

Object-Oriented Ontology and Materialism

Martín Orensanz¹

Abstract—According to Object-Oriented Ontology, matter does not exist. Here I will challenge that idea, by advancing some arguments that aim to establish that matter can be conceptualized both as a sensual object as well as a real object. I will also argue that matter is not fictional, and that the word “matter” can be understood as a term that is grammatically singular but referentially plural. This being so, matter itself is a plurality of things, each of which has some kind and quantity of energy.

Résumé — Selon l'ontologie orientée objet [object-oriented ontology], la matière n'existe pas. Je vais ici contester cette idée, en avançant quelques arguments qui visent à établir que la matière peut être conceptualisée à la fois comme un objet sensuel et comme un objet réel. Je soutiendrai également que la matière n'est pas fictive et que le mot « matière » peut être compris comme un terme grammaticalement singulier mais référentiellement pluriel. Cela étant, la matière elle-même est une pluralité de choses, dont chacune possède un type et une quantité d'énergie.

Keywords—Objects; Matter; Fiction; Energy.

Object-Oriented Ontology is one of the most interesting philosophies of the 21st century. I won't present the main features of that philosophy here, I'll assume that the reader is familiar with them. Instead, what I would like to discuss is OOO's critique of matter. Harman first advanced that critique in *Tool-Being*, where he says:

What separates this model from all materialism is that I am not pampering one level of reality (that of infinitesimal particles) at the expense of all others. What is real in the cosmos are forms wrapped inside of forms, not durable specks of material that reduce everything else to derivative status. If this is “materialism,” *then it is the*

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first materialism in history to deny the existence of matter. (Harman, 2002: 293; emphasis in the original)

He continued to develop this critique throughout his subsequent publications.² The most recent of these is his discussion with Javier Pérez-Jara, published as a book chapter in *Contemporary Materialism: Its Ontology and Epistemology*. I believe that the fact that Harman was invited to contribute to this book shows that the editors regard him as one of the most important immaterialist philosophers of our times, if not the most important.³

In this article, I will challenge Harman's claim that matter does not exist. But a few preliminary comments are in order. Firstly, I would like to mention that I am in no way hostile to Object-Oriented Ontology. Quite the contrary, it has been, and continues to be, a great source of inspiration for me. So, this article shouldn't be read as an attack piece. Far from aiming to demolish OOO, my intention is to provide some constructive criticism. Nor do I seek to turn Harman into a materialist. If, after reading the present article, he finds flaws in what I have to say, or if he comes up with new objections against materialism, then I will feel that what I have said here has been of some use for the development of OOO.

Secondly, I believe that materialists (and I'm one of them) should interpret Harman's critique of matter as a wake-up call. As materialists, we typically take the concept of matter for granted. But, given the force of Harman's critique, we need to rethink the fundamental concept of our philosophy.⁴ Fortunately, it's not necessary to do this from scratch, since Bunge's definition of matter seems to be more or less correct, at least for the time being. However, I will argue that there is a certain problem with Bunge's point of view, since

² I won't list all of those publications here, but see especially Harman (2010, 2011, 2014). See also his discussion with Manuel DeLanda, in DeLanda & Harman (2017).

³ Yet, Harman's philosophy is usually misunderstood in this or that aspect. The editors of the aforementioned book incur in one such mistake when they characterize Harman as an idealist (Romero *et al.*, 2022: xiv). This is a mischaracterization, since Harman is not an idealist, he's a realist.

⁴ One should distinguish two different but related critiques in Harman's *oeuvre*. On the one hand, there is the critique of materialism as a philosophy. On the other hand, there is the critique of the concept of matter itself. In this article, I will focus only on the latter.

he defines matter as a mathematical set, and he acknowledges that sets are fictional. I will say more about this later.

At first glance, it would seem that I should begin this article by offering a definition of matter. But I would like to proceed in a different way. What I aim to show in the next section is that, irrespective of how we define matter, it can be conceptualized as a sensual object. In other words, for the purposes of critiquing OOO's rejection of matter, it doesn't matter (pardon the pun) how we define the concept "matter". This is because any definition of that concept is compatible with the claim that matter can be understood as a sensual object, as we shall see in the next section.

