A CIDADE NA THE CITY IN A PERSPECTIVA SOCIOTECNICA: SOCIOTECHNICAL ONTOLOGIAS POLITICAS, PERSPECTIVE: POLITICAL AGENCIAMENTOS URBANOS E ONTOLOGIES, URBAN LUGARES HIBRIDOS ASSEMBLAGES AND HYBRID PLACES

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Abstract

Understanding that contemporary city is becoming more complex due to the several relations that take place among people, environments and objects, in this article we explore some possibilities related to the theme of the *V!RUS 14* Journal call, *weaving the city in contemporaneity*. Inspired by the Science-Technology-Society (STS) studies and the Actor-Network Theory (ANT), we bring to reflection our comprehension about a multiple city and its

resonances in *hybrid* places, in the Architecture-Urbanism (AU) field, by reading authors from these areas. In this direction, we recognize the city as a territory whose *performance* is produced from crossings which involve assemblages and effects of the connections among different *actants* that participate of urban life. Associating STS studies, the ANT and AU allow to delineate an alternative ontology to understand, produce and perform the moves of a heterogeneous ensemble of entities or *hybrid places* that continuously coproduce themselves.

1 Introduction

The possibility of addressing the processes that constitute the city prioritizing actions by different actors was our motivation to present our point of view – inspired by thoughts from authors (Amin and Grahan, 1997; Farías and Bender, 2010; Farías, 2011; Amin and Thrift, 2002) whose works' foundations are in the field of Science-Technology-Society (STS)[1] studies, especially the Actor-Network Theory (ANT)[2] – on contemporary city, the study of urban relations and the diversity of relations involving people, environments and their *politicalontologies* (Mol, 2008).

The possible connections among studies of STS, ANT and Architect-Urbanism (AU)[3] allow us to understand that the "city is made of multiple partially localized assemblages built of heterogeneous networks, spaces and practices"[4] (back cover in Farías and Bender, 2010). Because the city is in continuous movement, its places and buildings can be described as *quasi-technologies* and types (Guggenheim, 2010): at the same time as they are *singular* – with stable location and form – they host different uses. As they are transformed by users' actions and new artificial and technological devices (Latour and Yaneva, 2008), they can also be *mutable immobiles* (Guggenheim, 2010).

To weave the city in its complexity requires, then, to welcome its diversities, contradictions, moves and temporalities that articulate and produce hybrid places[5]. The experience of living and feeling the city implicates in encounters, separations, constant connections between different humans and non-human actors who hybridize and produce social, political, ethical, subjective and aesthetic effects (Rheingantz et al., 2016).

We bet on a transdisciplinary approach and on joint and constant work of dialogue for knowledge production to understand today's city and overcome the limitations of those proposals and analysis that privilege morphological, quantitative and functional aspects of places, based on the paradigm established by *Modernity* (Latour, 1994). Modernity, herein, is understood as an "attitude" that involves "a joint operation of two ensembles of different practices" (Pedro, 2003, p.30, our translation): "hybridization", or an ensemble of practices responsible for the creation of a mix of hybrid kinds of nature and society; and "purification", which conditions the evolution of science to the elimination of every "external" influence (human subjectivity).

We highlight the idea that associating studies involving STS, ANT and AU gives place to thinking of an ontology for understanding, producing and mapping places that act in the urban, emphasizing its polyphony, which echoes all the time in the comprehension of the modes of weaving the city in action[6].

2 Political ontologies and the city's mulriplicity today

Aligned with the STS perspective and starting from the comprehension that "reality" is modelled from daily practices that allow us to interact with it, Annemarie Mol settled the expression *political ontology*[7]: *ontology* defines what "belongs to the real, the conditions of possibility in which we live" (MOL, 2008, p.63, our translation) and *politics* highlights the "active mode of this modelling process, its open and contested feature." (MOL, 2008, p.63, our translation) Reality, in its *ontologic dimension*, is always *made*, *located* – historically, culturally and materially – and *multiple* (MOL, 2008). Performing a given reality means it is much more produced than it is observed, or so to say: it is "manipulated through several instruments, in the course of several different practices" (MOL, 2008, p.66, our translation). By removing the supposedly stable and determined character of reality, *to weave the city* implies in welcoming different versions or multiple realities of *urban itself*, more and more intricate and difficult to generalize (AMIN; THRIFT, 2002). The city's reality exists in many forms, being simultaneously compounded:

> '*as touristic city, as a transport system, as a territorial competence, as the real estate market, as a playground for skaters and parkour[8] practitioners, as a consumption space, as a creative environment, as a giant screen for graffiti and street artists, as well as for sewer networks etc.*' *(Farías, 2011, p.29, our translation).*

Such proposition allows to include other entities in the process of understanding the city, in contraposition to the idea of one singular truth that is present in other current conceptions, like the morphological, sociological and systemic analysis of the city or the "smart city" – which is based on the presence of information and communication technologies to emphasize the productive and competitive dimensions of the city. The quality of the urban is not reduced to its materiality, geography or technology. It is woven within the possible connections established when there are actions which, by their own nature and dynamics, cannot be categorized or analyzed, whose emphasis is restricted to a certain element or set of elements.

