Urban design and architecture through notation

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Introduction

This paper[1] is an attempt to equate the subject of the author's graduation thesis ("Notation – Architecture and Dance")[2] with questions raised by the theme of the present WSE meeting.

The consideration of the universal and the specific will raise questions, while searching for the nature of a more valid notation to the disciplines that concern the environment, in particular Architecture and Urban Design.[3]

This paper starts with an approach to a notion of Notation, de-rived from the ways Notation has been used, and not being con-fined to the broad meaning of the word. That notion stands on the analytical reasoning that precedes and conducts the creation of an actual system and the structuring of that reasoning through parameters of an object. It is argued that there is a degree of rel-ativity in this type of analysis. So, we acknowledge the difficulty in notation being universal, considering it at various levels: the inability to serve every viewpoint, and consequently, every work, and the inherent representational inability to reach an object in its entirety.

Opposing that universal reach, we started considering the pos-sibility of consensus, and probable wide acceptance of certain systems. While noticing that notating measurable and physical aspects seems to be more consensual in the prevailing dance notations, and followed by the realization that the acceptance of these notations is related to their ability to reproduce works, we questioned whether it makes sense for Environment notation to set up similar purposes. We realize, however, that that is the fo-cus and reach of the so-called conventional representational means. So it is our contention that notation should take advan-tage of its specific reach (the qualitative categorization of an ob-ject and the ability to respond to specific demands) and try to en-hance it by means of a suggestive, non-prescriptive description that does not need to shape an object but approaches it in a rep-resentational way.

Such notational system could be used in a creative process, as well as to register an existing work, and still in the study of the environment.

On the notion of notation

Strategy to approach a notion of notation

At an initial phase, we sought to find a definition of Notation that could guide us and set boundaries for our study. So, at the be-ginning, we tried to find a broad definition that might be above any particular system or discipline and that could express the main characteristic of Notation, as well as differentiate it from oth-er kinds of means of representation.

The definition of notation is quite unstructured in the sense that there are few studies on it, either as a broad approach or even at the level of its specific applications. The existing studies, par-ticularly in the areas of Architecture, Urban Design and En-vironmental Studies, consist mainly of a series of precepts of a certain system, and focus less on what notation may be in gen-eral terms.

Even so, while searching for that broad definition of notation above any kind of discipline or of notational system, we con-fronted the self-called "Theory of Notation" by Nelson Goodman,[4] where the author tries to set the "linguistic requirements" that de-termine that a system may be considered notational, as well as to define notation's "primary function." We are particularly inter-ested in Goodman's notion of notation's primordial function. According to him, the main role of notation is its ability to distin-guish one work from another, which enables us to identify the performances that relate to that work. It accomplishes that through the emphasis put on the essential aspects of a work. Therefore, to Goodman, a notation must be able to identify, clas-sify and record the essential properties of a work.

Our analysis of several notation systems in Architecture, Urban

Planning, but also Dance, led us gradually to believe that "understanding a term is not a precondition, and may often be a result, of learning how to apply the term and its compounds."[5] Thus, we realized that in the multiplicity of notation manifestations, i.e. in the variety of existing systems and their characteristics, there could be a potential definition of notation. In the belief that there may not be Notation, but rather Notations, we changed our course of action. We stopped searching for a broad definition of notation, but for something different: something gradual and operative, not frozen in a sentence, nor in an exact concept or formula. In that way, we sought a notion sustained by the analysis of various notational systems in various disciplines, and that was a reflection of a study made on concrete systems. So, in our attempt to understand notation, to find out more about its nature in several fields, we also sought to check the effective application of notation, the advantages of its usage, and the contexts in which it is used.

Analytical and parameter-based reasoning

Notation has been used in several artistic areas, especially in Music and in Dance, but also in Filmmaking, Architecture and Urban Planning. In these areas, it goes without saying that the pursued goals are different. Similarly, within each analyzed area, we find different existing systems, each one of which with different structuring modes.