1] Matter as a Sensual Object

Recall that OOO distinguishes two basic kinds of objects: real and sensual. Real objects exist by themselves, while sensual objects exist relationally. That is, a sensual object can only exist in relation to a real object. For example, if I imagine a centaur, then I am the real object in this case, while the centaur is the sensual object. In *Guerrilla Metaphysics*, Harman says:

We saw earlier that any sensual object, a centaur for example, comes to presence by subordinating a number of component objects. We do not encounter a set of colored data-points that are then immediately woven into a total object. Instead, there is a layering effect in which the centaur is not assembled equally from eyeballs, hairs, color-flecks, and atoms, but only from its most proximate parts, whatever those might be for any given viewer. (Harman, 2005: 184)

With this in mind, what I would like to suggest is that if centaurs exist as sensual objects, then matter also exists as a sensual object, since there would seem to be nothing that would warrant a differential treatment here. In other words, I advance the following argument:

- (SO1) There is no ontologically significant difference between a centaur and matter.
- (SO2) If so, then: if centaurs exist as sensual objects, then matter exists as a sensual object.
- (SO3) Centaurs exist as sensual objects.

(SO4) So, matter exists as a sensual object.⁵

This argument is structurally similar to the one that Daniel Z. Korman reconstructs for the case of islands and incars.⁶ It's indeed an argument from arbitrariness, also known as a parity argument.⁷ Before discussing it, let me say a few words about the formulation of arguments in general. In *Prince of Networks*, Harman criticizes Meillassoux's lecture at Goldsmiths, and he compares his way of thinking to analytic philosophy:

A similar model of thinking is proclaimed by analytic philosophy, with its assumption that tearing down the faulty logic of unsound arguments is the primary task of philosophy. For the analytics the great enemies of human thought are fuzziness, non sequiturs, lack of clarity, poetic self-indulgence, and insufficiently precise terminology. I disagree with this threat assessment. In my view these are all relatively minor problems in comparison with shallowness, false dichotomies, lack of imagination, robotic chains of reasoning, and the aggressive self-assurance that typifies analytic philosophers at their worst. (Harman, 2009: 167)

I don't disagree with this characterization of analytic philosophy. And it would be an understatement to say that there is a grain of truth to what Harman is saying here, because there is certainly quite a lot more than just a grain of it. That being said, I happen to like arguments. Not only do I find them useful for discussing this or that point of view, I also find arguments to be aesthetically

⁵ In a personal communication, Harman (2022) says: "Yes, matter *can* be a sensual object if someone imagines 'these centaurs are ultimately made of matter', but I doubt that this happens very often." My reply: point taken. Though I don't know if the frequency of such occurrences is relevant here. In my everyday life, I don't usually think about anteaters or the moons of Jupiter, but the fact that I don't usually think about them doesn't mean that I don't encounter them as sensual objects on those rare occasions in which I do think about them.

⁶ Here is Korman's original argument:

- (AR1) There is no ontologically significant difference between islands and incars.
- (AR2) If so, then: if there are islands then there are incars.
- (AR3) There are islands.
- (AR4) So, there are incars. (Korman, 2015: 6)

Korman himself rejects AR1, and I agree with him. There is indeed an ontologically significant difference between islands and incars: they have different sorts of persistence conditions.

⁷ The term "parity argument" was proposed by Fairchild & Hawthorne (2018).

pleasing. Korman's *Objects: Nothing out of the Ordinary* is one of my favorite books, mostly because the way in which he constructs arguments is masterful. In other words, I believe that there is an artistic aspect to the formulation of arguments. It's a craft, comparable in some sense to painting, sculpting and wine making.⁸

Having said this, let's take a more detailed look at the argument that runs from SO1 to SO4. The idea behind the first premise is that there would seem to be nothing that would warrant treating a centaur, but not matter, as a sensual object. So, given that both are sensual objects, there is no ontologically significant difference between them. SO2 follows from this. If it makes sense to say that centaurs exist sensually, then it also makes sense to say that matter exists sensually, as long as they're ontologically on a par. To claim otherwise would be to embrace metaphysical arbitrariness. SO3 simply summarizes what I believe is one of Harman's main points in his discussion of centaurs in *Guerrilla Metaphysics*. Given these three premises, the conclusion follows.⁹

Now, if matter exists at least as a sensual object, then this contradicts the passage in *Tool-Being* quoted before, in which he denies the existence of matter. It can't be the case that matter does not exist at all, or in any sense, because at the very least it exists sensually, just as centaurs do.¹⁰

⁸ In the same personal communication mentioned before, Harman (2022) says, "I don't dislike arguments either. As you probably realize, I just dislike the hyper-aggressive way that analytic philosophers rely on them." Here's my reply: Yes, I dislike that attitude as well, and I consider myself an analytic philosopher. I find it cringy when people use arguments as an excuse for being unnecessarily aggressive. It gives analytic philosophy a bad name.

