Dynamic space, complex contexts

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Introduction

The present article deals with the proposal of a new perspective on understanding urban spaces: based upon movement analysis. Not only a theoretical frame is presented, but also the basis so as to develop this new urban narrative through a movement analysis and notation.

Corpocidade[1] (Berenstein and Dultra, 2010)

The context through which we move is configured by an amalgam of processes that the body assimilates while interacting with them. The influences that these surroundings have on us are a set of constraints difficult to assess and isolate, as they are composed of non-linear parameters. A non-linear system is that which cannot be expressed as the simple sum of its parts, as it is not subject to the principle of superposition. The behaviour of a linear system is easily predicted, whereas the non-linear system entails a more complex solution. In an urban context, these systems become chaotic and cannot be simplified nor solved.

We start from the basis that the body will interact with the environment in which it carries out its daily activities and routine, even if involuntarily. Space, be it architectural or urban depending on its complexity, has a set of

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inherent constraints that are assimilated by the body. These constraints are imprinted upon the body, as the photographic film gets imprinted when exposed to light, and the body exteriorizes them, expressing in this way the interaction with its surroundings. This way, we could define the term "corpografia"[2](Berenstein and Dultra, 2008), as the exteriorizing of the aforementioned imprinting that when put in contrast with the space, could well be expressed as a cartography.

The existing relationship between body and space has been scarcely studied in architecture and even in dance, when not ignored or despised. In architecture, the narrative of space is done through cartography, which in many cases is limited to represent the reality from a physical and tangible point of view.

A choreography constitutes the project of the movement of a body, that has been previously designed and can be registered by means of a graphic system. As in architecture, a choreography is a work of composition, in this case of the body in relation with space. A corpografia could be the combination of both, the representation of a non-tangible reality: the movement the body describes when exposed to the influences of its surroundings.

Can a choreography be interpreted as a dance? Jane Jacobs(1961)[3], in The Death and Life of Great American Cities, identifies the movements of people in the urban environment as the "sidewalks dance"

This ballet is affected by the stimuli that the city offers to its inhabitants, and so each part of the city will have its own choreography. This choreography is ruled by improvisation, but also strictly bound to special configuration. By isolating the adequate stimuli in a certain set of conditions, it would be possible to extract certain movement patterns.

In 1961, almost at the same time as Jane Jacobs publishes her book, a group of artists from different disciplines, the Judson Dance Theatre, starts investigating spatial composition on stage. Amongst them, John Cage, Trisha Brown or Lucinda Childs (Bogart and Landau, 2004). Their prime objective is to free the met en scene choreography from drama and psychology, to determine the minimal expression of dance: could it simply be walking through a space?

This idea to take dance to everyday movements reinforces the idea that Jane Jacob poses, to interpret the pedestrian movements as the city´s ballet, which becomes determined by the city´s morphology. As the city is only a mechanism, a set of synchronized movements.

"Paris Qui Dort"[1]*, directed by René Clair, a film from 1925, shows the importance that the movement of people has in the configuration of cities. The main character is the security guard from the Eiffel Tower, that awakes to a "sleeping" Paris. Scenes show how the guard, the only person in motion in the city, walks through its streets meeting motionless people. All the city has been paralised. Thus losing its condition of city along with the loss of movement, to become reduced to an urban scenography.

Figure 1: *Frame of the film "París qui dort". René Clair, 1925.*

But movement in itself can also generate complex spaces. The first reference that can be found to support this comes from the Iliad[4]. Homer (*transl. 1998*) makes reference to the choros (choreography) that Daedalus designs

1   *París qui dort, 1925 [Film]. Directed by René CLAIR. France: Films Diamant.

for Ariadne. This dance floor has been interpreted as the labyrinth itself, but also the labyrinth has come to be interpreted as a complex dance movement.

Jean-Pierre Le Dantec writes in "Daedalus, the hero", that in order to build the labyrinth, he is summoned to a ritual dance in a field. Seven women danced, and the traces that their movements left on the field were used for the empty spaces, that confined in stone walls, formed the corridors, that the architect Daedalus applied to his labyrinth. Were we to know the choreography that originated the labyrinth´s footprint, we would be able to understand its spatial configuration. (Le Dantec, 1991)

Paola Bernstein Jacques (2003) writes in her article: "Aesthetics of the Favela" where she compares the favelas and Daedalus labyrinth. As the dance leaves its traces on the earth and thus generates the walls of the labyrinth, the use of space generates the urban configuration of the favelas, without a previous project to plan these spaces, the movement generates the urban matrix.

