

Object-oriented philosophy and the comprehension of scientific realities

Essay Review

Filosofía orientada a los objetos y la comprensión de las realidades científicas

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Resumen

En este ensayo reflexiono sobre el primer tratado consagrado a la metafísica de Bruno Latour, la obra de Graham Harman *Prince of Networks*. Explico cómo Harman pone de relieve las raíces y principios de la filosofía orientada a los objetos latouriana. Asimismo, analizo cómo Harman habla de la concepción ontológica de Latour desde un nuevo modelo de ocasionalismo secular y desde una nueva forma de realismo, el relacionismo. Sin embargo, Harman no sólo defiende con entusiasmo la metafísica de Latour. Este filósofo compara su posición metafísica, comprometida con una teoría cuádruple, con la teoría simple de la realidad latouriana. Asimismo, evalúo la revisión que Harman realiza de la obra de Latour y defiendo que algunos problemas del filósofo francés se comprenden mejor si son explicados desde la filosofía de la ciencia. Abordo brevemente esta tarea en lo que atañe a la concepción del ocasionalismo de Latour.

Palabras clave: Filosofía orientada a los objetos; Ocasionalismo secular; Teoría cuádruple; Teoría simple

Abstract

In this essay I focus on Graham Harman's Prince of Networks, the first treatise entirely devoted to address the metaphysics of Bruno Latour. I explain how Harman highlights the philosophical roots and principles of latourian object-oriented philosophy. Furthermore, I analyze how Harman emphasizes both a new secular occasionalism as well as the new form of realism within Latour's conception of reality featured as relationism. Besides, I also stress that Harman does not only defend the philosophy of Latour enthusiastically. This philosopher compares his own metaphysical commitments and his fourfold theory of reality to the one-fold theory found at Latour's philosophy. Finally, I assess Harman's review of Bruno Latour's work and I argue that some problems within Latour's conception of reality are better understood when they happen to be explained in terms of the philosophy of science. I tackle briefly this task in what concerns the very comprehension of Latour's occasionalism.

Keywords: Object-oriented philosophy; Secular occasionalism; Fourfold theory; Onefold theory

New reading of Bruno Latour's work

Graham Harman's book, *Prince of Networks: Bruno Latour and Metaphysics* (2009), is the first treatise devoted entirely to address the metaphysics of Latour. The point of departure of Harman's research is the idea that Bruno Latour is better known by his philosophy of science than by his metaphysics. Nevertheless, since his early works, this French anthropologist, sociologist and philosopher has tackled an array of metaphysical principles which were improving in form and depth meaning-wise throughout his career, Bruno Latour (1984/2001). In this sense, the Prince of networks, Bruno Latour, has been the first philosopher to formulate new grounds for an object-oriented philosophy.

In fact, as a sociologist and anthropologist of science and technology, Bruno Latour has developed a great deal of philosophical reflections which inspired most of his methodological principles for his empirical research. Most of Latour's philosophical work is gathered around ontology if we broadly understand "ontology" as a "theory of reality." In this context, the central thesis of *a-modernity* is perhaps the best example of Latour's ontological interests. Not only does this sociologist and anthropologist want us to understand the narrative of our culture in a new way, but he also stresses the necessity of a different grasp of reality, (Latour, 1990, 1991). Latour argues that we do not live in a modern culture where science reveals the secrets of nature while technology uses scientific knowledge to control our environment since scientific facts and technological artifacts are made of the same material as in any other cultural and natural reality. In addition, this philosopher states that things are constructed due to the co-participation of what is considered the "raw material" of reality: human and non-human actors. In sum, the empirical study of scientific and technological realities in order to understand and interpret our *a-modern* culture— and questions such as *who we are* and *what we want*— requires the adoption of new philosophical principles.

As a result of those philosophical statements, the practical consequences of Latourian principles are the new methodological principles for the study of scientific and technological realities (Latour, 1987). This new approach, called Actor-Network Theory, adopted some intuitions from other approaches on science and technology, but it remains independent concerning the interpretation of objects and facts (Latour, 1999a). Furthermore, the theoretical consequences of Latourian principles are the formulation and consolidation of a wide range of anthropological, political and philosophical projects, namely, a *Symmetric Anthropology of Cultures* (1991); a *Political Epistemology* (1999b); a *Diplomatic Anthropology*, (2004a); a *Second Empiricism*, (2005a, p. 115) or a *Dingpolitik* (2005b). This article will only focus on some of those projects.

