Semiotics of Architecture for a Global World: Distributive Cognitive Paradigm

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Abstract

One of the best semioticians of space and architecture L. Tchertov wrote this utterance: «The interiorization of the actions in space and the exteriorization of the inner spatial images are two faces of the same semiotic structures of architecture». Taking into account this argument closely tied to the Russian dialogical tradition of M. Bakhtin and to views of L. Vygotsky our contribution will try to develop an architectural semiotic analysis based upon the distributive paradigm developed by E. Hutchins, D. Kirsch and S. Gallagher.

Architecture conceived and «built» by small groups of children is shown as a first example of this chronotopic sociophysical reciprocity between physical construction between objects and social interaction between subjects. In this way, children intend to survive and to keep a dynamic equilibrium between the inner body forces and the environmental sociophysical constraints, that is, between personal freedom and social interactional rules. Then, these fundamental architectural semiotic processes and structures are applied to some examples of contemporary places in different countries related to huge populations and enormous complex social forces.

Architects are under strong pressure in order to build these places without concern of environmental, cultural or social impacts of these buildings and cities. A semiotic of architectural sustainability should be able to help them to decide the right size, form and quality, because the distributive cognitive paradigm points out just to the limits in size, form and quality of the reciprocity between social interaction and specific environmental sociophysical circumstances.

If the heterochronic quality of the human being's cultural development can in this way be clarified, we should be able, as children are, to build the best places for the best social interactions we can imagine, believe in, and take care of.

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1. INTRODUCTION: ARCHITECTURE AND SEMIOTICS TODAY

During thirty-five years I have been an active participant into the wide range of studies on architecture and semiotics (Muntañola 1991-2007). I must confess that I have still much more questions than answers in relation to this combination between architecture and semiotics.

A lot of valuable work has been done (Muntañola 1996). However each time I think again on the subject, taking into account, for instance, the works by Mikhail Bakhtin and the excellent recent articles by L. Tchertov (Tchertov 2002), I start to think about it again with new perspectives.

There are many questions I would like to uncover in this paper: the specific conditions of a code in architectural semiotics, the way architecture is an aesthetic experience, the relationships between architectural design and architectural semiotic theories, etc. Even though I have already published a lot of works trying to answer these questions, I will aim to analyze them from a different cognitive viewpoint, by mixing more carefully the semiotic assumptions with the cognitive distributive paradigms by E. Hutchins (Hutchins 1995).

2. ARCHITECTURE AS A SOCIOPHYSICAL ARTIFACT

It is always a refreshing starting point to begin with children's conception of architecture, which I have been analyzing in the last forty years in different countries (Muntañola 2009). There are two clearly different cities made by children from the same city of Barcelona, at the same time, in 2008, and with subjects, boys and girls, belonging to similar schools in terms of social class and cultural origins. However, the two cities are totally different and «built» in a totally different sociophysical scenario.

Figure 1 shows a «monological city» (in Bakhtinian terms) where each child built a personal (and monological) place, isolated from the other's place, where there is a lack of cooperation between children and a lot of competition, and where the authors of the city cannot explain verbally the city, because it is a city without (social) histories, or stories to control my own place, against the other's, which is the main and unique social aim of this monological city.

Figure 2 shows an example of a «dialogical city» where cooperation has been the leading force. Children can explain verbally the city: it has a lot of histories and stories. There is a collectif and public property and use, and a specific cultural and social way of living.

These two cities are good examples of the dialogical characteristics of human cultures in general and, simultaneously, of the distributive and social quality of human knowledge. Finally, it is the sociophysical reciprocity needed, located in an intersubjective spatial and temporal relationship, where the minds and the bodies can cooperate (or compete) to undertake living and actions that matters. And this is just what a city is: a socio-physical network of subjects and objects.

The consequences of this analysis of children's architecture are far beyond a strict educational output. It is the whole future of architecture and cities that should be interrogated. When we change our physical environment we change the way our social interchanges can be culturally developed. We modify the rate, the size and the meaning of our social relationships and social communication, as Professor Bill Hillier has shown (Hillier 1996).

Moreover, the use of computers in design has produced the confusion pointed out by the anthropologist E. Hutchins when he insisted upon: «the physical-symbol-system architecture (in computer studies) is not a model of individual cognition. It is a model of the operation of a sociocultural system from which the human actor has been removed», and again «communication between persons who are copresent in a shared physical environment differs in many ways from communication across a restricted medium». Finally, «architecture should be seen as a human artifact made by social groups by interaction between structures internal to the individual and structures external to these same individuals».