While most of the theories and approaches dedicated to think about the city tend to focus on few elements of urban life, like culture, housing, politics, planning etc., Amin and Graham (1997, p. 418) propose the *multiplex city*, a "set of spaces where diverse rangers of relational web coalesce, interconnect and fragment; […] a juxtaposition of contradictions and diversities."

In their complexity, cities incorporate nature, people, things and built environment. They are spatially open and intermeshed flows of people, kinds of mobility, information and goods, where urban life is a product of this mix (Amin and Thrift, 2002). "Each urban moment can spark performative improvisations which are unforeseen and unforeseeable. [...] this has meant the struggle to name neglected spatialities and invent new ones" (Amin and Thrift, 2002, p.4). Since the city is everywhere in the world, incorporating settlements of varying composition, it is no longer possible to agree on what counts as a city (Amin and Thrift, 2002). Metropolitan areas[9] pullulate in a chain of places interconnected by communication corridors, such as airports and airways, stations and railways, parking lots and motorways, teleports and information highways. "The footprints of the city are all over these places, in the form of city commuters, tourists, teleworking, the media, and the urbanization of lifestyles" (Amin and Thrift, 2002, p.1).

Hence, instead of thinking the city through fragmenting places, which sometimes promotes spatial segregation, or from the center-periphery relation, our interest is to progressively deal with aspects or elements that perform the connection among such places.

Following the ideas of Devan Sudjic (1992 cited in Amin and Thrift, 2002), the urban sprawls of Greater São Paulo and of Baixada Fluminense, in Rio de Janeiro, Brazil, associate different cities or urban centers, such as São Bernardo and Nova Iguaçu, even though they are so close to each other. These are conglomerates of cities and hybrid places, involved in the daily life that takes place in adjacent settlements.

Understanding reality as multiple, political ontology aims to visualize, operate or weave multiple urban *realities,* supported by technological devices that amplify and requalify our *sociotechnical* performance in georeferencing, digital graphic and inclusion of the parametric dimension; scanners, surveillance devices etc. Our observations have been performed from a hybrid association between human perception devices and some technological devices – like as photo cameras and satellite images, and also notes, sketches, drawn schemes etc. Such "expanded vision" is allowing to register and describe experience details, displacements, interruptions and relevant elements more richly.

By intensifying human vision and perception, the performance of "expanded vision" knocks down "any idea of a passive vision; such devices […] show us that every eye, including ours [...], is an active perception, building translation and specific ways of seeing, or so to say, of living" (Haraway, 1995, p.16, our translation).

These devices also weave and configure a set of objects that breaks up with the comprehension of fixed things of material nature; they configure objects conceived as open structures, or things-to-be-used, continuously changing into something else (Knorr-Cetina, 2001).

If morality and political ontologies are inscribed in [human] bodies and minds and in [non-human] things and objects, the complexity of multiple realities in a city is tangled in infinite possibilities of urban assemblages.

3 Science-Technology-Society Studies, Actor-Network Theory and Architecture-Urbanism

By questioning the predominance of science and technologies as absolute and indisputable knowledges, to the detriment of the social world, the STS studies field understands that scientific and technological knowledge transgresses the frontiers between technical and social (Cukierman, 2007).

The ANT considers that the social, when it is produced by moves and footprints left by the elements that compose it, forms a *sociotechnical* or *collective* network (Latour 2001; 2004; 2012) which is in constant transformation and because of that, requires that we follow its displacements, its connections (Pedro, 2010). The assemblages established between the actants[10] produce effects that move positions, change goals and redefine senses (Latour, 2012). It means that an action is always shared and collective.[11]

Even though it has been firstly thought to explain the practices named "social" that exist in scientific labs, the ANT started to be used in different fields of Human Sciences and more recently, in Architecture and Urbanism researches. The proposition of understanding the social through its heterogeneous networks and the agency assigned to non-humans seems to be the intersection among the main studies that relate STS studies, the NAT and AU.

Aibar and Bijker (1997) can be considered as precursors of the studies that consider the city as a *sociotechnical* artefact. In their analysis of the *Cerdà Plan* – Barcelona's masterplan – they gathered different actants who participated on the contest for choosing the project for the city expansion and explored several controversies of this process.

