

Bunge and Harman on the General Theory of Objects

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RÉSUMÉ — Bien qu'il existe des différences significatives entre la philosophie de Mario Bunge et celle de Graham Harman, il existe également des similitudes fondamentales entre elles. Ces penseurs affirment tous deux qu'il est possible de développer une théorie générale des objets. Le premier estime que la théorie en question est logico-mathématique, tandis que le second suggère qu'elle est ontologique. Quoi qu'il en soit, ils conviennent que tous les objets doivent être considérés, qu'ils soient réels ou non. En outre, ils suggèrent que même si aucun objet ne doit être exclu de la théorie, il est nécessaire d'en distinguer différents types.

ABSTRACT — Although there are significative differences between the philosophies of Mario Bunge and Graham Harman, there are also some fundamental similarities. One of the core features that they have in common is that both of them claim that it is possible to develop a general theory of objects. The former believes that the theory in question is logical-mathematical, while the latter suggests that it is ontological. Regardless, they agree that all objects have to be considered, no matter if they are real or not. Furthermore, they suggest that even though no objects should be excluded from the theory, it is necessary to distinguish different kinds of them.

Keywords — Objects; Ontology; Metaphysics; Mario Bunge; Graham Harman.

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Contents

- 1 Introduction
- 2 Formal Science or Ontology?
- 3 Kinds of Objects
- 4 Knowledge and the Thing-in-Itself
- 5 Concluding Remarks

1 INTRODUCTION

In a sense, Mario Bunge and Graham Harman could not be further apart as philosophers. The former advocates for scientism, while the latter criticizes it. One of them has a low opinion of the work of Bruno Latour, while the other appreciates it. Despite these and other key differences, I argue that there are certain core similarities between their philosophies. We will see several examples, but the first one is that both thinkers agree that it is possible to develop a general theory of objects, and that there is no reason to exclude fictional objects from its domain. In other words, a general theory of objects must deal with all kinds of objects, no matter if these are real or not.

Harman had advanced this idea early in his career. The opening paragraph of *Guerrilla Metaphysics: Phenomenology and the Carpentry of Things* is an example of the general idea:

This book calls for what might be termed an *object-oriented philosophy*, and in this way rejects both the analytic and continental traditions. The ongoing dispute between these traditions, including the sort of “bridge building” that starts by conceding the existence of the dispute, misses a prejudice shared by both: their primary interest lies not in objects, but in human access to them. The so-called linguistic turn is still the dominant model for the philosophy of access, but there are plenty of others—phenomenology, hermeneutics, deconstruction, philosophy of mind, pragmatism. None of these philosophical schools tells us much of anything about objects themselves; indeed, they pride themselves on avoiding all naive contact with nonhuman entities. By contrast, object-oriented philosophy holds that the relation of humans to pollen, oxygen, eagles, or windmills is no different in kind from the interaction of these objects with each other. For this reason, the philosophy of objects is sometimes lazily viewed as a form of scientific naturalism, since it plunges directly into the world and considers every object imaginable, avoiding any prior technical critique of the workings of human

knowledge. But quite unlike naturalism, object-oriented philosophy adopts a bluntly *metaphysical* approach to the relations between objects rather than a familiar physical one. In fact, another term that might be employed for object-oriented philosophy is *guerrilla metaphysics*—a name meant to signify that the numerous present-day objections to metaphysics are not unknown to me, but also that I do not find them especially compelling. (Harman, 2005: 1)

Bunge, for his part, had also been philosophizing about objects throughout his career, particularly in the third volume of his *Treatise on Basic Philosophy*, titled *Ontology I: The Furniture of the World*. In that work, though, he was skeptical of the possibility of a general theory of objects:

Because unreal objects have nonphysical properties, they satisfy nonphysical laws if any. For this reason it is impossible to make any nontautological statements applying to all objects: ontology, as conceived by Meinong and Lesniewski, i.e. as a general theory of objects of any kind, and yet different from logic, is impossible. (Bunge, 1977: 5)

However, several decades later, it seems that Bunge changed his mind. In 2010 he published *Matter and Mind*, and in Chapter 14 of that book, titled *Appendix A: Objects*, he outlined a general theory of objects. It will be worthwhile to quote the opening paragraphs in full:

In ordinary language, the word “object” denotes a material thing that can be seen and touched. By contrast, in modern philosophy “object” (*objectum*, *Gegenstand*) stands for whatever can be thought about: it applies to concrete things and abstract ones, arbitrary assemblages and structured wholes, electrons and nations, stones and ghosts, individuals and sets, properties and events, facts and fictions, and so on.

