The baffling concept of technical mediation in Bruno Latour

O desconcertante conceito de mediação técnica em Bruno Latour

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ABSTRACT

This article seeks to contribute to the discussion of Bruno Latour´s and others´ actor-network theory (ANT), in the hope that it will shed new light on theories of the social, theories of networks, and to interdisciplinary studies, especially regarding technique and its relation to communication and culture. For this, the concept of technical mediation will be explained in its relation with the notions of translation, actant, flat anthology, and sociotechnical assemblage. Thus a theoretical construct is developed which is antagonistic to the old dichotomies that radiate from a laggard Cartesianism which even today remains under the most varied, often-unrecognized forms.

Keywords: technical mediation, translation, actant, flat ontology, sociotechnical assemblage

RESUMO

Este artigo busca contribuir para a discussão sobre a teoria ator-rede (TAR), de Bruno Latour e outros, na expectativa de que possa trazer nova luz para as teorias do social, teorias das redes e dos estudos interdisciplinares, especialmente no que concerne à técnica e sua relação com a comunicação e a cultura. Para isso, o conceito de mediação técnica será explicitado na sua relação com as noções de tradução, actante, ontologia achatada e agenciamento sociotécnico. Erige-se assim um constructo teórico antagônico às velhas dicotomias que irradiam do cartesianismo e que, ainda hoje, subsistem sob as mais variadas formas, muitas vezes despercebidas.

Palavras-chave: mediação técnica, tradução, actante, ontologia achatada, agenciamento sociotécnico

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The Spike Jonze's film *Her* won the Oscar in 2014 for best original screenplay. More than an engaging drama, however, *Her* is emblematic for the society of XXI century, insofar as it translates in a disturbing and credibly mode the stunning and unsettling feeling of invasion of technology in the most intimate human life. The narrative is a plural expression of current dilemmas of artificial intelligence and human-machine interface. Were it not for the controversial and open character of the movie, we would perhaps be slightly more attached to preconceived ideas about such a dilemma, and we would have an easy conclusion about this relationship. However, if art helps us to think about the world from a shift in our gaze, it is consequently priceless for culture. What is the limit for the symbiosis between machine and human? This is one issue that motivates the art and science in general and this particular article in particular.

It seems that the shift caused by art are welcome also to science. In addition, it is in this spirit that this work will focus at the idea of technical mediation in Bruno Latour. With it, we shall also bear the non-dualistic constructivism of the author and a sociology guided by the symmetry of rights between human and technique. We will follow this movement in order to account for technical mediation in the so called sociology of associations (Latour, 2012: 23; 160). In it, the concept of technical mediation requires the social to be seen as the product of an association between human and nonhuman actors, functionally symmetrical in the actor-network theory (ANT).

Considering this background, the questions we ask are: how hybrid social systems composed of human and technical artifacts are organized and what are the general forms of this organization? What does social organism, within the technical dilemmas of the XXI century, mean? Do technical objects have agency? We can say that, when they do they have intention?

The basic ideas for discussion are the concepts of mediation, association, symmetry between human and nonhuman, corporate body, and collective intentionality. We will take as a foundation, the work on technical mediation (Bruno Latour, 1994a), agency in nonhumans (Edwin Sayes, 2013), communication of things (André Lemos, 2013), actor-network theory and flat ontology (Bruno Latour, 2012). It is known that the actor-network theory is an attempt to overcome the Cartesian idea of mind and its resulting dualisms. There seems to be, however, a lack of theoretical digestion in the organization of hybrid systems of the human/nonhuman kind with regard to technical mediation, so that what interests us above all is to extract the ways in which the social, in Latour, allows us to review the issue of causality and intentionality in socio-technical agency.

More specifically, this article intends to clarify the constitution of the hybrid system mechanism that is formed in all technical mediation. It also intends to resume the agency idea of the nonhuman; to clarify the issue of corporate body from the human/nonhuman conjunction; also associate the concept of symmetry to the concept of flat ontology clarifying the methodological advantages of ANT; last but not least, review the semantic field of the concept of intentionality on the paradigm of participation and collaboration in the socio-technical field. Although the number of issues seem large, they are interconnected.

For us it seems that the relevance of such selection of issues to the field of interdisciplinary studies is an attempt to join efforts for the debate on the theoretical models able to account for complex phenomena. It is an open field and, at the same time, it lacks robust theoretical basis (especially with regard to the discussion and determining influence on causality and assemblage). It is our proposal that the theoretical model created by Latour and other ANT researchers may shed new light on theories of social theories of networks and interdisciplinary studies, especially with regard to technique and its relationship with communication and culture.