Harman's book *Prince of Networks* develops the metaphysics of Latour from two different perspectives. The first is found in the first section of the book entitled "The Metaphysic of Latour" and consists of the explanation of some key concepts and principles of Latour's metaphysics through the analysis of his main books, such as *Irreductions*; *Science in Action*; *We Have Never Been Modern* and *Pandora's Hope*. The second one, found in the section "Objects and Relations," reflects, in criticism, the scope and limits of Latour object-oriented philosophy from the fourfold articulation of Graham Harman's requirement for such metaphysics. Briefly, Harman will re-interpret the one-fold theory of Latour in a new scheme that distinguishes "real" and "sensual objects." In spite of the one-dimensional theory of actors found in Latour, this book addresses the necessity of broadening the very principles of our metaphysics.

In what follows, I briefly analyze some of the key concepts and principles that Harman identifies to be at the base of the metaphysics of Latour. This philosopher refuses some of those latourian principles in order to articulate his own program of an object-oriented philosophy. However, this attempt to define a better scheme for such a philosophical program ignores, first of all, how latourian projects have evolved and how Latour intertwines his metaphysical principles with his projects in philosophy, sociology and anthropology of science. The result of that intertwinement is a broaden approach to reality than that described by Harman. Therefore, I argue that those principles are better understood when they happen to be explained in relation to anthropological, sociological and political projects found in Bruno Latour's work.

Secondly, Harman interprets Latourian theory of causation as a new defense of a secular occasionalism, assessed by Harman as the best achievement of the history of metaphysics in recent years (2009, p. 112). Harman assumes that the metaphysics of Latour is a new kind of realist theory, which is called relationism. However, this type of realism is undeniably far from being clear. Harman's treatment of such concept doesn't deal with all the problems related to this position. In this sense, I argue that the problems posed by such a theory of reality demand an analysis of the perspective of the philosophy of science, not only in terms of metaphysics. Accordingly, I argue that, firstly, we could reach a better comprehension of the role of metaphysics in Latour anthropological, sociological and political projects and, secondly, it will also be easier to understand some problems which remain in Latour's conception of reality and which are not explained in Harman's principles on the metaphysics of Latour.

On substance

The metaphysics of Latour develops a theory of reality where substances are understood in terms of human and non-human actors. Those "raw materials" of reality combine themselves and create associations in order to construct a new reality. The way actors assemble is explained in terms of translation of their interests. For instance, the fabrication, distribution and sale of a vaccine for N1H1 swine flu create association between medical policy, patients, the public, and the illness. Why the vaccine was conceived is understandable in terms of the interest to fight the illness. Why countries design medical policies for vaccination is understandable in terms of the interest to protect the population against a new virus.

Harman's book pays special attention to Latourian studies on Pasteur because there we find one of the profoundest analyses of substance of the French philosopher. In this sense, Latour's classical study about microbes on Pasteur's research shows that there were unknown causes that produced cattle diseases, troubled farmers and challenged scientific minds. Those different situations generated different interests that Pasteur's research had to gather upon facing the fabrication of *bacillus anthracis* (*anthrax*) in his laboratory. For the French biologist, the reproduction of the *bacillus* in experimental conditions was the previous step of the creation of a vaccine for the cattle disease. In order to succeed, Pasteur had to convince political institutions that his research was fruitful, as proved by the reduction of diseases. The approach of Latour stresses the way Pasteur and the bacillus were creating a network where farmers, cattle, vet, bacillus, disease and Pasteur's lab were associated. Briefly, the association between Pasteur and the microbes allows the former to understand what microbes were and the latter how to obey to experimental conditions (Latour, 1983, 1984/2001, 1999b).

Furthermore, Harman highlights that there is no place for philosophical concepts as essence, accidents or endurance in the Latourian comprehension of reality. Thus scientific facts and technological artifacts should be understood as a complex process of fabrication of networks that might have been constructed in a different way.

