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Architectural corpography
the method of the observer

Abstract

It is understood as an *architectural corpography*, in the theoretical and methodological context that guides this article, the record of the displacement of an observer moving through the built environment, thereby seeking to describe - through text, graphical notations and sequences of images – the effects of architecture on the relationship between users and spaces[5]. It is understood here as *effects of architecture* the inherent tensions – either positive (empathy) or negative (friction) - that permeate the relationship between actions and the configuration of the spaces where they occur[6]. We will therefore be dealing with the graphic representation of bodies in space as a method of study in architecture at its different scales, from the building to the city scale. The procedure outlined here is based on the observation and register - planimetric and photographic - by an observer that moves on foot, sensitive to the effects coming from the spatial situations where he passes and with the intention of describing them. The method is so proposed to graphically describe what is captured by the observer's senses in its course through a given situation of study, working in an associated way, with procedures and categories from the studies of spatial perception, including phenomenology and, on the other hand, from the studies of spatial configuration, including spatial syntax. Two questions serve as a guide to the progress of the text. The first one explores the way people relate to the spaces through the different senses. The second refers to what exactly in the spaces would affect their senses. The descriptive way thus outlined brings together, on the one hand, perceptions of this observer moving in space, registered in images and text and, on the other hand, privileged information of configurational nature such as maps and plants, cartographic and diagrammatic material that will instruct the observer's route. The use of walking as a way of producing knowledge in architecture implies, on the one hand, in the specification of a set of procedures, which we will call as *the method of the observer* and, on the other hand, in a brief review of literature that is intended to support the procedure from a theoretical point of view. The article presents this procedure in detail and, at the end, a case study which consists of carrying out a walk through an object of study and its immediate surroundings, a path that will propitiate analyzes of the quality of the spatial fruition at different scales.

Keywords

Corpography. Walk. Space. Body. Movement.

doi: http://dx.doi.org/10.11606/issn.2317-2762.v24i42p12-31

CORPOGRAFIA ARQUITETÔNICA
O MÉTODO DO OBSERVADOR E DAS LINHAS

Resumo

Entende-se como *corpografia arquitetônica*, no contexto teórico e metodológico que norteia este artigo, o registro do deslocamento de um observador em movimento através do meio edificado, buscando desse modo descrever – através de texto, notações gráficas e sequências de imagens – os efeitos da arquitetura sobre a relação que se estabelece entre usuários e espaços[1]. Entende-se aqui como *efeitos da arquitetura* as inerentes tensões – de fricção (negativas) ou de empatia (positivas) – que permeiam a relação entre as nossas ações e a configuração dos espaços onde elas ocorrem[2]. Estaremos portanto lidando com a representação gráfica do movimento do corpo no espaço como método de estudo em arquitetura nas suas diferentes escalas, do edifício à cidade. O procedimento ora delineado está fundado na observação e registro – planimétrico e fotográfico – por um observador que se desloca a pé, sensível aos efeitos espaciais produzidos pelas situações por onde passa e com a intenção de descrevê-las. O método assim se propõe a descrever graficamente aquilo que é captado pelos sentidos do observador em seu percurso através de uma determinada situação espacial objeto de estudo, trabalhando de modo associado com procedimentos e categorias vindas dos estudos da percepção espacial, incluída aí a fenomenologia e, por outro lado, dos estudos da configuração espacial, incluída aí a sintaxe espacial. Duas questões servem como guia ao andamento do texto. A primeira delas explora o modo como as pessoas se relacionam com os espaços através dos diferentes sentidos. Já a segunda se refere ao que exatamente nos espaços viria a afetar esses mesmos sentidos. O modo descritivo assim delineado reúne tanto as percepções desse observador que se desloca no espaço, registrada em imagens e texto, quanto a informação privilegiada de natureza configuracional, mapas e plantas, o material cartográfico e diagramático que instruirá os deslocamentos desse observador. A utilização da caminhada como modo de produção de conhecimento em arquitetura implica a explicitação de um conjunto de procedimentos que denominaremos *o método do observador* e, ademais, uma breve revisão da literatura que, pretende-se, venha a subsidiar o procedimento desde um ponto de vista teórico. O artigo apresenta um detalhamento desse procedimento e ao final um estudo de caso que consta da realização de uma caminhada através de um objeto de estudo e seu entorno imediato, um percurso que propiciará análises da qualidade da fruição espacial em diferentes escalas.

Palavras-chave

Corpografia. Caminhada. Espaço. Corpo. Movimento.

Introduction / conceptual Basis

The view from standpoint of a walking observer seems to be the most direct and natural mode of spatial enjoyment and assessment used by man from the earliest days. However, the use of such mode of appreciation, in a more systematic way, as an instrument of criticism in architecture and in art in general starts with Auguste Schmarsow who is acknowledged as the founder of a new way of appreciation of Architecture as a spatial art: *"He emphasized the movement of the observer, the physical and the imagined, and his role in the projection of individual feelings upon the static spatial form"* (KÖHLER, 1998, p.42). Schmarsow proposes an appreciation of architecture based upon what he calls as the spatial core and suggests that such core would be in the movement of the observer, and that the spatial essence of architecture can only be lived if we are able to put ourselves in that position of centers and, from there, to intuit the spatial logic of the experienced situation, he says:

> *As soon as we have learned to perceive ourselves as centers of space - a space whose coordinates intersect above us - we will have found the precious core, the investment in which the entire architecture is based. Since the active imagination captures this germ and develops it accordingly with the laws of the directional axes - laws inherent even to the most incipient idea or situation* (SCHMARSOW, 1994 [1879], p.285).

Central in Schmarsow's statement is the concept of *directionality*, associated to the body in movement, in defining the perception and, immediately, the attitude of the observer who, from this key standpoint, would understand the architectural space. Schmarsow suggests that the most important direction in a spatial structure would be *the direction of the free movement ahead* and that our vision, by virtue of the positioning of the eyes, would define one, permanently mutant, dimension of depth, which naturally implies in the acknowledgement of the kinesthetic dimension of the body in the architectural space. There would be the conceptual and operational embryo of what almost a century later Kevin Lynch would describe as *legibility* and that, more recently, Hillier and Hanson would come to conceptualize as a *depth*, spatial attribute that is at the base of what we know as *spatial syntax*.