⁹ Harman (2022) tells me: "I'm not saying that matter *cannot* be a sensual object. Anyone who believes in matter is encountering it as a sensual object. I simply deny that it is *usually* there as a sensual object in most situations. Most people will encounter a centaur, but not matter." My reply here is that I've said my piece about this a few footnotes ago. Then Harman says something more about matter: "It *can* exist sensually, just as any false theoretical object can." My reply: this is an interesting objection, I take it that matter understood in this way would be comparable to the aether, which was a staple of pre-Einsteinian physics. I would need more time to come up with a suitable response to this objection, so I'll leave that for another article.

¹⁰ To be fair, Harman had not developed the concept of sensual objects in *Tool-Being*, that would occur in *Guerrilla Metaphysics*. So, perhaps he would change his mind about the passage in his first book where he denies the existence of matter.

As for myself, I reject the argument that runs from SO1 to SO4, even though I'm the one that has formulated it. Why would I formulate such an argument if I reject it? Because, although this argument is not problematic for a materialist like me, it is indeed problematic for Harman's philosophy. It would be metaphysically arbitrary to claim that a centaur is a sensual object but that matter is not. That being said, the premise that I myself reject is SO1. I claim that there is indeed an ontologically significant difference between a centaur and matter, because the former is fictional while the latter is not.¹¹ I will say more about this later. In the next section, I will argue that from the point of view of OOO, matter also exists as a real object.

2] Matter as a Real Object

In the original workshop on Speculative Realism, Brassier asked Harman what would be the difference between a quark and a hobbit. In asking this question, it seems that he was raising an objection: OOO has no principled way of distinguishing them, even though it seems evident that quarks are real and that hobbits are not. Harman noted this veiled objection, and replied that on this point, he's a Latourian. Contrary to Brassier, Harman argues that there is a sense in which hobbits are real. As he explains:

Clearly a hobbit has to be a real object in some sense, because I can ask 'What is a hobbit?', 'What does a hobbit do?', 'How does it behave?', and this will never be completely reducible to all the things that Tolkien says in all of his novels, because you can imagine new scenarios. You can ask, 'Could a hobbit fit in a Lovecraft story?', 'Could a hobbit fit in a Proust novel?' I would say no. Now why is that? It's never been tried, so why is it that when I mention these possibilities we immediately reject them? It's because you have a sense of what the hobbit is beyond all of the things that have been said about hobbits in films and novels that we already know. So I'd say a hobbit is real. (Harman, 2007: 325-326)

¹¹ Harman (2022) says: "But this cannot be determined on the purely sensual level. 'Fiction' cannot arise on the sensual level. Even if I know I am imagining fictional rather than real centaurs, the fictionality only concerns the relation between sensual and real, not the sensual level itself." I honestly don't know what to reply here. But it seems to me that it would be better to leave any such reply for a different article.

But if this is so, then I believe that the same holds for matter. To see this point more clearly, I would like to advance a new parity argument:

- (RO1) There is no ontologically significant difference between a hobbit and matter.
- (RO2) If so, then: if a hobbit is a real object in some sense, then matter is a real object in some sense.
- (RO3) A hobbit is a real object in some sense.
- (RO4) So, matter is a real object in some sense.

Here is the idea behind RO1. The questions that can be asked about a hobbit can also be asked about matter. We can ask: What is matter? What does matter do? How does it behave? And this will never be completely reducible to all the things that materialists (and non-materialists) say in all of their writings and conversations, because it's possible to imagine new scenarios. How so? Well, to give at least one example, someone could write a story about matter that has never been written before, like the following one.

Once upon a time, there was a nightclub called Triple O. An array of fictional characters are lined up at the entrance. The first one is a centaur. The bouncer asks: "Name?" The centaur replies "Arkhytas". The bouncer checks his list, which is one long Latour litany. "Yes, you're on the list. Please come in". Next up is Sherlock Holmes. The bouncer checks his list again, and lets him in. This goes on and on, every fictional entity gets admitted into the building. Except for one. The last of these entities is matter. The bouncer checks his papers, and says, "Sorry, you're not on the list, you can't come in". Matter says: "But shouldn't I be on the list? I'm just as much of a sensual object as those other entities. And, if they're also real objects in some sense, then so am I". The bouncer shrugs and says, "Maybe, I don't know. I just work here. You'll have to talk to Graham Harman about that."

