* is possible, then PM is not necessarily true as it is meant to be. In contrast, if the fundamental *pps* are mereological simples, as PP claims, then the possibility of *junk* can be accommodated. Since, given assumptions (A1)-(A7) and (A9), PP is the only alternative to PM, then PP is true, and necessarily so.[16]

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[14] Similar paths can be found in Schaffer (2010), Bohn (2012), Horgan and Potrč (2008, p. 188-189), and Sider (1993; though see his 2013, where he regrets it).

[15] So, strictly speaking, the expression "*junky* world" is just bad grammar or a covered way to say something different from what the surface grammar suggests. Since the predicate "*junky*" can only be applied to many things, the term "world" in the expression "*junky* world" cannot refer to *one individual*: it is, under the surface, a plural term that refers to *many individuals* (cf. Bohn, 2012; Simons, 2003; van Fraassen, 1995).

[16] Similar paths can be found in Bohn (2009a, 2009b, 2012), Morganti (2009) and Tallant (2013).

The possibility of *junk* points to the heart of PM. Because if the world is *junky*, then there is no maximal whole, since every whole is always a proper part of some other whole. And if one is willing to accept the possibility of *gunk*, then there are no principled reasons for rejecting the possibility of *junk*. In fact, on what grounds should PP accept *W* as being maximal instead of *junky*? If PM can assume (A8), why shouldn't PP be allowed to assume (A9)? This is not to defend (A9) in itself. As far as I can see, (A9) is as dogmatic as (A8), and, therefore, equally unjustified (at least neither maximal nor minimal things belong to Moorean appearances; their existence is not obvious or evident). My point is that if we want to treat both PM and PP with fairness, then we must either allow or reject both assumptions. Both a *gunky* world and a *junky* world are logically consistent and conceivable, so they both seem metaphysically possible; and they both seem equally compatible with the shared assumptions. Yet they cannot be both metaphysically possible if PM or PP are meant to be necessarily true, if true at all. It is true that PP is threatened by the possibility of *gunk*. This is a scenario that mereology tolerates but that PP, *qua* ontology, is forced to reject in order to make sense. In contrast, it is true that PM is threatened by the possibility of *junk*, a scenario that mereology also tolerates but that PM, *qua* ontology, must reject in order to make sense. *Prima facie*, PM and PP are on a par. They both accept a layered ontology and the idea that either the top or the bottom layer must be fundamental. So, the most we can do is to honour (A6) and insist that there *must* be a fundamental level, either a maximal whole (*W*) or many minimal parts (all the minimal *pps*). But the crucial problem is which one. Since there is no principled way to choose between (A8) and (A9), there is no non-arbitrary reason to prefer PM over PP, or vice-versa (cf. Tallant, 2013).

If we include both (A8) and (A9), then the arguments from *gunk* and *junk* don't cut any ice, because both the possibility of *gunk* and the possibility of *junk* are excluded from the start by two distinct decrees, and the real dispute is only about the direction of priority, on which, without additional arguments, we are still in the dark. In contrast, the exclusion of both would mean admitting the joint possibility of *gunk* and *junk* and, thereby, the admission that, possibly, there is neither a maximal whole nor many minimal parts. This would mean giving up (A6), a crucial assumption common to both PM and PP. So what? Why not indeed give up (A6), and, consequently, both (A8) and (A9), i.e., the myth of a fundamental level? It *seems* that there is nothing wrong with the possibility of a world that is both *gunky* and *junky*, that is, a world that lacks a fundamental level, either top or bottom. Bohn (2009a) has explored this joint possibility—which he labels "*hunk*"—in a convincing way.

A *hunky* world has no minimal parts and is not a maximal whole; it is just many infinite composites.[17] Now, if this means that nothing has ultimate ground, so be it. There is nothing inconsistent with this possibility, since it is just the conjunction of two, *prima facie*, compatible possibilities: *gunk* and *junk*. Call this view Hunky Pluralism (HP).

I cannot explore this alternative in depth, but here is a hint of an argument in favour of it: If (A6) is true, then, necessarily, there is a fundamental level, either a maximal whole or many minimal parts, so either *gunk* is impossible or *junk* is impossible. But, as shown before, possibly, *W* is *gunky*. And, as also shown before, possibly, *W* is *junky*. Since there seems to be nothing against the joint possibility of *gunk* and *junk*, except the myth encapsulated by (A6), possibly, *W* is both *gunky* and *junky* (i.e., *hunky*). That is, possibly, (A6) is false, and PM and PP are not necessarily true as they are meant to be. Therefore, possibly, HP is true, and necessarily so.

