

Analytical Scales as a Foundation for Understanding the Origins of Geographic Knowledge

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Abstract

Several processes have changed the trajectory of the knowledge/thought that we conceive today as geographic. Human history reveals that, in different periods, man with his subjective and material environment has consolidated elements for the effectuation of characteristics that, united, give substance to knowledge; and the geographic one is no exception to the rule. This paper therefore aims to tackle *scales as a basis for interpreting the origins of geographic knowledge* by means of an exercise that we called “to break scales”. The debate drew on the concept of root in an attempt to reveal a geography of geographic knowledge through the scalar approach.

Diversos processos mudaram a trajetória do conhecimento / pensamento que hoje concebemos como geográfico. A história humana revela que, em diferentes períodos, o homem com seu ambiente subjetivo e material consolidou elementos para a efetivação de características que, unidas, dão substância ao conhecimento; e o geográfico não é uma exceção à regra. Este artigo, portanto, visa abordar *escalas como base para interpretar as origens do conhecimento geográfico* por meio de um exercício que chamamos de “quebrar escalas”. O debate baseou-se no conceito de raiz na tentativa de revelar uma geografia do conhecimento geográfico através da abordagem escalar.

Keywords

Analytical scales; geographic knowledge; roots; Brazilian geography

Palavras- chave

Escalas analíticas; conhecimento geográfico; raízes; geografia brasileira



Introduction

This paper seeks to offer some reflections on analytical scales as a procedure and a basis for understanding the origin of geographic knowledge. We understand that knowledge of a geographical nature manifests itself in different dimensions, in a game whose scale determines the preponderance of the chain of facts in the then chosen historical narrative. Advances in understanding the scale of phenomena or certain things in question have shown the maturation of the discourse about the "magnitude" of objects in space and time. In this vein, the very notion of space and time does not escape the scale debate, which raises the idea of scale beyond a simple procedure of methodological order, ascribing to it a status of concept. A certain fluency in the senses and meanings (which are not few) puts scale in a suspension when it is ambitiously cogitated as a category. As a simple notion, a concept or even a category (Melazzo, 2007), scale is inherent in the object proposed to research, which allows us to consider the role of this debate in what we understand as the history of geography (or geographic thought). Scale is a concept that is not reduced to a certain order of magnitude, but corresponds to the ways of thinking and classifying the real. In this sense, we adopt the notion of *dimension*, in a sort of derivation - a part - of the totality encompassed by the concept of scale.

This paper is organized in four parts. At first, we discuss scale as a geographic issue, then we hold a debate about the scalar origins of a knowledge about space. We qualify the ideas of *dimensions* and *roots* of the Brazilian geographic knowledge and we conclude with a discussion about *further scales of geographic knowledge*. We thus attempt to reveal the heteroclitic character of knowledge through different dimensions of analysis, qualifying scale as an object and a geographic issue.

What is knowledge?

Knowledge, *roughly speaking*, consists of a set of information, which is modified and mediated by thought. Using a metaphor to exemplify it, we could say that the roots of a tree are thoughts, the branches and the leaves are information, and the tree in its all is knowledge. In a forest, this tree would be one knowledge amongst other trees, which, as well, are other sorts of knowledge. In this forest, which is life, there are bodies of knowledge, some of them are scientific, others are popular or common sense, or religious; in other words, there are trees of all sorts. It is as if thought and information were within knowledge. Knowledge is a product of a collectivity by which men take ownership of.

Knowledge, in many languages, is confused with information, but the latter is the product of objective and theoretical relations, and the former is the product of objective, subjective, practical and theoretical situations. The relationship between subject and object, when mediated by the cognitive process alone, can be called information, when the relation is, on the other hand, cognitive and experimental, then it is knowledge. Knowledge flows from spatial/temporal contexts, while information flows from the subject and his/her (personal) cognitive relation (Mota, 2005).