HOW THE TECHNICAL MEETS THE SOCIAL

In an anthological text, *On technical mediation – philosophy, sociology, genealogy* (1994a), Latour presents the notion of *technical mediation* combined with the thesis that the new relationship constituted by the conjunction man/object is able to change both the human and the technical object. In this respect, Latour refuses both a technical determinism over human (materialism) and also a human determinism over the technical (anthropocentrism). The famous example of the firearm (1994a: 30-31) illustrates the polarity which is so common throughout the campaign against and in favor of disarmament. We experimented in Brazil in 2005, during the referendum disarmament, such polarity and still remember the speeches pro and against disarmament. On the one hand, the slogan *guns kill people* seems to give predominant power to technique (and may therefore be understood as a technological determinism), on the other hand, the slogan *people kill people; not weapons* appears to confer exclusive power to the human side (humanistic determinism). Latour's argument, however, emphasizes that one cannot forget that each device has a *program of action*, the potential to assist in a task. If the aid program is taken into account, then the question *is a gun just a piece of mediating technology?* should get the following answer: it depends on what is meant by "mediation" (Latour, 1994a: 31).

We can say, simply, that technical mediation in the sense employed by Latour refers to a co-influence between man and artifact, which should sound trivial: men and weapons change from the existence of *humans with guns*. Thus, the resulting combination (intelligence/technique) cannot be described even by the man or by the gun, since the separate parts do not contain all of the attributes. Put it in another way, Latour presents as an alternative to the *problem of the primacy* of man over machine or machine over man, the concept of *technical mediation*, which sees in both a symmetrical pair and a dialogical genesis of new properties, given by the man-machine combination.

But what does the pair *human/technique* mean? Would this concept be a theoretical flourish as an escape from the real problem of materialistic determinism, which can be seen as the corporate purpose of their hidden agenda by the power structures? Or rather, the pair *human/technique* would be a naive way of trying to give the object a pseudo-intentionality that, indeed, clearly belongs to the human sphere?

To resolve such issues, it is important to bring to the scene the concept of "translation"[1], which Latour meant as a "displacement, drift, invention, mediation, the creation of a link that did not exist before and that to some degree modifies two elements or agents" (Latour, 1994a: 32). If the translation is this mutual modification between two agents, mediation must be understood here as the product of an association, the mutual influence between man and artifact. A man with a gun is not the same anymore (as he is now invested with a power), and the gun in the hand of a man is also another being, quite different from the weapon in a drawer (it is sufficient to observe that a gun in hand is characterized by a potential to kill in a very small range of split second).

The binomial mediation and translation, in turn, implies the concept of "hybrid actor" (ibid.: 33) and *actant* – that is, the one who makes another one to make. The concept of actant comes from Algirdas Greimas' semiotics and the textual organization of narrative roles. To summarize his idea, we can say that the greimasian actant can be understood as one who "articulates the basic statement in functions (such as subject, object, predicate)" (Greimas and Courtes, 2008: 21). It is clear that Greimas' idea, to address the functions of actants, is to relativize extratextual, absolute roles, and to emphasize the roles of the actants in the text. According to José Luis Fiorin (1989), even when Greimas speaks of subject and object, we should not understand these terms in their common sense as human/rational entities and object/inert entities. Subject, object or any other category used to classify a sense of production of the element can only be seen as such from the construction of the text and from the relationship it maintans with the context in which it operates.

1. In fact, a thorough understanding of the technical mediation idea should include, in addition to translation, the idea of reversibility, "black box", history of the action program, objectives and functions of such a program, the idea of interest and the subtle aspects that make every relationship between human and nonhuman. But for our purpose, we will discuss here only the concept of translation.

> We should not confuse subject with person and object with thing. Subject and object are narrative roles that can be represented in a more superficial level for things, people or animals. In a capture narrative, for example, humans to be entrapped are the object with which the being that captures has to come into conjunction. When we say 'the flying carpet landed on the terrace of the house', we have a transformation whose final status has as subject 'flying carpet' and as object 'terrace of the house' (Fiorin, 1989: p. 22).

In Latour, the idea of actant refers to a flattening of modern epistemological classes (subject/object, society/nature) and expresses a reinterpretation of the concept of *social*, as opposed to the classical sociological concept of social *actor*. For social action Latour does not pretend to mean the human action, but fundamentally the combination of action, the combination of actants, which can be men, weapons, drawers, institutions, penal code etc. Thus, in the program of action, the emphasis shifts for the *medium*, for mixtures, for the *hybrid actor*, due to the fact that "action is simply not a property of humans, but of an association of actants" (Latour, 1994a: 35). It should be clear that the idea of mediation is being related here with a share of responsibility between various actants, in respect to the action of all those involved in the *technique* in question. That is what the author meant by composition, since only the sum of all those involved can make sense to mediation.