Figure 1: Monological cities

Figure 2: Dialogical cities

	Monological City "A"	**Dialogical City "B"**
Number of different elements	10	60
Parent participation in the school	Does not exist	High participation
Organized visits and celebrations	Does not exist	Many
Theatre	Does not exist	Very importent

DIAGRAM I: DEEP STRUCTURAL DIFFERENCES BETWEEN IDEAL DIALOGICAL CITIES AND MONOLOGICAL CITIESS

Subjects Objects S_1 —— O_1 S_2 —— O_2 S_3 —— O_3 "Points of view" and "voices" are independent of each other **There does not exist a configuration between subjects and objects**	Physical space and time and "social" space and time are only related at individual level. Relations between objects have not correlations with relations between subjects. Norms for objects are independent from norms for subjects. Objects are context free. Subjects are context free.

DIAGRAM II: MONOLOGIC SEMIOTIC ARCHITECTURAL CORE (CONFIGURATIVE CHRONOTOPE)

Subjects Objects S_1 O_1 S_2 O_2 S_3 O_3 "Points of view" and "voices" interrelated **There exists a configuration between subjects and objects**	Physical and social space and time are interrelated chronotopically. Norms for objects are interdependent of norms between subjects. Objects and subjects configure a context.

DIAGRAM III: DIALOGIC SEMIOTIC ARCHITECTURAL CORE (CONFIGURATIVE CHRONOTOPE)

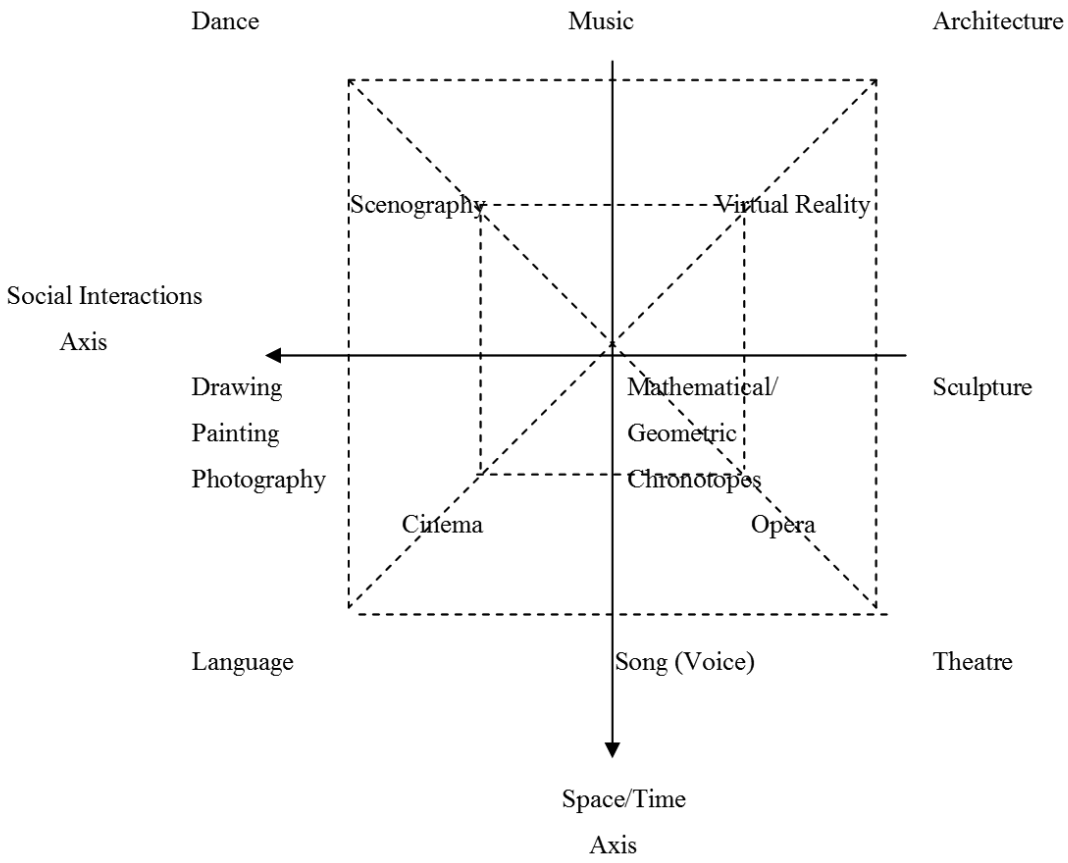

Diagram IX: Chronotopic Structure of Intersubjective and Intertextual Communication