The concept of an object is thus the most general of all philosophical concepts. In fact, this concept is so general that it is used in all the branches of philosophy in all languages—though not always consistently. For instance, someone might say that the subjects of this chapter are objects, whereas its object or goal is to elucidate “object”.

Yet, to my knowledge there is no generally accepted theory of objects. True, mereology, or the calculus of individuals, was expected to fill that gap. Regrettably, this theory is extremely complicated, uses an awkward notation, and does not accomplish much because, following the nominalist program, it eschews properties. As for the theories of objects proposed by Meinong and Routley, they are only moderately well known, possibly

because they include impossible objects on a par with possible ones. The goal of this paper is to formulate a general theory of objects free from those flaws. However, the reader with no taste for symbolism is invited to skip this chapter. (Bunge, 2010: 267)

Contrary to what he had written in the third volume of the *Treatise*, in this small but important appendix to *Matter and Mind* he now believes that it is entirely possible to develop a general theory of objects. This is particularly evident in the list that he provides, since he mentions ghosts as an example of fictional objects. Thus, Bunge and Harman agree that a general theory of objects must include fictional entities. It cannot be reduced to a theory that deals exclusively with real objects.

According to Harman, the general theory of objects has at least two phases. The first one is called “flat ontology”. During this phase, all objects have to be taken into consideration, no matter if they are real or fictional. However, he also indicates that this is only a starting point, not a final destination. In his book *Object-Oriented Ontology: A New Theory of Everything*, he says:

Briefly put, flat ontology is a good starting point for philosophy but a disappointing finish. For example, earlier in this chapter I argued that philosophy needs to be able to talk about everything—Sherlock Holmes, real humans and animals, chemicals, hallucinations—without prematurely eliminating some of these or impatiently ranking them from more to less real. We might well have biases that make us think that philosophy is obliged only to deal with natural objects but not artificial ones, which we might dismiss as unreal. In this case as in many others, an initial commitment to flat ontology is a useful way of ensuring that we do not cave in to our personal prejudices about what is or is not real. Yet flat ontology would also be a disappointing finish for any philosophy. If we imagine that after fifty years of philosophizing a OOO thinker were to say nothing more than ‘humans, animals, inanimate matter and fictional characters all equally exist’, then not much progress would have been made. In short, we expect a philosophy to tell us about the features that belong to *everything*, but we also want philosophy to tell us about the differences between various *kinds* of things. It is my view that all modern philosophies are too quick to start with the second task before performing the first in rigorous fashion. (Harman, 2018: 54–55)

In this sense, Harman suggests that two kinds of objects must be distinguished: real objects and sensual objects. The former exist by themselves, independently

of other objects, while the latter only exist in relation to a real object. We will say more about this distinction later.

As we have seen, Bunge would agree with Harman that a general theory of objects must acknowledge all kinds of objects, without excluding fictional ones from its domain. He would also agree that the theory in question has to distinguish different kinds or types of objects. Thus he says:

So far we have not distinguished between concrete objects, such as numerals, and ideal objects, such as numbers. We proceed to introducing this distinction. (Bunge, 2010: 269)

He says this after discussing the concept of individuals and properties. Generally speaking, Bunge thinks that individuals can be either real or fictional, and the same can be said about properties. This can be interpreted as a fourfold, not entirely unlike Harman's.