Knowledge is not reduced to information, and there we can characterize the latter as scientific, academic, theoretical, universal, institutionalized, legitimate... Knowledge extrapolates the character of universality of information when confronted with differentiated and multiple realities, reinventing, building bodies of knowledge that best meet the imperative needs of educational praxis (Mota, 2005, 28-50)

In contemporary times, philosopher Michael Foucault clearly separates knowledge from information, the latter corresponding to the construction of discourses on the objects apprehended by cognition (rationalization, identification and classification) and the former, almost inversely, is defined by the process of modifying the subject that now is not fixed during the cognitive act. For Foucault, knowledge is:

(...) that of which one can speak in a discursive practice, and which is specified by that fact: the domain constituted by the different objects that will or will not acquire a scientific status (the knowledge of psychiatry in the nineteenth century is not the sum of what was thought to be true, but the whole set of practices, singularities, and deviations of which one could speak in psychiatric discourse); knowledge is also the space in which the subject may take up a position and speak of the objects with which he deals in his discourse (in this sense, the knowledge of clinical medicine is the whole group of functions of observation, interrogation, decipherment, recording, and decision that may be exercised by the subject of medical discourse); knowledge is also the field of coordination and subordination of statements in which concepts appear, and are defined, applied and transformed (at this level, the knowledge of Natural History, in the eighteenth century, is not the sum of what was said, but the whole set of modes and sites in accordance with which one can integrate each new statement with the already said); lastly, knowledge is defined by the possibilities of use and appropriation offered by discourse (thus, the knowledge of political economy, in the Classical period, is not the thesis of the different theses sustained, but the totality of its points of articulation on other discourses or on other practices that are not discursive). There are bodies of knowledge that are independent of the sciences (which are neither their historical prototypes, nor their practical by-products), but there is no knowledge without a particular discursive practice; and any discursive practice may be defined by the knowledge that it forms (Foucault, 2004, 202).

Besides Foucault's differentiation between information and knowledge including the role of discourse, knowledge also differs from thought, although related to it. Thought is understood by José Babini (1957) as an ingredient in the process of knowing, acting through significations and signs. In this way, meanings reflect the modes of being objectified, through concepts, judgments and reasoning, thus composing the logical strand of the process of knowledge.

Babini (1957) also mentions that knowledge has seven strands in a relationship. The first one is the *psychological* aspect, which manifests itself through the psychic states of the subject. When this subject is considered in a social environment within classes, institutions etc., knowledge takes on the *sociological* aspect. In order for knowledge to have effect and validity, it needs to accumulate over time, that is, to form an intangible heritage – in this sense, knowledge takes on the *historical* aspect. When one considers knowable objects as entities with their own properties, the *ontological* aspect of knowledge emerges. With the linking of judgments and concepts towards the objectification of being, the *logical* aspect of knowledge then arises. Knowledge can also be expressed through symbols and, above all, words; this way, knowledge also takes on the *semantic* aspect. Finally, the intimate correlation between subject and object affords the *metaphysical* dimension of the process of knowledge. Babini thus presents the potential of the term 'knowledge' in a complex and wide variety of subjects, but does not mention its *spatial* aspect.

Consolidated knowledge is not a fact that is out of time and space. According to Japiassu (1992), before the concrete emergence of a knowledge there is a "pre-knowledge" that precedes it. Such pre-knowledge can be understood as a cultural moment that overlaps science or any other form of knowledge, and is constituted by errors, preconceived ideas and prejudices. Knowledge is coextensive with life (Levy, 2015). In order to understand how knowledge is effective in everyday life, it is important to understand how the notion of scale relates to knowing and thinking.

Scale as a Geographic Question

What is the scope of thinking and knowing? This issue personifies a debate beyond the material plane, where the “dimension” of things in space and time gains relevance. In a sense, semiotics and linguistic studies seeks to understand the representation of things, in a practice focused on the signs and inscriptions of societies. Although philology and even semiotics are concerned with this debate, little attention is given to the *dimension of things* (and of thinking and knowing). This practice has been pronounced to geographers through the concept of scale, as can clearly be seen in the reflections by Racine and Raffestin (1983), Bahiana (1986), Castro (2005), Melazzo and Castro (2007), to name a few. Scale, therefore, has become part of the conceptual system of geography.

Concrete and abstract elements, in this sense, form a dialectical movement (Kosik, 1976; Carlos, 2009) in the constitution of the notion of scale. Geographic knowledge is then personified as a human attribute (spatiality), even though its scalar credentials of birth (or origin) narrows down to certain subjects (men) in certain places (Europe) and in a knowledge domain that is very specific (a scientific one). This scale of understanding refers to the north of the planet as matter, or, according to Kosik (1976), a pseudoconcreteness of the real. From an intellectual (abstract) point of view, if we follow this scale of analysis, only the white men were able to establish a (geographic) thinking about the world. The scale of the history and geography of events, therefore, needs to be qualified and expanded, so that it does not leave out pieces of the world and a group of subjects and diverse societies that also (and in different ways) thought, knew and built some knowledge about the world.