3. THE POETIC AND CHRONOTOPIC CORE OF ARCHITECTURE AS A SOCIO-PHYSICAL ARTIFACT

According to L. Tchertov (Tchertov 2002) the space and time articulations of physical and social entities, that is, the chronotopes, are the kernel of our cultural artifacts: books, music, airplanes, etc. I consider these chronotopic structures an enlargement of the poetic categories of Aristotle, some kind of generalizations of the «social recognition» and sociophysical «peripetia» defined as the two basic pillars of poetics (see figure 3). I insist on the way Aristotle in poetics tries to link those two catastrophes to the «object» (building or city) when he states: «the most perfect recognition is the one accompanied by peripetia, this can also be caused in relation to inanimate objects». (Aristotle poetics 1452 BC).

This chronotopic poetic power of the object is clear to me in this translation by Professor García Yerba (the best Spanish scholar on Aristotle) (García Yerba 1974) even though many translations ignore it, resulting in, to my opinion, very bad translations. The Latin text shows a clear intention of defining the poetic power of an object in relation to «recognition» and «peripetia». The utterance by L. Tchertov that I have quoted in the abstract of this paper is

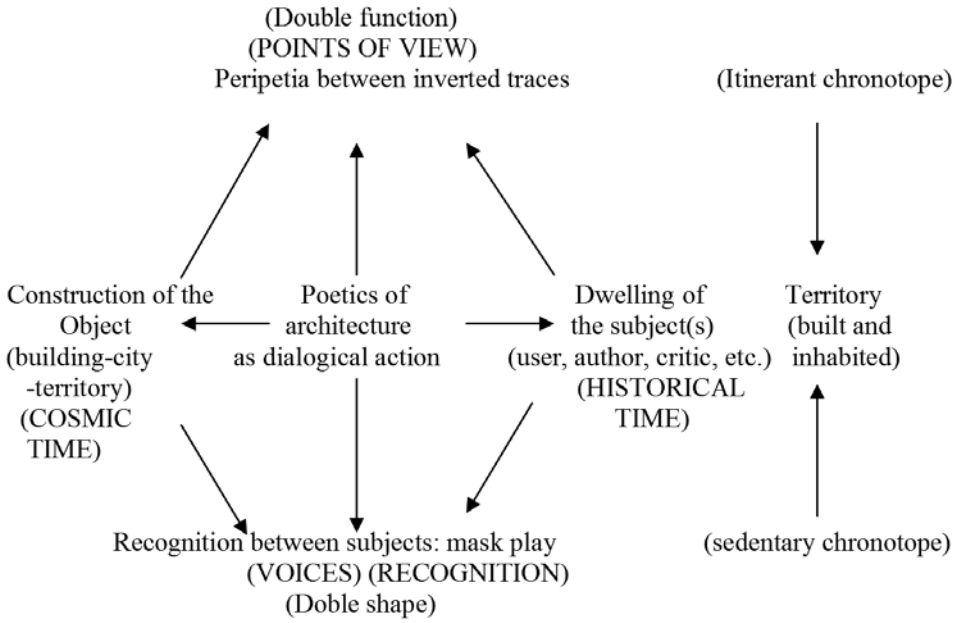

FIGURE 3: STRUCTURE OF THE POETICS OF ARCHITECTURAL SPACE: ORIGIN OF THE CHRONOTOPE

clearly related to this point when he argues: «the space of a culture is the result of the exteriorization of internal schemes and, simultaneously, the organization of these schemes thanks to the interiorization of external spatial actions».

So, we have a chronotopic object (city or building), a chronotopic body as equilibrium between inside and outside body structures (a very Piagetian assumption indeed) and also we have a social dialogical «distributive» knowledge trying to analyze what happens in hospitals, airplanes, public spaces, etc. The work by Bill Hillier is, I think, a good example of this distribution of knowledge, by linking «social encounters» (Recognition) with «natural itineraries of people in the physical place» (*peripateias*). The chronotopic semiotic dimensions of architectural forms are, somehow, in this way, uncovered.