When we consider the application intents of notation, it is in Architecture and Urban Design that a more substantial difference between systems is found. Hence, in the field of environmental design and study, we are able to find various notation purposes: an intended means of representation and presentation of a product, an intended conceiving tool and/or a means to evaluate a certain object.[6]

Going back to the first meaning of the word "notation" – the encyclopaedic one and maybe the most common of all meanings – a representation form based on a system of conventional signs, or the group of those signs (the system itself) – we realize that it may be rather restricted.

When we consider the various applications of notation, it seems reasonable to suggest that it may establish itself as a structuring tool for one's thoughts about an object – even if it still relies on an object's description/representation, evaluation/analysis, or conception. The notion of notation that we have developed is neither merely based on the way it is able to represent an object, nor on the way it codifies that object.

In addition, we think that the codifying aspect (as well as the system of conventional signs or the group of those signs) is itself subject to a preceding analytical line of reasoning. According to Thiel, "(...) the development of a system of notation is only the final step in a process that must begin with the identification of a model structure and its elements, and their classification, scaling and coding."[7]

The identification of those elements, its classification and scaling is, consequently, a result of the analysis of the object of notation at stake. Regardless of the field of study or the actual notational system that we look upon, notation seems, therefore, to always establish itself on a structure of analysis of an object.

It follows from that analytical aspect that notation could also be sustained by the way it formulates and structures that analysis. In other words, notation is ruled and comes into effect through the parameters of the object – through the identification of elements, categories and parameters. In this sense, notation approaches the object through the understanding of components it selects from the object. Through an analysis that starts with the identification of various parameters considered relevant within an object, notation starts setting up categories, terminologies, measurements and codes that may finally turn into a structured representation system.

In this context, the object is not presented through a global and single element that might be able to represent the essence of its nature at one time, but is instead presented by a description of parameters (possibly crossed) that originated in an analysis of the object; those characteristics, when articulated with one another, will then allow us to (re)construct an object in its unity.

Hence, we could argue that a notion of notation could lie in this approach of component analysis that structures a thought about an object (and is simultaneously a result of that thought's structure).

Particular viewpoints

Given that notation may be built up from a viewpoint that is based on the identification and selection of certain components of an object, we reckon that the notational reasoning as well as the conceiving of a system may be, therefore, determined by specific judgements.

Prior to and during the creation of an actual system of notation there is a critical view that "selects, rejects, organizes, discriminates, associates, classifies, analyses, constructs"[8] the object. That view, as well as the result of that process, are very specific in the sense that they are influenced by one's understanding of an object and by the purposes of the representation. As a matter of fact, in that process "not only how but what it sees is regulated by needs and prejudice."[9] Thus, each notation is influenced by its author's view of the object, as well as by the characteristics that one finds and values in the object, bearing in mind the goals of his study.

As opposed to Goodman, a notation can hardly be confined to the representation of a work's essential characteristics if we understand essence as something absolute. On the contrary, in notation, the intentions and viewpoints of the notator naturally guide the determination of the parameters considered relevant in a given context, and possibly taken as essential. The essence of a work is, then, variable according to viewpoint.

In a mutual relationship, the selection of the components considered important to notate bear evidence of the particular conjuncture that presides it.

It is, therefore, understandable that different systems coexist, even if they are being used for similar reasons – in reality, each system highlights certain parameters, structures them in a particular way, and may even cover components that other systems do not consider. Taking Dance as an example,[10] we can compare two different systems currently used (Choreology Benesh and Labanotation[11]), both of which share a similar general objective – the notation of any kind of movement. Yet, the way each one focuses on movement is different, which then consequently determines each one's specific structure.[12]

The specific context that triggers a notational reasoning or a system of notation will be mirrored in the selection, hierarchy and understanding of the object's components. The intentions and achievements aimed by a system will determine those aspects as well as the structure of the system and the way that the components relate to each other inside it.