Therefore, scale is no longer a mere technical procedure, it rather became a potential political factor (Smith, 1998; Sousa, 2013) towards thinking about the real and the imaginary of societies elsewhere and now. According to Castro (2000, p. 139, our translation):

(...) scale introduces the problem of spatial polymorphism, and the game of scales is a game of relationships between phenomena of varied amplitude and nature. Spatial flexibility therefore poses a twofold question: that of the relevance of these relationships as it is also defined by the relevance of the measurement in its relation to its reference space. This is a key issue in the search for understanding the articulation of phenomena at different scales; furthermore, considering that social facts are necessarily relational, the above question is pertinent.

According to Marston, Jones and Woodward (2005, 419-420), there are three ways or choices to look at scales:

(...) there are three choices we have for thinking about scale. We can, first, affirm hierarchical scale and, to the extent that it fails to capture the myriad socio-territorial configurations we encounter, augment it with some other concept(s); second, we can develop, as others have attempted to do, hybrid models that integrate vertical and horizontal understandings of socio-spatial processes; and third, we can abandon hierarchical scale in its entirety and put in its place some alternative.

These questions do not neglect the studies on geographic thought. The scalar discussion problematizes and broadens the epistemological and historical understandings of the geographical debate. We shall make an attempt in this direction, in search of other scalar origins of geographic thought.

Scalar Origins of a Knowledge about Space

The birth of geographic knowledge, commonly confused with the birth of Geography, was accredited to certain men and places, and the scientific making in this sense became the orientation and

primary condition to this legitimation. In fact, to space-temporally situate the practice of a knowledge responds to certain objectives, especially to those directed to the political concretion (legitimation and existence) of a field of knowledge in the infinite list of fragmentation of Modern Science. Knowledge, however, when stripped of the scientific aura that surrounds it, begins to flow from different directions, not bearing a properly defined beginning or place. This perspective enriches and recognizes the role and potential of geography in various instances of individual life and society, rather than just the methodization of thinking in the academic milieu.

The activities of thinking and knowing pre-exist to science itself. The articulation and systematization of both activities - of a knowledge about the world - is independent of the methodization of ordinary activities of the human intellect. Thereby, we do not intend to repel scientific reason in a kind of depreciation of its role in human life. We recognize, ineluctably, its unique nature. We appreciate, however, the fact that knowledge, and geographic knowledge in particular, lie concomitantly in other spaces and subjects -, in *further scales*. Thus, these other directions and places do not intend to eliminate what is conceived as scientific reason, but to add to the latter further reasons that have been animating life in history.

As an example of what was mentioned above, we recall the thoughts of Chuang Tzu (1968, 2004, 2016), whose ideas reveal the dynamics of knowing and thinking and their scalar manifestation through a world view. Chuang Tzu's works and ideas have been the object of translations and studies by Thomas Merton, with an extensive bibliography in the area. In this sense, the understanding of knowledge as a synthesis of knowing and thinking appeared in the Greek period as well.

We understand that Brazilian geographic knowledge (and we are not only thinking academically) has more than one origin, thus flowing from different subjects and groups. This does not mean - although it does not deny either - that scientific reason is flawed. Only, and nothing else, do we think that geographic knowledge *was born* in different places. In this sense, a scientific *origin* cannot be totalizing (the scalar horizon) in a way that it suppresses other births. The choice of *origin* - i.e. the beginning of a given thing - is a political act, or, as Blaser (2013, p.552) terms it, a point in an ontological pluriverse:

(...) multiple ontologies, ontological multiplicity, and storied Performativity constitute the resources with which what I call political ontology tries to perform the pluriverse. The term political ontology is meant to simultaneously imply a certain political sensibility, a problem space, and a modality of analysis or critique. The political sensibility can be described as a commitment to the pluriverse - the partially connected unfolding of worlds - in the face of the impoverishment implied by universalism.

Therefore, the "object" Brazil will no longer sustain the condition of being the image and likeness of the Old World in the rhythmic order that governs the north of the planet. No matter how effective the totalizing ideology is distributed in the interstices of daily life, wisdom - and therefore autonomous thinking and knowing - has proved capable of resisting in the course of time, even with great difficulty, and now it claims recognition. Amerindian perspectivism and the African cosmogony as wisdoms, to cite examples, are data that the totalizing time has not yet eliminated - see, as well, the traditional practices of agriculture which we name peasant knowledge.