From these references, a different form of design can be extracted; as John Cage and Merce Cunningham worked with musical composition and choreography in parallel, without music or dance taking the lead. Why not work in parallel with "full and voids"? Understanding then movement as a new parameter to take into account when establishing a spatial configuration. (Celant, Vaughan, 1999)

But, what is the space? How might the movement be influenced by it? Albert Einstein in the foreword of Max Jammer´s book "Concepts of Space" (Hammer, 1954) defines space in two different ways: as a "positional quality of a material object" and as "the container of all material objects". In both definitions he talks about space from a geometric and kinetic point of view. Due to the location implications of both definitions, it would be necessary to talk about the concept of location. Einstein defines it as a small part of Earth´s surface that could be identified by a name. The body or the entity whose space would be specified by this name would be the material body or the object.

Aristotle's considerations on the concept of space are of special interest due to the fact that in the olden days the concept of space wasn't separated from one's own existence, as explained by Max Jammer. The space was always related to beings, alive or inert, that were contained or put in contrast with it. In this case what interests us is the understanding of space through experience, not from abstraction.

For the ancient philosophers, space consisted of a series of directions, a multitude of location coordinates more or less in order, although coordinate systems were not introduced until Descartes. Aristotle defines space as the sum of all the locations occupied by bodies or entities, but the location of these objects would be the portion of space whose limits are defined by the objects´ own shape.

If we follow Aristotle´s assertions, void does not exist as only the absence of matter, as the bodies can interchange locations when they start to move. Even if we think in terms of a material void – or a continuous fill – even if we weren't able to perceive the matter, we wouldn't be able to deny its existence just by thinking in terms of opposition to motion. Then relative positions could be interchangeable. (Aristóteles, *transl. 1995*)
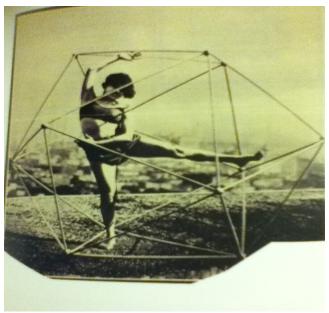

Figure 2: *Kinesphere. Rudolf von Laban*

Rudolf Laban[5] also denies the existence of void, as the space next to a body can potentially be occupied by it. A body does not only occupy the space limited by its shape when still in its position but all the space that encompasses its area of action is crossed by an infinite number of lines of possible

movements that could be made by that particular body. Thus, all that space would potentially be occupied and we couldn't strictly speak of void.

When a person or an object moves, this movement is registered by our minds and imprinted in our retina, as well as all the consecutive different positions in which that body will position itself. This is the matter change, the empty space becomes a filled space, it is an alternating game between empty and filled spaces, whose configuration changes every time the body moves.

Corpografías

There have been many attempts at representing movement, but us architects have kept to trajectories and tracks, when these are only a simplification of what really occurs. In dance these representations have been achieved, developing representation systems to express movement. The best known and used of these is the Kinetography, developed by Laban (Challet- Haas, 2011)

The attractive thing about this system is that it allows to accurately represent the dancer´s movements by assigning different symbols to every "micromovement", and to represent the time a certain "micromovement" takes, making an a analogous system to the pentagram and the musical notes, but one that uses physical movements instead.

As movement is also time, any valid movement diagram must represent time, and it is for that reason that these notation systems have been developed in the field of the dance. When Michel de Certau (1984) writes about the representation of movement of people within urban spaces[6], he describes them as an absence of everything that is really happening. He talks about the representation of a trajectory, of joining the points that represent the different positions of the bodies when in movement. This is why de Certau says: "But these thick or thin curves only refer, like words, to the absence of what has passed by. Surveys of routes miss what was: the act itself of passing by.". He is referring to the traces of the movement as a representation that takes us to oblivion, that deletes reality by simplifying it to the point of making illegible what really occurred.
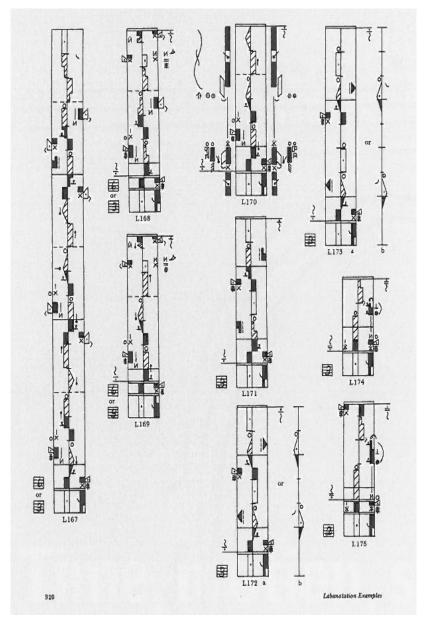
Figure 3: *Kinetograpy. Rudolf von Laban*

The problem associated with movement in a delimited and real space, has always been understood as different combinations of possible trajectories. A representation of footprints that could be visible under certain conditions, a direct traslation of the movement without taking into account what really caused it.