We can summarize Harman's statements about the metaphysics of Latour in the four following principles:

1. A principle of irreduction.
2. A principle of democracy between actors.
3. A principle of vicarious causation.

4. A principle of pragmatic definition of reality.

Firstly, there is the principle of irreduction found in the book *Irreductions* (Latour, 1984/2001), which states that everything is related and attached to everything else due to mediation. The way actors interact with each other translates their interests and search to reach alliances with other actors. Latour calls this process translation, and it replaces the idea that actors are reducible to anything else. In this sense, Latour doesn't conceive that Pasteur discovered in the lab a real entity which was called *microbe*. On the contrary, Pasteur, his lab, the bacillus, politics and society worked together in order to create a new reality that was the cause of cattle disease.

Secondly, the principle of democracy is based on the idea than human and non-human actors have to be treated in a symmetrical way (Latour, 1999b, 1999c). In effect, this interpretation of the democracy between human and non-human actors is at the core of Latour's metaphysics. Scientific facts do not reveal the hidden structure of natural reality because human actors –as Pasteur, farmers, politicians and vets– are co-participating with non-human actors –as the unknown substance, the lab instrumental, the experimental practices, the cattle, political institutions and statistics– in the construction of a new entity. In this context, no single reality can be taken for granted since everything is fabricated. Empirical studies carried out by Actor-Network Theory describe how this construction process has been deployed (Latour, 1984/2001, 1987, 1992). In sum, Latour believes that there is not a scientific discovery of a real substance which is independent of the experimental conditions where this substance is scientifically known or certificated by scientific, political and social institutions or by the public themselves. As a result of this, scientific research carried out by Pasteur not only can be explained in terms of Pasteur intelligence, but it also has to be understood in terms of the associations created inside and outside Pasteur's lab. Latour calls this a realism-constructivist approach (1999b).

Thirdly, Harman pays special attention in chapter three to the Latourian idea that entities have to be understood as *black boxes*. Scientific facts, conceived as a concrete association among human and non-human actors, can change their attachments. In this sense, new associations of actors can create new realities. Therefore, what is a reality is nothing than the number of its components and the type of associations among them. For instance, if people refuse massively to get vaccinated against the swine flu, a consequence will be a decrease in the perception of the risks associated to the illness or mistrust in the efficacy of vaccination. The relations between the swine flu and the medical policy will become weaker. On the other hand, if people accept to be vaccinated, the former will strengthen their associations.

Bruno Latour rejects naturalism as philosophical position where causes are understood exclusively as "physical causes" (Harman, 2009, p. 108). In fact, Latour criticizes naturalism as a metaphysical thesis at the core of what he calls modern narrative as opposed to a-modern world. In *We Have Never Been Modern*, (Latour, 1991), the French philosopher argues that modern narrative is a type of self-knowledge of western culture where there is a split between natural and socio-cultural realm, objectivity and subjectivity, facts and interests. Of a modern perspective, science is an intellectual activity which discovers the rational structure of the natural world. Consequently, physical causes, settled by scientific knowledge, can explain how the natural world is. Since Nature and Culture, subjectivity and objectivity, and facts and interests are not conceived in a different way in Latour's theory, it makes no sense to break down the principle of democracy between actors mentioned above and to reserve the exclusive realm of Nature for science. In order to explain entities, there is neither an intellectual activity nor a specific Culture

that could completely assume the task of defining reality. In fact, there is not one Nature or only one truthfully representation of Nature. Latour identifies naturalism as a position with a wider scope in philosophy and sociology of science. Moreover, he assesses naturalism as a kind of absolutism in which reality is reducible to physical causes, (Latour, 1999c/2004, 2004b). On the contrary, Latour argues that all kind of actors can be articulated in the construction of reality. Harman interprets Latour as ascribing a theory of vicarious causation that embraces all kind of things, even if they were not previously reassembled (Harman, 2009, p. 15).

Finally, an entity is not only defined by the list of its components or the concrete associations between the actors attached in a specific network. An entity is also defined by a pragmatic criterion: something is real if it has consequences and reflects actual reality. Latour argues that when a network is robust enough it has a performative force which is able to reshape the way human and non-human actors behave and understand themselves (1983). As a result, better networks are those which have more attachments to very different kinds of actors. Harman's work on the metaphysics of Latour shows explicitly how the philosophy of the French author is original and is also enlarging and broadening the history of metaphysics.