Aiming to apply the perspectives developed in the STS studies field, especially in the ANT, in urban studies, the book *Urban Assemblages – How Actor-Network Theory Changes Urban Studies*, organized by Ignacio de Farías and Thomas Bender, gather articles from authors who recognize ANT as an important tool to deal creatively with discovery and research of facts, complexity of cities and urban transformations. By broadening networks, proliferating both human and non-humans, ANT is used by these authors as a procedure for elaborating new questions and thus produce more expressive descriptions of city life (Farías and Bender, 2010).

In this sense, it is possible to understand cities (Farías, 2010; 2011) and buildings not as projections or representations of the social (Yaneva, 2009), but as:

> '[...] a moving modulator regulating different intensities of engagement, redirecting users'
> attention, mixing and putting people together, concentrating flows of actors and distributing

them so as to compose a productive force in time-space' (Latour and Yaneva, 2008, p.87).

Consequently, it is possible to describe the cities' places and buildings as *quasi-technologies* or *mutable immobiles*. At the same time as they have stable location and form, they can host different activities and be transformed by their users (Guggeheim, 2010). Context, object and user are directly implicated and are made within the same move. Paying attention to the possible mixtures between actors is dissenting, for instance, from approaches whose knowledge is only focused on the object, emphasizing its technical or functional feature.

The interlocution of ANT and AU becomes complex the understanding of contemporary city and the dynamic of its performance is not limited to globalizing theories or senses that erase and/or cover local senses and daily practices. Its production takes place in conditions that involve both local or situated and global influences. When re-associated the different features that perform and weave the city, a mixture is configured and instead of erasing the influences of internationalization, it designs new unstable contours.

Such approach highlights the idea that ANT may contribute for thinking associations between people and things, matter and meaning (Fallan, 2008). These encounters may produce new ontologies for places, these out of order and evasive objects (Farías, 2010) and their ways of *being present* (Farías and Bender, 2010). Following practices and assemblages among different actants allows to overcome the dilemmas that exist in the process of understanding the city, which presents a heterogeneous structure of constant mutability.

4 Weaving the city in a sociotechnical perspective: among multiple realities, performances and hybrid places

Starting from AU studies that search their basis in STS and ANT to expand understanding about urban and the entities that form it, we have been exploring the idea of city as a territory crossed by different urban *collectives*, highlighting the multiplicity of performances that embody urban life and places. It is no longer possible to delimitate the city by its borders, once it overruns and is configured in the interface of the practices that happen in places. From this, it is possible that the study of daily practices is a guiding element for urbanistic projects. To recognize and proliferate the voices of local groups and their different versions about needs, negotiations, and also their resistance processes, implies in transforming the process of planning the city, which is still strongly inspired by the view of urban planners, architects and experts. That allows spreading and tangling different diagnosing modes, instead of imposing some over others, and grant a *hybrid* nature (Latour, 1994) to places.

Focus changes to lay on identifying and describing the multiple assemblages of the actants that perform the city places. Instead of considering delimited and cohesive features and domains to understand them, it is important to understand how they are articulated, hidden, exposed, recruited or discarded (Farías, 2010). As a principle, all the actants are mediators[12]: all of them are influenced by and modified in their interactions, transforming places into something that produces singular experiences and translations.[13]

Value is given to the moment of the experience, displacements, information exchanges, the dynamics of use of the environment, in other words, to everything that is produced or woven in the city at a given moment. To assemble a set of narratives and performances, of the several actants that participate on coproducing the city, comes up as a way of mapping and examining places, buildings and their uses, public projects and policies, urban plans, technological devices etc. It is a strategy that allows to abandon the social explanations and follow moves and footprints left by actants who participate of the places configuration.[14]

This comprehension reinforces an idea that knowledge is *situated* (Haraway, 1995; Law and Mol, 2000) and that it must be seized in immersion and contact with city places. Rather than making abstract assumptions or generalizing from paradigms or individual examples (Amin and Grahan, 1997), ANT stands for a need to "see closely", and that involves learning to be affected by many elements as well as "being sensitive to what the world is made of." (Latour, 2008, p.39, our translation)

By incorporating non-human to the ensemble of urban life actors, we seek to attenuate the frontiers between subject and object and "[…] begin the task of repopulating the city with all those entities that have been erased by a conventional approach" (Amin and Thrift, 2002, p.5). In a multidimensional feature, we recognize contemporary city as "an ordering of uncertainty and as a political arena full of potentialities" (Amin and Thrift, 2002, p. 5), where *urbanity emerges* from a relation of coproduction between actants and their multiple association processes, that do not pre-exist in streets, buildings, people, maps etc. (Rheingantz, 2012).