But can we tell who's actually right, PM, PP, or HP? A certain pattern seems to take place in the arguments just examined. What is notorious about them is their minimal power to show the fundamental cardinality of *W directly*, without dogmatic axioms and detours in the modal space. The argument from *gunk* does not prove that there is a maximal whole, nor that grounding holds between concrete material objects, nor that grounding must end somewhere. All these claims are assumed as axioms. Similarly with the argument from *junk*. Neither PM nor PP can go directly for what they want: they need to make heavy loaded assumptions, fix those that are more convenient for their purposes, and then offer a deductive proof that runs, more or less trivially, from the possibility of something to the necessity of their own preferred alternative. Following van Fraassen's analogy, these assumptions play the role of Descartes's God: they are specially designed to guarantee that what follows from them is true (cf. van Fraassen, 2002, p. 1). In fact, the parties just seem to be playing puzzle-solving after agreeing on some posits, constructs or *simulacra*, namely: *W*, the *pps*, (A1)-(A9). The argument for HP is less dogmatic, but equally uninformative. It illustrates that if we free ourselves from some dogmas (e.g., (A6)), it might well be the case that HP is another possibility that we have overlooked. This possibility does not entail by itself the impossibility of PM or PP. This is done by (A1), which makes them incompatible possibilities. This should make us think: haven't we overlooked still other possibilities simply because we have wrongly assumed from the start—blindly following their supporters—that the claims of PM, PP, and HP are suitable candidates for being *necessarily* true, if true at all?

The ways of real existence and mereological simplicity

We can have a more clear diagnosis about the reasons of this apparent metaphysical embarrassment if we examine EM and EP. These two views embrace compositional nihilism and they immediately put into question the truth of (A3)-(A9). According to them, no parthood relations ever obtain, so *W* lacks mereological structure. Therefore, no *grounding* relations between concrete material objects, mapped in terms of parthood, ever obtain. Concrete material objects do not stand in a

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[17] Again, surface grammar may bewitch us: "a *hunky* world" designates not *one* thing, but *many* things (Cf. *supra*, fn. 15).

hierarchical order based on mereological composition. They live together in an egalitarian level of *real* existence. Those that *really* exist are thereby exclusionary: either there are many of them or there is only one of them. Thus, instead of (A3)-(A9), we can say that EP and EM endorse the following common assumptions:

> (A10) There is, *really*, only one concrete material simple, or, alternatively, there are, *really*, many concrete material simples. Otherwise, there would be no objects at all.
>
> (A11) An object only composes itself. No proper parthood relations obtain.[18]
>
> (A12) No *grounding* relations between objects, mapped in terms of parthood, obtain.

Given (A1), (A2), and (A10)-(A12), here is a trivial argument for EM: If EM is true, then it is necessarily so. And if EP is true, then it is necessarily so. It seems that the *real* existence of one exclusionary concrete material simple is possible.[19] If the *real* existence of one exclusionary concrete material simple is possible, then EP is not necessarily true as it is meant to be. In contrast, if EM is true, then the possibility of there being, *really*, one exclusionary concrete material simple can be accommodated. Since, given the assumptions, EM is the only alternative to EP, then EM is true, and necessarily so.

However, given (A1), (A2), and (A10)-(A12), EP can reply in a trivial way: If EM is true, then it is necessarily so. And if EP is true, then it is necessarily so. It seems that the *real* existence of many exclusionary concrete material simples is possible.[20] If the *real* existence of many exclusionary concrete material simples is possible, then EM is not necessarily true as it is meant to be. In contrast, if EP is true, then the possibility of there being, *really*, many exclusionary concrete material simples can be accommodated. Since, given the assumptions, EP is the only alternative to EM, then EP is true, and necessarily so.

Infinite cardinality of concrete material atoms might be admitted, but since there are only simples, there is no mereo-logical complexity that can give place to *gunk* or *junk*. Quantification is either over one or over many simples, but never over composites. Certainly, one can also quantify over *sets*, but these are *abstracta*; or over fictions of composition, but these are not *real* existents.

So the debate between EM and EP cannot be settled unless one, from the very beginning, incorporates one of the following additional assumptions, just like PM and PP do in their own way:

> (A13) There is, *really*, only one concrete material simple.

Or, alternatively:

> (A14) There are, *really*, many concrete material simples.