This being said, instead of asking if a hobbit could fit in a Lovecraft story or a Proust novel, we could ask if matter would fit in Harman's Object-Oriented Ontology. Intuitively, the answer is no, matter doesn't fit in OOO. Now, why is that? It's never been tried, and yet we immediately reject that possibility. Because—to use Harman's own words against him, making the appropriate replacements—, you have a sense of what matter is beyond all of the things that have been said about matter in the written texts and

conversations that we already know. So, we arrive at a perplexing result: that matter doesn't fit in OOO, but this is precisely one of the reasons why it must be the case that matter is a real object, at least in the same sense that a hobbit is a real object.

From here, RO2 follows. If we accept that hobbits and matter are ontologically on a par, then if hobbits are real, matter must be real as well. At least in some sense. Of course, Harman doesn't believe that Bilbo Baggins actually exists as a living, breathing individual somewhere in the world, just as he doesn't believe that the tooth fairy exists as a tiny winged creature flying around somewhere. But he does believe that the tooth fairy, as well as hobbits, have a 'real' dimension qua Latourian actors, as he says in *Prince of Networks*:

The only small concession Brassier needs to make is that the tooth fairy has a 'real' dimension qua actor in stories and myths, even if not as a genuine winged fairy flying through genuine air. (Harman, 2009: 190)

I believe that this statement applies to matter just as well as it applies to the tooth fairy. In fact, if we make the relevant replacements, then the statement looks like this: the only small concession Harman needs to make is that matter has a 'real' dimension qua actor in some written texts and conversations, even if not as genuine stuff that is located in genuine spacetime.¹²

Given RO1, it would be metaphysically arbitrary to deny RO2. Because, why would it be the case that a hobbit is a real object, but matter isn't? Either both of them are real in some sense, or neither of them is. RO3 is simply taken from the quote where Harman discusses hobbits. Recall that he says, "Clearly a hobbit has to be a real object in some sense." Given these three premises, the conclusion follows.

In the footnotes to this article, I have been quoting and responding to some points raised by Harman (2022) in a personal communication between him and me. His comments on the Goldsmiths workshop are more extensive, which is why I would like to quote them here instead:

¹² As a materialist, I believe that matter is real, not in the sense that the tooth fairy has a 'real' dimension qua actor, but rather in the sense that the table in my living room is real. More on this later.

[A]s for the Goldsmiths discussion about hobbits, my remarks were insufficiently precise. What I meant to say is that the hobbit has *real qualities* that resist its arbitrary inclusion in a Lovecraft or Proust story. I've never really developed a theory of at what point sensual objects become widely familiar enough that they become real in a sense. So as for matter, I would say that the sensual object "matter" has real qualities. It might become "real" in the sense of being a widely believed-in reality, but again, I haven't done enough to develop that idea so far. (Harman, 2022)

I thank Harman for these observations. All I can say here is that, perhaps this discussion about hobbits and matter can serve as a good starting point for the development of the theory that sensual objects can become real objects in some sense?

Harman can still claim that matter is just as fictional as a hobbit or the tooth fairy. Hobbits don't exist as actual living people, and the tooth fairy does not exist as a small winged creature somewhere in the world. In this sense, he could say that matter doesn't exist as some actual stuff. But what he can't say, unless he's willing to bite the bullet of metaphysical arbitrariness, is that hobbits are real objects in some sense but that matter isn't, or that the tooth fairy has a 'real' dimension qua actor while matter doesn't.¹³

In the next section, I will argue that matter is not fictional, and I will present the definition that I happen to endorse.

3] What is Matter?

Harman might claim that even though I have shown that matter is a sensual object, and that it has a 'real' dimension qua actor, I have not proven that matter exists in the same way that real tables or real comets exist. I will say my piece about this in a moment. But first, let me point out that some scientific materialists, such as Bunge and Romero, would have no qualms about the claim that matter is fictional. For example, here is what Bunge says:

¹³ Harman (2022) says: "Again, I would say that matter as a sensual object can also generate real qualities, without this implying that matter exists as a real object." My response: Well, then hobbits don't exist as real objects either. They can only exist as sensual objects that have real qualities (in addition to having sensual qualities). In other words, you're choosing to deny the premise RO3 from the preceding argument. Which is an entirely legitimate option. I myself prefer to deny RO1 instead.