Nevertheless, Harman does not only defend the philosophy of Latour enthusiastically. He also remarks, on the one hand, that there is philosophical tension between the Latourian claim that to find out more about a scientific or a technological artifact we need to investigate the attachments of its components from a democratic point of view of actors and the claim that something is real if it has consequences and transform other things, (Harman, 2009, p. 106). On the other, Harman amply treats the problem posed by the lack of differentiation between primary and secondary qualities within Latour work. Finally, the analysis of Harman deals with the best way to interpret realism as a philosophical position that Latour defends. In this sense, Harman tries to find out if latourian realism is a case of correlationism, the philosophical position that refuses the pre-existence of a world in itself before humans as Meillassoux argues (Harman, 2009, p. 123), or if Latour's work fits better the so called relationism, a position which focuses on the links created by human and non-human actors within a specific network (Harman, 2009, p. 129). This last problem will be reviewed after the analysis of latourian secular occasionalism in the next section. As it will be argued, such a problem could be better understood from the point of view of philosophy of science and not only from a metaphysical approach.

New secularist occasionalism

Harman stresses in his book that Bruno Latour is better known for his philosophy of science than for his metaphysics (Harman, 2009, p. 33). But the Latourian conception of an entity refers to both types of philosophical analyses. In fact, in his early anthropological, sociological and philosophical works, Latour paid more attention to methodological principles to describe the construction of scientific and technological facts than to ontological principles which were suitable to talk about our reality. This is found, for instance, in works such as *Science in Action* (Latour, 1987) or *Aramis and the Loves of Technology* (1992). One of the main purposes of Latour was to define a new methodology for the study of science and technology from the point of view of their processes and practices. Rationalism and idealism were two philosophical backgrounds that Latour wanted to avoid (1999a). But later, at the *fin de siècle* and at the beginning of the twenty-first century, he emphasizes the proper way to understand any reality and its relations to other realities in a political way and in a non-modern context (1999c/2004, 2003,

2004a, 2005b). This feature is ignored in *The Prince of Networks*. In his book, Harman only interprets the fact that in Latour's theory, an entity can be defined by its components and associations in terms of a local and secular occasionalist explanation (Harman, 2009, p. 116). This emphasis in the occasionalist account of the Latourian metaphysical production is what allows Harman to talk about a new approach in metaphysics in recent years due to Latour's work, namely an object-oriented philosophy. In sum, Harman neither deals with the Latourian fight against rationalism nor idealism. Besides, Harman doesn't explain the pivotal role of a-modernity in the metaphysics of Latour. Furthermore, there are three main problems with Harman's approach. Firstly, the scope and profoundness of a secular occasionalist explanation are not clear enough. Secondly, Latourian theory of causation is not apt to deal with all kind of philosophical problems that Latour is committed to, such as the Latourian opposition to an ethnocentric prejudice, the myth of progress, and the proposal of a non-modern culture. Unfortunately, this text will not deal with this second problem due to limitations in time and space. Finally, if it is desirable to embrace an object-oriented philosophy because it promotes a better comprehension of reality, then such a philosophical project should best clarify its virtues and cross out all the unfathomable content that still surrounds it. In order to explain Harman's criticism on Latour, I will formulate in the language of the philosophy of science the metaphysical statements at stake. Of this perspective, it is easier to remark that the main problem found in the metaphysics of Latour is related to his conception of reality. This is further emphasized in the next section.

Secular occasionalism as a theory of isolated instants.

The occasionalist approach in philosophy is found in Islamic tradition as well as in modern tradition. It refers to the idea that natural causation does not exist. Therefore, the relation between two events must be explained as an action carried out by the divinity. Harman argues that Latour shares with the philosophical tradition of occasionalism the idea that actors are cut off from one another. In spite of this, Latour disregards the hypothesis that it is necessary to claim that God is attaching actors in a way that makes the network works. Due to the fact that Latour defends a theory that forbids the interpretation of Nature as a set of realities defined by their essence, his theory implies that an entity, understood as something concrete, is no more than actors that start up in isolated instants. If things are black-boxes and do not have durability, the question which comes to mind is: what are the criteria for defining realities? What do they consist of? Harman's reading insists on the number of actors, the attachments among them, the robustness of the network and the effects or consequences of that network. But in order to avoid an infinite regress of actors to explain what is a *X* entity –a problem implied by the Latourian idea that durable entities do not exist– Harman identifies a pragmatic definition for an entity. A substance is defined by its actions and consequences, as we have seen in the previous section. Latour's secular occasionalist explanation is a theory of isolated instants that interact without the help of any divinity. An entity is considered within this theory as a network formed by attachments of human and non-human actors that have effects in reality and reshape the previous ontology.