And there can also be found the embryo of what Le Corbusier would describe as the *architectural promenade*, for him a key procedure in the description of architectural space. This way of looking at architecture would become, in the turn for the 20th century, the basis of the avant-garde architectural thinking, in what spatiality is concerned. Le Corbusier deepens and specifies the movement of the observer, in what German historians had, fifty years before, denominated as *vitalfuhlung* that, in an approximate translation, corresponds to the feeling or the sensation of the spatial essence, as he says:

> *The axis is perhaps the first human manifestation; he is the means of all the action. The child in its first steps seeks to move along an axis, the man struggling in the midst of the storm traces to itself an axis. The arrangement is the gradation of axes, and so also the grading of objectives, the classification of intentions* (LE CORBUSIER, 1931, p.187).

Le Corbusier describes in this passage the movement of the observer in a peculiar way, using the condition of axiality - and therefore, of visibility - as the basis for a legible ordination of the pathway. The architectural promenade, whatever it is, would consist, in the essence, of lines of sight that is, axis, and inflections, when the axiality is broken. This is a specification of Schmarsow's law of directional axes. In the gradation of axes it would be implicit, by definition, the concepts of spatial integration and spatial segregation; the more visible and the less visible; the more accessible and the less accessible (HILLIER *et al.*, 1983). This insight from Corbusier anticipates the different descriptions, points of view and conceptual basis inherent to the method of research now delineated, the so called *architectural corpography*. On one side it is the spatial experience which is, for him, a preponderant part in the understanding of space. On the other side it is the description in plan, the planimetric reference that is so essential for the observer to visualize and, simultaneously, rationalize the dive into the intricacies of spatiality. He says: *"The plan is a summary, something like an analytical index, and in such a condensed way that it seems as clear as a crystal. And, as a geometric figure, it contains a quantity of ideas and the impulse of an intention"* (LE CORBUSIER, 1931, p.179). Crucial in this paragraph is the deep understanding it shows of the role of the plant as a complex information record that reveals a particular angle, and a rationality, coming from the planimetric view of the object that is, by its nature, inaccessible to space experience. This descriptive procedure would be used by Le Corbusier in letters to clients in which he uses images of spatial sequences to explain the project (LE CORBUSIER / Complete Work, 2015 p.75). And it also appears in the well-known description of Casa Vetti, in *Towards an Architecture* (LE CORBUSIER, 1931), where perspective drawings and plant descriptions set up an articulated spatial description. In both cases, in the relation between the description in plan and the body in movement would be the demonstration of the *spatial effect*.

In the early 1960s, Gordon Cullen would resume this procedure with plans and sequences of perspectives describing spatial situations, in the concept of *serial vision*, having as the point of view that of the observer in motion, and that unfolds continuously in an existing vision and an emerging vision. The spatial description brought by Cullen (1961) offers simultaneous observation of the plant showing the sequence of positions of the moving observer, and the sequence of images corresponding to what is viewed from these same points of view. The description of the situation in plan is coupled with the simultaneous record of the sequence of images seen by the moving observer, which act complementary in the description of the spatiality. In there would be the graphic and photographic bases of the architectural corpography as rehearsed here. With this procedure Cullen brings the concept of *continuity* that would be similar, if not coincident, with that of *legibility*. For Cullen (1961) the condition of *continuity* would be in *"[…] a simple way to show how a type of space is directly connected to other through physical elements"* that is, the perception of continuity occurs when a physical element provides the observer with an indication of the possibility of moving forward.

Lynch (1960) contributes to the conceptual scenario now delineated with the introduction of the concept of *legibility*; a concept in fact previously outlined by Schmarsow and Le Corbusier as we have seen above, yet without the same descriptive comprehensiveness. For Lynch the condition of legibility would depend on the perception of the continuity of the pathway: *"The fundamental requirement is that the pathway itself, the pavement, go ahead; the continuation of other characteristics has less importance"* (LYNCH, 1960, p.59). And goes on: *"The routes, the network of usual lines or potential lines of movement are the most powerful means by which the whole can be ordered"* (LYNCH, 1960, p.104). The structural notion of a paved surface conforming, according to him, a *spatial network* would be the most perceived. Lynch's research suggests also the importance of a visual hierarchy that would provide, according to him, *"[…] a sensory choice of the main channels and their unification as continuous perceptual elements"*. This would be, according to Lynch, the skeleton of the image of the city. Curiously, this ambitious unification of spaces of the city as a continuum of perceptual elements ends up by being little perceived in the graphical descriptions resulting from Lynch's research, the so called mental maps. Lynch nevertheless would be the founder of a field of study called *wayfinding*, which holds, conceptually, elements coincident with the present study. Lynch defined wayfinding as *"[…] the use and consistent organization of certain sensory signals from the external environment"* (LYNCH, 1960, p.106).

The role of studies of the so-called *space syntax* in the construction of the method of the observer outlined here refers essentially to the qualification of the planimetric base used by the moving observer, that is, the spatial account given in plan. Hillier *et al*. (1983) propose a synthetic description of spatial situations based on the description of the lines of movement - disaggregated in the longest lines of sight - suggested by a spatial situation; lines that are given, at the city scale, by the spatial arrangement of buildings and open spaces and, at the building scale, by the mode of arrangement of walls and furniture. This description is known as the *axial map* (HILLIER *et al.*, 1983). In the axial map, the gradation of the axes, as enunciated by Le Corbusier, gets a systemic description. Each one of the lines of movement and straight view has an identity that comes from, and is relativized to, its position in the whole, i.e. the set of lines that compose any given situation, either of interior space or of urban space. This set of lines of movement would constitute a sort of DNA, the spatial identity, of that situation; the axial map would synthesize such spatial core or spatial essence. The words of Lynch make it explicit the description of this bridge provides an association between a diagram and the physical reality of a place: *"[…] a seemingly disordered physical world can be organized through the invention of a symbolic diagram explaining the relations of the main characteristics in a way that it stimulates the development of the image"* (LYNCH, 1960, p.107-108). The observer, in this way, would move, in the method now delineated, guided by the information given in plans and, if appropriate, in maps. In the study of urban situations he will use satellite images, cartography and diagrams that may report the condition of centrality and, therefore, the amount of spatial integration and spatial segregation inherent to the situations under observation. Unlike the

configurational studies based upon the condition of accessibility, generally based on connectivity and/or metrical distance between points, the procedures of the space syntax are based upon a spatial reality that is described in the longest lines of sight identified in the spatial structure of an object of study. In view of this characteristic, eminently architectural, studies based on space syntax suggest consistently that the condition of movement in architecture, in its different scales, tends to be intensified along the longer lines of sight, axial lines, thus suggesting that greater visual integration tends to generate more intense movement of people, the so called urban vitality (HILLIER *et al*., 1993, p.38).