But these assumptions cannot be accepted. Taking both for granted is contradictory. Taking only one of them for granted is to beg the question. Now, in order to respect the common assumption, (A10), we must remain open and conclude that either EM or EP is true. But which one?! Neither of them is evident or obviously true: Moorean appearances are not populated neither by one nor by many simples. And we remain clueless if we keep testing them in the modal space. Because if we keep doing so, we can legitimately ask: Why don't we give up (A10), and, therefore, both (A13) and (A14)? This would mean that, possibly, there are, *really*, no concrete material objects whatsoever (because, possibly, neither EM nor EP are true). So what? Is the possibility of there being, *really*, no concrete material objects whatsoever somehow logically inconsistent or inconceivable? Not at all. So far, we have presupposed their *real* existence. Sure, I think, I am, so at least some concrete object exists. But this doesn't mean that some concrete *material* object exists, let alone that this claim is necessarily true, if true at all. Firstly, logic and mereology, as formal systems, are supposed to be neutral on whether the objects of quantification are *material* or *immaterial*.[21]

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[18] Horgan and Potrč (2008, ch. 7) claim that our world is an object that lacks proper parts. In parallel, they invite us to take it as *gunky*. This is wrong. If our world lacks parts, then it is an extended simple; if it is *gunky*, then it is partite all the way down, a vast *jello* that lacks *atomic* parts but, nonetheless, has *non-atomic* parts.

[19] See the references before when I introduced EM. All those philosophers have conceived it in a logically consistent way (no matter how shocking to common sense); hence, it seems metaphysically possible. E.g., Rea (2001) takes space-time to be one extended simple.

[20] See the references before when I introduced EP. All those philosophers have conceived it in a logically consistent way (no matter how shocking to common sense); hence, it seems metaphysically possible. E.g., Sider (2013) has argued for a world in which the only concrete material objects are space-time points.

[21] I understand "formal" as Husserl did (cf. Husserl, 2001, p. 19-20, 39-41). Formal systems (e.g., logic, set theory, mereology) are supposed to be topic-neutral; they attempt to draw laws and general principles that are supposed to hold for a domain of entities, regardless of the nature of these. I am not claiming that logic and mereology are free from metaphysical presuppositions. What I do claim is that we should always keep this in mind and always try to make those presuppositions explicit. For start, we should always keep in mind that all formal systems rest at least on one obvious metaphysical presupposition, which is not always made explicit: that of singular existence. As Leonard puts it, "modern logic tacitly presupposes singular existence for its singular term variables, just as the traditional logic tacitly presupposed general existence for its general term variables" (Leonard, 1956, p. 56). In fact, logic only has a symbol for singular existence. It really *presupposes* that the "x" in "$\exists!x$" designates something at all. My complaint is that the parties of the debate about the world's cardinality tend to present themselves as arguing for something much more substantial than what they are in fact arguing for. Because most of the weight of the arguments they present for their respective views is really carried by the metaphysical presuppositions embraced by them *prior* to any of the arguments they deploy. Once you embrace those metaphysical presuppositions, the logical and mereological consequences that follow from them are more or less trivial.

Secondly, there is nothing that can stop us from conceiving in a logically consistent way a world of concrete *immaterial* objects; we just need to remember that idealism, in some or other form, was once the dominant metaphysics, and it wasn't defeated for being inconceivable or logically contradictory. Hence, it is metaphysically possible that there are, *really*, no concrete *material* objects at all.[22]

In fact, we can give a general argument that goes against (A10)–and, therefore, against (A13) and (A14): If EM is true, then it is necessarily true. And if EP is true, then it is necessarily true. But, possibly, as shown before, EM is false; hence, not necessarily true as it is meant to be. And, possibly, as shown before, EP is also false; hence, not necessarily true as it is meant to be. So, possibly, both EM and EP are false; hence, not necessarily true as they are meant to be. Therefore, possibly, there are, *really*, no concrete *material* objects at all. But since there is, *really*, at least one concrete object, because at least I exist, then there is, *really*, at least one concrete but *immaterial* object.

According to the last possibility explored, all *real* concrete objects are immaterial. All material objects are fictions, illusions or the like. This possibility might be realised in five different ways—which correspond to the idealistic counterparts of the five different ways in which the implicit presupposition that there is, *really*, at least one concrete material object was realised—, namely: Priority Idealistic Monism (PIM), Priority Idealistic Pluralism (PIP), Existence Idealistic Monism (EIM), Existence Idealistic Pluralism (EIP), and Hunky Idealistic Pluralism (HIP). It does not take too long to think of historical figures that have conceived logically consistent versions of these alternatives. One just need to take a quick look to Dunham *et al.* (2011) or to any anthology of Eastern philosophy to find a good number of examples.