When we speak of Science and Brazil, the latter and its peoples cannot be, solely, a synonym with the former. The origin or birth of a knowledge about the Brazilian space also springs from other matrices. The Euroacademic Geography, as well as the researchers of the history and epistemology of geographic knowledge, need to establish a dialogue with the antecedent *conditions of possibility* in Brazilian lands. The *scale of knowing and thinking*, therefore, is broader than imagined.

The *conditions of possibility* or *possible worlds* have been part, and with great effect, of the academic discourse. The incomprehension of such conducts has conditioned many intellectuals to the pre-conceptualization of the different under the label of postmodernism, a kind of classification where reason in the traditional model would be absent. There is indeed a new type of classificatory relationship between “we” and “the others” and reason – no longer color, gender or class – would be the mountain range that separates them. These fluctuating interpretations, in fact, incorporate all kinds of inheritance that have been governing scientific control over the last centuries in terms of what we understand as science.

What we understand by **scalar origins of a knowledge about space**, in this sense, must be understood as a middle – and – which for its own multiplicity varies with the perception of the intellectual who selects the data in history, in an alchemical composition of the facts of human time. Being knowledge inherent in life, we would hardly reach the “beginning” or “origin” of geographic knowledge in an infinite genealogical search of the omnipotent “father” or “mother” of such knowledge. In this vein, it seems that a certain historical relativism comes to surface, but it is not necessarily a matter of relativizing the events of the olden times. It begins with a recognition of different and varied expressions of geographic knowledge, not only the scientific one. We understand that scientific and even political and cultural facts of great relevance to determinations of social collectives do not lose polyvalence as social levers, but they cannot, however, be the only parental manifestations of knowledge.

Let us carry the expression “**scalar origins of a knowledge about space**”, which titles this section, back to its root term. In other words, we understand historical determinations (or certain subjects) as *roots*, and it is up to each researcher to select the ones that best respond to the object chosen, taking into account the technical conditions at his disposal.

Approximately, Deleuze & Guattari’s (2009) rhizomatic condition exemplifies, in a representational way, how we understand the notions of “scalar origins of a knowledge about space” by the notion of rhizome in Figure 1.

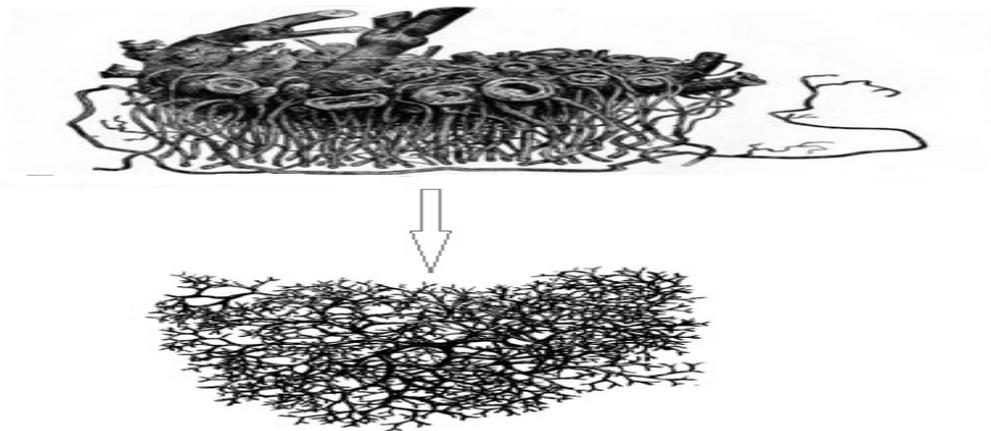


Figure 1: Rhizomatic roots

One of the most determining principles of the rhizome is the multiple and diverse entrances, as in a labyrinth effect we would have, instead of an entrance, several doors and, likewise, exits. The rhizome, moreover, represents several dimensions of the thing in question, pointing to slippery paths, not constituting itself as a determined “beginning” or “end”. The rhizome, in short, is always in the

middle, between things, always open to lines of flight (Deleuze and Guattari, 1995). Therefore, this is how we understand the notions of origin, beginning and/or birth. Although the idea of root is criticized by Deleuze and Guattari for its arborescent character, we understand it however as a middle that is preceded by a ground. Additionally, there are two concepts that are self-related when it comes to arborescence, which are hierarchy and authority. According to Springer (2014, p. 413-414):