Relationism, correlationism, fact-constructivism and realism-constructivist

First of all, occasionalist explanation for Latour's definition of an entity leads to the understanding of realism within the metaphysics of the French philosopher. Harman doesn't agree with the double criterion Latour uses to define an entity: the number of actors and their associations, on the one hand, the effect of

the former in the reality, on the other. Firstly, Harman proposes to distinguish between entities and their pieces: “In short, things must be partially separated from their mutual articulations”, (Harman, 2009, p, 131). As a consequence of this, Harman rejects the relationist theory within the metaphysics of Latour (Harman, 2009, p. 162). There are two main reasons for this: on the one hand, a relationist theory leads us to a theory of isolated instants, thus, it generates a problem of regress to infinite for defining a concrete reality. As Latour states, entities must be understood in terms of black-boxes that can always be reopened. On the other hand, this theory is not able to explain the problem of change: “Entities for Latour *must* be a perpetual perishing, since they cannot survive even the tiniest change in their properties” (Harman, 2009, p. 104).

The former summarizes Harman’s ideas on the apparently realistic theory Latour would be defending. Much of the controversy surrounding the French philosopher’s ideas on a realistic conception of entities has stemmed from science warriors –as Alan Sokal and Jean Bricmont (1998) – as well as supporters of analytic philosophy (Boghossian, 2006). This group of intellectuals has in common the idea that Bruno Latour as a great spokesperson of Social Studies of Science represents a challenge to scientific realism. For Paul Boghossian, Latour defends an epistemological principle of *equal validity* in terms of which Pasteur’s knowledge on cattle disease caused by *anthrax* and farmer’s knowledge on cattle disease would have the same reliability (Boghossian, 2006, p. 2). Besides, as the analytical philosopher states, the counterpart of this epistemological relativism would be a denial of an independent reality for entities from human knowledge. This is what the analytic philosopher calls a *fact-constructivism* (Boghossian, 2006, pp. 26-27). Boghossian’s assessment of the philosophy of Latour is, in this sense, negative. He considers that Latourian proposals are counterintuitive and bizarre. The example brought up by the analytical philosopher focuses on the death of Ramses II and not on the works of Latour on Pasteur. But those examples share the same topic, namely, how to understand a realistic conception in the philosophy of science. For Latour, Ramses II did not die of tuberculosis because this sickness was not known before the research done on it by R. Koch in the nineteenth century. This leads us to the correlationist interpretation of Latour’s intellectual production that Harman wants to escape from. Nevertheless, when it comes to explain the historicity of an event or an entity, Latour fits better with this correlationist approach than with the relationist one. The correlationist traits of the Latourian theory work to stress that even if all kind of entities are constructed by the same “raw material” –human and non-human actors– there are degrees of reality which depend on the robustness of a particular network of actors, or a black-box, and the consequences in performing pre-existent ontology by that network or black-box (Latour, 1987). It is true that Latour makes a mixture of relationism and correlationism and defines reality, on the one hand, by the co-participation of actors in the construction of a robust network and, on the other, by the consequences of such a network. Harman highlights this ambivalence in the metaphysics of the French philosopher: most of the time, Latourian realism can be exclusively understood in terms of relationism, but few times, it is necessary to explain Latourian realism in the terms of correlationism. The key concept to understand why this happens is that for Latour scientific facts cannot be understood if we cut off its inner features –what was supposedly considered as its substance– and its outer features –what was considered as its social and cultural consequences–. The composition of the network of *tuberculosis* and *anthrax* and the strength of those black-boxes were different before and after Koch’s and Pasteur’s research. As a consequence of this, although unnoticed by Harman, relationism and correlationism alone are unable to deal with Latour’s definition of entities. In effect, the realism-constructivist account proposed by the French philosopher insists on the idea that a reality does not exist before the research for it (*anthrax* was not real before Pasteur’s research) but a reality is also independent of such a research.

