TOWARDS DESIGNING TEMPORAL EXPERIENCE IN ARCHITECTURE

Is it possible to design temporal experience in architecture? The emergence of new scientific and philosophical theories about time in the previous two centuries had a strong influence on the arts and philosophy, but a weak contribution to architecture. Directly related to cubism, Giedion's ideas on simultaneity in modern architecture, the recording of the so-called mechanical time by kinetic architecture, and Gestalt theory are some exceptions. However, time was considered as another component of architecture capable of enriching the design, but in no case was it recognized as a fundamental element corresponding to space. Thus, architecture still remained an art of space.

In recent years, the pursuit of scientific and philosophical theories and tools for describing, recording and interpreting temporal experience has succeeded the above absence of systematic research on a theory of time. However, questions of if and how to design temporal experience, in tandem with the design of spatial experience, remain to be explored. On this issue (of designing temporality), architecture has much to learn from time-based arts such as music, poetry, dance and cinema. This idea lies at the heart of our years of research on the subject.

We suggest that expressive systems, generally described under the french semiotic term “langage”, “langue” for the spoken or written language, can be related to each other in terms of linguistic metaphor. Metaphor implies two systems, namely, architecture and music. The systems are activated simultaneously by a common vehicle, a common "signifier", the meaning of which is a result of their interaction. Through the interaction of concepts, metaphor attains the broading of systems and consequently an enrichment of reality.

In our research, we consider rhythm as the vehicle of the metaphors we engage. To design temporality, we must first define an organizing term that expresses the characteristics of time. Rhythm is a formative principle of all temporal phenomena in general. Consequently, when we design the rhythm of a work, we design something that is closely related to how we experience it through time. Moreover, within the metaphorical process we operate in terms of literalism, that is we enrich the literal meaning of the metaphor’s vehicle. So, we can design rhythms that refer simultaneously to poetry, music, cinema and architecture.

Our study investigates temporality drawing from the fields of philosophy and linguistics. Our method originates from the view that experience can be understood within the limits of the language in which it is expressed, suggesting that language predetermines experience and not the other way around. Therefore, only what can be inscribed in some expressive system or written in some language can become the object of designing our temporal experience.

The concept of inscription applies not only to symbolic and notational systems but also to our psychic and mnemonic mechanisms. Therefore, in terms of the methodology for designing time perception, music, poetry, and cinema are explored and translated to the field of architectural design.

Based on the aforementioned ideas, we will present two case studies which focus on two different aspects of design of temporality. One concerns the temporal structure of a

work while the other how works are perceived by a listener, viewer, reader, walker, etc. At this stage an additional analytical tool and interpretation is suggested, that of quantitative and qualitative accents. The concept of accent in modern music theory derives from the comparison of two elements in terms of some characteristic and the dominance of one over the other. Here the accent is considered not as a fixed structure but as a temporally changing one.

The category of temporal structure is considered as directly linked to the material medium in which it is inscribed (drawing, text, score, image, etc.) while the category of temporal perception refers to the interpretation of the medium (reading, viewing, listening, dancing, walking etc.). Accordingly, these two categories (structure and perception) will be studied according to accents theory.

The first category investigating the temporal structure of a work, is looked at in relation to the following works:

1. The Ionic frieze of the Parthenon -designed by sculptor and architect Pheidias at 5th century B.C- runs along the entire length of the outer perimeter of the cella. The sculptural works it carried along its length is said to have originated in the Panathenaic Procession. Due to its position at the inner side of the peristyle, it could never be perceived as a whole (synchronically) from a static position but was always seen sequentially by a moving observer (diachronically).

Inspired by Le Corbusier's notion of the *Promenade architecturale*, ideas about rhythm in ancient Greek music, contemporary theories on musical rhythm and theories on time and cinematic montage, as design tools in architecture, we analyzed the emblematic Parthenon frieze emphasizing the importance of architectural design that is time-based.

We argue that the frieze was designed as an early example of a cinematic machine. And while the creators of this work did not possess the concept and technical knowledge of cinema, their desire to incorporate rhythm and temporality into the design led them to produce such an innovative work of art. (Fig.1)

Fig.1 West frieze: successive marble stones: overlay and study of motion.

2. The *staircase of the Ricetto of Biblioteca Laurenziana* was added in the cloister of the Medicean Basilica di San Lorenzo in Florence by Medici Pope Clement VII. The sketches of the vestibule and the staircase were drawn up in the period 1524-1533 by Michelangelo Buonarroti. The work was interrupted due to the resignation of Michelangelo and did not continue despite the efforts of the Pope. It was resumed in 1558 when the architect Bartolomeo Ammannati took over and completed it in 1559 under Michelangelo's distant supervision.

The study starts by looking at analysis of Michelangelo's sketches by Rudolph Wittkower (1934) and attempts to design the possible stairs resulting from their interpretation.