(...) Hierarchy and authority are invoked precisely because of the Archimedean ontology and supposed mastery that the concept of scale assumes, and the resultant unconsciousness that it implies. So is it a case of hierarchy being necessary for politics to function, as is the contention of some Marxist geographers, or is this actually a dysfunction in the mode of thinking that underpins scale as a means to conceptualize and order our world? Politics do not require authority any more than we actually require the concept of scale in human geography. Scale is an abstraction of visioning, an ocular objectification of geography that encourages hierarchical thinking, even if unintentionally, or more accurately, unconsciously.

Roots, as we understand them here, are reflections and products of history, open to an uncertain future, towards various directions – *towards further scales*.

Roots and the Breaking of Scales

The search for the origin of things has been enticing the human species since its early beginnings, in a synchronic articulation of the endless hunt for the meaning of existing and dying. Every root – or what we also call the *beginning* – is set on a ground that invariably precedes it. Existing, in this sense, is embodied in death by its own history, which is inherent in it. These traces of reflections presuppose an ontological but also (not least) gnosiological problem, since dying (considered to be what is no longer among the living) is manifested at present as a political fact. The choice of names in the aisles of cemeteries will devise the chains that will have to withstand the turbulent winds of the present, where the game never ends.

Our choice for certain roots can be seen as well as a political and logical act, nevertheless not a reckless one. In cemeteries, there will always be names to be revived – and among the living, those who will be cast into the dungeon of oblivion – as history has it – as a kind of art of war, as well pointed out by Onfray (2008) referring to the ancient wisdoms that were buried by what is called the history of the victors. The history of geographic thought or knowledge is not very different from that. The impression that we have about it is that the devising of an intellectual construction of the world taking into account the spatial factor is limited to a geographical origin factually located in certain countries, through the personification of certain subjects. Geography thus goes on by mending separations and building worlds of wisdom and reason, and other universes of irrationalism, on the basis of savagery (Mudimbe, 2013). The “non-thinking” beings – “animal-subjects” – have a history that is built at the will of the elites or, as Galeano (1996, 286, our translation) argues, “history is studied as if visiting a museum; and this collection of mummies is a fraud”, “(...) the oppressed are compelled to make their own memory as that made by the oppressor: extraneous, dissected, sterile. So they will resign themselves to living a life that is not their own, as if it were the only one possible”.

The idea of root in this game can have a double interpretation. On the one hand, it refers to subjects who “started” a type of study, being raised to the level of “parents”. On the other hand, root can refer to the knowledge that exists before its “discovery”, which, when systematized as “a given object” within the scientific scope, loses its original beginning. The deepest roots of spatial knowledge in Brazil can be traced back to the first individuals who settled in this curious territory.

What, then, would be the roots of geographic knowledge, and in what parameters would the “**breaking of scales**” lie?

This metaphor for roots was previously used by different intellectuals such as Holland (2004 [1936]) in *Raízes do Brasil*, revealing the colonialist character upon which Brazil was built. This colonial aspect is of utmost importance for us to think the idea of roots from a rhizomatic perspective. Colonialism, beyond the market materiality that first ruled its function, marked the Brazilian economic and political system through large property, slave labor and monoculture. The colonial system, however, not only established its logic for mercantile production and labor relations, but also for the *raison d'être* of slaves, indigenous peoples, women, and subjects who did not take part in the table of the elite. In the meantime, science was being made and as such it reflected the world by which it came into existence. It is this science that, at the service of the bourgeoisie, marks the “birth” of modern geography (Moreira, 2008).

The regency of the colonial world was unable to fully eliminate the knowledge manifested upon the conditions contrary to the system. Let us briefly look at the manifestations of knowledge from two perspectives (indigenous and African) in an attempt to “break the established scales”.

Further Scales of Geographic Knowledge

Latin America, in the words of Galeano (1996), “is a jack-in-the-box; the capacity for surprises of this tortured region of the world will never be exhausted” – shall we add Africa here too. Let us begin, however, by what Viveiros de Castro (2015, 25, our translation) argues:

(...) thinking – i.e. having in mind, but going beyond one's own mind, thinking with other minds – is to commit to the project of devising an anthropological theory of conceptual imagination, sensitive to the creativity and reflexivity inherent in the life of every collective, human and non-human.