DEFINITION 2. *Matter* is (identical with) the set of all material objects.

In symbols,

$$M =_{df} \{x|\mu x\}.$$

Note that this is a set and thus a concept not an entity: it is the collection of all past, present and future entities. (Or, if preferred, M is the extension of the predicate μ , read 'is material'.) Hence if we want to keep within materialism we cannot say that matter exists (except conceptually of course). We shall assume instead that individual material objects, and only they, exist. (Bunge, 1981: 22)

This definition is from his book *Scientific Materialism*, which was published in 1981. Decades later, in 2006, when he published *Chasing Reality*, he reiterated the same idea, though with different symbols:

That is, we can define “matter” as the set of all material objects present, past, and future:

$$\begin{aligned} \text{Definition 1.1 Matter} &= \{x \in \Omega | x \text{ is material}\} \\ &= \{x \in \Omega | x \text{ is changeable}\} \end{aligned}$$

where Ω denotes the collection of objects of all kinds.

Being a collection, matter (the concept) is immaterial. So are hydrogen, the collection of all hydrogen molecules, and humankind, the set of all humans. (Bunge, 2006: 11-12)

The reason why Bunge believes that matter is fictional is because he thinks that all mathematical entities are fictional, and he defines matter as a mathematical set. By contrast, the real and material things are the elements of that set. But the set itself is unreal and immaterial. Romero agrees with Bunge on this point. As he explains:

Matter, then, is not a substance but a concept: an abstraction from concrete material things. What actually exists are material beings, not matter. Matter, in the words of Bunge, is not material. It is conceptual. (Romero, 2022)

This is why Pérez-Jara (2022: 351) says that matter can be defined “in its broadest sense as changeability and plurality”. I’ll address the issue of changeability later. Matter does not exist as a single, universal stuff that underlies individual objects. That’s just a fiction. What really exists is a plurality of material objects. There is no underlying universal stuff. I believe that there is an important

parallel between Bunge and Harman here.¹⁴ Harman does not say that the world is a single gigantic object, instead he postulates multiple different objects from the start. Likewise, Bunge does not say that matter exists as a single universal stuff, instead he postulates multiple different material things from the start.¹⁵

Despite the admiration and respect that I have for Bunge, here I have to disagree with him. Matter is not a mathematical set. Thus I don't join Bunge and Romero in claiming that matter is immaterial.

Here is what I propose. Instead of defining the word “matter” as a mathematical set, it should be defined instead as a disguised plural. Following Korman (2015), I characterize a disguised plural as a term that is grammatically singular but referentially plural. An example is the word “assortment”. Consider the following situation:

There is an assortment of objects scattered across my desk, consisting of a laptop, a mug, some receipts, and a couple of pens. Each of these is part of the assortment. It would seem to follow that there is a single thing—an assortment—that is composed of these objects. (Korman, 2015: 139)

But, says Korman, it's not the case that the assortment is a single object composed of a mug, a laptop, some pens, and everything else that is on his desk. An assortment is not one thing, it's many things.¹⁶ As he explains:

An assortment of things is not a single object. Nor is it a single *anything*. It is several things. ‘The assortment’ behaves grammatically like a singular term, but it is referentially plural. Like ‘Alice, Bob, and Carol’ or ‘the students’, it refers to some things, not one thing. Which, of course, is not to say that it refers to *each* of them; rather,

¹⁴ Harman (2022) says: “Agreed. I just wouldn't call the underlying objects ‘material’.”

¹⁵ For other parallels between Bunge and Harman see Orensanz (2021a) where I compare and contrast their respective theories of objects, and Orensanz (2021b) where I discuss their ideas on causation.