For that reason, even when two existing systems share some parameters, their aggregation in a system may still be different as it is greatly dependent on its intended use and effect.

What is being argued is then that each parameter, each structure and hierarchy, each intention in representation is specific of a system and closely linked with an analytical and selective view, impregnated with intentions and prejudices.

Difficulty in reaching universality

In dealing with this subject, we distinguish:
• difficulties in suiting all and in suiting every work; and,
• difficulties in covering all parameters of an object.

- Let us refer separately to difficulties in suiting all, in suiting every work.
– **Difficulties in suiting all:** A notation system, created according to certain purposes and having, as we contend, a selective nature seen in its critical and intentional view of an object, will necessarily be debatable. Even if it wants to remain neutral with regard to the frames of its foundation, notation is still clearly attached to the achievements of its structure, which are also restricted to the type and number of factors considered.

Notwithstanding this, it is clear that a system may be considered extremely valid and useful in a certain field and to a certain group of people.

Even so, we have reason to believe that, from the start, there is a sort of relativity in notational systems, where what is considered and the way that it is done is not something absolute; it is neither universal nor able to be globalized. As a result, we realize that though there are prevalent systems, there are no such things as single systems, with universal validity to be used in a single mission within a single field.

– **Difficulties in suiting every work:** Similarly, the ability of a system being suitable for the study and register of any kind of work is still restricted; on the one hand, the purposes of a system are specific, not globally consensual; besides, the nature of a work is not something clear or evident in itself but rather subject to different understandings.

In many of the analyzed environment-related notations (both in those that focus on physical space features and in those that focus on the human experience in places and occasions), we have not found any author explicitly willing for his notation to be used in any kind of space, experience or environment. (Instead, most authors argue that their notations were created to serve some specific concept.)

Conversely, the will dance notations show to register any kind of movement, certainly makes us think. In fact, those systems are quite far-reaching. Yet, in fact, they are constantly being subject to re-evaluation so that, by being developed or corrected, they may get closer to that objective. In other words, even though it aspires to notate any sort of movement, this in itself does not enable a system to register any sort of work, any choreography, where movement may be the key component, but is not the single one.

As for the environment, we might be able to notate any sort of spatial configuration, but with only one sort of system we would hardly manage to notate any kind of work in its several sides, responding both to the several purposes that shape that work and to the several personal interpretations of it.

In any way, it is our belief that a single notational system, due to the limits of its own nature, will hardly manage to make itself globally valuable to record or analyze all sorts of architectural or urban conceptions.

- **Difficulties in covering all parameters of an object:** Furthermore, it also seems clear that a notation cannot cover all parameters of an object. Assuming that the nature of an object is based on an understanding of it (a mental (re)constitution of it), this is more evident within a notational description. The notated parameters will then be as many and different as the subjects selecting them; and this also applies to the hierarchy assigned to its parameters and to the way that they are structured.

We think that the entirety of an object has no real existence in the representation process. No notation system can represent an object in its entirety, however complete it tries to be. Actually, if it could represent an object in its entirety, it would not be a representation, but the object itself.

So, when constructing an object, Notation, as a means of representation, is always distant from its totality, being always incomplete and specific, no matter how many parameters it tries to cover.

Consensus

"Consensual" instead of "universal"

Following the above, it may be argued that a universal system, in a global and broad sense, is quite an improbable, possibly utopian idea.

The reach of a system of notation is limited by its principles, as well as by the nature of the parameters to be notated; the system will then be more or less accepted by a given community. Therefore, instead of the word "universal," we could use "consensual," a notion that can possibly lead to the predominance and prevalence of a system.

In some disciplines we can find systems that are widespread and have predominance in relation to other systems; they are based upon relative consensus established around certain viewpoints, around certain structures and around components considered essential for an object to be read, written and studied with notation.