Some of those Latourian statements can be considered counterintuitive from the point of view of the philosophy of science because statements coming from realism differ from constructivist ones. The former entails that entities are independent of the way they have been stated (Newton-Smith, 1981). The latter focuses on the socio-political factors that caused scientific beliefs and the social elements that shape epistemological criteria (Hesse, 1980). Secondly, Latour defines his own production as a new empiricism which differs from normal empiricism because skepticism is avoided (Latour, 2005a). But, on the one hand, from the point of view of the philosophy of science, realism is opposed to empiricism. On the other, Latour is defending a new kind of epistemology that deals with a special realist account, *realism in media res*, as Ofer Gal suggests (2002, p. 535). Escaping from a representational theory of scientific knowledge and from a radical constructionism of scientific facts, Latour's account tries to understand the emergence of a reality from a symmetrical point of view of its causes.

Real and Sensual objects

Harman agrees with supporters of scientific realism that in order to define *anthrax* or *tuberculosis*, we should believe that those realities are independent of the process of their representations, although his main influence in philosophy comes from the continental metaphysics, not from the branch of the philosophy of science. In this sense, Harman also distinguishes between "real" and "sensual objects." The former refers to an autonomous real object which differs from its qualities and which is independent of our representations of it. As Harman states as a principle of his object-oriented philosophy: "Objects exceed our access to them" (Harman, 2009, p. 163). This refers to the existence of an object as it is perceived and we pay them heed. Due to this difference between an object and its features and the difference between real and sensual objects, Harman formulates his fourfold theory. His object-oriented philosophy does not refer to the description of the construction of any fact, but to the distinction of two types of objects and two types of traits to render our theory of reality more reliable. For instance, we have the *bacillus*, the object itself, and the sensual bacillus worked in the lab by Pasteur. Besides, the *bacillus* can be differentiated from its qualities and, for instance, from its effects on cattle, farmer, and politicians.

Harman's project does not inherit from Latour the principle of democracy between actors. In spite of what Harman considers a flat ontology within Latourian theory, he agrees with supporters of scientific realism that there are real objects independent from our knowledge or our perception of them. Furthermore, Harman rejects the idea that any actor can be linked to another. The association between them can only occur when they happen to be two actors of different kind, one from the "real object" and other from the "sensual" one because: "We have the real sunflower (assuming it exists) and the sensual translation of it that appears to human or other entities" (Harman, 2009, p. 207).

Therefore, there are big differences between the metaphysics of Latour of an object-oriented philosophy and the metaphysics of Harman. This philosopher identifies the very problem of Latourian principle of relationism because this principle fails in its attempt to support a realistic theory of reality. However, Harman states that vicarious causation –the position he identifies in the metaphysics of Latour– is one of the most important features in the Latourian secular occasionalism. One problem arises from this view due to the fact that Harman's interpretation of vicarious causation is formulated in order to explain how any actor can be linked to anyone else. The former was at the core of the very principle of latourian relationism. But Harman, as we have said, will not support relationism nor latourian theory of causation – even if the latourian theory of vicarious causation is formulated within Latour's first secular occasionalism

in the history of philosophy, as Harman argues, and is in line with the idea of an object-oriented philosophy, perhaps the most original Latourian philosophical project—. In addition, Harman divides things in real objects and sensual ones, and qualities of real objects and qualities of sensual ones. Therefore, if we want to explain what something is, as Harman states, we should pay attention to the fact that real things exceed our access to them and that we will notice “real things” through their emergence in “sensual objects.” So, if Harman doesn’t embrace the Latourian theory of causation, why does he still justify such a theory? And if an object-oriented philosophy excludes relationism, which is at the core of the Latourian occasionalism, why would the Latourian approach of a secular occasionalism be so important for future metaphysics?

On realism

There are two different approaches for a new philosophical project within the works of Bruno Latour and his commentator Graham Harman. The former defends a one-fold metaphysical system where the tiniest ontological pieces were called actors. An atom is an actor as well as the Leaning Tower of Pisa. The latter defends a fourfold metaphysical system. Even if it is not feasible to grasp “real objects”, we experience their emergence through “sensual objects”. Besides, Harman refuses the idea that a reality is the sum of its pieces or its qualities. The question that arises from this situation is: Is occasionalism the best theory to fit Latourian realism? And if so, why would it be worthy to defend the originality of such a position if we think, as Harman does, that relationism deserves to be avoided?

The main problem with a secular occasionalist approach, from the point of view of the philosophy of science, is that the reasons why a network of actors works remain unfathomable. A further research about the concrete associations of actors within that network, the empirical task carried out by the Actor-Network-Theory, allows a better understanding of such a situation, even if this account can still be problematic in what concerns the conception of the reality of an entity. So, firstly, I argue that Latour’s own definition on the aims, scope and methods of researching the construction of realities is clearer than the occasionalist characterization of Harman. Secondly, I assume that the strategy that Harman uses in order to deal with Latourian realism, namely an occasionalist approach, could be replaced by a historicist approach, as Gal suggests (2002); even though this position would entail some drawbacks.