¹⁶ Harman (2022) says: “Agreed, though it *can* become a sensual single thing”. I believe that Bunge would agree, since he says: “A concatenate need not be a system; that is, no bonds need be involved: an arbitrary assemblage of things counts as an object.” (Bunge, 2010: 269). But the question is if the assortment is a single, unified real object. As for myself, I would be inclined to say no, it isn't, if only to avoid the problem posed by the transitivity of parthood. More on this in a moment.

it refers collectively to all of them. (Korman, 2015: 17; emphasis in the original)

Another example of a disguised plural is “The Supreme Court”. This term is grammatically singular, but it’s referentially plural. The Supreme Court is not a single object, it’s many objects. Specifically, it’s nine judges. But why isn’t it a single object? Because that claim leads to a problem. It’s generally considered that the relation of parthood is transitive. If x is a part of y , and if y is a part of z , then x is a part of z . Now, if this is so, and if the nine judges compose something, then it follows that the Supreme Court is a single fleshy object that has nine tongues and eighteen elbows. As Korman says:

Is the Supreme Court a single fleshy object with nine tongues and eighteen elbows? Intuitively, no. There is an assortment of things on my desk, which includes a ceramic mug and a metal laptop. Is there a single object on my desk that is partly ceramic and partly metal? Intuitively, no. Some (e.g., permissivists) may insist upon affirmative answers to these questions, but no one (I hope) would deny that *no* is the intuitive answer (Korman, 2015: 145)

Does this mean that the Supreme Court does not exist? No, it doesn’t. The Supreme Court does indeed exist, but not as a single object. It exists as many objects. The same is true of the assortment. It exists, but as many different things, not as a single thing.

On this point, Harman asks me why it wouldn’t be possible to deny the transitivity of parthood:

I don’t think I agree with this view that parthood is transitive. Why isn’t the Supreme Court an emergent object that *does not* have all of the transitive parts? This is the core of DeLanda’s argument for emergence: the Supreme Court remains a durable unit even when its members change, because those members are not necessarily relevant to the actions of the Court as a whole. In most cases it only matters, say, that there was a 5-4 decision, not who the 5 Justices were in the ruling. (Harman, 2022)

There are two things that I would like to say here. The first one is that Bunge would agree with Harman as well as DeLanda in claiming that the Supreme Court is indeed an emergent object. He believes that parthood is transitive, but he manages to avoid the paradoxes associated with it by distinguishing levels of composition:

A social system is a set of socially linked animals. The brains of such individuals are parts of the latter but do not qualify as members or components of a social system because they do not enter independently into social relations: only entire animals can hold social relations. (Bunge, 1979: 5)

He distinguishes five levels of reality: physical, chemical, biological, social, and artificial. Accordingly, there would be five levels of composition. But I believe that there is a problem here. Although his viewpoint sounds plausible when he discusses the example of brains and social systems, it sounds less plausible if we consider other examples, like the following one: a single-celled organism is composed of organelles, which are composed of molecules, which are in turn composed of atoms, and so forth. If trans-level composition is prohibited, then this means that single-celled organisms don't have atoms, since the physical level is different from the biological level. But this is absurd. And, indeed, Bunge (1979) argues that the chemical level emerges from the physical level, and that the biological level emerges from the chemical level. But this contradicts what he says about levels of composition, especially when he discusses the example of brains and social systems. An alternative reading would have him say that we humans are only *interested* in levels of composition, as if trans-level composition were prohibited in reality, when in fact it isn't. For example, he says:

Thus in the case of an animal society regarded as a whole, we are interested in the set of its components not in the full set of its parts, such as the cells of the animals, even less the atomic components of their cells. That is, we want to know what the "relative" atoms of the whole are. (Bunge, 1977: 47)

But if the animals have an atomic composition, does this mean that brains are indeed parts of social systems after all, contrary to what he says in Bunge (1979: 5)? That's an open question. But it's far from being unproblematic. If the answer is "yes", then it turns out that the Supreme Court is indeed a single fleshy object with nine tongues and eighteen elbows. If the answer is "no", then it would seem arbitrary to say that brains are not among the components of a social system but that atoms are indeed among the components of an animal.

The alternative is to deny the transitivity of parthood. This is a live option, and it's an issue that has led to some interesting discussions.¹⁷ But it's a controversial idea, because it leads to problems of its own, like the following one. Your fingers are parts of your hands, and your hands are parts of your body. If parthood isn't transitive, it follows that your fingers are not parts of your body. So, you don't have fingers. Or this other problem: these bricks are parts of this wall, and this wall is a part of this house. If parthood isn't transitive, then these bricks are not part of this house. So, this house doesn't have bricks.