The description of this optical dimension of space syntax constitutes the basis of a visual-graphic analysis based on the description of space through the so called *isovist lines*; lines that represent the field of visually perceptible space from a point of view - the viewfield - described as a set of points or polygon (BENEDIKT, 1979, p.12). The translation and use of the descriptive principle based upon the isovist lines in graphs of visibility resulted in a methodology of analysis of the architectural space, that reveals the condition of spatial integration due to the differentiation of the lengths of the lines of sight described through a spectrum of colors; from the hottest, the red, that is used for the more integrated spaces – those that are crossed by the longest lines of sight - to the colder colors, tending to blue, to the more segregated spaces, those crossed by shorter sight lines (TURNER *et al.*, 2001, p. 16).

The method outlined here has also coincident foundations, in its formulation, with the field of study known as phenomenology, especially with regard to a shared ambition of creating conditions to the objective study of topics normally regarded as subjective, that refer to the consciousness and the content of conscious experiences such as judgments, perceptions and emotions (NORBERG-SHULZ, 1979). In this line, with regard to the methodology of the architectural corpography, as rehearsed here, the work of Juhani Pallasmaa (2005) contributes by discussing the problems coming from the predominance of the sense of vision in contemporary culture, so permeating the education and the practice of architecture; in a rather different way from what actually occurs with our experience of the world that would, in any case, be formulated by a combination of the five senses. This emphasis on the optical dimension would be associated, in contemporary culture, to an impoverishment of the newly produced urbanizations that would bring about a progressive sense of detachment and alienation in people (HOLL *et al*., 2007, p.53).

Although the method of the observer, as outlined in what follows, presents a descriptive procedure based predominantly on the optical - where legibility emerges as a central category - it opens up space within the graphic dimension of the walk, to the description of how the other senses would or would not be affected during the spatial experience of the object of study.

The method of the observer / procedures

The elaboration of the architectural corpography would involve, initially, the production of a map of the object of study, a task that requires some conceptual elaboration, as we shall see shortly. A second step consists of planning the walk, which implies in the definition of the pathway(s) to be followed during the procedure of spatial exploration. A third step would be the setting up of the assessment criteria, which refer, as we have seen in the conceptual framework given above, to the legibility and the functionality of the object of study, categories that encompass how the five senses would be affected by the walk. Legibility would naturally tend to be a key category, in a procedure where images are an essential part of the description. The fourth step consists of carrying out the actual walk, over which the observer/researcher will move through the object of study, with its mapping, previously elaborated, and taking into account the evaluation criteria, also considered in advance and incorporated.

The conceptual problem of mapping

The ambition of conceptual elaboration through mappings has notable antecedents such as the work of French thinker and activist Guy Debord (1973) that introduces in urban studies the walk without destination, the so called *drift* as a method of study. He suggests that the drift would be a *psychogeographic* procedure, a way of studying the effects of the urban environment upon the psychic and emotional state of the people who practice it. Starting from a certain place, the person or group that drifts would follow an undetermined route, letting itself to be led by the pathway, that would lead to chance. Seeking to record the experience the drift would occur having maps as a spatial reference. Unexpectedly, however, the situationist mappings have little relation with the spatial realities of the situations they seek to represent. The Naked City, possibly the best-known situationist psychogeographic map (JACQUES, 2003), is a collage of fragments of the urban fabric of Paris, taken from a map of the city, and randomly stuck back on and interconnected by arrows that would represent, in the jargon of the procedure, *directions of penetration*. This map, as Leonidio (2015) suggests, would be "*[…] the graphic expression of Paris mentally constructed by one or multiple drifts*". Although in a veiled way the situationist drift, in its way of letting oneself be taken by the pathway, brings to mind the concept of *legibility*.

Another work that has precedence, and influence, on the mode of mapping used in the procedure outlined here is the *Manhattan Transcripts* of Bernard Tschumi (1994) that, same as this one, represents the movement of bodies in the architectural/urban space, by using the simultaneity of diagrams and images. This work consists of a collection of architectural drawings that lie between reality and fantasy so depicting, often dramatically, architectural episodes or, as the author suggests, *events*. By means of the articulated use of images, fragments of plans and pathway mappings Tschumi argues:

> *[…] the architectural origin of each episode lies within a specific reality and not in an abstract geometric figure. Manhattan is a real place; the actions described are real actions. The diagrams always presuppose a reality already in existence, awaiting deconstruction, and eventually transformation* (TSCHUMI, 1994, p.17).

The *transcripts* do not offer a simple reading; as the episodes go on the reader is faced with a complex entanglement of layers and elements.

The visualization of the situationist maps, as well as the *transcripts* of Tschumi, provide an insight into the descriptive potential of the set of techniques used, involving images and different types of diagrams, in their ability to represent effectively, situations that otherwise would have a pale and bureaucratic description. In the case of the architectural corpography the mapping of the object of study has a double function. The first would be to serve as a guide to the movement of the observer, whose walk will be guided by maps and plants. The second is to offer to the observer a view of the totality of the object of study, as shown in plan, a view that would simultaneously show a set of spaces Interconnected and at the same time, albeit in a less obvious way, a potential set of routes.

The plan would thus show a systemic description of the human spatial behavior, as it contains the movement of bodies and this movement will necessarily occur guided by relations that come from the spatial arrangement:

> *If anything is described by an architectural plan it is the nature of human relationships, since the elements whose trace it records – walls, doors, windows and stairs – are employed first to divide and then selectively to re-unite inhabited space* (EVANS, 1978, p.267).

The plan would therefore provide a synthetic description of the spatial behavior of people and its descriptive power would reside in its capacity of synthesis. It gives the observer the ability to see simultaneously a set of spaces that otherwise would be inaccessible to visualization and subsequent understanding. The multiple spatial sequences provided by any set of spaces will be right there, although only the trained eye will be able to reach them just by reading the plan. At the urban scale, this same visualization of the spatial sequences in plan would be revealed by the so-called figure-ground map, also known as Nolli map, a plan where the built form appears in black and the public space in white.