The activity of thinking and conceptualizing the other, and, from there, raising up to the understanding and construction of judgments, is almost inherent in human and social sciences. This exercise, however, varies with the political, economic and cultural environment in which judgments are inserted. Thinking the other from one's own perspective can be an effective, understanding activity of the *self* that is seen in the *other*. However, at the same time, the self can be manifested as a violent activity, which classifies, hierarchizes, pre-conceptualizes, and often diminishes the different. So was it with the indigenous and the black, in the absence of the dominant reason.

In the indigenous world, there is an “interspecific perspectivism, an ontological multinaturalism and a cannibal alterity” forming “the three vertices of an indigenous alter-anthropology, which is a symmetrical and inverse transformation of Western anthropology” (Viveiros de Castro, 2015, 34). Indigenous mundividence is effected through other categories, the separation of subject-object as in Western reason is distinct, like shamanism.

Shamanism is a way of acting that implies a way of knowing, or rather, a certain ideal of cognoscente subject knowledge. Such an ideal is, in certain respects, at the antipodes of the objectivist epistemology favored by Western modernity. In the latter, the category of the object provides the telos: to know is to “objectify”; is to be able to distinguish in the object what is intrinsic to it from what belongs to the, which, as such, was unduly and/or inevitably projected on the object. To know, then, is to de-subjectify, to explain the part of the subject present in the object so as to reduce this part to an ideal minimum (or to extend it demonstratively in order to obtain spectacular critical effects). Subjects, to the same extent as objects, are conceived as resulting from processes of objectification: the subject constitutes or recognizes himself in the objects he produces, and he knows

himself objectively when he can see himself from “outside” as an “it”. Our epistemological game is called objectification; what has not been objectified remains unreal and abstract. The form of the Other is the thing.

Amerindian shamanism is guided by the inverse ideal: **to know is to “personify”, to take the point of view of the thing that is to be known.** Or, rather, the who; because the question is to know “the who of things” (Guimarães Rosa), a knowledge that is indispensable to respond with intelligence to the question of “why” (Viveiros de Castro, 2015, 50, our translation, emphasis added).

The relationship with the world, with the willingness to know, is different. Such relationships differ from the conceptions that govern modern science. The construction of knowledge in indigenous perspectivism derives from empirical, symbolic, ideal and material practices. Knowledge, therefore, is the encounter between these (symbolic, imaginary and real) elements, effecting a “place of encounter between significations and actions, a space where the coevolution of biology and culture converges, and where new utopias and historical projects emerge and reintegrate the social order within nature” (Leff, 2002, our translation). Thus,

In Indigenous sciences, the world is often understood in terms of flows of energies (and sometimes entities) across a permeable boundary between manifest and unmanifest realities. Working relationships with forces deemed “superstitious” or “irrational” in modern science are significant aspects of social processes and healing practices. Maintaining these worldviews and practices is an uphill battle against the hegemony of modern scientific thought and the legacy of missionaries and educators who tried so hard to dismantle Indigenous knowledge systems. Even among scientists today, those who try to work outside the mechanistic paradigm in ways that approach Indigenous science are denounced as crackpots. (Herman, 2008, 75).

This knowledge about the world, circumscribed to the very universe of the community, is a first door to our **scalar origins of a knowledge about space – the further scales** – and, consequently, a “breaking of scales”. A knowledge of the world through indigenous perspectivism is a knowledge of space. It is a knowledge that holds and determines actions, of interaction and readings of the real. For Leff (2002), this knowledge is still of interest to the economic power, especially in terms of bioprospecting (potential value of genetic resources) and ethnobioprospecting (appropriation of indigenous knowledge on the use of plant species); biotechnology companies are the most interested in biotic resources.

We point out that this knowledge - this relationship with the world (space) - corresponds to an orientation of actions and senses about place/territory/landscape, in other words: there are geographies being built on the real, therefore a geographic knowledge. This geographic knowledge, often as the object of study in science, corresponds to one of the roots of the geographic knowledge about Brazil. We could expand to Santos’ (2002) proposition of a sociology of absences. However, we are interested only in the historical remembrance of the knowledge that circulated and still circulate prior to a scientific institutionalization of a given field of knowledge in the molds that we know today from scientific centers.