That being said, Harman might argue that the Supreme Court is indeed a single object, which is not reducible to its nine judges, just as the Dutch East India Company or VOC is a single object that is not reducible to its officers. He might add that to claim otherwise is to agree with Margaret Thatcher when she says that society does not exist, only individuals exist. My reply is that materialists will have to make a tough choice here. The options are: 1) To agree with Margaret Thatcher in claiming that society does not exist, even though it evidently does, 2) To agree with Bunge in distinguishing levels of composition, even though this leads to the problems mentioned before, 3) To agree with Harman in rejecting the transitivity of parthood, even though it leads to the problem of not having fingers, 4) To embrace the highly problematic idea that the East India Company is a single fleshy object that has thousands of tongues and elbows, not entirely unlike the Hecatoncheires, fictional creatures from Greek mythology, which are typically depicted as individuals that have fifty heads and a hundred arms, and 5) To conceptualize the term "society" as a disguised plural, as Korman understands this term, and to explain why this viewpoint is not identical to Margaret Thatcher's. Easier said than done! I choose the fifth option. I'll leave the articulation of this idea to a future article, though I can already see that it will be an uphill battle.

Having said this, it's important to note that the Supreme Court is different from the mathematical set that has nine judges as elements. That entity, the mathematical set of nine judges, does not

¹⁷ See for example Johansson (2004), Varzi (2006), and Seibt (2014).

exist.¹⁸ But the Supreme Court, as a plurality, does indeed exist. The mathematical set of things on Korman's desk does not exist. But the plurality of things on his desk—the assortment—, does indeed exist. I claim that matter is comparable to these cases. The word “matter” is referentially plural. It's not one thing, it's many things. And it exists, just as the plurality that we call “The Supreme Court” exists, just as the assortment of things on Korman's desk exists. Matter as a plurality, I suggest, is different from the mathematical set of all material objects. Bunge and Romero are right when they say that the mathematical set of all material objects does not exist. But they are wrong in identifying that mathematical set with matter itself.

The other characteristic of Pérez-Jara's definition of matter is changeability. Following Bunge, we can define changeability as having energy. It's important to note that matter is not identical to energy, nor is a material object identical to the energy that it has. A material object is a thing, while energy is one of its properties. Indeed, Bunge suggests that energy is the most general property, in the sense that every material object has some kind and some quantity of it. This is all that it takes to define a material object.

Contrary to popular opinion (and to some academic opinions), matter and energy are not identical. They're not even equivalent. Energy is equivalent to mass, but not to matter. This confusion seems to stem from incorrect interpretations of Einstein's famous formula, $E = mc^2$. As Bunge explains:

It has been said that “ $E = mc^2$ ” proves that physics has dematerialized matter. This claim involves two confusions: the identification of “matter” and “mass”, and the belief that energy is a thing, while actually it is a property of material things: there is no energy without things, just as there are no areas without surfaces. (Bunge, 2012: 137)

Having this in mind, I think that it's wrong and misleading to use the phrase “matter-energy”, as some thinkers do. For example, Manuel DeLanda, who is one of Bunge's greatest readers, and who agrees with Bunge's theory of causality, says this:

¹⁸ More precisely, since Bunge traces a distinction between conceptual existence and real existence, we can say that the mathematical set in question exists conceptually, but it doesn't exist in reality.

In a very real sense, reality is a *single matter-energy* undergoing phase transitions of various kinds, with each new layer of accumulated “stuff” simply enriching the reservoir of nonlinear dynamics and nonlinear combinatorics available for the generation of novel structures and processes. Rocks and winds, germs and words, are all different manifestations of this dynamic material reality, or, in other words, they all represent the different ways in which this single matter-energy *expresses itself*. (DeLanda, 1997: 21; emphasis in the original)

I disagree with DeLanda here, for two main reasons. Firstly, I reject the term “matter-energy”. Since matter is a thing and energy is a property, to speak of “matter-energy” is like speaking of something that we may call “apple-red”. As if an apple, which is a thing, were identical to the reddish color that it has, which is one of its properties. But this is wrong, an apple is not identical to its color.¹⁹ Secondly, I deny that matter is a single universal stuff from which different individual things such as rocks and germs emerge. Matter exists, but it’s not a single cosmic thing, it’s many different things.²⁰

Bennett seems to agree with DeLanda.²¹ She says: “I believe in one matter-energy, the maker of things seen and unseen. I believe that this pluriverse is traversed by heterogeneities that are continually *doing things*.” (Bennett, 2010: 122; emphasis in the original). Again, I reject the term “matter-energy”. I believe that the heterogeneities that Bennett speaks of shouldn’t be conceptualized as the products, or the things that are made by, a universal entity called “matter-energy”, as if the latter was their maker. Instead, I suggest that these heterogeneities should be conceptualized as different material entities from the very start, without any universal stuff underlying them. Plurally, they *are* matter, instead of emerging from an underlying universal matter, just as the plurality of objects on

¹⁹ Nor is it identical to all of its properties taken collectively. To claim otherwise is to embrace the empiricist idea that a thing is nothing more than a bundle of qualities, which is a far cry from realism.

