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Towards an object-oriented design ontology

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Abstract: Object-oriented ontology, speculative realism, new materialism, and similar contemporary philosophies proposing alternative non-anthropocentric theories to understand the world and relations within, became more prevalent and effective in the last two decades. However, except for several solitary examples, these do not seem to be having a transformative effect on design disciplines, theory, and practices. This paper initially introduces primary theorisations of object-oriented thinking and how these theories would inform design thinking, education, theory and practice. The author argues that this is not, by no means, an option or alternative but is a necessity, an urging fundamental transformation waiting to happen, considering the current environmental, social and cultural concerns of our age.

Keywords: speculative realism; object-oriented ontology; design theory; design ontology

1. Introduction

In 2018, Pelican Books, a sublabel of Penguin, published "Object-Oriented Ontology: A New Theory of Everything" by Graham Harman. This book is one of the first mainstream books on Object-Oriented Ontology, a new philosophy -only about a decade old- along the lines of speculative realism. The sixth chapter of Harman's book titled "Varying Approaches to Object-Oriented Ontology" points to ideas and writings of Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (2013); Ian Bogost, *Alien Phenomenology, or What It's Like to Be a Thing* (2012); Levi Bryant, *Onto-Cartography: An Ontology of Machines and Media* (2014) and Tristan Garcia, *Form and Object: A Treatise on Things* (2014), whom he considers thinkers of Object-Oriented Ontology. Throughout the book, the author also builds strong connections to the fundamental thoughts and theories of Manuel DeLanda and Bruno Latour. Except for Latour (2007), whose Actor-Network Theory (ANT) is recognised in design theories and practices, object-oriented ontologies do not seem to have entered the radar of design theory and education as a feasible or pleasurable approach. In fact, the curricula of design education institutions and the practices of design offices seem to be entirely oriented towards humans, whether it is their interaction with machines, impact on the environment, state of their future or the sustenance of their race.



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There is a concealed anthropocentrism and prioritisation of the human civilisation in almost every school of design thinking. However, the underlying principles and justifications are rarely discussed; thus, even the most advanced, most progressive approaches fail to create a paradigm shift in design.

This paper presents an overview of various Object-Oriented Ontologies. It discusses their common points: a flat ontology, an egalitarian approach to things and an emphasis on the interconnectedness of everything. Following the analysis, a new object-oriented design ontology proposal is made. The aim is to open a new window to a flat ontology, a new understanding of the world for design institutions to consider and calibrate themselves to.

2. Object-oriented ontologies

The best way to understand OOO is to state what it is not: It is not a new way of thinking where objects are granted a place for an inspection besides humans; everything surrounding humans is seen as a part of the world and taken into account; definitely not a theory where only objects are taken into account.

An overarching definition of OOO is as follows: OOO is a novel philosophy of being, where every *thing*, regardless of animacy, sentience, consciousness, materiality, even possibility, is considered an object/thing and is treated as such. OOO is particularly interested in the qualities and interrelations of objects rather than hierarchies and taxonomies.

There are three main principles accompanying OOO. The first and indispensable one is a flat ontology against reductionism and self-evident prioritisation:

"This [flat ontology] is the idea that philosophy must begin by casting the widest possible net in aspiring to talk about everything. The chief enemy of flat ontology is the taxonomical prejudice which assumes in advance that the world must be divided up between a small number of radically different types of entities."

The second is an egalitarian, almost alienated approach to objects within the flat ontology. Every thing is not equal in terms of qualities, but they are of equal importance. Every object deserves the same amount of attention, and one object is not more important, critical, or sacred than the other. Humans are no exemption from that.

Last but not least, objects are in constant relation on different dimensions and scales, physically, psychologically, temporally; comprehended and comprehending, shining brightly or dimmed, actively or passively, in ways beyond our comprehension.

Beyond that, the arguments of OOOs are quite contradictory at certain times. One of the most apparent schisms is about access to things. Graham Harman (2018, 7) adopts a Heideggerian approach and argues that "objects withhold themselves not just from human access, but from each other as well" and "[t]his withdrawal or withholding of things from direct access is the central principle of OOO". Tristan Garcia (2014) writes exactly the opposite: there could be not such a thing as a being-in-itself, being withdrawn.