We argue that Michelangelo's composition is based on a series of accents. The artist applied the ideas of *contraposto* and *figura serpentinata*, which dominate his human sculptures, to the design of the staircase. The bodily movement on the stairs follows patterns that recall positions of figura serpentinata and may be interpreted as musical accents. In this case too, integration of temporal requirements in design provokes innovative spatial formations. (Fig.2)

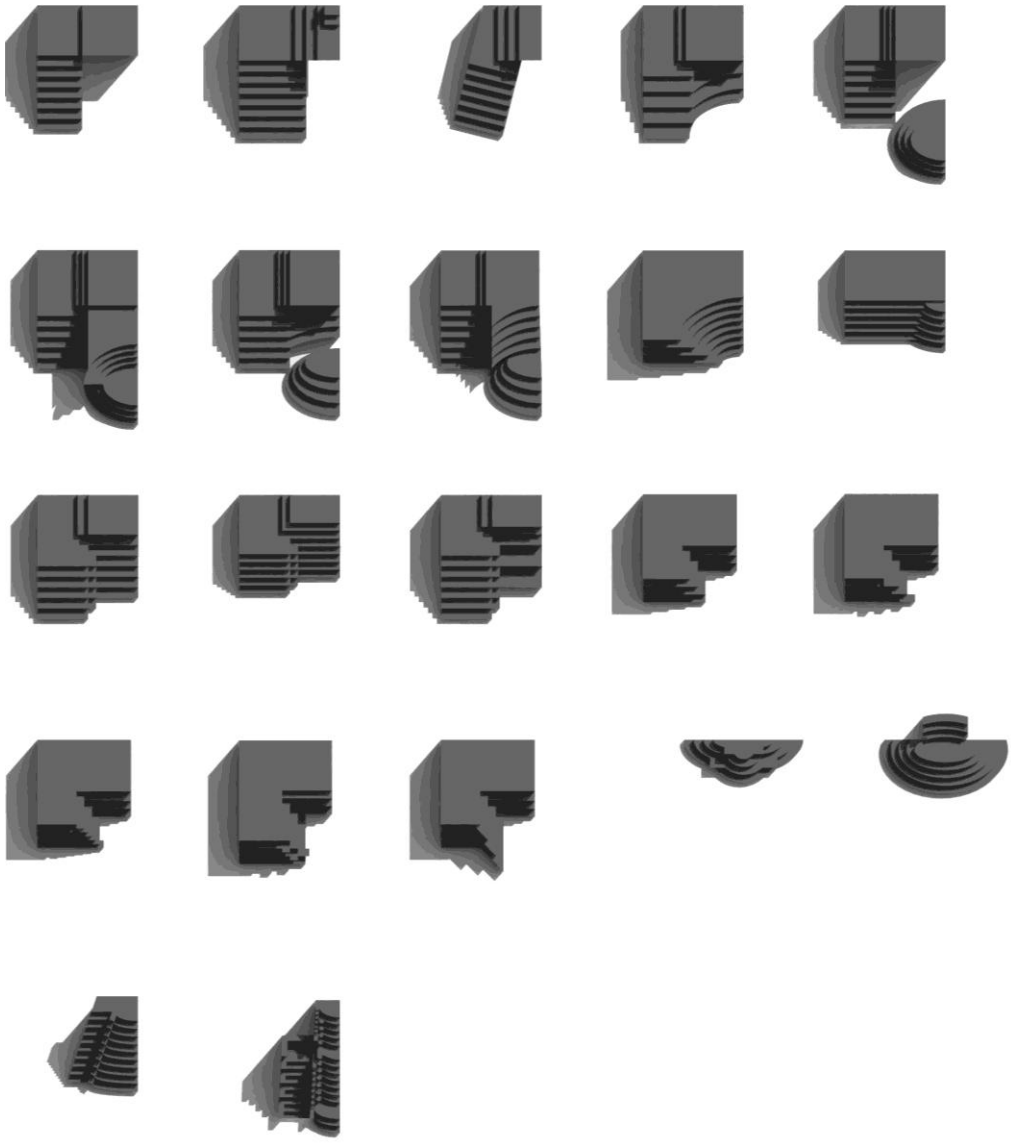


Fig 2. Table of proposed stairs variations

In relation to the second category where the design of temporal experience is investigated, two cases are analyzed, two architectural projects in which, priority is given to their temporal organization.

1. *A series of stairs transcribing into gaiting the rhythm of the "Homeric Hymn" to the goddess Demeter*. The rhythm formed through the poem's words was translated to the rhythm of bodily movement on the stairs. The rhythmic structure of the hymn results from the words' formations in verses. Each verse consisted of six metric bars and each bar of a 'dactyl', i.e. one long syllable and two short ones. In ancient Greek language words consist of long and short syllables of fixed duration. Stress accents were absent. These patterns of quantitative accents in time, are translated to the composition of stairs which are treated as analogous compositions of treads, landings and body twists that prescribe human gaiting of corresponding size and duration.

We also studied the impact of the walking patterns on the visual perception of landscape, We suggest that there is an analogy between the walking rhythm and the rhythm of visual scans during movement, given the propensity of the eyes to look in the direction taken by the descending body.