Different ontologies allow places to be appreciated and enjoyed by the crowds that perform them, while they are despised by those who study and work with planning. These are different "perception of realities" about the city, that require an approach which can the deal with complexity that weaves urban practices and today's city.

5 Final considerations

In this article, we sought to point out some arguments that demonstrate that the STS studies and the ANT may contribute to understanding the city and its places, especially in Architecture-Urbanism researches.

The *sociotechnical* approach to the city, by involving humans and non-humans, contributes to think about the relations that weave the city in contemporaneity. Another view is possible through networks of associations and performances by the actants that exist in urban *collectives*.

The city is continuously done and redone by assemblages whose effects of the moves among actants must be observed. To be attentive to these moves, including *non-human* ones, allows us to understand how linked we are to such actants and how they

make us do things. Once places have agency, they must be defined by what they do and not by what they represent.

Finally, we reinforce the idea of paying attention to the hybrid composition of the city may be a way of resisting to other current conceptions. Understanding the city and urban experience as an interface that learns and is affected by the articulation among its several elements or actants implies in the need to trace these connections, bringing up different conceptions of the city, more participative and more polyphonic.

6 Acknowledgements

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1The field of studies called STS appeared around 1980, with a main goal of understanding, reviewing and deciding about consequences of science and technology in current society. It presents two main branches, the North-American and the European. Both traditions focus on overcoming the traditional idea that substantiate science and technology, promoting society's cooperation in decisions that lead progresses in both science and technology. They demand democratic solutions for problems, surpassing manipulation of science and technology.

2The theory was developed by Bruno Latour, together with other science and technique sociologists, among which Michel Callon and John Law. It questions the separation between science and society, subject and object, nature and culture (LATOUR, 2001).

3We take the hyphenated expression as proposed by Castello (2007), understanding that individually the two words do not sufficiently cover double-faced phenomena such as wave-particles and actor-network, making it useless to work with *architecture* and *urbanism* separately.

4See Section 2 in this article.

5The expression *hybrid places* articulates with two other proposals that problematize the relation of environments and technology: *augmented places* (FIRMINO, 2011) and *places of cloning*. (CASTELLO, 2007) It is similar to Latour's (2001) sense of *hybridization*, which refers to the mixtures that characterizes the "in-between" spaces, the mediation places. These are places in which nothing is propagated without transformation, local re-appropriation, as they are transformation actants themselves.

6Cf. Latour (2011); Rheingantz (2016).

7According to Mol (2008), political ontology is not due to *perspectivism],* but is influenced by it, that multiplies the points of view and perspectives from which each one of us humans sees the same reality, that remains singular and untouched, and opens the doors for a pluralism in which different perspectives of a same reality coexist side by side; and by *constructivism*, which shows, from different histories of construction, how each specific version of the truth or of the success of a fact is built or created.

8*Parkour* is a workout practice of obstacle transposition, which allows practitioners to overcome the environment's obstacles using their own physical skills, such as jumping over spans, climbing walls and balancing on rails. Some people who practice it believe it is a search for development of autonomy of the body and the mind over the challenges of daily life.

9According to Amin e Thrift (2002, p.1), "Half of the world's population now lives in cities. Thirteen megacities have a population of more than 10 million: Tokyo, São Paulo, New York, Mexico City, Shanghai, Bombay, Los Angeles, Buenos Aires, Seoul, Beijing, Rio de Janeiro, Calcutta and Osaka."

10Denomination used in substitution of *users* and *actors*, because of their inadequacy for designating several non-human actants that are in the world, from the sociotechnical perspective of actors-network. Each actant is defined by that what it does, it is "a patterned network of heterogeneous materials" (Law, 1992, p.5), or a network effect.

11According to Latour (2001), *collective* is a word that does not refer to an entity resulting from a "political agreement" that artificially divides things into a natural sphere and a social one, but to the multiple connections between humans and non-humans. It is a network of interfaces in which each object or event is conceived as a mixture of men, things and techniques, whose movement "erases" the frontiers between subject and object (Pedro, 1998); in which facts become "objective" through local re-appropriation, in different points or network connections, by different actors (Pedro, 2003).

12According to Latour (2012), the understanding of *mediation* denies an idea that the subject (human) acts over an object (non-human) so that the first acts in order to produce a reaction in the latter (cause and effect relation); of the subject as hierarchically superior to the object.

13According to Law (1992), *to translate* is to make a connection. It "implies transformation and the possibility of equivalence, the possibility that one thing (for example an actor) may stand for another (for instance a network)" (Law,1992, p.7). It supposes perception, interpretation and appropriation. It characterizes the negotiation or the communication between observer and user, once it also presupposes a possibility to be refused, negotiated or even translated again.

14Cf. Angotti (2013; 2016).