As a note in passing, Bunge and Harman agree on another point: that an assembly or a collection of objects is also an object in its own right. Harman had discussed this point in his book *Immaterialism: Objects and Social Theory*. There, and contrary to Leibniz, he argues that groups of objects are also objects, no matter if those groups are arbitrary assemblages. 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)

Before we examine the different kinds of objects that these thinkers recognize, we must address another issue: should the general theory of objects be a formal science, as Bunge claims, or an ontology, as Harman suggests?

2 FORMAL SCIENCE OR ONTOLOGY?

One difference between Bunge and Harman regarding the general theory of objects has to do with the nature of the theory in question. For Bunge, it is logical-mathematical, and for Harman it is ontological. Part of this disagreement has to do with the fact that they define the term "ontology" in different ways.

In his *Treatise on Basic Philosophy*, Bunge had traced a fundamental distinction between things and constructs. He claimed that ontology can only be a theory about things, but not constructs. The latter should be studied by the discipline of semantics, and more generally, by mathematics and logic. Even though, decades later, he changed his mind regarding the possibility of a general theory of objects, he did not change his mind regarding the definition of the term

"ontology". Thus, he says that "ontologies are theories about the world" (Bunge, 2010: 275).

In this sense, and from the point of view of *Matter and Mind*, ontology would be a branch of the general theory of objects, the one that deals with things and everything pertaining to things. Constructs would be excluded from ontology, but not from the general theory of objects.

Harman defines the term "ontology" in a different way. Noting that the terms "ontology" and "metaphysics" have been defined in several different ways by various thinkers, he proposes the following definitions:

Henceforth, let 'ontology' refer to a description of the basic structural features shared by all objects, and let 'metaphysics' signify the discussion of the fundamental traits of specific types of entities. (Harman, 2007: 204)

For Bunge, the terms "ontology" and "metaphysics" are synonymous, for Harman they are not. However, one cannot help but wonder how divisive this difference really is, since both thinkers agree that it is possible to develop a general theory of objects. The only difference regarding this point is that one of them calls it "ontology", while the other one prefers to reserve this term for one of the branches of the theory in question.

It seems to me that, regarding this point, if one asked, "who is right here, Bunge or Harman?" then it would be necessary to indicate that what is being discussed here is not a matter of fact, but of terminology. It is not as if one of these philosophers declared "there is a cat on the mat" and the other one declared, "it is not the case that there is a cat on the mat". Because, for a situation like that, one would only have to look at the mat to see if there is a cat on it or not. That would be enough for determining who is right. But when the discussion is about using the term "ontology" to refer to the general theory of objects, one cannot explore the world to find some piece of evidence that corroborates or refutes what is being claimed, there is nothing similar to finding a cat on the mat for determining "who is right" in a terminological discussion.

If I may suggest an example taken from chess, it does not matter if I call a certain piece a "knight" or a "horse" or an "apple", what matters is how the piece moves. In a similar fashion, I suggest that it does not matter what the general theory of objects is called, what matters are the "rules of the game" that the theory proposes. And, in this sense, despite the important differences between the "rules" that Bunge and Harman propose, they do seem to agree on some of these "rules". Namely, that it is possible to develop a general theory of objects of any kind.

Having said this, let us take a look at the different kinds of objects according to the theories of Bunge and Harman.

3 KINDS OF OBJECTS

In the *Treatise on Basic Philosophy*, Bunge claimed that objects are divided into two fundamental kinds: things and constructs. In *Matter and Mind*, this is no longer the case. Instead, the most general kinds of objects that he recognizes in that text are individuals and properties. He says:

We shall presently propose an axiomatic theory of individuals of any kind. The first section presupposes only the classical predicate calculus with identity, a bit of set-theoretic notation, and another of semi-group theory; the balance of the chapter also uses the concept of a mathematical function. The specific primitive (undefined) concepts are those of individual and property. Like all primitives, these are elucidated by the postulates where they occur. (Bunge, 2010: 267)

In the *Treatise on Basic Philosophy*, Bunge had also traced a fundamental distinction between properties and attributes. He defined the former as real, and the latter as fictional. Things have properties, while constructs have attributes. However, in *Matter and Mind*, he seems to have abandoned this terminology, since he speaks of properties in a general sense, no matter if these pertain to real or fictional objects. Since individuals can be either real or fictional, and since the same holds for properties, we can represent this as a fourfold: 1) real individuals, 2) real properties, 3) fictional individuals, 4) fictional properties. This is similar to, though not identical, to Harman's fourfold: 1) real objects, 2) real qualities, 3) sensual objects, 4) sensual qualities.