THE NON-DUALISTIC CONSTRUCTIVISM OF ANT

According to André Lemos (2013), Bruno Latour and the other theorists associated with actor-network theory (ANT) understand the social more as a result of interactions than as a structural system. Bringing a mobilistic philosophy into the realm of the social, for which reality is movement, becoming, flow, continuity and contrast, ANT aims to turn superfluous the classificatory systems equipped with a preconceived theoretical apparatus. It is of interest to pay attention to movement, to understand how actors engender structures, and not as the actors fit into the structural system.

> The social is not about what houses the associations, but what is generated by it. It is a network that is made and unmade at any moment. The actants seek with much effort to stabilize these networks in organizations, institutions, norms, habits, structures, called "black-boxes". Structure, norm, habit cannot be taken as an *a priori* explanation of categories, such as causes, but are the temporary consequences of distribution network and stabilization agencies (Lemos, 2013: 67).

Lemos recognizes that it is an ambitious attempt to put becoming before the permanent or even more to put social institutions themselves in the theater of metamorphosis, construction, and action. In this stage, what is cannot to be detached from what causes, with the exception only that in this drama, there are always many actors, so that the constructed product is always complex. Aiming at a reconciliation of the sociological duality of actor and system, between individual (understood as social actor) and society (understood as a social system), the idea of ANT is to synthesize this polarity in the same theoretical scheme without, however, erase its implicit tension. Even the actor-network name is an oxymoron which tries to account for this bias historically constructed by the social sciences.

> Law, reinforcing the idea of this theory to be a "sociology of mobility", states that several metaphors are evoked to explain it, such as mobility and displacement. There is tension and movement already in the very expression "actor-network", which is itself an oxymoron [...] inheriting from semiotics the notion that entities have their attributes acquired as a result of the relationship with others and not due to their inherent qualities (Lemos, 2013: 64-65).

If there is in the social that shift, that relying on the other which is the semiotic foundation, then it should be clear the implicit acceptance of a representation and the reconstruction of the social, i.e. the collective (including any technical entities, provided that they compose a set). If the whole is alive as much as its part, we must accept some constructivism of the hole from its parts. However, the most radical in this constructivism, which particularizes it, is that it does not accept to prioritize the human subject as the social actor par excellence. Much of what became known under the legend of social constructivism refers only to remnants of a humanism (man is the measure of all things) that since Protagoras, arbitrarily ranks reality, putting everything that is human in the center of the research interests.

THE AGENCY OF NONHUMAN

In *Actor-Network theory and methodology: just what does it mean to say that nonhumans have agency?* (2013), Edwin Sayes explores the importance of considering ANT as a social theory able to include both the human sphere as not human, because in his reading, the difference between them is irrelevant from a social point of view (Sayes, 2013: 12). He differentiates the methodological approach of ANT as a merely theoretical discussion of the social, reiterating that the confusion between theory and method is one of the main reasons for ANT being so misunderstood by current criticism.

However, the problem of the human assumes an entirely different dimension if the methodological approach required by Bruno Latour is adopted (2012). On the theoretical side, you can take the non-human as a fully equivalent to the human element, as if human and nonhuman were identical from now on, which seems absurd. However, from a methodological bias, the equivalence between human and nonhuman should serve as a medium for testing the differences guided by the empirical demonstration and not an a priori classification. Absurd, for the method of ANT, would be to label archetypes beforehand and to try to fit social phenomena in their molds, observing them from a primary classification.

Sayes discusses four suitable ways to assign sociability capacity for nonhumans, illustrating beforehand their types of manifestation. The author works with four variations on the concept of nonhuman: as a condition for the possibility of the human society (nonhuman I), as mediators (nonhuman II), as members of a moral and political association (nonhuman III) and as aggregated actors of different spatial and temporal orders (nonhuman IV).

Paradigmatic, to illustrate the new sociability that there emerges, are the typical agency possibilities of digital culture, in which various sensors allow devices a capacity not only to alert but also validate or invalidate, authorize or disallow human action, or rather, the action mediated devices according to data *input* by interaction with humans. Cars, for example, warn the driver when it is without a seat belt, and already *choose* not to operate while the belt is not buckled. At this point, where machines are able to say *you must wear the seat belt to be able to drive the car*, the concept of morality should be updated to include a moral permeated by nonhuman.