In addition to the roots of geographic knowledge that flowed from indigenous perspectivism, the racial dimension, in the personification of the black, who were forced to settle in this territory, brought about and built worldviews. The Black Man, in terms of science, however, “is the one (or the thing) that one sees when one sees nothing, when one understands nothing, and, above all, when one wishes to understand nothing” (Mbembe, 2017, 2).

The Black Man in the modern order has always been regarded as an object, the only human whose skin has been transformed into the form and spirit of merchandise, thus becoming, as Mbembe (2017) puts it, the living crypt of capital. Geography, whether as an instrument of capitalization in the colonial world or a geographic immanence/geographicity of the being, has a very intimate relationship with the Black Man. Geography, from the colonial point of view, has defined a hierarchical order for Africans labeling them as “savages”, and for Europeans as “civilized” – a science that also operated in the spatial distribution of what we know as the African Diaspora. Geography also laid the foundations of environmental and racial determinism for the construction of the category of nation in long-ago Brazil. The geographic knowledge transposed from the Old World operated through the categories of race and environment for the construction of the idea of Brazil (Cirqueira, 2015). Raciality,

(...) composed the discussions that involved the “birth” of the so-called modern Geography, even in Brazil. However, because of a history that involved changes in the way ethnicity, race and nation are interpreted, as well as the occurrence of epistemological turns in Geography itself, this theme, understood as cursed, was buried deep in the “memory” of the discipline; yet it continues to inform and influence the geographical discourse that is produced (Cirqueira, 2015, 18, our translation).

And, with this geography,

(...) a racialized and hierarchized regionalization of the world was formed, in which man and environment, or society and nature, were integrated. The classical founders of modern (colonial) Geography have taken part in these approaches (...), such as Friedrich Ratzel (1844-1904) and Paul Vidal de la Blache (1845-1918) (Cirqueira, 2015, 59, our translation).

The relationship between knowledge, geography and race is more intrinsic than it may seem at first. If we resort to the etymology of the term, there is an initial tension, as Obenga (2004) points out. Supposedly, love of wisdom would have arisen in Greece, but knowledge – this relationship of the human – is also identified in Ancient Egypt through the verb *rekh*, which means “to know” (or to be aware of, to discern, to acquire a precise understanding of). The very understanding of knowledge, in this sense, it would have other origins rather than only the Greek-situated geography – *another breaking of scales*.

Nowadays, the relationship between race and knowledge, in Mbembe's viewpoint, gained contours that allowed him to denominate it *Black Reason*. “By this ambiguous and polemical term I mean to identify several things at once: **forms of knowledge**; a model of extraction and depredation; a paradigm of subjection, including the modalities governing its eradication; and, finally, a psycho-energetic complex” (Mbembe, 2017, 10, emphasis added).

The Black Man in Brazil, although in the condition of slave, produced intellectual works, creations etc. At the same time, he is not considered author or maker of works, literatures – knowledge. Therefore, it is necessary to consider the *conditions of possibility* in a kind of recovery by travelling “upriver to lost headwaters” (Mbembe, 2017, 41).

In terms of knowledge - a way of being and seeing the world - the African worldview is an example of that, characterized by devotion to ancestry (source of knowledge and respect), articulating the universe, words, people, time, processes of socialization, power and production. In the African worldview, the elements of the world are not isolated, “everything is in everything”, yet there is the cult of diversity as opposed to that of unique models (Oliveira, 2003). From the worldview of the

(...) African matrix, a philosophy of African hues is born. It is a thought that is re-thought, certainly, but it also goes beyond its domains. It overflows the borders of the

Self to find the Otherness. It recognizes that philosophy is first and foremost an attitude. An Ethics. **An ethical attitude based on the wisdom of the ancestors.** That is why it blends rationality with enchantment; logos with mythos; magic with science. The philosophy of African hues is creative and dynamic. It creates its own principles and dynamizes its civilizing experience beyond the eternal return of tradition to maintain, renovate and re-invent its cultural form to implement its political projects (Oliveira, 2003, 104, our translation, emphasis added).

In Brazil,

(...) from religious organizations, mainly, African blacks and their descendants recomposed the tributary structures and principles of an African-based worldview and, on Brazilian soil, reconstituted their cultural-religious universe preserving, not without ruptures and alterations, the fundamental principles of their tradition, the supreme source of their cultural identity (Oliveira, 2003, 41, our translation).