A predominantly consensual system is, nevertheless, often questioned because it is not universal and as newly raised questions face difficulties in being answered within that system; those questions may originate inside the system (when it is not managing to respond to its intentions) or outside it (when new interpretations of an object find no answer within that system). Hence, there is room left for other systems to occur or for the feeling to arise that a given system needs to be developed.

In the field of Music one may find widely spread systems used as a common language with an almost global status in certain times and contexts.

In contrast, with regard to Architecture and Urban Design there is no prevailing notation system; more significantly, the use of notation is scarce. The systems that exist are scattered and unknown to most of the agents in environmental design.

We have considered the possibility of reaching a consensus on one or more systems of notation of the environment. Assuming that there might be similar theories or lines of thought about the environment, we could then consider that there might be some consensus on the use of notation and on the parameters and nature of an object. In that sense, some prevailing and widespread systems might also occur.

Although the study of all the motives that make environment notation so scarcely used is beyond the scope of this discussion, we are still interested in finding out some of the reasons that might explain that fact. We shall for that matter compare the environment with areas that use notation widely.

It may be claimed that a widespread acceptance of a system is not only dependant on the ideas to which it wants to respond, but also on the sort of parameters selected and the way in which they are structured; following from this, perhaps the urgency to a consensual system might be related, as will be discussed below, to the role given to notation.

By going through some apparently consensual factors, we shall try to evaluate the advantages of notation establishing itself as a predominant system in environmental areas in a (questionable) attempt to reach a widespread system.

Physical and measurable parameters

The ability of a system to gather consensus seems to be not only dependant on an extrinsic factor (the concordance of its intentions with a majority of users') but also on the kind of factors covered. We raise the question that some parameters may arise more consensus than others, those being the physical and/or quantitative aspects of an object, rather than more specific and subjective ones: non-physical and/or qualitative parameters.

Considering the aforementioned prevailing dance notation systems, we think that there is more consensus on the physical parameters and that their use is more likely to be more widely applied.

Following that, could it interest the study and representation of the environment that its notation relied on physical and/or quantitative parameters?

In fact, the physical and geometrical features of an object are the ones on which the so-called representation means focus most and best. Some of the aspects that seem to be missing though are the non-physical parameters and the possibility of classifying an object qualitatively. As suggested by Paul Virilio, "when an architect makes a plan (...) he can only measure surfaces, because he has no tools with which to qualify volume."[13]

In that sense, if we tried to reach more consensuses, we might have to confine notation to the register of predominantly physical components; yet, we would lose valuable advantages of notation. And still, even though we might generate more consensus, the widespread use of a system would still not necessarily happen.[14] To create a system founded on those aspects, in an attempt to become widely accepted, would be, from where we stand, to limit its scope and potential from the very beginning and still with no guarantee of wide acceptance.

Therefore, we believe that notation should assume its role and ability to take qualitative parameters into account, not worrying about consensuses. Furthermore, notation would still have the chance to fill the gaps in the prevailing representation systems, and stand out more explicitly through the specific interpretation and description it makes of an object.

On the whole, if notation disregards more consensual aspects (not getting to respond to the demands of most agents), which role should it play? We shall now look at the function that has made notation, within music and dance, an extremely valid means of representation, and check if environment notation might perform a similar role.

Function of notation

In the cases of Music and Dance, notation has much contributed to the spreading, systematization and study of many pieces, since "before its invention, it was necessary to learn through imitation."[15] The preservation of repertoire, the study of some pieces, the reproduction of some works, owe much to the development of notation systems, capable of carrying out those functions with rigour and exactitude. Laurence Louppe has described them as, "dance notations, guardians of invention."[16] (Maybe for that reason too there is a greater necessity to reach consensus on the notated features, and to a rely on a notation that focuses more on objective and measurable questions in order to carry out that primordial function.)