What might be wrong?

I think we have reached rock bottom. We have been bringing more possible answers to the light. And we have been capable of doing so insofar as we have been capable of giving up some dogmatic assumptions. The fact that the range of metaphysically possible alternatives is wider than what we first thought seems to point to a central problem of the debate about fundamental cardinality as it is practised today.

The parties explicitly assume that metaphysical claims are necessarily true, if true at all, and that claims about the number of things are metaphysical claims. But then they, dogmatically, restrict the domain of quantification to *our real concrete material objects*. This restriction may well be respectable according to the *Zeitgeist*, but certainly cannot be embraced as a matter of principle, at least not under the standard settled by (A2), which fixes, allegedly, the limits of rational, thinkable, metaphysical enquiry. If they insist on (A1), then they should make their claims of cardinality under the presupposition that they are quantifying in absolutely unrestricted terms. Otherwise, their claims will fail when tested against other conceivable and logically consistent alternatives. That is what doing first-order ontology amounts to. But they don't do that. They do not say, for instance, that *absolutely everything* is *real*, concrete and material. They presuppose the existence of things like these and also want to remain *neutral* or *indifferent* on whether there are other things apart from these. So, loudly, they announce that they are making first-order metaphysical claims, all of which are meant to be necessarily true, if true at all; but, whispering, they restrict the existential quantifier to a domain of objects that doesn't even pretend to be absolutely everything. It should not be surprising, then, that unattended possibilities pose a threat to these views. Once these views are tested in the modal space, as views that are making absolute/ unrestricted/ necessary claims, they reveal themselves as what they really are: views that are making only relative/ restricted/ contingent claims. So, their supporters are forced to either admit defeat or admit that they were not, after all, making metaphysical claims, at least not if metaphysical claims are meant to be necessarily true, if true at all. The last argument shows what has been out of sight. By the very fact of stating it, we can anticipate that the remaining alternatives (PIM, PIP, EIM, EIP, and HIP) could also be challenged by putting into question their pretensions of necessity, following what is now a familiar pattern. This pattern would help us to establish that, since it is conceivable and logically consistent, it is metaphysically possible that there are, *really*, no *concrete* objects at all, not even *immaterial* ones (after all, the model has only *presupposed* the *real* existence of at least one of these).[23]

The likely rejoinder would be the following: "well, I think, I am, so at least something concrete exists". But this claim, in turn, could be refuted by saying: "true, but <I think, I am> is not a necessary truth, since I could have not existed".

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[22] I am not saying that the conceivability of there being no concrete material objects *entails* that it is metaphysically possible that there are no concrete material objects. What I am saying is that the conceivability of such scenario *plus* the fact that it also seems a contradiction-free scenario are, jointly, very good reasons, perhaps the best expressible, thinkable reasons available to us, for taking it indeed as a metaphysically possible scenario. Recall (A2).

[23] It is not difficult to entertain such a possibility following what seems to be the perfectly sound and valid route of substraction arguments that toy with the iterated possibility of removing any member from a world that consists in a finite domain of distinct concrete objects that do not depend on each other to exist (cf. Baldwin, 1996; Rodriguez-Pereyra, 2013). But I do not want to limit myself to this single route to defend the metaphysical possibility of there being no concrete objects at all. Because substraction arguments are not available when we are in front of worlds that consist in domains of objects that *do* depend on each other to exist (e.g., Whiteheadian *actual occasions* or worlds where there is massive overlapping of objects), or when the domain in question is infinite (e.g., *gunky* or *junky* worlds). These worlds do not fit the requirements demanded by substraction arguments for their annihilation. Yet it still seems perfectly conceivable and logically possible that any of those worlds could be wiped out all at once.

The fact that <I think, I am> is always true while being entertained or uttered by the thinker does not grant the necessary existence of the thinker. This last reply can only be defused by showing that I am a necessary existent. And I see two ways of doing this:

(a) The first alternative is to embrace a form of Spinozism. I am a necessary concrete existent, something whose mere concept or idea entails its concrete existence. I am God.