Secondly, although the aim is to construct a flat ontology while trying to establish a new terminology for their philosophy, almost every philosopher proposes a different categorisation. There are two types of objects and two types of qualities for Harman. Levi Bryant proposes six different categories for his *machines*. For Timothy Morton (2013), hyperobjects carry a distinct significance for philosophy and ecology. However, if we widen our vision and look at them all in their common characteristics, these differences seem like nuances to draw parallels to the design theories. The Object-Oriented Design Ontology (ODOO) is built on the main principles of four philosophers (among others) and is positioned onto their intersections.

2.1 Harman and the OOO

Graham Harman (2018, pp. 25-38) starts his book *Object-Oriented Ontology: A New Theory of Everything* with an imaginary theory being a candidate for a theory of everything. Repeatedly testing this theory in various disciplines, Harman deducts his OOO from the failures of this speculative theory.

OOO has five fundamental principles:

1. All objects must be given equal attention, whether they be human, non-human, natural, cultural real or fictional.
2. Objects are not identical with their properties, and this very tension is responsible for all the change that occurs in the world.
3. Objects come in just two kinds: real objects exist whether or nor they currently affect anything else, while sensual objects exist only in relation to some real object.
4. Real objects cannot relate to one another directly, but only indirectly, by means of a sensual object.
5. The properties of objects also come in just two kinds: again, real and sensual.
6. These two kinds of objects and two kinds of qualities lead to four basic permutations, which OOO treats as the root of time and space, as well as two closely related terms known as essence and eidos.
7. Finally, OOO holds that philosophy generally has a closer relationship with aesthetics than with mathematics or natural science.

The first two rules thus define the field that the flat ontology is sitting on. All objects must be given equal attention. We should not discriminate between certain types of objects just because they are sentient, conscious, or animate. As Harman illustrates with the Dutch East India Company¹ (VOC), an object does not necessarily exist and exist somewhere; it must not be basic and simple. Objects are neither more than what constitutes them nor could be reduced to their constituents. Each object deserves an equal amount of attention to be paid

¹ Dutch East India Company was a multinational corporation that operated with a “vertically integrated global supply chain” in intercontinental trade for about two centuries. It had immense commercial, political even military power, with several headquarters, hundreds of ships, and mercenaries.

to. An object is "more than its pieces and less than its effects", thus irreducible in both directions.

In this sense, OOO is a philosophy against "Physicalism, smallism, anti-fictionalism and literalism" (Harman, 2018, 38). Further, Harman argues that "... among other things that OOO holds that the external world exists independently of human awareness", which paves the way for a non-human centred evaluation of objects.

Another critical argument of Harman is about the temporal or physical boundaries of objects. His example of the American Civil War² illustrates this clearly (Harman, 2018, pp. 114-34). Objects (with temporal qualities) do not begin at a definite moment in time; events leading to that object are also a part of it. Similarly, they do not end when they end but continue to exist in different ways and formats. This definition resembles Manuel DeLanda's (2000) non-linear, continuous, and transforming construction of history and makes us aware of the various -temporal and physical- scales of objects as well as their interconnectedness.

2.2 Bryant and Onto-Cartography

Levi Bryant is a professor of philosophy at Colin College in the USA. In his groundbreaking book, *The Democracy of Objects* (2011), Bryant lays *The Grounds for a Realist Ontology* (pp 34-66) and proposes *The Four Theses of Flat Ontology* (pp 245-92). Later in 2014, in *Onto-Cartography*, he argued that everything is a machine rather than an object; however, his alternative categorisation for machines could easily be applied to objects: Dark objects, bright objects, satellites, dim objects, rouge objects and black holes.

As Bryant states (2014, 184-232), all the machines exist within *worlds*, not worlds as planets but rather a collection of machines within machines within machines. Every machine has a distinct *gravity* at any given time:

"We must be careful not to take the term gravity too literally. What I wish to capture with the onto-cartographical concept of gravity is the way in which one machine influences the movement and becoming of other machines, as well as the interactions possible between machines." (Bryant, 2014, 188).

Bryant emphasises that his categorisation is by no means exhaustive. Machines in the first four categories move from the least to most influential machines. Dark objects are dormant and waiting to be discovered to influence other machines. As Bryant (2014, 199) puts it, "These would be objects that exist, that are out there floating about in the void, but that are entirely invisible to all other objects". These could be lost scrolls or undiscovered ancient remains. Dim objects are machines that only barely matter, by their nature or through ignorance or oppression. Homeless or disabled people might be examples of this category. Bright objects are, as their name suggests, much more influential on the operation of other machines. A bright object is "a machine that gravitationally overcodes the local manifestations, movements, and becomings of other machines" (Bryant, 2014, 202). An example of a bright

² Any event could also be considered an object.

object could be the Sun, not because it is bright, but because it determines the actions and functions of many other machines. Rice, climate or oil -one of Timothy Morton's hyperobjects- with their high gravitational affluence, could be considered bright objects.