This understanding of the object of study as a system of routes opens naturally the possibility of describing this same object by means of the characteristics of its configuration that is, its spatial arrangement: *"By marking the gradations of public accessibility of different areas and parts of the plan, a variety of maps showing the territorial differentiations will be obtained. Those Maps will clearly show which aspects of accessibility exist"* (HERTZBERGER, 1972, p.13). Hertzberger uses the plan in the description of what he calls *territorial differentiation*, a spatial characteristic that would be associated to the *gradations of accessibility*. He shows how an adequate spatial structure - in its relationship with the movement/ attitude of the body(ies) - tend to be related to the acknowledgement of gradations of spatial accessibility that would distribute activities coherently, so

ordering in a proper way what is known in architecture as *program*. The method suggested by Hertzberger puts a structural character upon the spatial gradations that seems to be crucial in the way different situations are read or understood by people.

In parallel to the systemic visualization of the spatiality of the object of study, the plan would have the property of describing this same object as a set of connected spatial situations. The concept of spatial situation would be therefore based upon the disaggregation of the object of study, taking into account the territorial differentiation verified along the way that, to describe it more generically, would result in a sequence of *places*. Hillier describes, and specifies, this generic condition of place as a *convex space*; a description of spatial delimitation that is based upon the decomposition of space into *convex polygons*, situations endowed with visibility from all points on its internal surface (HILLIER *et al*., 1983, p.53). It is a matter of describing the object of study in terms of its *condition of sheltering* or, if one wishes, of its *degree of enclosure*. The concept seems to imply in the understanding of the architecture in its uterine dimension. At the city scale, the traditional street, elongated architectural space lined up with buildings on both its sides, would be the epitome of a spatial receptiveness, synthesis of the well-known Albertian notion the city as architecture, as a house, the largest house.

Seeking to describe more precisely such condition of spatial delimitation that is inherent to the architecture, in its different scales, Key *et al*. (2008) present a study in which the description of such spatial condition is proceeded taken into account the concepts of visual field – viewfield - and enclosure. Visual field is thus defined as the visible area from the point of view of an observer positioned within the field, represented as a polygon. The enclosure condition is so described as how much a *location* is delimited by built forms. The larger the amplitude of the visual field, the smaller the degree of enclosure. The concept of enclosure is similar, if not coincidental, with the concept of convexity/convex space (HILLIER *et al*., 1983). This category is at the base of the architectural corpography, in what concerns the disaggregation of the object of study into *sequences of spatial situations*[7].

The route

Having the object of study mapped in its material form and in its spatial form, it will then be up to the researcher to define the concept and the design for the walk. What route, or routes, would he use in his/her assessment of the object of study. The choice of the route would depend on the nature of the descriptive interest, which may be generic or global in its analysis and evaluation or, otherwise, have an interest in evaluating certain more localized, more precise aspects of a given situation. It must be taken into account, however, that any situation will have or, more precisely, will contain, a main spatial sequence, that space, or group of spaces, that constitutes the core, the integration core, of that building, neighborhood or city (HILLIER *et al*., 1983, p.87). This space, or set of spaces, also tends to be the most utilized by people, the ones most endowed

with vitality (HILLIER *et al*., 1993). On the other hand the more segregated spaces are naturally a part of any spatial situation, both at the building scale and at the city scale. It can be said that a standard route - in its descriptive amplitude - should include both the most integrating spaces and also those spaces more segregated in the spatial structure of the object of study.

The chosen route, once referred to the plan, will be described in the diagram as a line of movement. This line will describe literally the movement of the observer, its route. In the descriptive procedure now outlined, this route will be superimposed by another sequence of lines that will result from the disaggregation of the path in straight segments that correspond to the longest lines of sight necessary to describe it. This description, based upon the longest visibility/axial lines, puts in evidence a differentiation of parts - supported by the concepts of *visual field* and *spatial continuity* - that will allow for the assessment of the condition of legibility in the different parts of the route, taking into account their connectivity with the spaces immediately adjacent. This association between parts and whole, as emerged from the axial description, propitiate a systemic understanding of the object of study described as a system of spaces wherefrom a spatial hierarchy emerges. Such hierarchy is described by Le Corbusier as the *gradation of the axes* - the spatial form - that he relates to the *gradation of intentions* - the program, the activity, the function. Hertzberger (1972) as we have seen above describes this same hierarchy as *gradations of accessibility*, and Hillier *et al*. (1983) in terms of *depth*, as described in the measure of spatial integration, that is based upon the diagram of axial lines. In the axial description each part of the route is a space, and also a place. The axial line, a line of sight by definition, is the defining element of the visual field. That is, as we have seen, the basis of the concept of *situation*. The axial line has a local dimension, a convex space of its domain or, if you will, a situation that is haptic, where the body experiences the space and, simultaneously, a global dimension, optical, arising from its insertion into a larger whole.

Functionality as a parameter: The optical and the haptic

The concept of functionality, used in this study as a parameter for the evaluation of spatial quality, refers to the way in which the relationship between the space(s) and the body(s) in the architecture in its different scales is established; a relationship that may be more or less pleasurable to the point of becoming hostile. Tschumi (1995) suggests that there would be no cause-effect relationship between the concept of space and spatial experience, as well as between buildings and their occupants, as well as, generalizing, space and the movement of bodies in it. The author also suggests that the occasional coincidence between these 'mutually exclusive terms' may be either pleasurable or violent (TSCHUMI, 1994, p.16). We adopted in this study the work hypothesis, brought by Tschumi, that the functionality in the architecture

oscillate between the pleasurable and the hostile or violent, depending on a set of factors that would characterize the spatial situations.

Regardless any evaluation of the condition of functionality from a qualitative point of view it can be said that the relationship between space and body becomes effective through the different senses that is, the effects of architecture - its functionality - materialize through the senses. And functionality - both at the scale of the building and at the scale of the city - would lie in the way architecture, in different ways, affects people's spatial behavior through the different senses.