In Architectural and Urban Design, the so-called conventional tools have managed to perform such a role: to reproduce their products and allow the transmission and construction of works (i.e. the reproduction of a work is guaranteed by Plans, Sections, Elevations and Perspectives of a space; the communication between a designer and a constructor is accurately ensured by those means). In that sense, Notation has not been a vital means in the architectonic reproduction, register and communication, also because the prevailing systems commonly do it and have the ability to respond to the needs and intents of most professionals. Notation, again, does not need to search for consensus, this time in order to generalize its usage and its applications. (That fact also supports the idea that notation should neither try to restrict itself to consensus generating features, nor try to comprise an object comprehensively).

Notation could instead seek to establish itself as a tool to develop those specific understandings and studies; it could try to give a better response to specific demands, as it could be more adequate and specific. Hence we should aim for systems that will probably suit, at most, groups of ideas and groups of interests.

In fact, we could say that the existing systems are already focused on specific purposes (many of them are oriented to serve its author's designing purposes – according to Mitropoulos, "designer-oriented notations"[17] – and others are recognizably conditioned to analyze an object from a peculiar viewpoint). However, where space notation is concerned, it might be argued that some authors seem to aim to cover the object at stake in its entirety, constantly seeking to eliminate the constraints that exist in their systems (incapacity to cover a given factor, inability to include a given aspect or to consider all spatial conceptual ideas); we also think that some reviews mention those constraints as disadvantages of the systems.

However, what have we got to lose with the existence of particular systems directed to particular cases? And, asking the question differently, what is there to be gained from the existence of notations specific to those who have conceived them and want to use them, and to be lost from the inexistence of a hegemonic notation system?

Thus, it may be claimed that all notations are incomplete and object-specific (not able to be globalized) and that, with regard to environmental drawing, those constraints should be accepted and transformed into advantages, with effective and deepened applications to specific cases where each system should be as close as possible to the criteria that originated it.

According to Hall (1959), "(...) when culture is more completely explored, there will be the equivalent of musical scores that can be learned, each for a different type of man or woman in different types of jobs and relationships, for time, space, work and play."[18]

A possible nature of notation in architecture and urban design

Non-prescriptive mode

Environment notation, free from the primordial function of representation for reproduction/preservation of a work, can therefore choose to structure itself in another way, and with principles that can best suit other functions.

There seems to be evidence that notation, when in need to make itself valuable as an accurate way to reproduce a work, tends to reduce the fields of interpretation of what is represented to the minimum in an attempt to avoid both misinterpretations of what was meant to be represented and the distortion of the original intent of the work and its author.[19]

Even though it could stand apart from that need to represent in order to reproduce and from that exactness of meanings, Notation in Architectural and Urban Design could emphasize a certain subjectivity in communications, thus widening the field of possibilities through the kind of relationship established between meaning and signifier.

The description of a certain aspect of an object could be made by suggesting a field of possible meanings through the same sign. In this kind of record, a sign does not need to have an immediate, specific and single meaning, but instead it can represent a variety of possibilities and objects inside a category, within a given suggestion. Notation would then structure itself in a non-determinant nature, capable of fostering a variety of interpretations and possibly being useful in a creative process.

In many notations, besides the attempt to reduce the field of possible interpretations, it is also important to give an imperative register in the structure of the components' description, not letting the reader choose between one or another interpretation of a work. To this mode, present in most representation-for-reproduction notations, we call prescriptive.

In a non-prescriptive notation, the rules of signification can be structured in a wider sense, allowing for many readings of what was written, and giving way to different interpretations/recreations within what has been described.

It follows that, for example, there are some musical notations that do not provide the interpreter with a single and imperative way of interpreting a work, but merely with interpretation guidelines. "In some experimental 20th century music, music is not notated in conventional terms and the player may be left to improvise on the basis of musical patterns, verbal instructions or even the impressions he receives from a picture or a few lines of prose."[20] In the Motif Writing movement notation, it is also possible to provide more freedom to the ways of interpreting one and the same description, hence not being prescriptive (allowing the performer to choose the speed in performing, or the part of the body to perform the given indication,...) and, even more, be suggestive in the sense that one can perform a variety of different movements parting from the same signal.