4. ARCHITECTURE AND ARCHITECTONICS: THE SEMIOTIC LIMITS OF THE CHRONOTOPIC ARCHITECTURAL FORMS

The consequences of the two precedent chapters are both challenging and dangerous. It is not by chance that now architects are using the computer (brain and machine) to «innovate» the cities without limits, and with them, innovating bodies and cultures (the transhumanistic nightmare). Also it is not by chance that the unachieved huge task by Bakhtin on «architectonics» of human culture was the right way to orient ourselves into the industrial and postindustrial revolution. He built only the basis of a powerful theory but all the work in relation to architecture was not undertaken. In a recent international congress architects asked, taking for granted that the Vitruvian (chronotopic) relation between structure, use and form does not exist

today: How can architecture survive? A similar question is if the human ontological body can be successfully substituted by a mechanic superman, connected to internet. That is: a «real» matrix converted into the new human being, or a real human being converted into a computer. So semiotics is confronted to new challenges about the human limits of the cultural creations and the possibilities of new semiotic space and time chronotopic artifacts, that is: the limits of semiotic sustainabilities, in current terminologies.

There are three kinds of limits (Muntañola 2009): First, the limits of the object (and land) to be built, today much larger and faster than before. Second, the limits of the body to be converted into superman computers thanks to technological improvements in general. Third, the limits of a social distribution of knowledge into society by education, politics, economy, etc. in spite of the technological advancements, since the dangers of violence, fundamentalism, creationism, ecological deprivation, etc. grow larger day by day. Is there a semiotic limit between the three limits? This is the aim of the international review *Arquitectonics: Mind, Land and Society* (www.arquitectonics.com). And then I want to take a fundamental theoretical and practical step: *the architectural forms we build are the limits of our semiotic architectural*