Although some authors understand that the relationship between architecture and the senses occurs in an equanimous way, with all the senses participating together of an integrated and homogeneously distributed spatial perception between the different senses (HOLL *et al.*, 2007, p. 17), most of the literature in our field of study, turns to the vision, to the optical, as the key sense, central in the theoretical and empirical foundation of the studies of architecture and urbanism, generally to the detriment of the other senses that would in fact be sublimated in the theory and practice of architecture, where the predominance of the optical, this optic dimension of functionality, came to be conceptualized as legibility (LYNCH, 1960).

The use of the concept of legibility in the field of architecture and urbanism would have its origins in the well-known book *The Image of the City* by Kevin Lynch where he defines legibility as *"[…] the ease with which parts of the city can be recognized and organized in a coherent model in perception of an observer"* (LYNCH, 1960, p.4). It appears from the author's words, the condition of legibility as related to the perception of a structural character, a 'coherent model', a structure, a spatial whole in relation to which the different parts and elements are perceived. As we have seen above in the reviewed literature, although the term legibility has not been used previously there is a long line of authors that uses the optical dimension of architecture as the main structuring element of spatial perception, as is the case of Schmarsow, still in the 19th century, with the law of directional axes, as well as Le Corbusier (1931), which speaks to us about the essentiality of a coherence in the relationship between the gradation of axes (space) and the gradation of intentions (program/activity).

Lynch understands as crucial, in the legibility of the places, the perception of continuity, he says: *"[…] the fundamental requirement is that the path, the path in itself, go forward; the continuity of other characteristics have less importance"* (LYNCH, 1960 p.59). Cullen (1961) similarly defines continuity as *"[…] a simple way of showing how one type of space would be directly connected to another through physical elements"*. Cullen therefore suggests that the perception of *continuity* would be established when a physical element creates a visual field indicating the possibility of moving forward, something like a wall or a sidewalk. Key *et al*. (2008) describe this continuity condition through a Boolean value that indicates whether two mutually visible locations, P1 and P2, would share the same physical element E within the visual field[8]. This

description confers some precision and objectivity to the concept of legibility; two functions, mutual visibility and belonging to the same visual field, allow the calculation of relations between the two points and between the element and the points.

The haptic or tactile dimension of functionality, that reaches us through the other senses, would be more related to uncomfortable efforts, to the perception of dimensional discomforts, to the perception of thermal or auditory discomforts, and so on. This functionality that operates naturally at the local scale refers to a myriad of factors that goes from the design of a handrail at the square's staircase, which at some point will help the old man's hand, goes through the width of the sidewalk, reaches the spatial enclosure of the street, and goes to the very configuration of the network of public spaces. Each one of these elements, coming from different scales, has its contribution to the quality of architecture, since each of them has an intrinsic quality that comes from the either better or worse fit of their form to the individual and to the collective body. The functionality of architecture, at the local scale, would be by definition a quality of form, or of forms, something essentially material, which directly impacts on people's behavior and well-being. This haptic understanding of functionality in architecture presupposes, in the line suggested by Pallasmaa (2005), that:

> *[…] any architectural experience is necessarily multi-sensory; qualities of space, matter and scales are equally measured by the eyes, ears, nose, skin, tongue, skeleton and muscles. Architecture may or may not reinforce an existential experience, the feeling of being in the world, and this essentially results in a deepening of the experience of one's being. More than the pure and simple sense of sight, or the classical five senses, architecture involves a variety of planes of sensory experience that interact and merge with each other* (PALLASMAA, 2005, p.53).

This suggested unfolding and sensory interaction from the classic five senses - sight, hearing, smell, touch, and taste - has more recently extended the description of the spectra of senses to twelve, so including now the senses of movement, equilibrium, temperature, language, concept, ego, and finally, the most basic, the meaning of life (SOESMAN, 1998, p.27). A thirteenth sense can be almost naturally attached to this list that is the sense of direction, of *directionality* (SCHMARSOW, 1994). Like the senses of movement and balance, the sense of direction would also be naturally attached to the sense of sight. Nevertheless the senses of balance and movement accumulate properties that permeate the optic and the haptic (touch). Yet the sense of temperature would belong entirely to the domain of the haptic. Pallasmaa in fact suggests that all senses, including sight, would be extensions of touch, and would all function as specializations of the skin tissue, and that any sensory experience would be a way of touching and therefore somehow related to touch, to tactility, to the haptic.

The register of the walk

The architectural corpography has *the walk* as its empirical procedure, which consists in the placement of all the senses of the observer in direct contact with the object of study, taking into account the planned route(s). The observer will walk guided by the plan, following the suggested pathway and the camera placements to be used in the description of each situation. The photographic record of the route visualized by the moving observer shows the pathway as a sequence of situations. This procedure broadens and details the procedure given in Cullen (1961) that uses the concepts of *existing vision* and *emerging vision* for the description of the optical dimension of the walk. The position, the point of view, of the camera will be located at the points of connection between different lines that is, at the links that connect the sequence of situations. The link provides the position of the camera at the connection between the longest axial lines in which the route was disaggregated. Each situation - each part of the pathway - will have one or more corresponding images depending on the descriptive convenience of each situation. The optical is the guide; the descriptions of the haptic follow and overlap.

Figure 1 shows the set of diagrams resulting from the use of the corpography - the application of the method of the observer - when used in the assessment of the spatial quality of the FIC Museum in Porto Alegre, Brazil[9]. This case is used here by virtue of the variety of scales and themes it brings related to the issue of spatial quality, from urban architecture to interior architecture. The report given in the example includes eight situations that show, initially, the movement of the observer in his/her approach to the building, and, the last four, his route through the interior at different levels. Each of the situations is reported by a diagram and the corresponding sequence of images so forming an articulated descriptive whole