In this mode of induction of meaning and in that non-determinant structuring of paths, there is an intentional margin for interpretation for the one reading the notational description – there is a non-prescriptive mode.

Architectural and Urban Design notation has no need to be prescriptive, specially because the prevailing means of representation are quite efficient in preserving works and in communication-for-building. It can therefore search for other paths (in its own structure and in the way that it is used), and be directed by non-prescription in representation and by its inherent suggestive ability.

Suggestive description

The suggestive capability in Notation goes beyond what is reached by non-prescription, being instead founded on any intrinsic aspect of a notational representation. By presenting the object in a non-global mode, but rather through a description ruled by several parameters, the latter gets its sense not through a global and direct appearance of the object to one's eyes, but only when submitted to the mental process of reading. Thus, Notation seems to be substantially connected with a sense of suggestion, since the description induces the one who reads it to the development of mental images. Notational description is suggestive due to the inexistence of immediate evidence in its meaning; in opposition, to access that meaning the description must be submitted to a reading and to a subject's particular interpretation.

In that sense, Notation should stimulate the creation of mental images that relate both to physical and non-physical aspects of an object, while not being constrained to an immediate form of representation.

As mentioned above, in Notation the components considered in an object go through a process of analysis, of classification, search for terminology and, when those take part in a representation system, through a codification stage. In this codification process, the resemblance or non-resemblance between the shape of what is represented and the signals used are two possible ways. Still moved by the possibility of notation co-existing with a wide field of interpretation, we find that it can be enhanced when one puts the tonic on an abstract relationship between signification and signifier.

The representation of Architecture and Urban Design can therefore take advantage of notation's classification techniques and of its practice to establish relationships of meaning between objects and signals (in addition to creating an abstract relationship, if wanted), not needing to draw a shape, but yet providing an idea to the reader to which he/she can associate a series of shapes. The ability that notation has to not present an object visually through its shape, but instead to take on the coding of shape-related categories can have a dual effect: first, it can widen the reader's interpretation field, and second, when used as a designing tool, it does not confine the process of creation to a single shape.

Uses and advantages of such a notion of notation

Application to the creation process and to the description of an existing work

In Architecture and Urban Planning, the process of creation goes through many conceiving and idealization phases until a final configuration is reached. While in the initial phases, there are several undefined ideas and therefore a wide range of possible ways to undertake. There are consequently many possible final results. By coordinating the projects' several aspects, the object is gradually sculpted while getting closer to its final version.

If Notation manages to establish itself as a suggestive and non-prescriptive system, possibly enhanced by the use of abstract signs (in the sense of non-resemblance to the shape of the object), the creative process can benefit in many senses. Hence, in those initial designing phases, when there are many options left open, the register of that field of choices could be made by a notation set in the following aspects: the existence of many paths to be followed (also using its ability to raise mental images during reading), and the possibility to refer to several objects, within a given piece of information.

Therefore, this variety of possibilities and ideas (either about physical aspects or not) that the creative process faces at its outset would not need to be formulated with exactitude, but could instead be set without eliminating potential paths. It would then offer itself as a vast area for interpretations and creations.

Addressing the ways in which the so-called conventional tools respond to the creative process ("In the conventional architecture practice, the process of maturation from the idea to the built work has been transformed into a systematic representation that leaves no place for the invisible in the process of translation"[21]), Notation could respond differently by giving space to the development of mental ideas and the gradual formulation of results.

When one understands that the tools being used influence the final product (and that, alternatively, our objectives also determine the tools we choose), with notation one might try to follow objectives that other tools cannot cover. That should not be taken as a defeat of those tools but rather as an attempt to make the most of each tool in each phase of the designing process.