The worldview that we use here as an example represents a way of dealing with, being and seeing the world. In short, a knowledge. This knowledge is directed to the environment that surrounds it – space. A knowledge, therefore, with elements of geography in its essence. This knowledge, transposed to Brazil through the slave trade, became part of the list of despised wisdoms, led to the plane of the irrational and the primitive. This wisdom, vivid in the *terreiros* and *quilombos*, holds a singular reading about space, which allows us to affirm it as another door to the rhizomatic roots of the origins of the Brazilian geographic knowledge. This second breaking of scales inaugurates (which indeed already existed) a *further scale* of geographic knowledge.

Exclusion, extermination, the dominant scientific reason, indigenous perspectivism and the African worldview for us are, in a nutshell, a heteroclitite whole with several doors. At the same time as we consider indigenous, African and scientific knowledge as originators of the Brazilian geographic knowledge, the structure of events can be as well classified as such; environment and race as principles of classification, colonialism, etc. All of these are the roots of the Brazilian geographic knowledge – the history and geography of those events in their fullness.

These rhizomatic adjectivations of the roots do not stop here. If we delve into the scientific knowhow from a geographic profile, we can point out, in a brief summary, little-discussed interstices. In the course of things, certain facts gain greater exposure than others, so does the deep roots of geography. Besides the examples we have gave (indigenous perspectivism and African worldview), we can add the fragile and small exposition of women geographers in the history of this knowledge. Just as an example, a name that comes to mind is geographer Mary Fairfax Somerville, a Scottish polymath born in 1780, in Jedburgh, contemporary of Humboldt and Ritter, who dedicated herself to geography, mathematics and astronomy. She published six books, of which we highlight two: *On The Connection of the Physical Sciences* (1834), and *Physical Geography* (1848). The latter book (which had seven editions), according to Ferreira (2011), gives her the “title” of pioneer of Modern Geography. In addition to Somerville, other geographers also stand out, such as Clémence Augustine Rover (1830-1902), Ellen Churchill Semple (1863-1932), Martha Krug-Genthe (1871-1945) and Millicent Todd Brigham (1880-1968).

We should also recall the work carried out by Bauab (2005). This geographer went back to Medieval Geography to explain to the origins of Modern Geography, as did Fernandes (2002) and Machado (2006), recovering elements of the formation of geographic knowledge before the university institutionalization of 1930 in Brazil. All these facts are, in our opinion, roots of rhizomatic adjectivation that allow us to see *further scales*. Knowing and thinking - geographic knowledge - when

understood as human inherence, beyond scientific knowledge, manifests itself in different ways and in different places. One can consider that:

(...) scales of analysis are not “given”: they are “uprooted” from reality in the process of construction of the object of knowledge by the researcher. The scale of a phenomenon (its spatial reach) matters as much as any real object: it matters to the extent that it is taken as the starting point for the construction of the object of knowledge, with the scales being treated as scales of analysis. And these scales are not invariant. They vary, in number and nature, in the same way as do the objects of knowledge, the ways of constructing them, and the questions (issues) that guide this construction (Souza, 2013, 188, our translation).

The use of scientific mechanisms to capture and legitimize the Brazilian geographic knowledge without any consideration of the black, indigenous and peasant roots that pulsed the existence of wisdoms within the so-called Brazil, seems to be disconnected from its original meaning. It is as if form (notably European) replaced content, becoming *the only scalar horizon* of human intellectual activity. It is necessary, as Boudon (1991) warns, to conceive *scalar horizon* as a strategic way to apprehend reality - to understand the beauty and possibilities of life itself.

Conclusions

We sought in this paper to apply the concept of scale to the dimension of thinking and knowing. Our analysis aimed to take scales as a basis for thinking about the origins of geographic knowledge, with emphasis on the Brazilian one. We immersed ourselves in the indigenous and African perspectives to “break the scales” that delegitimize the existence of geographic knowledge in these social collectives, which cast them into the condition of savagery and intellectual (and existential) ignorance. Scientific reason, when it reacts so noxiously to other reasons, cannot be a “parent” of what we understand as human knowledge. The examples that we offered in this sense are only an exercise that attempted to qualify the epistemic and historical debate within geographic thought starting from the scalar perspective as a methodological and theoretical foundation. Scales, or the scalar approach, make that possible by means of the exercise of, as argued by Mbembe (2017, 41), travelling “upriver to lost headwaters”.

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