> […] we should not be concerned with whether nonhumans are understood to possess the ability to make moral or immoral decisions – this is not suggested. Rather, what is elided and made impossible is the question of responsibility – of which individuals and groups should be held accountable for our moral and political associations (Sayes, 2013: 7).

Sayes (2013: 10) also focuses on the meaning of the following idea: clearly, humans have the power of agency. The central thesis of the author is that this agency is based on the non-isolation of the human not because any agent will be always connected – it is precisely its non-isolation that constitutes its character of an agent. It is worth adding that within the context of ANT, besides the separation between the human and the human does not lose sense, the concept of agency or social action is precisely what equalizes the classical ideas of subject and object.

> Put in positive terms, there is no absolute or final division made between the capacity of humans and nonhumans to exercise agency [...]More relevant to note, however, is that the lack of a final division between human and nonhuman agency is a direct attempt to introduce a radical uncertainty concerning *what action consists of* (Sayes, 2013: 8).

The divergence between social theory presented here and the humanist myth is evident. According to it, behind every technical apparatus, there is a human agency, as if we were always us, all the time, to become visible through the nonhuman, such as the technical tools (a kind of egocentric mirroring which turns the human gaze to himself, and *erases* all the artificiality of the technical object, which, however, is immediately present). Instead of reversing the entire human attention, we could, without prejudice, do the opposite, and talk about the nonhuman through changes in human cognition – since it is evident, for example, that any technique provokes a cognitive shift in humans, a theme so widely discussed by all the literature on the post-human. Latour's position, however, relates more to a synthesis than to a polarity. In this sense, he explicitly opposes any approaches that advocate in favor of humanism, as if there were no mediation between nonhumans, or as if there reigned the typical mechanicity of the intermediaries. Recalling these are complementary actants of the *mediator*, since while this latter is a translator, one actant that always operates modifications, the former are only blind and impartial transporters of information which turn men an instrument of unwarranted technological objectives (Latour, 1994a: 41).

Thus, the symmetry between actants proposes to reconcile the spheres of subject and object, *sociologism* and materialism, humanism and anti-humanism. Symmetry of rights, in Latour, refers to how social actants remodel social properties by the crossing of action programs. Generically, the author reserves the semantic field of technical to one type of entry, movement, which can be translated as a *modus operandi*, or as a knowledge (Ibid.: 44). The important thing is that such knowledge is not a human or not human trait, but a property of the relationship.

THE SENSE OF CORPORATE BODY AND THE COLLECTIVE CONCEPT

Durkheim's functionalist sociology understood the governing body as a part of a larger system, in which any change in one of these agencies (church, family, associations, state ...) affect the social system as a whole. One of Latour's proposal (2012) is to review the concept of governing body in order to approach

the idea of translation and mediation. In proposing this review, the author is closer to the thought of Gabriel Tarde (2003) than that of Emile Durkheim. In *Reassembling the social* (2012), Latour made clear his preference for the former, when compared to the latter. The idea of action in Latour is very close to the action theory of Gabriel Tarde, especially in the aspect of the impermanence of monads[2]. Next, we will explore the complexity that Latour wants to give to the governing body taking as an example the technical objects.

Since Marx, it is known that when we talk about technical object, we speak of displacement, conflict, replacement, etc. disqualification, and never of a mere "thing" (Latour, 1994a: 45). Thus, any *ability* engendered by a technical object (one laboratory pipette, for example) should emerge from the transition zone of an assembly consisting of people and things (to enhance assemblage with the results of a scientific experiment). The issue of the division of labor, for example, cannot be detached from questions about technique.

> A body corporate is what the pipette and I, in my example, have become. We are an object-institution. The point sounds trivial if applied asymmetrically. "Of course", one might say, "a piece of technology must be seized and activated by a human subject, a purposeful agent". Bur the point I am making is symmetrical: what is true of the "object" – the pipette does not exist by itself – is still truer of the "subject". There is no sense in which humans may be said to exist as humans without entering into commerce with what authorizes and enables them to exist (i.e., to act). (Latour, 1994a: 45-46).

Latour, of course, is concerned with the symmetry of rights between humans and the artificial, for if it is fair to say that man creates technique, you can also say that technique creates the human. The idea of *action* is based not only on the technical condition, but also on the human condition. From a functional point of view, only the product of interactions can have agency. This radical theoretical elaboration claims by a redefinition of key concepts of the very fabric or the social organism. The most radical seems to be the concept of *collective*, which in ANT replaces the notion of *society*.