Many years ago, sociologist Karin Knorr-Cetina (1985) suggested that the research on science carried out by Bruno Latour was fruitful detailing social and political factors surrounding the process of construction of scientific facts. She also argued that we can hardly ever understand, for instance, why Pasteur’s replication of the *bacillus* in the lab was a reliable process. In fact, Latour is engaged with a symmetrical explanation on scientific and socio-political reliability in the existence of a scientific fact. From the point of view of Latour, this is the only way to understand how scientific facts are constructed of political, social and economic elements as well as scientific ones. Once this is grasped, it becomes easier to understand why scientific facts are very performative because they are made of actors from the social, political, economical and scientific domains. Harman’s occasionalist approach doesn’t focus on this symmetrical process of explanation of reliability in the existence of something from a scientific, social, political, economic and cultural point of view. This approach also refuses the principle of symmetry, as we have seen before. Besides, an occasionalist approach suggests that a concrete network of actors starts to work because a great deal of translation among those actors has been done before. Even if this is a truthful interpretation of Latour’s work, it is very important to focus on latourian meta-thesis about

ontology, namely *a-modernity*. Harman's analysis on Latour's ontology does not refer to the *a-modern* thesis which is at the core of Latourian anthropological, sociological and philosophical production.

From the point of view of *a-modernity*, no difference exists between an object constructed in a scientific or technological way and an object fabricated within a non modern, industrialist, pre-scientific or non informational society. There is, furthermore, an important point which leads Latour's empirical research that is also ignored in Harman's study, namely the rejection of the ethnocentrism. Latour considers, wrongly in some respects, that the motivation of the philosophy of science as well as the sociology of science, before the origins of science studies, were to show how scientific enterprise reveals some kind of rational values which serve two useful purposes. On the one hand, those values show that nature is intelligible and only understood in a complete way by science. On the other, that science is an achievement of western culture and, therefore, makes that culture superior to other ones. The criticism of scientific values considered as the only rational or neutral ones in that they do not include subjective interests is an important topic that has received great treatment of different perspectives and disciplines (Bloor, 1976; Proctor, 1991; Longino, 1990; Harding, 1995; Haraway, 1996). Latour believes, like Lyotard, that the modern assessment of science is based in Trinitarian virtues: "effectiveness, profitability and truth" (2004a). At the same time he is against the idea of western cultural progress (1999b). In order to prevent an interpretation of scientific and technological realities in a modern way, he defends the thesis of the *a-modernity* where we recognize that pre-modern and the so-called modern construct their realities in the same way (Latour, 1990, 1991). If there is no split between nature and culture, objective values and subjective ones, science –as the realm of rational and neutral values– and politics –as the realm of subjective interests–, the aim of anthropology of science should be to compare the networks within cultures. This is what the Latourian project of a symmetrical anthropology of modern world consisted in (Latour, 1991). This project was removed from his agenda and replaced by a Diplomatic anthropology where modern and pre-modern representations of nature are considered equal and where those representations have to negotiate in order to reach an agreement on settlement (Latour, 2004a).

As a consequence of this, we learn that there is more than one sociological, anthropological, political, historical or metaphysical interest in the Latourian project, but an entanglement of all this projects reassembled on *a-modernity*. Harman's occasionalist explanation for Latourian relationism does not give any evidence on all those latourian interests and does not mention the plurality of realities –shaped by a culture X, or by a scientific group of culture X or by a culture Y – in a non-modern context that the theory of Latour is prompt to accept. And to assess Latour's work it is necessary to consider all those different aspects, even though this task exceeds the aims of this writing.

Finally, in order to understand Latourian realism, it could be preferable to embrace a historicist approach that fits well with a political project within Latour's conception of reality. Nevertheless, this proposal is based on the purposes of interpretation of Latour's philosophy of science, but it only reflects a provisional solution for Latourian realism; this topic would deserve a further analysis.