Recall that Bunge claimed in the *Treatise on Basic Philosophy* that "it is impossible to make any nontautological statements applying to all objects" and that for this reason it would be impossible to conceive a general theory of objects distinct from logic. However, none of the definitions and axioms that he advanced decades later in *Matter and Mind* are tautological. Consider his *Definition 1* and his first three axioms: "*Definition 1* Every object is either an individual or a property", "*Axiom 1* No object is both an individual and a property", "*Axiom 2* All individuals have at least one property", and "*Axiom 3* Every property is possessed by at least one individual" (Bunge, 2010: 268). This seems like additional evidence for our suggestion that during the thirty-three years between the third volume of the *Treatise* and the publication of *Matter and Mind*, Bunge changed his point of view on the possibility of general theory of objects.

We must examine Bunge's and Harman's quadripartite distinctions in more detail, because there are some key differences between their philosophies on this point. According to Bunge, fictional objects are brain processes. As such, they can only be found in living animals endowed with nervous systems. They do not have an autonomous existence. Thus he says:

For example, the Pythagorean theorem exists in the sense that it belongs in Euclidean geometry. Surely it did not come into existence before someone in the Pythagorean school invented it. But it has been in conceptual existence, i.e. in geometry, ever since. Not that geometry has an autonomous existence, i.e. that it subsists independently of being thought about. It is just that we make the indispensable pretence that constructs exist provided they belong in some body of ideas—which is a roundabout fashion of saying that constructs exist as long as there are rational beings capable of thinking them up. Surely this mode of existence is neither ideal existence (or existence in the Realm of Ideas) nor real or physical existence. To invert Plato's cave metaphor we may say that ideas are but the shadows of things—and shadows, as is well known, have no autonomous existence. (Bunge, 1977: 157)

It might strike the reader as strange that Bunge mentions the Pythagorean theorem as an example of a fictional object. One could think, as Quentin Meillassoux (2008) does that mathematics is capable of disclosing the primary qualities of things. Thus, Meillassoux traces a distinction between mathematical statements and their referents. He says that the former are ideal, while the latter are real. Bunge thinks that all mathematical objects are fictional, no matter their complexity. Thus he says:

The mathematical objects, such as sets, functions, categories, groups, lattices, Boolean algebras, topological spaces, number systems, differential equations, vector spaces, manifolds, and functional spaces, are not only *entia rationis*: they are *ficta*. (Bunge, 1997: 51)

If we had to express this idea using Harman's terminology, we may say that mathematical objects are not real objects, but sensual objects instead. What this means is that the number 3 or a differential equation, for example, cannot exist by themselves. They can only exist in relation to a real object: the person that is thinking about them. If the previous quote was, for some reason, insufficient for convincing the reader that Bunge is quite adamant about this point, then consider the following one:

Mathematical objects are then ontologically on a par with artistic and mythological creations: they are all *fictions*. The real number system and the triangle inequality axiom do not exist really any more than Don Quijote or Donald Duck. (Bunge, 1985: 38–39)

Which is similar to the way in which Harman speaks about fictional characters such as Sherlock Holmes. Bunge reiterated the previous idea several decades later, so on this point, he did not change his mind:

In short, mathematicians, like abstract painters, writers of fantastic literature, 'abstract' (or rather uniconic) painters, and creators of animated cartoons, deal in fictions. To put it into blasphemous terms: ontologically, Donald Duck is the equal of the most sophisticated nonlinear differential equation, for both exist exclusively in some minds. (Bunge, 2006: 192)

Initially, it could seem ridiculous to compare a sophisticated mathematical equation to a cartoon character like Donald Duck. But, as Jean-Pierre Marquis noted, that is not the case:

Donald Duck is not the problem. And it is not *a priori* ridiculous to compare Donald Duck to mathematical objects with respect to their ontological status. It is, in fact, rather fashionable these days and has been for some time. It certainly goes in the right direction, but one has to travel carefully to avoid certain pitfalls. (Marquis, 2019: 590)

A greater pitfall than the ones that Marquis alludes to, as far as I am concerned, is the one that Meillassoux fell into in *After Finitude*, the pitfall of believing that mathematics can disclose the primary qualities of an object. Because, for that to be the case, mathematical truth would have to be absolute, not relative. Bunge is against that idea:

Allow me to repeat a platitude: Mathematical truth is essentially relative or context-dependent. For example, the Pythagorean theorem holds for plane triangles but not for spherical ones; and not all algebras are commutative, or even associative. (Bunge, 1997: 53)

According to Bunge, no matter how simple or complex an idea is, it is entirely fictional, in the sense that it does not have an autonomous existence. Harman's point of view is similar, though not identical. No sensual object has an autonomous existence, it can only exist in relation to a real object. Thus, one of the basic principles of his object-oriented ontology is the following one:

Objects come in just two kinds: *real objects* exist whether or not they currently affect anything else, while *sensual objects* exist only in relation to some real object. (Harman, 2018: 9)

Contrary to Bunge, Harman suggests that sensual objects are everywhere, not only in relation to animals with nervous systems, but even among inanimate objects such as rocks. This is because the concept of a sensual object is a more general notion than that of an idea. While all ideas are sensual objects, not all sensual objects are ideas. To understand this point better, we must discuss a key element of Kant's philosophy: the distinction between the phenomenon and the thing-in-itself.

Kant held that we cannot know what an object is as a thing-in-itself, we can only know it as a phenomenon. What this means is that it appears to us in a particular way, not only due to the specific nature of our five senses and their corresponding organs, but also due to the way in which our sensory experience is conditioned by the pure forms of intuition and the categories of the understanding. We cannot get rid of these in order to know what the thing-in-itself is, as a thing that is absolutely untainted and unfiltered by the senses and the mind. In other words, we know things through filters, and it is because these filters exist that the object of knowledge is a phenomenon, not an unfiltered thing-in-itself. Let us see what Bunge thinks of the conceptual difference between appearance and reality:

The perception of a fact is called a *phenomenon* or *appearance*. (In ordinary language 'phenomenon' is equated with 'fact': beware of the imprecisions of ordinary language.) There are imperceptible facts but there are no phenomena without sentient organisms. Appearance, then, is an evolutionary gain: it emerged together with the first animals equipped with nervous systems. Before them facts appeared to nobody: there was no appearance, there was only reality. Phenomena are facts of a special kind, namely facts occurring in nervous systems. So, *phenomena are real*. Consequently there is no opposition between appearance and reality. My seeing the Moon larger on the horizon than overhead is a fact no less than the two positions of the Moon: only, the former is a perceptual, hence *subjective*, fact, whereas the latter are *objective* physical facts. There is then nothing wrong with admitting phenomena alongside nonphenomenal (or transphenomenal) facts. The opposition is not between appearance and reality but between subjective facts or accounts and objective facts or accounts. (Bunge, 1983: 150–151)

Contrary to Kant, who believed that the distinction between appearances and things-in-themselves pertains only to human beings, and contrary to anthropocentric philosophers in general (or “philosophers of access” to use Harman’s expression), Bunge does not reduce the concept of appearance to *human* appearance:

We must define appearance, or the totality of phenomena, as the collection of all (actual or possible) perceptual processes in all animals past, present and future. (We may also specify and speak of human appearance, blue jay appearance, sardine appearance, etc.)” (Bunge, 1983: 153)

Appearances are different depending on the species of animals. In Harman’s terms, there are different sensual objects for the same real object. The way a certain thing appears to a human being is different from how it appears to a blue jay, or to a sardine. For example, the way that an acorn appears to a blue jay is not the same as it appears to a squirrel, or to a human. Even though the real object is always one and the same—for it is always the same acorn—, there are many different appearances of it, depending on the animal that interacts with it: human appearance, blue jay appearance, squirrel appearance, etc. One thing-in-itself, many phenomena; one real object, many sensual objects. And these different appearances of the acorn are always limited versions of what the acorn really is as a thing-in-itself independent of the animals that encounter it. Or, to use Harman’s terminology, these appearances are distortions, caricatures, translations, they are never as rich and fully featured as the real object.