The notation used in dance is a system that is half way between drawing and writing, but that is fundamental for many choreographers as a means of diffusion, even if it the necessity of the system to be able to record the movements has been questioned many times. As with music, a recording is not enough to be able to truly register a musical piece, and thus the scores continue to be used.

Merce Cunningham, in his choreography Torse, works separately with time and space, dividing the musical piece in sixty four movement changes and in space in the same number of quadrants. Randomly, by the toss of a coin, she generates different combinations of body scores in the space that will configure the choreography. In this case, the notation is not only a means of registry but also a tool for the choreographic composition.
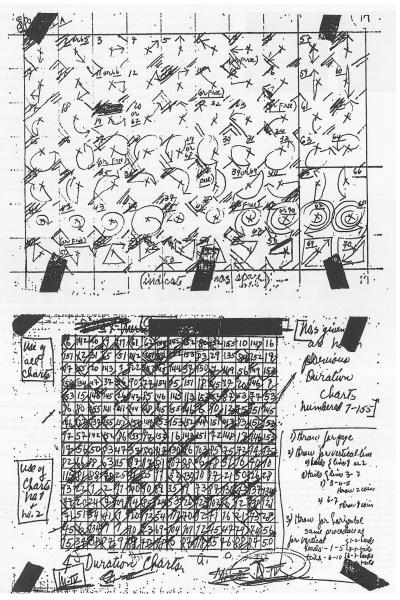
Figure 4: *Suite by chance. Merce Cunningham*

Dynamic cartographies

The drawing of the choreographer has some main reasons related with its function within the dancing performance: Preserve and transmit the choreographies, and in many cases it is also a tool to think and design them. At first the representation of the movement is understood as an exercise in letting be taken in by the dancers movements without the existence and possibility of abstraction.

The most interesting thing about studying the notation systems in dance is to try and use them in other fields of study. This application would not only be taking place in what refers to the notation system as a means of writing down the movement but also as the notation as a tool to generate new realities.

Kinetography is based on the projection of the different parts of the body onto the ground plan. Along a straight line, symbols are placed to represent direction, time and strength of each and every one of the movements of the different body parts. The language will vary in complexity depending on the amount of detail with which we may want to express these movements.

These systems of movement representation grow in complexity with the introduction of more bodies on the scene (or in space). Representing the movement of a body may entail a varying degree of complexity, but if becomes significantly more complex when more bodies are introduced.

In QUAD, a piece composed by Samuel Beckett (1981) for television, four characters appear, all wrapped in different coloured tunics (white, red, yellow and blue), moving along a square. These four characters never touch each other, following rotatory and symmetric paths on the square, at the same time we hear a rhythmical base.

In Kinetographies I, it is proposed to work with this piece as a first attempt, while at the same time developing a possible movement writing methodology that can be applied to more complex systems. The fact that all the movements are repeated from different points in space, along with the presence of four actors, emphasizes the spatial relationships, not just the individual movements.

The movement of each individual is relatively simple, as it comprises equally spaced steps in a fixed and constant amount of time, and changes of

direction using the square´s sides and diagonals. On the other hand, with the addition of more individuals more spatial complexity is introduced into the system.
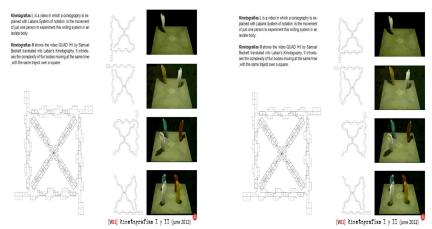

Figure 5: *Kinetographies I. María José Martínez (2012). Transcriptions of QUAD by Samuel Beckett, 1981.*

Transcribing the movement of a dancer into the Laban notation is relatively simple once one becomes familiar with the notation. However, the representation of the four dancers at the same time becomes a much more complex exercise if their trajectories are not introduced in plan. It is through the combination of trajectory and kinetography that we become capable of understanding the movement through this abstract notation system. Working with the trajectory allows us to work with as many bodies as we want and to put them in contrast with their surroundings. The QUAD case is a quite delimited essay that allows to work with this notation. But this system could also be applied to more complex environments, as is the case of Kinetographies II.