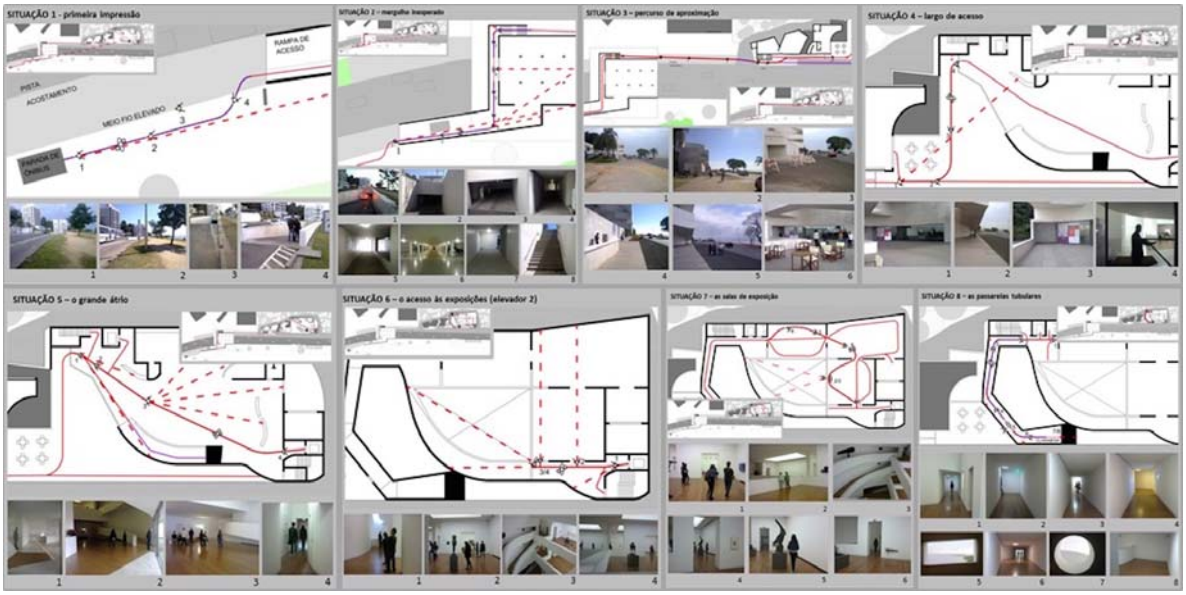

Figure 1: Architectural Corpography of FIC Museum, Porto Alegre, Brazil.
Source: Author

that will give visual support to the description in a text, the report. In any way, and in any case, the center of the description is the text, the report of the observer. The textual report will utilize the sequence of images and the information contained in the diagrams to show the reader what the text is describing. The diagram is a third description, an abstract description, which provides the reader with a spatial representation that works as an index, a planimetric guide that articulates the two other descriptions, the text and the images shown in the serial view. It is timely to remember the symbolic content of the plan, the mapping, as detailed above. Such descriptive arsenal is intended to move forward in the two conceptual questions that involve the use of this method of study; the first, in what way the spatial configuration – layout information - can be understood and used as relevant information in the study of the spatial perception? And the second; could the graphic analysis of the configuration anticipate aspects of perception?

The method of the observer and of the lines

In its search for answers to these questions, the report given in what follows shows an application of the method of the observer that puts together diagram, sequences of images and a report in text describing two spatial situations studied in the work carried out at the FIC museum in Porto Alegre[10]. Diagram and pictures show simultaneously the observer moving, incorporating the role of the visitor that arrives at the museum by bus, using public transport. As explained above, it is understood as a situation a space or set of spaces, located adjacent to the route followed by the observer and sharing the same visual field. Each situation is described by a sequence of images taken each of them from a point we will denominate as a station. Each station is identified in the diagram with the symbol of the eye - or camera - and by its numbering, to which will be associated the corresponding image.

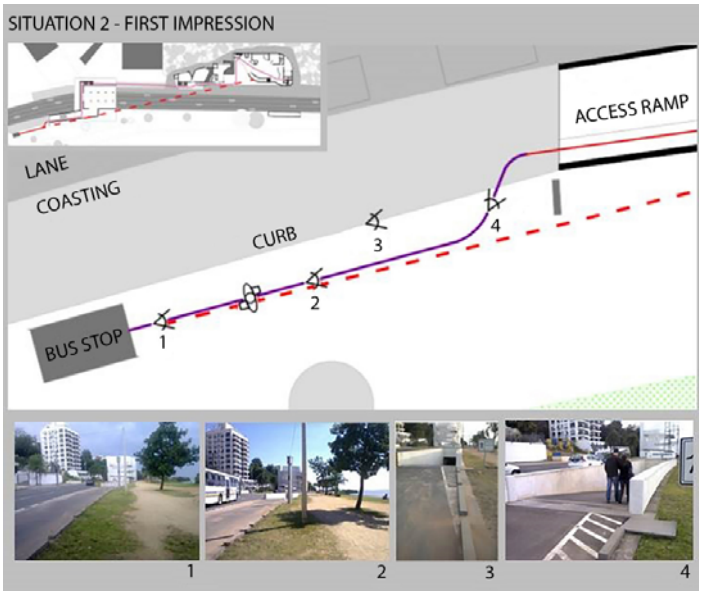

Figure 2: Architectural Corpography of FIC Museum / 1st situation. Source: Author.

We have called as the *first impression* the first of the eight spatial situations studied at the FIC museum as described in what follows (Figure 2). Leaving the bus, from the side of the freeway, the visitor sees the museum from a distance of approximately 200 meters (1). The smaller diagram shows as dotted this long line of sight in its totality. The set of images show that the isolation of the place is populated by cars at speed. In the bucolic place is suddenly revealed an intense and almost permanent auditory discomfort coming from engine noise. From where we are the legibility of the

situation, as regards the perception of the presence of the Museum, is rather problematic; even though the observer does, from where he is, an effort to put the museum building into focus - by the curiosity of the first contact - his visual field is mostly occupied by the presence of a residential building, also white, larger, if compared to the museum, in neo-Mediterranean style, typical pastiche of the 1970s. The museum, for the visitor, rests in the background, partially hidden by the posting, as the last building in this sequence of objects emerged for him in a rather awkward way (2). And the Ponta do Melo, the peninsula where the museum seats, that he had anticipated as an isolated place, now appears, in reality, as a place populated by road traffic and mediocre architecture that, in a rather surprising way, enframes the spectacular architecture of the museum. Diagram and images now show the visitor leaving behind the bus stop and moving along an unpaved sidewalk bordered by an elevated curb that ends up by performing negatively as a barrier to be transposed (3). He then notices in front a sign guiding the pedestrian access to the underground level, so coinciding with access to the parking lot. To access