Machines that are affected by bright objects are called satellites. From a particular standpoint, human beings are satellites to the bright object sun. However, children "who in their frailty... are dependant in nearly way on [them]" are the satellites of their bright object parents. These examples illustrate the context-based, relational character of this categorisation.

2.3 Morton and the hyperobject

Timothy Morton is a post-ecological philosopher and professor of English at Rice University. Morton mostly writes from a post-ecological, post-human perspective. He coins the term hyperobject in his book *The Ecological Thought* (2010, 130-35) as "things that are massively distributed in time and space relative to humans". Hyperobjects become the subject of his latter book *Hyperobjects: Philosophy and Ecology after the End of The World* (2013). They have five main characteristics:

- Viscosity
- Nonlocality
- Temporal Undulation
- Phasing
- Interobjectivity

Morton (2013, pp. 1-2) summarises these qualities as follows:

"Hyperobjects have numerous properties in common. They are *viscous*, which means that they 'stick' to beings that are involved with them. They are *nonlocal*; in other words, any 'local manifestation' of a hyperobject is not directly the hyperobject. They involve profoundly different temporalities than the human-scale ones we are used to [temporal undulation] ... Hyperobjects occupy a high-dimensional phase space that results in their being invisible to humans for stretches of time [phasing]. And they exhibit their effects interobjectively; that is, they can be detected in a space that consists of interrelationships between aesthetic properties of objects. The Hyperobject is not a function of our knowledge: it's hyperrelative to worms, lemons, and ultraviolet rays, as well as humans."

According to this description, so many things could be a hyperobject that anything could be a hyperobject. That is precisely Morton's point or his object-oriented approach. However, we could come to a better understanding of the concept of the Hyperobject through an example. Let us look at London as a Hyperobject. London is viscose. When you are in London, you are engulfed in it, immersed in it, like a bee in a honey jar. What places you in London is not your location; instead, you are embedded in its reality, air, water, people, all sorts of animate and inanimate beings surrounding you.

London is nonlocal; its borders are ambiguous, even non-existent at times. For instance, the river Thames, originating from Thames Head in Gloucestershire, becomes part of London when it flows through the city. We could, maybe, exactly say where London ends, horizontally, but vertically; where do the city's limits lie?

When it comes to hyperobjects, nonlocality means that the general itself is compromised by the particular. London is not just a geographical formation or an urban construction. It relates to all the other objects that it incorporates and objects that contain it. A riverbank, a Victorian house, the Routemaster, and even the city's imaginary representations are all different localities.

"When you approach an object, more and more objects emerge... Hyperobjects envelop us, yet they are so massively distributed in time that they seem to taper off like a long street stretched into the distance. Time bends them and flattens them, the same way that an electromagnetic wave front shortens at its leading edge. Because we can't see the end of them, hyperobjects are necessarily uncanny... The recognition of being caught in hyperobjects is precisely a feeling of strange familiarity and familiar strangeness" (Morton, 2013, 55).

London is geologically millions, as a city hundreds of years old. Not an easy fact to grasp by a being whose lifespan is 70-80 years. Furthermore, objects constituting it are at various ages and different phases of their lives. These temporal and local undulations make it almost impossible to comprehend/perceive and define London as a whole.

As Morton states: "Hyperobjects are phased: they occupy a high-dimensional phase space that makes them impossible to see as a whole on a regular three-dimensional human-scale basis.". When I look at London, I only see "brief patches of this gigantic object" and "constrained slices" of it as it intersects with my world. Hyperobjects seem to come and go, but this coming and going is a function of our limited human access to them. How we experience London depends on the phase of its continuity; climactic, social, economic, and political conditions define how it is imprinted in my social or cognitive space.

"Think of a city. A city contains all kinds of paths and streets that one might have no idea of on a day-to-day basis. Yet even more so, you could live in a city such as London for fifty years and never fully grasp it in its scintillating, oppressive, joyful London-ness. The streets and parks of London, the people who live there, the trucks that drive through its streets, constitute London but are not reducible to it. London is not a whole that is greater than the sum of its parts. Nor is London reducible to those parts. London can't be "undermined" downward or upward. Likewise, London isn't just an effect of my mind, a human construct—

London's history is its form. Form is memory... London is a photograph of its past. When you walk through the streets (it seems corny to put it this way, but it's not really) you are walking through history."