(b) The second alternative is to embrace a metaphysics according to which all objects are necessary existents, that is, "it is necessary that everything is such that it is necessary that something is identical with it" (Williamson, 2013, p. 2). To make sense of all propositions, the proposal is to distribute existence generously among all possible objects, so then we can distinguish between the existence of something *qua possibilium* (which is necessary) and the existence of something *qua concretum* (which is contingent). Because, according to Williamson's reasoning, if the proposition <I do not exist> is true, then both the proposition and myself as a constituent of it must exist. So, necessarily, if I do not exist, I exist. So, necessarily, I exist. What happens is that, possibly, I am not concrete. If this position is right, then everything is a necessary existent *qua possibilium*, but only a contingent existent *qua concretum* (cf. Williamson, 2002).

Needless to say, none of these alternatives gives us too much hope. First, regarding alternative (a), I know of no sound ontological argument that proves the necessary concrete existence of something. And certainly I know of no sound ontological argument that shows, in addition, that I am precisely that thing (!). If there are indeed sound arguments in this direction, they must show that the following *prima facie* plausible scenarios are, against the spirit of (A2), metaphysical impossibilities: that there could be no concrete existents; and that, even if there were a necessary concrete existent, I could be a distinct thing, a *contingent* concrete existent.

Second, as regarding alternative (b), it is obviously less contentious, but its pretensions are also less ambitious. It simply says that all possible logical objects, that all *possibilia*, are necessary existents. This view does not tell us anything about whether concrete existents are many or one, and it assumes that concrete existence is a contingent feature. So far as it goes, the view is consistent with the claim that there could have been nothing concrete at all; hence, I am not a necessary concrete existent. At the most, the view entails the impossibility of there being absolutely nothing at all, since, according to it, non-concrete things, such as *possibilia*, are something, and they exist necessarily.

Third, neither of these two forms of necessitism seems able to exclude the threat of the following metaphysical possibilities: (i) that what alternative (a) takes to be a necessary concrete existent might not be a *real* necessary concrete existent, but only a fiction or illusion of a necessary concrete existent, a purely intentional object; (ii) that what alternative (b) takes to be necessary existent *possibilia* might not be *real* necessary existent *possibilia*, but only fictions or illusions of necessary existent *possibilia*, some purely intentional objects; and (iii) that, against the claims of alternatives (a) and (b), it seems *that there could have been nothing at all*. And by "nothing at all" I mean not even the proposition that there is nothing at all, not even the mere appearance, fiction or illusion of a necessary existent *possibilium*.

Sure, this last possibility is obviously incompatible with (A1) and the fact that I am something that thinks, exists now. But why should we indeed accept (A1)? Why should we expect singular existence to be *guaranteed* in even stronger terms than those that Descartes ever conceived? Semantical considerations as those deployed by Williamson (2002, 2013) seem not enough to show that all objects are *real* necessary existents. What those considerations reveal is *prior* ontological commitment to those things. This strategy begs the question in favour of those who, like Williamson himself, think that ontology is *real* and necessary. It puts the cart before the horse: why, after all, should anyone accept a semantics that prejudges in favour of a determinate metaphysics (cf. Alvarado, 2017)? Clearly, no semantical considerations would convince anyone to believe in a certain metaphysics unless that person is *already convinced* of such metaphysics. Some examples might help. The development of plural logic will not convince the Eleatic monist of the *real* existence of many things. The deployment of distinct quantifiers will not convince the Spinozist that they *really* pick out distinct things, since, according to him, the sentences "some things are F", "everything is F", and "there is a unique thing that is F" say, *really*, just the same. And the development of mereology will not convince the compositional nihilist about the *real* existence of partite wholes and proper parts. In sum, just by changing a few words, we could say against Williamson's *real* necessary existent *possibilia* what Bentham said against natural rights: "a reason for wishing that a certain right were established, is not that right—want is not supply—hunger is not bread" (Burton, 1843, p. 67).

What our modal thought and discourse do seem to show is that thinkers like us are committed to intentional objects. But these objects might well be *unreal*, that is purely intentional objects, mere theoretical posits, subjective projections, fictions or illusions. The fact that I can follow Williamson's (2002) argument—which starts claiming that "necessarily, if I do not exist then the proposition that I do not exist is true", and ends up inferring that I, necessarily, exist, although, possibly, I am not concrete—certainly cannot guarantee my own *real* necessary existence. The fact that our modal thought and discourse demands the existence of *possibilia* in order to make sense is not a reason for transforming what seems to be, *prima facie*, a conceptual, epistemic or linguistic necessity into a