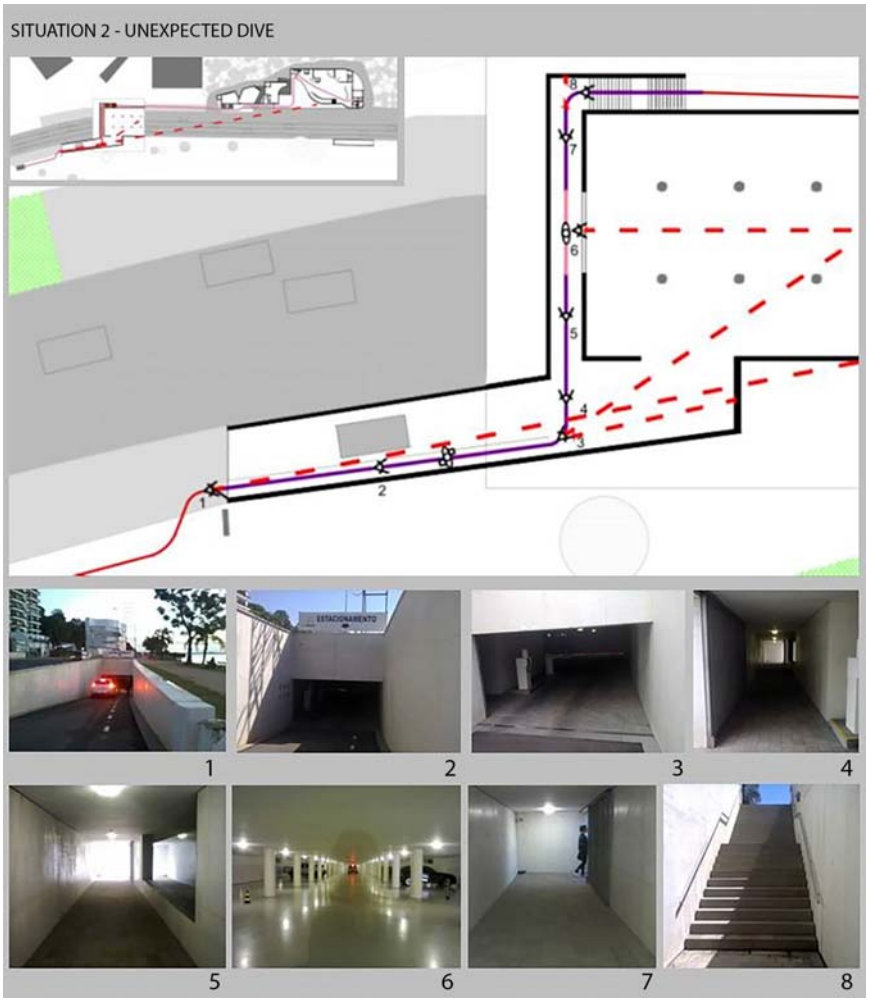

Figure 3: Architectural Corpography of FIC Museum / 2nd situation. Source: Author.

the ramp, the visitor must jump over the elevated curb that performs more as an obstacle than a facilitator. The diagram shows a graphical attempt to explain the problematic functionality of the situation; the visitor jumping over the elevated curb and the rout line undergoing a change of color so becoming violet. To the spatial discomfort - haptic and auditory – that has resulted from the way space is constituted there - gravel floor, elevated curb, adjacency to the highway - it is now added a dose problematic legibility. Here the visitor realizes that the path to be actually followed by him will be rather different from the one suggested by the long (axial) line of sight initially taken as a reference for his movement towards the museum building. A descent ramp, parallel to the highway, then materializes, forcing the visitor to an unexpected dip as the main route option, actually the only, towards the museum (4). The other possibility of access would be to cross the motorway that, at that point, can be considered as a high-risk operation for any normal person, and an impossible mission for people with any limitation, especially of age.

In Figure 3, the records corresponding to situation 2 of the procedure - a situation we have come to call *the unexpected dive* - show the visitor going down the ramp, watching the museum disappear from his/her visual field (1).

He is followed by a car that, casually, also arrives. As a non-motorized visitor, the observer feels uncomfortable with the weird situation in which he/she is placed. The diagram accuses such discomfort in the color of the route line, usually red, which turns into purple again. At the end of the slope the visitor has a blind wall right in front of him (2). The diagram shows – in the dotted line that goes diagonally to the left – that the interior of the underground parking lot becomes visible. And that even more to the left, as hidden, it will be the tunnel that will be in fact offered to her/him, as well as to everyone that arrive by bus, for this road crossing. The reading of the situation is again problematic, in fact labyrinthine; the diagram, together with image 3, describe the mismatch between the line of movement and the lines of sight that are presented to the observer as route options. Observations carried out in that situation have shown consistently that the major part of the visitors that arrive through this route tend to understand the dashed diagonal - through the parking – as access route. In our case, taking into account our previous knowledge, we have chosen the so said official course, or the architect's that suggests a more direct crossing.

Following this path, the visitor is soon faced with an inconvenient overlap and crossing of pedestrian and vehicular traffic (4). He realizes that the approach to the museum has become increasingly awkward, by virtue of a dramatic change of conditions underground; from the exterior to the interior, from the light to the dark, from the sight initially focused on the spectacular form of the museum to the unexpected dive into this cavernous space where he now finds himself. The perception of the situation at that moment suggests confinement (4). Curiously, in the midst of this subterranean corridor, the observer sees the sensitivity of the architect, author of the project, to reveal itself. In one of the walls of this confined space, right in front of the observer, appears a long window - with something like six meters length by a meter and a half high - sealed with fixed glass, through which one sees the elongated space of the underground parking lot (5). The view is surprising, unusual (6). The parking space is shown from

there in perspective, as organized by a colonnade of rather regular spacing and proportions that supports the roof upon which the motorway takes place. Although it is only a parking lot, the visitor realizes that this space claims, on its own account, independently from the museum it serves, the status of work of art, that is evident in the ostensive superfluous it carries. Curiously, in front of this unexpected vision, the visitor's sense of discomfort seems to be attenuated, especially considering a more Intellectualized view of architecture that is inherent to our visitor/observer. The route line shown in the diagram celebrates this moment of pause in the experienced sequence of annoyances so assuming a pink coloration. Still immersed in the underground passage, the visitor notices, at the end of the corridor, a glimpse of light that will guide him/her back to the open space at the ground level (7). Nevertheless around the corner, the visitor will see, with disappointment, a long stairway ahead of him (8).