"It is not a substitute for the necessarily static Plan-Section-Elevation of Euclidean Space, which you need to communicate to the brick-layer," as suggested by Mitropoulos about his Space Networks Notation.[22] Yet, Tschumi points out that "(...) plans, sections, axonometrics, perspectives. However precise and generative as they have been, each implies a logical reduction to what can be shown, at the exclusion of other concerns. Any attempt to go beyond such limits, to offer another reading of architecture demanded the questioning of these conventions."[23]

This kind of notational record, inherently suggestive and non-prescriptive, and its potential to enhance the creative process, could still be used in the reproduction of a work, yet with a purpose other than that of exact reproduction and reconstruction. In fact, "projective drawing need not be a reductive device, a tool of prosaic substitution," "where a precise coincidence between the representation and the object"[24] is sought. When one is reading the description of a work, the space of one's imaginary can, in that sense, be still left open, either in the presence or absence of a work.

Notation may make certain characteristics of a work stand out to someone going through it or to someone who is not experiencing it in person. While in presence of the work, Notation will perform the role that a description of a landscape performs with regard to the landscape itself: the object is there, but if someone simultaneously reads a description of it, they will be confronted with a personal view (particular to the one who has written it), which will give them access to certain aspects that could other-

wise be left unnoticed. Moreover, one can equate one's on-site personal experience with someone else's description.

In that way, the register of a work can be made through a person's reading notation, highlighting aspects considered important.

Development of specific conceptions and enhancement of research

As previously suggested, the tools we use determine the results we achieve. However, not only do "our techniques limit what we do," but they "also describe our goals by default."[25]

Following that, and since notation seeks to answer certain purposes and conceptions about an object, the study of notation systems ends up revealing a series of questions related to those conceptions.

A comparative study of notation systems can allow us to better understand not only their structures, but also certain conceptions about their corresponding objects.

Going once again through the question raised in the chapter "Consensus," "Function of notation," we realize that it would be much more comfortable if there was only one type of notational description that could suit a great majority. Nevertheless, as noted by Guest, "For movement study life would be much simpler if only one type of movement description existed, one type which would serve all needs. But how much poorer we would be!"[26]

In fact, the existence of more than one notational system, or of ways to register the environment notationally, has two advantages, even if at the expense of the aforementioned aspect. First, we gain a means capable of responding to specific demands; and the more adequate those systems are to the specific concepts, the more likely they are to become useful tools in the development of those concepts. Second, notations adequate to specific concepts can not only help develop those concepts, but also enrich the field of research on environmental questions. Either way, notation systems may allow us to develop certain ideas and study an object from a certain viewpoint. Following Guest "As one explores the by-ways of (...)" an object, "(...) one has 'maps' (notated material) of known terrain and the means of charting new courses."[27]

Conclusion

Notation should establish itself by its particular characteristics making its stand while realizing the context of the constraints and reaches of other means of representation, within Architecture and Urban Design.

Notation should also respond to specific purposes and also enhance the qualitative categories of a space and its environment. The applications of notation could reach from a polarized description of an existing work to the collaboration with the process of creation.

Taking advantage of its capacity for arising mental images through reading, and notation being in that sense suggestive, special attention could also be given to a non-prescriptive mode of description.

The existence of specific notations well adapted to specific purposes and conceptions would contribute to the development of the latter, as well as enrich the panorama of research on the environment, thus deepen our understanding of it.