metaphysical necessity. Sure, *if* all propositions are *real* necessary existents, I can infer my own *real* necessary existence from a proposition about me. But this holds, again, under an ontological presupposition: *if* propositions are *real* necessary existents. Yet I see no compelling metaphysical considerations to accept the idea that the existence (*simpliciter*) of something like a proposition about me, or about any other object, can exclude the possibility of my non-existence (*simpliciter*), or of any other object. The exclusion of this possibility can only be done by answering the perennial question of why there is (*simpliciter*) something rather than nothing by appealing to the following sufficient reason: because it is *impossible* for there to be nothing (*simpliciter*). However, just like metaphysical nihilism about *concreta* seems possible, I am prepared to accept that *absolute* metaphysical nihilism, that is, that there is nothing at all whatsoever, not even aletic or propositional reality, also seems possible. Of course, such a scenario is ineffable, because from the very minute we attempt to think or express the possibility of *absolute* metaphysical nihilism we are trapped in self-contradiction. Just like the thinker that claims <I do not exist> commits a self-refutation, the proposition <there is nothing at all> is self-contradictory if the scope of "nothing at all" is meant to be absolutely unrestricted and pretends to cover, among all other things, *itself*. But paradoxes involving self-reference affect any thought with global scope (as metaphysical thought aspires to be): one cannot think about the alleged limits of thought without crossing them (cf. Priest, 1995). However, the aporia to which *absolute* metaphysical nihilism seems to lead us is not dissolved by insisting that, necessarily, everything *really* exists, or by admitting that reality is contradictory (*pace* Priest). The aporia simply reveals that we cannot think or say what can only be shown; that when we try to state the ineffable we end up stating nonsense.[24] Now, if *absolute* metaphysical nihilism is inconceivable or inexpressible in contradiction-free terms, then we either have to deny that it is a genuine metaphysical possibility or we need to give up (A2). So what? Why don't we give up (A2) at this point? If we cannot conceive it or express it, perhaps the scenario can be *shown* or *suggested* by analogy with the status of the *cogito*. It seems clear that although <I think, I am> is true whenever

uttered or thought by me, its truth does not guarantee my necessary existence *qua concretum*. Similarly, although I exist invariantly whenever there are propositions about myself, this does not guarantee that those propositions, nor their constituents (myself included), are, *really*, necessary existents.

I do not question that *some* metaphysical claims, like those that unravel essences, or those that assert the cardinality and composition of some presupposed things, are necessarily true, if true at all. For instance, *given* the existence (*simpliciter*) of three non-identical things, e.g., you, I, and the whole [you+I], we can say that all the following claims are *necessarily* true, if true at all: I am *one* thing; you are *one* thing; you and I are *two* things; the whole [you+ I] is *one* thing *composed* of *two* things; I am what I am (say, a human being); you are what you are (say, another human being); the whole [you+I] is what it is (say, the whole that has you and I as proper parts).[25] But the metaphysical views discussed above, if metaphysical at all, are first-order views that can only aspire to be contingently true, if true at all.[26]

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[24] Similarly, the possibility of a *real* necessary existent seems also ineffable. That is probably why the arguments for such possibility, like all ontological arguments, *sound* like attempts to cross the limits of sense.

[25] On matters of essence, I try to follow Fine (1994); on matters of composition and cardinality, I try to follow Yi (1999a, 1999b, 2014).

[26] Thus, I think Miller (2009, 2010) is right in concluding that many of the claims that metaphysicians nowadays take to be necessarily true, if true at all, are only contingently true, if true at all. But, first, I am not sure that the conclusion is surprising once we put together the fact that most of those claims are first-order claims and the fact that the existence of most (if not all) things seems, *prima facie*, a contingent fact or, at least, not a logical or conceptual necessity. And second, I am not sure that the scope of metaphysical contingentism is as wide as Miller seems to believe. This depends on what is our meta-ontological stance. Following a distinction made by Rosenkrantz (1993, p. xi), we can say that there are two main branches of ontology: *speculative* and *analytic*. *Speculative* ontology is a first-order investigation that attempts to say what exists, that is, whether there are instances of certain ontological categories, whether those instances are one or many, etc. On the other hand, *analytic* ontology, the branch that I think most fertile and gratifying, attempts to give conceptual analyses of certain ontological categories without saying whether they have or not any instances. It proceeds a priori, usually through transcendental deductions, attempting to answer under what conditions a concept F could have an instance. It is second-order ontology. Its results are typically stated in claims that have a definitional form, that is, claims that unravel essences or make explicit the internal structure of a concept, showing its interconnections with other essences or concepts. The true claims of *analytic* ontology are conceptual necessities. In *analytic* ontology, the branch that gives its back to Quine's meta-ontology, there is still room for necessities.

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