Finally, London is interobjective. It is a mesh of interrelated objects of various dimensions, shapes, types and physicalities. As in any hyperobject, it is beyond the total comprehension

of human beings, except all the objects constituting it and their relations are entirely comprehended. Morton's construction of hyperobjects and their qualities provide a realistic ground for constructing a new Object-Oriented Design Ontology.

It should be noted here that although any object could be seen as a hyperobject, this should not lead to a reductionist attitude. I would argue that there is little to gain from identifying infrastructures, superstructures or networks as hyperobjects. An OODO could only be meaningful if design could emancipate itself from a particularist approach and become holistic, embracing, and inclusive.

Morton's philosophy is essential because of two reasons. First, it provides the grounds for a flat ontology, an object-oriented approach to design. However, more importantly, he defines and characterises hyperobjects, which gives us an idea about objects temporally, conceptually, and structurally *hyper*. This enables a holistic approach and understanding of the conditions and state of the world we live in and designers are designing for.

2.4 Garcia and things

Tristan Garcia is a French philosopher and novelist who writes fiction and non-fiction³. His most groundbreaking work is *Form and Object: A Treatise on Things*, written in 2010 and translated into English in 2014. In this book, written in the argumentative, fluid style of an Ancient Greek philosopher, Garcia provides us with the simplest definition of a thing: A thing is the difference between what that thing comprehends -which is in this thing- and what comprehends that thing -which this thing is in.

The definition of comprehending here deserves a special mention and explanation. For Garcia, comprehending something is not comprehending in its most literal sense of understanding but encompasses various ways of comprehending: containing, understanding, attending:

"Comprehending is having something, something inside itself. Comprehending is also comprehending an element by being a set; comprehending one quality by being a substrata of qualities; comprehending someone by appreciating or paying attention to this someone; assimilating a way of thinking or idea; having a part when one is a composite; or comprehending a temporal, historical or evolutionary moment in a longer timespan." (Garcia, 2014, 107).

Like Harman, Garcia (2014, xiii) proposes an object-oriented ontology, though his book was written four years earlier than his:

"Following Harman's usage, we can say that Garcia's system is an instance of 'object-oriented ontology' because his central ontological operations are motivated by the attempt to understand what objects must be like if they are to resist reduction from below and from above. Unlike Harman, though, Garcia actually defines the objectivity of an object in terms of this very resistance".

After defining the *thing* (pp. 19-74), what it is and not; *nothing* (pp. 47-49), and *something* (pp. 50-58), Garcia presents a comprehensive interpretation of some of the critical things:

³ An important boundary to cross but a distinction becoming more and more ambiguous in the 21st century.

Universe, Objects and Events, Time, Living Things, Animals, Humans, Representations, Arts and Rules, Culture, History, Economy of Objects, Values, Classes, Genders, Ages of Life and eventually, Death.

It could be argued that Garcia's approach is conceptually most embracing and inclusive one, since it does not discriminate, not only between animate-inanimate, human-nonhuman but also between possible and impossible. For him, even a contradiction such as a squared circle is a thing, since it could be comprehended:

"I can at least claim that the squared circle is not triangular. I can affirm that it is not three dimensional. I can easily think that it is not pentagonal. In other words, even if I will never successfully unify the concept of the squared circle -which is not an idea, but the contradictory intersection of two ideas- I can determine what this intersection is not. I can always distinguish it from other things and not confuse it with other distinct contradictory ideas. One contradiction is always different from another contradiction; that is, it is not the case that every contradiction is the same contradiction." (Garcia, 2014, 25).

What Garcia accomplishes here is to construct a very sophisticated yet simple principle of what a thing is and enable us to talk about things' qualities and relations.

3. Laying the foundations of an object-oriented design ontology

Every argument needs a justification. So why does design need an object-oriented ontology? First, studies, theories and practices of design seem to be heavily anthropocentric or human-oriented. This is quite natural if we consider how design as a discipline first emerged towards the end of the 19th century, with its institutions of education and regulations in the industry's service. However, this still seems to be the case after more than a century.

Design Council (2021) states its purpose as "making life better by design". Already in the first sentence, there is a strong differentiation between living and non-living things. One might think that life refers to life on Earth in general; however, the statement continues like this:

"We are an independent charity and the government's advisor on design. Our vision is a world where the role and value of design is recognised as a fundamental creator of value, enabling happier, healthier and safer lives for all. Through the power of design, we make better processes, better products, better places, all of which lead to better performance."