²⁰ Harman (2022) asks: “How is this different from my view that there are only forms?” My reply is that this is different because not all forms, as OOO understands them, have energy. For example, Sherlock Holmes doesn’t have energy, but he’s still a form according to OOO.

²¹ Harman (2022) remarks: “I don’t think that Bennett agrees with DeLanda here. Despite their shared root in Deleuze, I don’t see DeLanda as retreating to that level of a single matter-energy in his theory.” My reply: fair enough, point taken.

Korman's desk *are* an assortment, instead of composing a single object called "an assortment".

This being said, Romero raises an objection against Bunge's identification of energy and changeability:

I can offer an objection to this second definition provided by Bunge. Although change always requires energy, and then it is correct to say that all material things have energy, it is not true that energy always allows for change. If a complex system is in thermodynamic equilibrium, i.e. if its entropy is at a maximum, then the system will not change. This is because it is not the total energy that matters for change, but the difference of energy between different parts of the system. This difference is quantified by entropy. Bunge's definition, I think, only applies to simple things, substances, and not to systems. In general, energy does not amount to mutability, which is the true trademark of materiality. Hence I will adopt in what follows the first definition of material thing: any substance, system, or aggregate with a non-trivial state space. (Romero, 2022: 83)

If this is so, then I would disagree with Pérez-Jara in defining matter as changeability and plurality. Instead, I believe that matter should be defined as a plurality of material objects, each of which has some kind and some quantity of energy, without implying that energy is identical to changeability. The concept of energy is what allows us to say that rocks and tables are material, while mathematical sets and fictional creatures are not. The former have energy, while the latter do not.²²

²² Harman (2022) says: "Interesting, but then it's not clear why you would speak of matter at all, instead of simply saying 'energy.'" Here's my reply: because energy is a property (or quality, if you will) while matter is a plurality of objects, such that each of them has energy. Otherwise, instead of speaking of, for example, lemons, we should simply say "yellow", as if a lemon were identical to its color, which is one of its properties. But, since we're realists instead of empiricists, we wouldn't be inclined to say that. Then Harman asks "Also, is it really true that immaterial objects have no energy?" My reply: I'd say something more cautious: the claim that immaterial objects have no energy has not been proven to be false, at least so far. Next, Harman says: "The Supreme Court may be immaterial, but clearly it has energy, doesn't it?" I think that the Supreme Court is material, since it's nine judges, and each of them is material. So, each of the nine judges has energy, which means that the Supreme Court itself has energy. This, however, is an extremely controversial claim, and it requires an article of its own. There are alternative views, which are certainly live options: the Supreme Court could be just an institution, and perhaps all institutions are immaterial insofar as they're concepts. Or it could be the case that the Supreme Court is immaterial, but instead of being a

4] Concluding Remarks

I have challenged Harman's attempt to eliminate matter, and I have done so by formulating different arguments from arbitrariness, also known as parity arguments. What they aim to establish is that it would be metaphysically arbitrary to countenance centaurs as sensual objects and to repudiate matter as one of those, or to countenance hobbits as real objects and to repudiate matter as one of those. Either centaurs and matter are both sensual objects, or neither is. Either hobbits and matter are both real objects, or neither is. Furthermore, I have rejected those very arguments that I formulated, by identifying a significant ontological difference between matter and fictional entities.²³ This is in contrast to Bunge and Romero, who believe that matter should be understood as a mathematical set. Instead, I suggest that matter should be understood as a plurality of real things, each of which has some kind and some quantity of energy. Mathematical sets and fictional characters don't have energy, so they're not material.

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concept, it's a real, emergent object. This last claim could be articulated in a way similar to how Harman understands the Dutch East India Company.

²³ Harman (2022) says: "Here I would repeat my point that both hobbits and matter have real qualities without necessarily being real objects, even if they are both really pluralities of objects." My reply: duly noted. I've said my piece about this some pages ago.

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