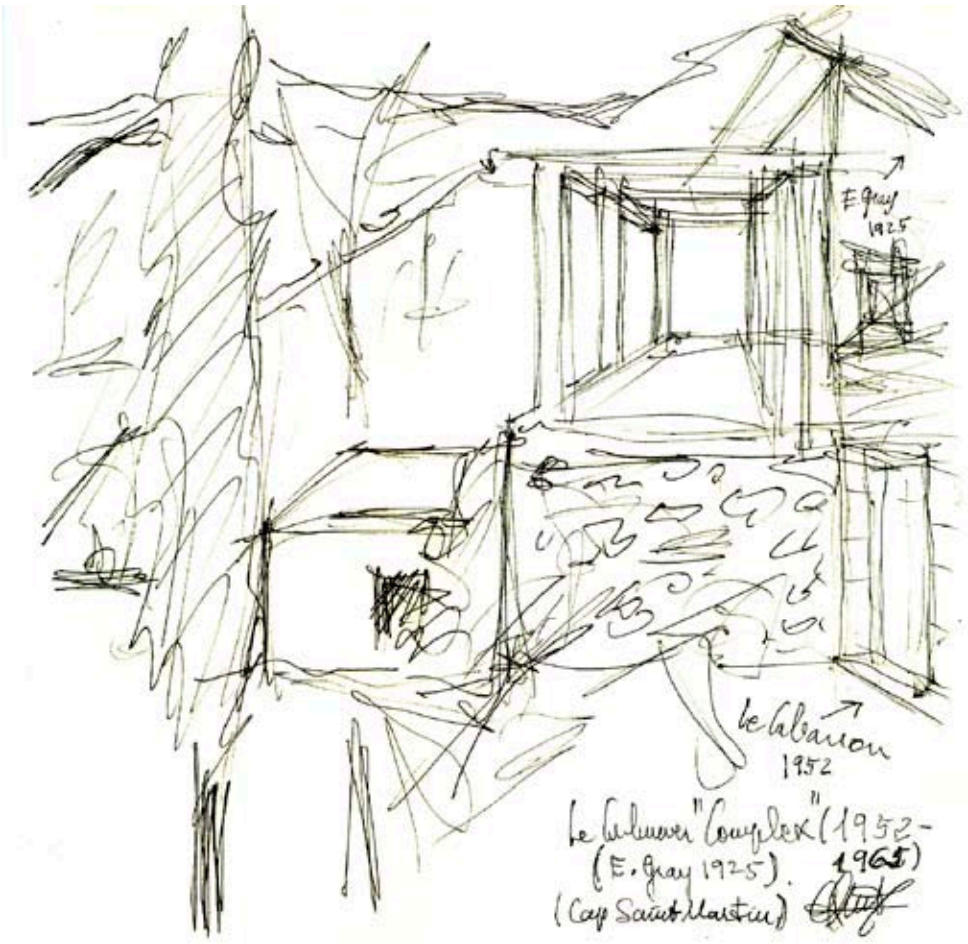

Figure 4: The «cabanon» by Le Corbusier in Cap Sant Martin

human conditions. We are building constantly our semiotic architectural limits. This statement is totally related to the children's conception of future cities: they build the limits they need, and also to the «formae» built by the Roman Law two thousand years ago: the Roman *catastro*. Then we discover we have an architectural semiotic code in constant and accelerated *expansion.* This expansion affects size, quality and the social distribution all together.

With the computer we can explore the limits of architectural plasticity, but we explore often only the physical limits of the object, not the poetic ones, so the semiotic findings are not relevant at this point, they are only mathematically relevant. We should combine the physical plasticity with the psychological and social changes, and this is hardly done, except in the works I have indicated here as more relevant from a semiotic perspective.

So, as Le Corbusier indicated, the semiotic core of architecture is a «plastic» one. But this «plasticity» has physical, psychological and social limits, and more important has: a critical threshold as a combination of the mind, land and social conditions of the city. We, both architects and semioticians, should be able to «simulate» the critical limits of this «plasticity» before it can be too late to survive as human beings. The «cabanon» by Le Corbusier in Cap Sant Martin, today a place of pilgrimage, almost a «sacred place», where he died swimming, is today still a beautiful place. From it you can see the Montecarlo nightmare just in front, building up one of the most dramatic architectural semiotic confrontations in the world. In between the noisy train and the clean sea, the «cabanon» looks as an archeological sign of the architect who inspires most of the gigantic architecture in front of it. Everything that has been explored into this writing can be applied to this «premigenius wooden architecture», a «wild» landscape from the fifties (see figure 4).

5. CONCLUSION. THE SEMIOTICS OF ARCHITECTURE: A TALK AS BACKGROUND FOR THE FUTURE

The semiotic conclusions of all these works done on the chronotopic structure of architecture reaffirm the key role of the social intersubjective relationships in the communicative role of architectural forms, that is, the dialogical quality of human spatial forms. However, the translation of these intersubjective relationships to an «a-priori» code, as happens in economic theories, is hard to do. Some qualitative mathematical algorithms and some dialogical narrative paradigms, as the «social voices» and «cosmic points of view» by Bakhtin (Bakhtin 1990) can be used (Muntañola 200). The synthesis between them, in order to obtain a semiotic spatial code, is going again to the brain-machine overlapping, since the machine is excellent with mathematics but is poor in social dialogy, and the brain behaves in the opposite way.

The best to do today is to confront both tools: the qualitative cognitive tools with the social-intersubjective analysis. This is what the works by B. Hillier and other authors are trying to do, and the way the social distributive paradigm is working too in the same direction (Muntanyola 2008). The semiotic code is then a consequence (output) of each study of a psycho-socio-physical situation, not the «a-priori», as I have defined before when I stated that we build our semiotic codes when we build architectural forms. As Mikhail Bakhtin stated very dramatically: «the code is the death of the context».

The whole challenge of modernity and progress is included in this discussion on the chronotopic limits of architecture between life and death. The financial crisis is inside the turmoil too. This is closely related to the «intersubjective social background» behind the economic political forces already discovered by John Searle twenty years ago from a different philosophical viewpoint (Searle 1995). We build the «background» we believe in and that we want to live in. We build the future we anticipate and the architecture of this background has plastic limits but not arbitrary unlimited forms.

My proposal is then, today, to consider architecture as a «social semiotic background», in the sense defined by E. Hutchins that is as a social system of spatial symbols easy to be manipulated by a computer, but far from our living experience.

The articulation between this «social system of symbols» and our social and historical behaviors and values allows for a generation of spatial meanings in the way of chronotopical configurations (networks, interfaces, space syntaxes, etc.) thanks to a continuous process of sociophysical interactions.

Semiotics should be able, from now on, to forecast what happens when this «background» changes and where it becomes dangerous for the mind, for the land or for society.

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