This substitution aims to include a social dimension which the concept of society does not allow, since what Latour has in mind when referring to a *collective*, is the exchange of human and nonhuman properties in the governing body (Latour, 1994a: 46). Only corporate bodies are able to absorb the proliferation of mediators. The purposeful action and intention may not even be considered as characteristics of objects, but neither are they human. For the author, any intent can only be attribute of institutions, that is, the human / objectual conjunction of social systems.

2. About Tarde's monadology, see *Monadology and sociology* (Tarde, 2003). Tarde's ideas inspire Latour in many ways that cannot be explored here. Remember, however, that the idea of operating with an analysis on network micro-values differentials clearly leads us to Tarde's ideas, which, by the way, rightly states that this is the main difficulty of his theory to find adherents. "The main objection against the doctrine of monads [...] is that it puts, or seems to put, ore complications on the basis of phenomena than at its peak" (Tarde, 2003: 65).

> What the new paradigm attends to are the moves by which any given collective extends its social fabric to other entities. First, there is *translation*, the means by which we inscribe in a different matter features of our social order; next, the *crossover*, which consists in the exchange of properties among nonhumans; third, the *enrollment*, by which a nonhuman is seduced, manipulated, or induced into the collective; fourth, the *mobilization* of nonhumans inside the collective, which adds fresh unexpected resources, resulting in strange new hybrids; and, finally, displacement, the direction the collective takes once its shape, extent, and composition have been altered. (Latour, 1994a: 46).

In this constituent chaining the community, what is meant is not even a division between archaic techniques (a kind of artisan *poiesis*) and modern ones (domination of *inhuman* large-scale production). There is, however, a remarkable continuity between technical development stages, and any labeling from more objective and more subjective techniques would be deeply wrong (Latour, 1994a: 46-47). What matters from the point of view of a social study, is not tax techniques with ready labels, but to pay attention to the collective dynamics in an attempt to understand the social outcome, visible only when attention is payed to the very moment when there is a change in the order.

THE INTENTIONALITY THE PARADIGM OF COLLABORATION

From the radical nature of TAR, the need to revise the concept of intentionality is implied, understood now as an attribute of the community. Since Aristotle metaphysical intention may be associated with the idea of final, insofar as a final cause is the one which abstracts its purpose of a given phenomenon (eg. what is intended by a work). This causality was characterized as dynamic (Reale, 2007: 180-181), in that he inquired about *what* is the origin and *why* the result. The problem, as pointed out by Heidegger (2007 [1953]), which is historically what is meant by *cause*, is that it was associated almost exclusively to another kind of causation: the efficient cause – which helped to foster a deterministic idea about causality, as if, for any purpose, it was possible to extract a single cause.

In the actor-network perspective, one cannot assign a cause to an effect, since the effects are always multi-caused or, more precisely, are products of interaction. Intent thus no longer predicate *actors*. If there is purpose or intentionality in any socio-technical agency, it can only exist for and in the collective. It is a power available only to an association, never to a subject. This is the foundation of the idea of *mediation*, related to a share of share of responsibilities between various actants, respecting the action of all those involved in the technique in question.

> These examples of actor-actant symmetry force us to abandon the subject-object dichotomy, a distinction that prevents understanding of techniques and even of societies. It is neither people nor guns that kill. Responsibility for action must be shared among the various actants. And this is the first of the (four) meanings of mediation (Latour, 1994a: 34).

This idea of mediation as a conjunction, giving intentionality to the hybrid, is the very reminiscent of the notion of multiplicity, in Deleuze and Guattari, in whom Latour was inspired. For Deleuze and Guattari, the multiple is the lack of drive. It is a noun, not an adjective. In their words, it is rhizome, not tree root.

> [...] it is only when the multiple is effectively treated as a noun, multiplicity, that [...] has nothing to do with the One as subject or as object, such as natural or spiritual reality, as image and world. Multiplicities are rhizomatic and denounce the arborescent pseudomultiplicities. [...] An assemblage is precisely this increase in size in a multiplicity that necessarily changes its nature as it increases its connections. There are no points or positions as rhizome lies in a structure, a tree, a root. There are only lines (Deleuze e Guattari, 1995: 23-24).

If the multiple is association, agency, intermezzo, it operates with the identity logic of the *and*, not of the *either*. In this sense, assemblage is the product of the hybrid junction. If there is intention in a social actor, it is clearly given by the product of the conjugation between the human and the nonhuman. The radical consequence of this thesis is that the human being is not a social actor, or at least it is not if one is hampered of all nonhuman resources that allow one to act. But the human/nonhuman product, the hybrid actant is able to act, if by doing it is not intended to mean anything but: to be able to agency resources to an end in order to change, in part, the social setting surroundings.