Notes

1. Translation edited by Isabel Gonçalves.
2. Daniela Dias de Carvalho, *Notação: Arquitectura e Dança*, Trabalho de Projecto, 6° ano do Curso Superior de Arquitectura, Escola Superior Artística do Porto, Dezembro 2002.
   This thesis equates notation in two disciplines, analyzing 6 different notation systems – Kevin Lynch, Philip Thiel, Rob Krier, Feuillet, Benesh and Laban. Comparing their structuring modes and reach

within each discipline and the relationship between them, it seeks to find specific characteristics in notation and especially the ones that could make Architecture profit more from its use.
3. Environment is here considered with regard to the features physical space and to the human experience in places and occasions.
4. Nelson Goodman, *Languages of Art* (Indianapolis, Hackett, 1976).
5. *Ibid.*, p. 25.
6. On this subject one can confront, for example, the application purposes of the notations put forward by Philip Thiel, Rob Krier and Kevin Lynch.
7. Philip Thiel, *People, paths, and purposes: notations for a participatory envirotecture* (Seattle and London, University of Washington Press, 1996), p. 4.
8. Nelson Goodman, *Languages of Art* (Indianapolis, Hackett, 1976), pp. 7-8.
9. *Ibid.*
10. Here we chose to pick Dance notation, not to set an example to Architecture and Urban Design, but because we could not find any currently used system in these fields.
11. Choreology Benesh (Joan and Rudolf Benesh) and Labanotation (Rudolf Laban) are two different systems of movement notation, mainly used in Dance, that are officially settled commonly used in dance teaching schools and in companies that are used to notating their repertoires; there are also official companies that control the systems' developments and their use.
12. Laban's "Structural Description" seeks to describe movement in a gradual description mode, taking into account the changes on transference of weight, and places the performer in the centre of the description – ego-centered description; in contrast, Benesh's notation describes movement through a sequence of moments, where the reference point is mainly external to the one executing it – viewpoint exterior to movement.
13. Laurence Louppe (org), *Traces of Dance*, English translation by Brian Holmes and Peter Theories (Paris, Editions Dis Voir, 1994).
14. In fact, there are systems relating to the environment that focus mainly on physical parameters and that, even so, are not widely accepted. A further analysis of what makes a system widespread would imply discussing a series of other questions, which would require another kind of research.
15. Edward T. Hall, *The Silent Language* (Garden City, New York, Doubleday, 1959).
16. Laurence Louppe, "Notations de la danse, guardiennes de l'invention," IRCAM, centre Georges Pompidou, Résonance n. 7, Octobre 1994.
17. Mit Mitropoulos, correspondence exchanged with the author, Brussels, 7 and 8 October 2002.
18. Edward T. Hall, *The Silent Language* (Garden City, New York, Doubleday, 1959).
19. Many of the currently used notations are also motivated by the fact that many works do not allow great variations on themselves, on pain of not being referred to by interpretations any more. So, in notations intended to record a work for its reproduction, there is often the intention to transcribe that work, so that the one reading it will not adulterate it with his/her interpretation. It will not be the case of some pieces of music, specially experimental or jazz music, that allow a series of interpretations within certain parameters and where notation is more suggestive and less prescriptive, as we shall see below.
20. Stanley Sadie (ed.), *The Groove Concise Dictionary of Music* (The Macmillan Press, 1994).
21. Louise Pelletier and Alberto Perez-Gomez, *Architectural Representation and the Perspective Hinge* (MIT Press, December 1997), p. 85.
22. Mit Mitropoulos, "Chapter 5: A cognitive/perceptual notation or urban design based on the concept of space networks" – *Space networks: Towards a space notation for use in complex urban systems*, Ph.D Thesis, Edinburgh University, Department of Architecture, 1974, p. 72.
23. Bernard Tschumi, *The Manhattan Transcripts* (Academy Editions, 1994), p. 9.
24. Louise Pelletier and Alberto Perez-Gomez, *Architectural Representation and the Perspective Hinge* (The MIT Press, December 1997), pp. 6 and 85.
25. Charles W. Moore quoted by Philip Thiel, *People, Paths and Purposes: Notations for a participatory envirotecture* (Seattle and London University Press, 1997), p. 4.
26. Ann Hutchinson Guest, *Your Move, A New Approach to the Study of Movement and Dance* (London, Dance Books, 1983), p. xvii.
27. *Ibid.*

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