Epilogue

It may be said in conclusion about the method of study of the spatial performance in architecture above delineated that, although this procedure have a variety of precedents in the work of different authors, it claims to introduce some degree of innovation, precisely in the way these references, both theoretical and methodological, are grouped under the ambition of describing the spatial quality of the architecture - understood, in the present theoretical context, as the way space welcomes the user, our observer.

Another effort of the article - both in theory and at the empirical part - lies in the search for some elaboration on the concept of *functionality* understood as something essentially related to two aspects of a given situation; its legibility, the optic, and its degree of convenience, the haptic. The concept of legibility was thus utilized as an attempt to describe how the situation is understood, or read if we wish, by the observer. This ease or difficulty of reading would be consequent to the way local and global information complement the each other, so providing the observer with guidance along the route. Functionality, in this respect, would arise from the *intelligibility* of the situation, a characteristic detected by the extended look, by the line of sight, by focus, by the optical. Functionality would imply, from this point of view, in that the situation has an understandable walk. In this aspect the methodology advances in a timely articulation between the concepts of *situation*, *convex space* and *visual field*. A second aspect of functionality that is detected by the method of the observer is the condition of commodity or convenience, if one wishes, understood here as a more localized spatial characteristic, that refers to the impacts of space and its delimiting elements, upon the body; factors coming from immediate surroundings of the route so affecting the different senses. The convenience/inconvenience would come therefore from the way these situations are appreciated, perceived, by peripheral vision and the other senses, a set of perceptions that constitute the tactile, the haptic.

The procedure has kept, as far as possible, the descriptions of these two spatial dimensions - legibility, coming from the optical, and commodity,

coming from the haptic - permanently overlapped in the construction of the perception of the functionality pattern experienced by the observer during the route described above. The aim was to provide a common-sense description similar to the one perceived by any person walking, looking and automatically registering how the space it travels is either more or less understood, the so said *legibility*, and the way that this same space interacts with the other senses, the so said *commodity*. The diagrams presented above show however some difficulty - intrinsic to the reductive graphics of the diagram condition - when it comes to describing, whether with color or with expressionist differentiations in the color or in the thickness of the line, the discomforts experienced by the observer during the walk, the mishaps of functionality. Unlike the graphical description of legibility conditions where the differentiation between continuous lines and dotted lines fulfills a descriptive function immediately clarifying. This graphic aspect, related to the development of notations capable of describing in a clear way the spatial perception of the moving observer seems to be an aspect of the method of the observer open to permanent development and elaboration so requiring creativity from the researcher that operates the method. Here one must take advantage of the potential of diagrammatic language to show how space is constituted and which factors, objectively, make it either more or less legible and, in parallel, either more or less endowed with convenience.

In the diagrammatic descriptions, legibility and functionality are reported naturally to the way the space is delimited and constituted, to the walls, to the spatial envelope; descriptions that can not be separated. Also in a way innovative in the descriptive procedure of the condition of legibility is the empirical elaboration offered to the description of the *spatial situation* based on the amplitude of the visual field, and which reports each step of the route by means of diagram and photographic sequence, positioned within reach of the eye of the reader, all supported by the text report. Diagrams make sense when supported by text and corresponding images, and vice versa, following the Cullen mode. In this descriptive mode, legibility and functionality descriptions do not behave as autonomous categories. On the contrary this descriptive whole happens simultaneously, and the diagram is the synthesis of the set.

In conclusion, this text leaves its praise for the message that comes from the teachings and procedures described here, with origin in the word of exponents of architectural culture; a message that is expected to reverberate in the students of architecture who make contact with the contents of this work, so arising enthusiasm for the discipline by reaffirming the role of enjoyment and spatial assessment, having the walk as a procedure of study and research. Recalling the words of Zevi (1948), there would always be a new world to be unveiled from the submission of the spaces to the passage of the body; the scanning of the body through space. The method of the observer, in its ambition of describing the spatial quality of places, seems to offer a fairly secure north where to anchor the understanding of what would be an architecture appropriate to people and to our time.

Notes

[1] The theoretical exploration based on the concept of corpography appears initially in Brazil in the work of Jacques, P. (2008) *Corpografias urbanas*, http://www.vitruvius.com.br/revistas/read/arquitextos/08.093/165. For Jacques "*[...] the city is read by bodies as a set of interactive conditions, and the body reveals the synthesis of such interaction retrieving in its corporality what we have called an urban corpography*".

[2] Netto, V. "The Social Fabric of Cities: an overview", Routledge, London, 2016, p.10.

[3] El uso del término "cuerpografia", así como la exploración teórica fundada en concepto cuerpografia aparece por primera vez en la obra de Jacques, P. (2008), Corpografias urbanas, http://www.vitruvius.com.br/revistas/read/arquitextos/08.093/165. Para Jacques "*[...] la ciudad es leída por los cuerpos como un conjunto de condiciones interactivas, y el cuerpo revela la síntesis de tal interacción recuperando en su corporalidad lo que hemos llamado de cuerpografia urbana*".

[4] Netto, V. "The Social Fabric of Cities: an overview", Routledge, London, 2016, p.10.

[5] A utilização do termo "corpografia" bem como a exploração teórica fundada no conceito de *corpografia* aparece inicialmente em nosso meio no trabalho de Jacques, P. (2008), *Corpografias urbanas*, http://www.vitruvius.com.br/revistas/read/arquitextos/08.093/165. Para Jacques "*[...] a cidade é lida pelo corpo como conjunto de condições interativas e o corpo expressa a síntese dessa interação revendo em sua corporalidade, o que passamos a chamar de corpografia urbana*".

[6] Netto, V. "The Social Fabric of Cities: an overview", *working paper*, 2016, p.10.

[7] The convex polygon is technically defined as the one whose interior angles are less than 180°.

[8] "Boolean" in computer science is a kind of binary data; by definition has two mutually exclusive values such as 0 or 1, false or true, on or off, and so on.

[9] The graphic material contained in this article was prepared by acad. Rafaela Xavier - PIBIC / CNPq scholarship - under the supervision of the author.

[10] This activity was carried out jointly by students from the 2013/2 and 2014/2 classes of the discipline of Space Quality, offered by the author at the PROPAR / UFRGS, postgraduate course in architecture of the Federal University of Rio Grande do Sul.

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Editor's note
Date of submission: 01/23/2016
Acceptance: 02/21/2017
English revision: Maria Aguiar

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