The question here is if the distinction between the sensual object and the real object stops at the level of animals endowed with nervous systems, or if this distinction can be found everywhere, even among inorganic objects such as rocks and crystals.

Philosophical discussions about inanimate objects can sometimes be more complicated than what one would initially expect. We began by recalling Kant’s definitions of “phenomenon” and “thing-in-itself”, he thought that these pertained exclusively to human beings. We then considered Bunge’s redefinitions of these terms, since there can be many different appearances relative to different species of animals. Now we must philosophize about inanimate objects. As Iain Hamilton Grant wrote, with great wit: “Life acts as a kind of Orphic guardian for philosophy’s descent into the physical” (Grant, 2006: 10).

Let us descend then, into the realm of the inorganic. One conclusion that Kant did not seem to explore enough is the following one: if the conceptual distinction between phenomenon and thing-in-itself is exclusive to human beings, then, in

the absence of human beings, nonhuman entities must interact with each other as things-in-themselves. Consider the following example. When I perceive a raindrop that falls on my hand, I am not interacting with the raindrop as a thing-in-itself, but as a phenomenon, since I feel the raindrop through the filters and conditions of my sensory experience. But when a raindrop falls on a rock, the rock is not interacting with the raindrop as a phenomenon, it is interacting with it as a thing-in-itself. If we can only know external objects as phenomena, then in our absence these external objects must interact with each other exclusively as things-in-themselves.

It seems that Bunge would agree with Kant on this point, although he would not agree with Kant's anthropocentric definition of the terms "appearance" and "thing-in-itself". Nevertheless, Bunge seems to believe that inanimate objects interact with each other as things-in-themselves. Recall that he says that before the emergence of animals endowed with nervous systems "there was no appearance, there was only reality". Thus, when a raindrop falls on a rock, there is no "rock appearance" of the raindrop. There can only be a "human appearance" of the raindrop when it falls on a human being, or a "blue jay appearance" of the raindrop when it falls on a blue jay, and so on. But this never happens in the case of inanimate objects. For it is clear that a rock does not have a nervous system, so the raindrops that fall on it do not "appear" to it in any way.

By contrast, Harman claims that inanimate objects do not interact with each other as things-in-themselves, but as sensual objects. While all appearances are sensual objects, not all sensual objects are appearances. Therefore, if one agrees with Harman on this point, it is not necessary to claim that the raindrops that fall on a rock "appear" to it, it suffices to say that the raindrops interact with the rock as sensual objects, which is to say, as objects in a relation to it. And they are in a relation to it because, among other things, they fall from a certain direction: from above, not from the sides or from below.

Instead of defining the term "thing-in-itself" as a thing that exists independently of the way in which human beings interact with it, it can be defined as a thing that exists independently of the way in which other entities in general interact with it, not just human beings or other animals endowed with nervous systems. When I look at a bird flying through the sky, the bird exists independently of the fact that I am looking at it. But it also exists independently of the rocks on the ground, and of the trees that it flies over. For if it did not, then by removing the rocks and the trees, the bird would suddenly cease to exist. Things-in-themselves, or real objects, to use Harman's terminology, not only

exist independently of human beings, they also exist independently of each other as well.

Similar considerations apply to the term “phenomenon”. Instead of defining it as an object that exists in a specific relation to human beings, it can be defined as an object that exists in a specific relation to another object, not necessarily a human being or other animal. To use the example of the bird again. The bird exists independently of the fact that I am looking at it, but the specific silhouette of the bird that I see does not. If I only see the bird from the left side, then this specific profile or silhouette cannot exist independently of the observer that is looking at the bird from that specific angle. But the rocks on the ground are also in a specific relation to the bird, since they are below it. And notions such as above and below, left and right, are entirely relative. If I stand next to a tree, such that it is to my left, and then I turn around, so that it is to my right, then the tree as a thing-in-itself has not changed. But as a thing-in-itself, the tree cannot be either to the left or to the right “in itself”, since it can only be to the left or to the right in relation to other things. The “tree to the left of X” or the “tree to the right of X” are examples of what Harman calls “sensual objects”. They only exist in relation to a real object.