THE FALLACY OF MACRO AND THE ADVANTAGES OF A FLAT ONTOLOGY

One of the most emblematic topics of ANT refers to the close relationship between thought and tool because one cannot talk about one without the other. "Even Karl Marx, in the British Library, needed a desk to enlist the fearsome forces of capitalism" (Latour, 2012: 254).

Interesting to note in this context is that by including reciprocity between thoughts and tools in the set of interests of social sciences, Latour is not founding a new area for sociology, nor is he proposing it to abandon the human sphere. This inclusion of other actors plays a key role of a flag, to help reveal the types of relationship between the global and the local, because there is an implicit

question in the actor-network theory: what kind of relationship exists between micro (actor) and macro (network)? (Latour, 2012: 255)

A major problem in this micro / macro ratio is the fallacy of the idea of macro. For the author, there is not the largest, the most comprehensive, but just micros connected to many others, an idea that clearly indicates the presence of Deleuze in Latour (in the concept of multiplicity), The micro (actants) may be of different sizes, according to the connections, but this is not the case of overcoming or including each other. In such a scenario, rather than speaking about more or less, Latour prefers to seek what if more relevant and less relevant, taking as a criterion of relevance the unequal connections that each network has. Relevant nodes are those which, if disconnected from the network, their impact would be felt by a large portion of the network, while less relevant elements when disconnected, would provoke little impact on connections in general. In a flat ontology, you can not disconnect all network nodes at once. Moreover, every time some element gives off, others are affected, given the relative influence they exert on each other.

> The Wolf in the context can swallow an interaction, but not the long, flattened and folded network in which he himself would entangle. [...] The macro is neither "up" or "down" the interactions, but united to them as another of its connections, feeding them and being fed by them. There is no other known way of doing things in relative scale (Latour, 2012: 257).

For Latour, classically sociologists were divided into two groups. One promulgated that there is no individual action, and all social action is invisible in the global structures; others claimed to be only individual actions without external context, for the social action capacity is in understanding structures of subject-actors. On the one hand, systemism is a meaningless objectivity, on the other side, interactionism is meaning without object (Latour, 2012: 296).

Instead of the sociology of an organism and its functions or the sociology of a subject and its actions, Latour proposes a social ontology guided by the deformation of classes, the radical *flattening of groups* such as if the object of study could be compressed by a methodological prism interested in starting from zero to design a social building. This *flat space* is the form (deformation) that allows the network to replace the idea of including a smaller into a larger, in order to reduce the huge gap between local and global

Keeping in mind the two-dimensional space proposed by Edwin Abbott in *Flatland*, Latour puts the movements and shifts first in the range of social problems, so that after a certain time the number of strokes constitute a clearly visible plan to the sociologist of associations.

> The reason why it seems so important to learn to navigate this flattened space is that when we started to focus better what circulates, we realize many other entities whose shift was barely visible before. In fact, not even supposed to circulate. You may be able to glimpse far more subtle phenomena that previously had to be stored in the inner sanctum of the subject because of its apparent insignificance[3] (Latour, 2012: 295-296).

3. Italics is ours.

In the flat plane of ANT, in addition to the subject, many others on the move may be observed, in order to make more subtle phenomena clearly visible and no longer confined to the subject of the sphere, but to the social relationship instead.

THE MYTH OF THE DETERMINATION OF HUMAN BY TECHNOLOGY

In the text *Technologies have an impact?*, in the classic *Cibercultura* (1999), Pierre Lévy questions whether technologies will have or not an impact on culture and human life. The position taken by the author, quite close to that of Latour, leaves no room for the idea of the *impact* of technology, for the simple reason that the impact metaphor suggests a split between something that exerts (technology) and something that suffers (culture) an action.

However, the technique is not, nor has ever been, strange to man. On the contrary, in a sense, it is what constitutes man. Even better would be to say that it is the material part of a hybrid under the name of the socio-technical. That is because in the human sphere both are included: people and their thoughts, materials, ideas and cultural representations.

> It is impossible to separate the human from its material environment as well as from the signs and images through which mankind attributes meaning to life and the world. Similarly, we cannot separate the material world - much less its artificial part - of ideas by which the technical objects are designed and used or of humans that invent, produce and use (Lévy, 1999: 22).

By questioning the artificial division between culture, society and technology, Lévy does not see any new information in the connection between culture and technology no new information – it may not even make sense to relate technology and culture, as these ideas were never separated. If all artifacts express the culture of ideas and ideologies carry different relationships between human beings, "we cannot speak of sociocultural effects or of the meaning of general technique, as Heidegger's disciples tend to do, or even the tradition which comes from the Frankfurt school" (Lévy, 1999: 23).