Kinetografias II tries to show, through the Laban system and while introducing some necessary variations for its application to complex surroundings, the abstract reality that corresponds to the complex system that constitutes any urban space, in this case, a street in Paris.

Kinetographies II, has a video format, and shows at the same time the

reality of the street in which those movements we want to transcribe take place, and the abstract reality that is constituted by the movements taking place in it. As we have seen from the start, the spatial configuration determines the dynamic qualities of the space, so by analising these types of transcription we could determine those relationships.
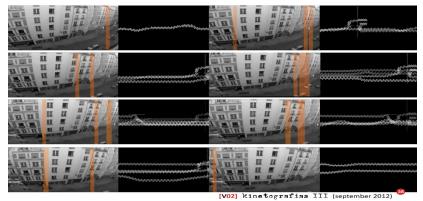

[V02] kinetografias III (september 2012)

Figure 6: *Kinetographies II María José Martínez (2012). Transcriptions of an urban context.*

The validity of the application of Laban notation in movement representation, not only in dance, but in urban and architectural environments has been manifested through these two essays.

But using only transcription we cannot establish rules or laws that will govern these systems, as they contain a huge amount of variables and unknown parameters. It is possible to detect relationships between movement and spatial configuration, but not to start establishing patterns of movement, which would be the way to start working with these systems as a designing tool.

Due to the lack of research on these lines of work, it would be premature to establish a solid movement notation system in complex environments; however, these essays open new lines of investigation on the representation of abstract realities.

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1   "Corpocidade" is a portuguese word made by corpo (body) and cidade (city). This term is used as a name of a research platform by a brazilian group from UFBA (Universidade Federal de Bahia). Their researches are focused on the relationships between the body and the city from an artistic point of view.

2   The term "corpografía" was published in: BIASE, Alessia e Bonnin Philippe, "L'habiter dans sa poétique premiére – actes du colloque de Cerisy-la-salle", Éditions. It was proposed by the urbanist Alain Guez after the lecture "Éloge dês errants l'art d'habiter la ville" presented by Paola Berenstein Jacques in Cerisy-la-Salle in september 2006, Donner Lieu, Paris 2008.

3   "This order is all composed of movement and change, and although it is life, not art, we may fancifully call it the art form of the city and liken it to the dance – not to a simple - minded precisión dance with everyone kicking up at the same time, twirling in unison and bowing off en masse, but to an intricate ballet in wich the individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an oderly whole. The ballet of the good city sidewalk never repeats itself from place to place, and in any one place is always replete with new improvisations." (JACOBS, Jane. 1961. P-58)

4   ¨Then in a passing pleasant vale the famous Artsman fed (Upon a goodly pasture ground) rich flocks of white-fleec't sheepe,, Built spatbles, cottages and cotes, that did the sheapheards keepe From winde and weather. Next to these he cut a dancing place all full of turnings, that was like the admirable maze for faire-hair'd Ariadne made by cunning Daedalus; and in it youths, woven cotes that cast a faint dimme glosse, like that of oyle. Fresh garlands too the virgines' temples crownd; the youths guilt swords wore at their thighs, with silver bawdricks bound." (HOMER, Iliad XVIII - 535. P-387)

5   Rudolf Von Laban was born in 1879 in Bratislav. He studied architecture in the École des beaux arts of París. His works were based in the relationships between human movement and the surrounding space. He creates the kinespheres, which are models that he used to analyse the movement on the body and which were very useful to develop his notation system, the kinetography.

6   "It is true that the operations of walking can be trace don city maps in such a way as to transcribe their paths (here well-trodden, there very faint) and their trajectories (going this way and not that). But these thick or thin curves only refer, like words, to the absence of what has passed by. Surveys of routes miss what was: the act itself of passing by. The operation of walking, wandering, or "window shopping," that is, the activity of passers-by, is transformed into points that draw a totalizing and reversible line on the map. They allow us to grasp only a relic set in the nowhen of a surface of projection.

Itself visible, it has the effect of making invisible the operation that made it possible. These fixations constitute procedures for forgetting. The trace left behind is susbtituted for the practice. It exhibits the (voracious) property that the geographical system has of being able to transform action into legibility, but in doing so it causes a way of being in the world of forgotten."