However, this does not mean that the many different silhouettes or profiles of the bird, or of a certain tree, or of any other object, are simply a bundle of qualities, as Hume and Berkeley argued. Harman argues that sensual qualities are always supported by an underlying sensual object. This idea was inspired by Husserl, and in particular by his critique of the “bundle of qualities” theory. Harman provides the following example:

Consider the example of a snowmobile. What Husserl gives us is the new insight that the snowmobile is not just a bundle of snowmobile-qualities, but an enduring object that is different from the relatively small array of profiles or features that it shows in any given moment or any sum of moments. We see the snowmobile from one side or another, at a greater or lesser distance, speeding towards us or away from us, standing motionless or spinning wildly in a dangerous jump over a perilous crevice. In all of these cases, we consider the snowmobile to be the *same* thing, unless something happens to suggest that we have misidentified or confused it with a similar vehicle. In OOO terminology, Husserl splits the *sensual object* snowmobile from the *sensual qualities* of the snowmobile, since the former does not change but the latter change constantly. (Harman, 2018: 78-79)

The many different silhouettes of the bird that I see from different angles could not exist by themselves, without the bird as an object that is being viewed by me. When I stand next to a tree, either to the left or to the right, these are not simply relations and nothing more, they are relations between a certain object and myself.

4 KNOWLEDGE AND THE THING-IN-ITSELF

Another key difference between Bunge and Harman is that the former believes that it is possible for human beings to know the thing-in-itself, while the latter denies this. Here is what Bunge has to say on this issue:

Yet, however insignificant appearances may be from an ontological point of view, they occupy a central position in epistemology. In fact, there is no way of gaining some deep knowledge about reality except by combining phenomena with hypotheses and processing both by reasoning. (Bunge, 1983: 153)

He then quotes several passages from William James. One of them sums up the general idea:

Strange mutual dependence this, in which the appearance needs the reality in order to exist, but the reality needs the appearance in order to be known! (James, 1890: 301)

Harman does not believe that human beings can know the thing-in-itself. This may sound perplexing at first, but there is an argument for it. In order to address this issue, it will be useful to discuss Kant's point of view further. While Kant claimed that humans cannot *know* the thing-in-itself, he also claims that it is entirely possible for humans to *think* about things-in-themselves. Subsequent philosophers such as Hegel questioned this point, because in order to think about something, there has to be a thinker. Therefore, it is not possible to think of things-in-themselves, independently of humans, since this act requires the existence of thinking humans. In this specific sense, it is not the case that things-in-themselves do not exist, rather it is the case that it is impossible for humans to know what these things are independently of humans. So it is for blue jays and sardines. A blue jay cannot have a "blue jay appearance" of an acorn independently of the way that acorns appear to blue jays. A sardine cannot have a "sardine appearance" of a small crustacean independently of the way that small crustaceans appear to sardines. But what Harman suggests is that this situation should not be limited to appearances, he argues that the thing-in-itself cannot be

accessed by any means. Practical relations, for example, do not give us access to a thing-in-itself any more than perceptual or theoretical relations do.

To use an example: when I look at a hammer, what is presented to my eyes is not the hammer as a thing-in-itself, what is presented to me is an appearance of the hammer. And, to use Bunge's terms, it should be emphasized that this is not any kind of appearance, but a very specific one, a "human appearance", to be distinguished from the kinds of appearances that would be presented to other animals. Now, if instead of simply looking at the hammer, I decide to pick it up with my hand and *use* it, this does not give me access to the hammer as a thing-in-itself either. Even in this case, the hammer is still related to a human, precisely because it is being used by one of them.