Considering happiness, health and safety are concepts primarily attributed to humans; clearly, it is the human's life that is aimed to be made happier, healthier, and safer by design. This should not be seen as a concealed misogyny; it just illustrates a concealed exclusion of other species or non-human objects and positive discrimination towards human beings. From a broader perspective, we should also consider what is being ignored, overseen, or sacrificed to enable a happier, healthier and safer life for all.

Following is the definition of industrial design, taken from the homepage of the Industrial Designers Society of America (IDSA, 2021):

"Industrial Design (ID) is the professional practice of designing products, devices, objects and services used by millions of people around the world every day.

Industrial designers typically focus on the physical appearance, functionality and manufacturability of a product, though they are often involved in far more during a development cycle. All of this ultimately extends to the overall lasting value and experience a product or service provides for end-users."

Every object that you interact with on a daily basis in your home, office, school or public setting is the result of a design process. During this process, myriad decisions are made by an industrial designer (and their team) that are aimed at improving your life through well-executed design."

Although IDSA is an institution for the professional practice of design, this framing illustrates the scope considered appropriate for designers. Clearly, there is nothing wrong with any institution operating in education, promotion, or practice in design to be human-oriented; however, we should realise that almost all the institutions have constructed their position towards a human-centred or human-oriented approach.

Educational institutions, which should facilitate relative independence from industry, are not significantly different. Some postgraduate programs (and names of some UG and PG courses) in reputable design schools are User Experience Design (UX), User Interface Design (UI), User-Centered Design, Ergonomics and Human Factors, Human Factors for Inclusive Design, and Human Factors and Ergonomics for Patient Safety. It is also not very uncommon to encounter mottos or strategies of design programmes proposing "solutions" for the "needs", "wants", and "problems" of real people.

To understand the degree of human-centredness, we could look at concepts of inclusive and universal design. Inclusive design aims to widen the inclusiveness of design by taking disability and ageing into consideration. This is unquestionably a novel attempt, but it is also clear that the limits of design are only expanded to include the whole (human) population (Coleman et al., 2003, pp. 1-29).

Similarly, universal design is defined as defined universal design as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design" by The Center for Universal Design at North Carolina State University (Connell et al., 1997). Oxford English Dictionary (2021) defines universal as "extending over or including the whole of something specified or implied, esp. the whole of a particular group or the whole world". On one hand, the extensive, inclusive, and holistic aspects of the universal is adopted by design; however, it is then restricted to -although the whole- of a particular group, namely human beings.

The author does not aim to undermine human-related issues in or any inclusive, comprehensive approaches to design; however, as Harman and others did, the designers should also become aware that too much emphasis is put on humans and our design, as well as our social and natural sciences, has been almost entirely human-oriented for the last couple of centuries.

The necessity for applying less to none human-oriented philosophies to design seems quite apparent, especially when the population, production and consumption rates are considered. However, this should come from a sincere environmental position. Harman warns against the possible misconceptions of OOO by giving the example of how Deleuze:

"was the victim of his own success, with too many people quickly embracing his preference for becoming over being, for continuous gradients and curves over sharply defined articulations of corners and apertures and in some cases for an all-too-literal adoption of Deleuze's concept of 'the fold' in incorporating as actual physical folds in buildings."

A similar misconception could be on the horizon for OOO and design disciplines -including architecture. We should be aware that we are not making a tool of OOO to whitewash potentially detrimental technologies and concepts through philosophy: "So, through OOO, philosophy provides ways for businesses, researchers, designers and governments to understand thingyness so that they can drive forward adoption of the IoT and harness its economic value in socially and technically acceptable ways" (Lindley et al., 2019).

Several attempts come into mind when we think about a design approach overarching to the non-human part of the world or where the hyperobjects are concerned. Critical Design, Speculative Design and Discursive Design refer to the non-conformist attempts for expanding the scope of design to possible, probable, preferable but maybe not always plausible futures, where humans might be losing their everpresent importance anyway. Starting with the groundbreaking work of Fiona Raby and Anthony Dunne (2001, 2013), a new understanding has emerged where many thinkers, scholars and practitioners delved into the non-humancentric contexts of design (Malpass, 2019; Tharp & Tharp, 2018).