The problem with the idea that technology plays a social impact is in the conceptual confusion between *determining* and *conditioning* effects. According to Lévy (1999: 25), the relationship between technology and society is more complex than the idea, originating from Newtonian physics, of determination. In social matters, the idea of determination is inadequate because, unlike mechanical, same causes can produce different effects. The very idea of causality, understood in a limited way as efficient causation, in the traditional sense of cause and effect, is inadequate to account for the social problem. For this, it would be better to say that the technical may condition, but does not determine culture. This is because, in social processes, there is always interaction, - in the sense, for example, that saying that new social facts are caused by technology - would be at least naive. Social is precisely the movement that generates new associations (technology/human), and in this sense, there is still some determinism in this interaction. The hybrid is rather conditioned by technical and human interaction, both in the material and real sense, as much as the symbolic and ideal sense.

There are social causes, because there is no single social cause. So there is no technique that is *good* or *bad* in itself. However, it is less "neutral" yet (Levy, 1999: 26), since it is always *conditionant* and opens new social possibilities. If no technology is good, bad or even neutral – because everything depends on various benchmarks, including one who judges the news from the point of view of their specific interests – it makes no sense to try to measure its impact. It would be better to try and clarifie every technology by its "irreversibility" (ibid.), That is, what are the effects of its use for a given context, what are the *virtualities* that it updates. However, the exercise of studying the virtual technique should not isolate it, on the pain of losing the multiple of the man-hybrid technique. It should serve as an ontogenetic attribute with free variables, i.e. it is a hybrid that besides the codes, also contains the generated characters. Just as a genome of a living organism is made by both genotype (law) and by phenotype (adaptation), the network of a social organism is made up of the previous potential (habits, customs, norms), but also by lifestyle changes acquired during the interactions of systems that adapt and create new forms of organization.

Remember that from the point of view of an individual in isolation, the technology can be threatening, so that to a greater or lesser degree creates an "uneasiness" (Lévy, 1999: 28). But from the point of view of a collective intelligence, own by the social organism, it is very much a necessary reworking of the social system, and beneficial to the collective.

The case of the Internet, understood both as a participatory culture, and as a distributed processing technology for network computing systems, appears to

be a paradigm of this *social* sense of hybridity promoted by ANT. The technical and human are not opposites and the boundary line is lost when the actions on the web are always shared, it is always *interactive*. This is not an infrastructure of servers, computers, tablets, mobile phones, mobile access points, and data transmission services. The fact quite accomplished is that "[...] the Internet is one of the most fantastic examples of international cooperative construction, technical expression of a movement that began under and was constantly fed by a variety of local initiatives" (Lévy, 1999: 128).

FINAL CONSIDERATIONS

If there is a backbone of the ANT this is the notion of mediation, which should not be understood from the point of view of dichotomies[4], as these tend to segregate humans. Therefore, it is to the hybrid that we need to pay attention.

Classical sociology has made little progress on the issue of technical mediation. To Lemos (2013: 12), such sociologies have four problematic assumptions. First of all, social studies concentrate predominantly in urban forms of organization. In addition, the anthropocentric character of this initiative ignores the agency's own ability in an artificial-technical world. Thus, there is no maturity on the role of technology. And so there is a restriction of agency capabilities to the activities of individuals, as if they were the only social actors.

From the ANT point of view, the classical approach is insufficient to deal with social and technical assemblages. For Latour, it is clear that humans have extended for millennia, their social relations with other actants, with whom they exchange many properties and which form collectives (Latour, 1994a: 53). With this, other approaches easily agree. The divergence occurs in the question of the primacy of knowledge in the human (spirit) or not human (in fact) because as social constructivists argue that initiatives by this extension are human, naturalists emphasize that it is the nature (the real) that *writes* its laws through a scientist laboratory equipment. To resolve this conflict, which refers to the epistemological debate between idealism (primacy of the idea) *versus* realism (primacy of the real), Latour proposes a middle way, a principle of *symmetry* between human and nonhuman, a genealogy of hybrid associations.

For the author, the dualism error was its definition of *humanity*, understood as a kind of mythical supraentity with full powers to operate and shape the world as they please, but was unable to realize one simple fact: every human interaction is socio-technical. Thus, the model presented here replaces humanity in its proper place, the place of the possibility of mediation between mediators.

4. For Latour (1994a, 1994b), by contrast, is the dichotomies that are derived from mixtures, that is, pure classes (subject/object, nature/culture) are mediation products, are stabilization of the shares.