Furthermore, there are many things about the hammer that I do not know, no matter if I am looking at it or using it. If I do not know how to recognize different types of wood, then I will not know what type of wood the hammer's handle is made of. It could be oak, mahogany, or pine, among others. Merely looking at the hammer without any knowledge of the types of wood will not give me this information. But using the hammer will not give me this information either. And of course, this does not mean that the handle is not made from a specific type of wood, because it is. It merely means that I have no access to this information. So even though I might believe that I am using the hammer as a thing-in-itself, that is not exactly the case, because I ignore what type of wood the hammer's handle is made of. I am only interacting with a very limited version or distortion or caricature of what the hammer really is. In Harman's terms, I am interacting with the hammer as a sensual object, not as a real object.

We saw that Bunge claims that science is able to know the things-in-themselves. We also saw that he claims that mathematical objects are fictional, since they do not have an autonomous existence, we only feign that they do. In this sense, I argued that, using Harman's terminology, mathematical objects are not real objects, but sensual objects instead, which is contrary to Meillassoux's point of view. One question that can be asked at this point is: what about the empirical sciences? Mathematics alone cannot give us any knowledge of things-in-themselves, but surely the empirical sciences can, as Bunge claims. I believe that the problem with that point of view is that the objects that are studied by the empirical sciences are related to those sciences in a particular way, insofar as they are objects that are being studied. They are not entirely unrelated to, or disconnected from, the scientists that study them. However, this does not mean that those objects, insofar as they are real objects, do not exist independently of the scientists that study them. As real objects, they do exist by themselves,

independently of humans. But insofar as they are being actively studied by a group of scientists at any given moment in time, they are sensual objects. Consider the following example, taken from Philip Kitcher:

Start with a relatively simple situation. A behavioral biologist is observing a baboon troop. Over a period of several hours he records the episodes in which one of the animals grooms another, carefully noting the names of the animals (who groomed whom) and the time interval through which grooming occurred. Each entry in the notebook records the perceptual acquisition of a belief. Focus on any one. The observer is initially scanning the troop. He sees the male he calls "Caliban" approach the female he calls "Miranda." There is a sequence of facial expressions and gestures, at the end of which Caliban crouches behind Miranda and plucks at her fur. Our biologist presses a button on his stopwatch and quietly moves to a position from which he can gain a better angle on the interaction. After a few minutes, Miranda shrugs and moves away. Another button on the stopwatch is pressed, and the biologist writes in the notebook, "Caliban—Miranda, 6:43." That notation serves as an extension of declarative memory, something from which the biologist can later retrieve the belief that Caliban groomed Miranda for a period of six minutes and forty-three seconds." (Kitcher, 1993: 222)

We feign that mathematical objects exist independently of the people that think of them, and in a different sense we also feign that the objects studied by the empirical sciences exist independently of the people that study them. In the case of mathematical entities, these are brain processes that do not have an external referent, but in the case of the objects studied by the empirical sciences, these do exist by themselves in the external world. But here is the point: if the behavioral biologist from Kitcher's example did not exist, then the baboons that he is observing would not be called "Caliban" and "Miranda". They would be male and female baboons, but they would not have names. That is not to say that they would not have specific features that distinguish them as individual baboons. As real entities, they exist independently of the biologist that is observing them. But they could not be called "Caliban" and "Miranda" if no one gave them those names.

5 CONCLUDING REMARKS

The idea that there can be a general theory of objects might seem absurd at first. As we have seen, Bunge did not agree with this idea when he published

Ontology I: The Furniture of the World. However, he changed his mind several decades later, when he developed a general theory of objects in an appendix to *Matter and Mind*. To my knowledge, that theory has not been further developed.

It is my belief that anyone who wishes to further elaborate Bunge's general theory of objects can greatly benefit by studying Harman's works. I also believe that anyone who wishes to further develop object-oriented ontology can greatly benefit by studying Bunge's works. There are key differences between these thinkers, but they also have important things in common.

One point that will be worthwhile to explore in future works is a comparison between Bunge and Harman regarding the terms "matter" and "materialism".

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