The new philosophy of science defended by Latour stresses the fact that any object is definable and constructed in a plurality of ways or *pluriverse* (1999c). The principle of *equal validity* Boghossian applied for in order to explain the approach of Latour is working within the French philosopher's conception of reality. However, this principle entails that in order to define reality, all different articulation of realities have to interact and negotiate their meanings, scope and force. From this perspective, the sickness caused by an X substance, before Pasteur's research on *anthrax*, was a different reality from the

sickness caused by *anthrax*, after Pasteur's research. At that moment, we were able to define in a proper way the associations among scientific, medical, hygienic and political actors. Before, those associations didn't exist, even though the effects of an unknown cause on cattle were similar as the effects of *anthrax* on cattle. Then Latour suggests that different realities have to negotiate between them and that *relationism* is a political project committed to the idea of the construction of a *common world* (Latour, 1999c).

The historicist account that is proposed does not reduce the reality of an entity to its historical roots, even if this is the main problem that Gal identifies within Latour's approach in the philosophy of science. On the contrary, the historicist account, as I understand it, identifies similarities in different entities that were shaped at different moments or even at the same time. This account focuses on the kind of associations that started up to work at a certain moment. However, the problem that arises from such a historicist account, in my modest opinion, is that if we don't identify that X substance or *anthrax* could be all different constructions of the one same pre-entity or entity, as Latour does, we would stress and reinforce the idea that something is real due to the robustness of the network in which such an entity is described. In this sense, Latour is a correlationist for whom reality relates to transformation and redefinition of ontology and is dependent to human actors who participate in science, publish scientific articles, decide what type of politics are going to be carried out and so on.

Briefly, on the one hand, if entities are not independent of human-actors and a realist approach is avoided, such realism defended by science warriors, therefore Latour agrees with correlationism as defended by Meillassoux (Harman, 2009, p. 122). On the other, if *bacillus* is independent of Pasteur but didn't exist before his research, as Latour argues, then scientific enterprise is better prepared to assume the task to define our ontology, even if all different constructions are made of the same "raw material" and by the same means, namely, the articulation between human and non-human actors. Latour wants to avoid ethnocentrism, but his criteria for assessing scientific or technological facts insist on the robustness and force of a network. As a consequence of this, it is not difficult to presume that scientific facts are better entrenched than other articulations of reality.

However, I argue that there are some articulations that could be shared by different constructions of the same reality. From this perspective, it is more important to pay attention to what is similar, what they are for, how they differ and how those different articulations interact in order to define our ontology than to discuss whether an entity is completely independent of our knowledge or it does depend on the robustness of the network which describes it. Furthermore, this idea is compatible with constructive-realism account of philosopher of science Ronald Giere (2004) in regard to, firstly, the idea that science reflects different models of reality, secondly, science can develop a different kind of models for one same real structure of our world and, finally, science does not reveal the hidden essence of reality.

Therefore, as Latour argues, neither science grasps the substance of the world nor, against Latour, reality depends exclusively on different scientific, cultural and social constructions. There are also some articulations or, in Giere's view, models of reality which do not depend on only one deterministic representation.

On balance, this new critical lecture of the metaphysics and philosophy of science of Bruno Latour does not agree with the fourfold object-oriented philosophy of Graham Harman. First of all, I consider that metaphysics is a pivotal philosophical program, but in spite of this, philosophy as an activity transcends

the limits of mere speculation about reality. Philosophy has to discuss other empirical disciplines such as sociology, anthropology and so on. Harman's book on Latour brings us the chance to find out more about the metaphysics of this great philosopher, sociologist and anthropologist of science. But it fails in what concerns the whole of his ontological commitments.

Secondly, Harman's fourfold object-oriented philosophy states that "real objects" exceed our knowledge, so we find out things about them through their emergence in "sensual objects." Contrary to Harman, I agree with Latour that *ontic-articulations*, entities or pre-entities are something more than "sensual objects", they can be represented, from the philosophy of science, as different models for reality and, from a broader point of view, those *ontic-articulations* are incarnated in cultural constructions, they have different conceptions through time and their understanding and their degree of transformation of reality can differ. Even though, those different articulations and conceptions on entities can be related to a pre-entity that allows comparisons between them. Finally, I think this defense of a plurality of representations on the common traces that different articulations share, instead of drawing a fighting scenery where robust constructed scientific networks are prompt to win the war against other weaker scientific or cultural networks, could have positive effects in order to deal with the relations between ontology and political philosophy of science because Science is not the very Kingdom of the definition of realities.

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