As we have seen, the theory of non-dualistic constructivism proposes a *bottom-up* development for the social, as any social structure is built of actors, or rather of actants. However, for Latour, constructivism was worn with a veiled humanism, which is why the author replaces it with "establishment" (Lemos, 2013: 51). This idea also relates more production, emergencies, than discovery. However, it creates a change in the social is not in the human attribute itself, because the sharing of responsibilities censors any typical humanism purification.

So the agency of human, which finds in Sayes an important ally, and the reinterpretation of the concept of corporate body seem to be in agreement with the reflections in the field of cyber culture, similar to that proposed by Pierre Lévy and André Lemos, but also Manuel Castells (2012), Massimo Di Felice (2012) and Lucia Santaella (2013), authors that point out to the intimate relationship between technology and culture. They all agree that the social organism does not work autonomously, and that the technical objects alter human cognition, to some degree, touting socio-technical constructs. Clearly in contradistinction with this thesis are the dichotomous theories radiating from a laggard Cartesian which, even today, remain under the most varied forms, often overlooked.

The structuralist critique of Roland Barthes studies, for example, no matter how exciting it is, tends to emphasize the power of concealed codes by the technical, giving more emphasis on the system of meanings and mythologies than to action. He sees in the structures the source system to determine how the facts will be explained. Also different are the interactionist approaches that emphasize the human subject, able to influence the social organization with its action. But here there is a contempt for all interference, an almost bucolic tendency to ignore everything that corrupts a particular action. In Latour, as we have seen, there is no contradiction in recognizing that the micro entity acts and, at the same time it is influenced by a force external to it and, in this sense, all critical approaches and all interactionists are strange.

It is also worth noting that the idea of intentionality as collective predicate conflicts with both the social constructivism as with materialism, because while the first places only in humans the power to prepare the social collaboratively, the second emphasizes the power of context capable of determining a medium for the social, in which the system is the agent and the individual is the patient. This thesis, which makes the individual a puppet, is understood by Latour (2012: 255) as a fallacy the macro system, as if there was a global with no actants or some hidden dominant wolf behind every social.

Finally, we noted that the myth of *impact* of technology on human ceases to have any value in Latour. If there is something that technology does it is to allow a new agency, which, however, is only effective when interacting with the human. It would be so simplistic to imagine that machines govern men, as it would be naive to assume that men are indifferent to technology. The technical idea of mediation across man-machine interface functions as the motion of two bodies in a mutual orbit, wherein the movement is a cause and consequence of the movement of the other. In this co-determination system the idea of impact is entirely unnecessary. In this sense, TAR distances itself from any deterministic studies or from dealing in finding the causes of social facts, such as Émile Durkheim studies in the nineteenth century, and the studies of the Frankfurt School in the twentieth century. Even when they recognize a reflexive capacity in the individual, these authors seem to avoid the concept of autonomy as if the micro level was always a result of higher forces.

The dilemmas of technical mediation could not be exhausted by this work, which was limited to reviewing the technical mediation concepts of human agency and not of collaborative technical intentionality with culture. There is still much to discuss on the issue and on its applications in areas such as artificial intelligence, collective intelligence, algorithmic inference forms of growing complexity, the peculiar roles of each actant (human and nonhuman), application cases joint, the ethical and philosophical dilemmas and future prospects of hybrid and socio-technical systems.

Here, we emphasized that the assemblages are able to include nonhuman entities in preparing a mixed social fabric. Also the symmetry of rights (between human and nonhuman) and the ANT flat ontology are able to solve certain socio-technical dilemmas, especially when taking into account the issue of technical mediation (which should be understood from the point of view of collective action), and the question of intentionality (which, in Latour, is only possible within the mutual cooperation paradigm between actants). The inclusion of this approach was able to review the semantic field of the technical and the human and defend the thesis that the technical objects need to enter the field of discussion of the social sciences and into the interdisciplinary studies of communication and culture.

Finally, returning to the film *Her*, we can now add one more element to the debate on natural/artificial relationship. Although we do not know how far the symbiosis between man and machine goes, it becomes a little clearer from the thought of Latour that technical innovation cannot receive *a priori* a *good* or *bad* label, for that would be to lose sight of new interactions, when the

gaze is stuck to a previous reality. However, it would be even more absurd to assume a human impartiality about the technical object, as if it did not affect its essence, or as if there were no social production established by technical mediation. If an operating system will replace the *truly human* relation it is not quite the question, but instead what is meant by a relation, what is meant by the social and what is the *machinic human* being in the connected digital age, where more and more artificial devices make up an interactive and collective ecosystem based on a plurality of mediations. M

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