Thomas Thwaites' The Toaster Project (2009) delves into the hyperobjects physically manifesting themselves in everyday products. Thwaites set out to build a toaster from scratch and traces its main materials of copper, iron, nickel, mica, and plastic back to their origins (Dunne & Raby, 2013, p. 80; Thwaites, 2011). In another project, Thwaites "attempted to live as a goat in the Swiss mountains for several days, with prosthetic limbs and an artificial stomach" (Thwaites, 2016). A similar attempt to cross over into the *universe* of non-human beings is the Bat Band Converter from Everyday Practical Electronics. It is "a parasitical device that allows you to 'use your AM portable radio and this novel design to tune-in to the secret world of bats'". Bat Band Converter "converts the non-electromagnetic ultrasonic signals of the bats into radio signals which are transmitted/leaked to the host radio" (Dunne, 1999, pp. 90-1). The examples could be multiplied, but in my opinion, it illustrates both there are multiple attempts for an object-oriented understanding and practice of design and that there is a lack of systemic approach and a need for a consolidative theory.

To construct a feasible OOO for design, we should concentrate on their common characteristics: Flat Ontology -what I will call- counter-hierarchies and the interconnectedness of every-

thing. Let us start with the flat ontology. The most simple and clear explanation of the concept could be found in the words of Garcia (2014, 4), summarising DeLanda (2002, 47), re-reading Deleuze:

"In Manuel DeLanda's rereading of Gilles Deleuze's philosophy, the idea of a flat ontology was used to describe theories that do not order worldly entities hierarchically -either in accordance with the substantiality of entities, or based on transcendental principle- but that attribute an equal autological dignity to each individuated thing."

As it is apparent in Garcia's words, a flat ontology does not mean a decrease in the importance of human beings. It is the restructuring of all the beings/objects/things, existed, existing, non-existing, produces of imagination, dreams, literature; different in size, materiality, continuity and other qualities. This, however, is not an equalising approach. OOO hands back the objects the respect they deserve. While doing this, humans are considered no different from the others, nor the living than the non-living, nor the real than the unreal.

The second important point is that all philosophies mentioned above deny hierarchies without being anarchic. While denying the existing, conventional, traditional hierarchies and taxonomies, they individually propose their own distinctions. For Graham Harman, there are the real and sensual objects; for Timothy Morton, there are hyperobjects with distinctive characteristics; for Levi Bryant, there are six different types of machines. All of these attempts illustrate a need for a new, counter-hierarchical understanding, definitions and categorisations of objects. Here it might be argued that Bruno Latour and his Actor-Network-Theory (ANT) might be and is widely adopted in the design field since it "rejects sweeping categories of analysis such as 'society' or 'capitalism' in favor of a laser like focus on the specific *actors* or *actants* at work in any situation" (Harman, 2014, viii). While this is true, this does not mean that there is a design ontology shaped by the main principles of ANT. ANT is mostly facilitated in design to understand complex or social structures (Yaneva, 2015). Another reason why ANT is not entirely appropriate for OODO is that it is essentially a political theory: "... Latour's work is thoroughly political from the beginning of his career all the way to the present." (Harman, 2014, 1).

Finally, we can see that the interobjectivity, interconnectivity and interrelation of all objects are becoming the main focus of contemporary philosophies. Even Graham Harman, who argues that "objects withhold themselves not just from human access, but from each other as well", constructs his theory on how objects, real or sensual, relate to each other. This is true for other speculative realists as well. Morton's hyperobjects are practically multidimensional entities containing and affecting other objects (interobjectivity). Bryant's machines are also interconnected. As stated above, for Garcia, things are located ad infinitum between what comprehends them and what they comprehend.

As designers, we should seek to develop new ways of looking at and evaluating things. This new approach should be based on a flat ontology, be more inclusive and further reaching.

The Object-Oriented Design Ontology (OODO) proposes the following arguments:

1. Everything is an object.
2. An object is the difference between what it comprehends and what comprehends it.
3. Although the definition of an object is elementary, objects themselves are very complicated things. Thus, every object could also be considered a hyperobject.
4. Not only because everything is an object, not only because objects are comprehending and comprehended, not only some objects could be seen as hyperobjects; but because objects are in constant relation (perception, interpretation, attraction, repulsion, enhancement, affection among others), OODO is based on the interconnectedness of everything.
5. Every design attempt should take comprehending and comprehended objects into consideration. The designer should shift between scales of space, time and mind.
6. Every designed object is an intervention to nature. Design is a possibility, not a necessity.

This, in conclusion, could be seen as the first attempt to create a framework for a new OODO. However, it is by no means finalisation but the beginning of a new endeavor, a new perspective for design theory to be further elaborated.

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