Finally, we raised the question of the impact of walking rhythm on the memory mechanisms, namely, how rhythm determines what can be physically perceived and recorded by the mnemonic mechanism through visual and sound codifications.(Fig.3)

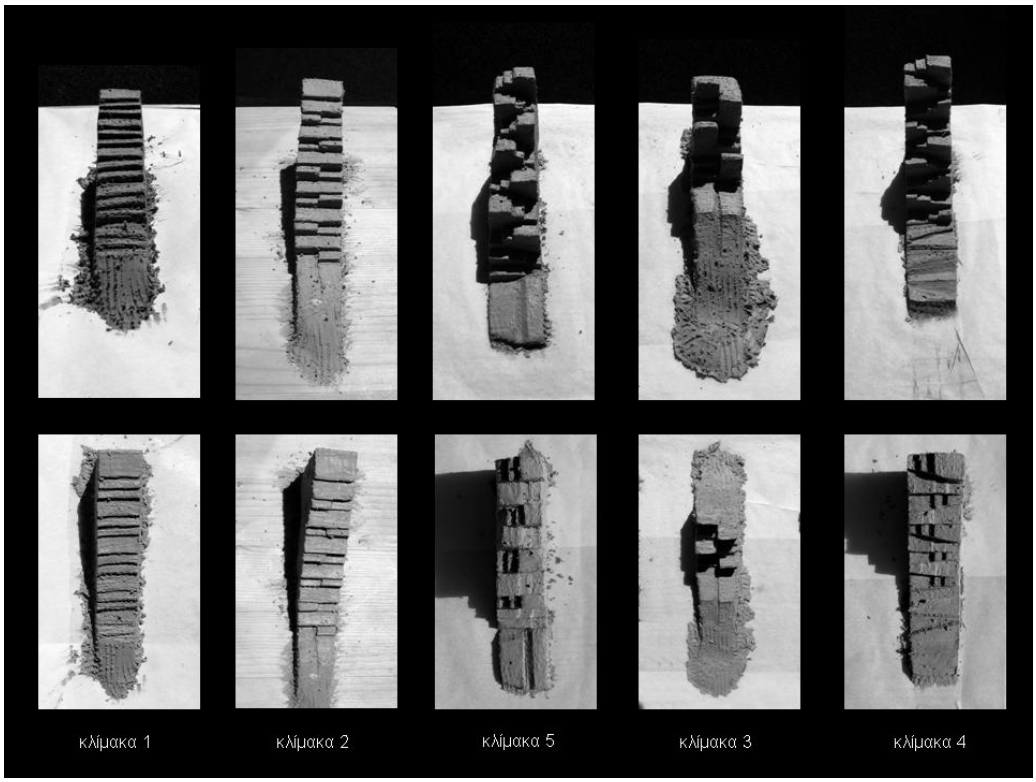
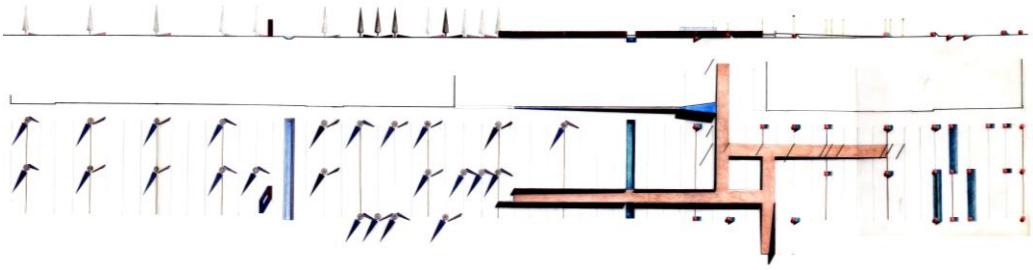


Fig 3. Table of clay models of stairs variations.

2. *The design of a pedestrian street based on the musical work of L.V. Beethoven/ Moonlight Sonata/ Piano Sonata No. 14 in C-sharp Minor*. Through the analysis and transcription of the structural features of the musical work, we transcribed features that influenced its temporality into elements of architectural design. The sonata was analyzed in

musical terms. The structural features (syntactic and grammatical) were transcribed and reconstructed following spatial rules. The activation of the piece in the perception of the walker was achieved through movement. Physical movement was organized into segments corresponding to the musical bars of the piece. The basic elements related to melody, arpeggios and basses were identified and transposed into spatial features. In addition to quantitative accents, qualitative accents of the piece were also transcribed, i.e. impressions related to changes from major to minor mode which were rendered in architectural terms and forms. (Fig.4)



4. Plan-notation of the pedestrian street.

These works led us to propose a theory of time from the perspective of the perceiving subject. This proposition originates from recent theories of time *(B-theories of time).* According to theme, temporal events are not perceived as successive but co-exist continuously defined through their relative positions. Any order of this kind may be analyzed and interpreted by modern music theory terms such as rhythm. Rhythm also helps us to interpret the cinematic montage which in turn allows us to examine the architectural experience as a monoplane.

So, rhythm emerges as a quintessential bodily phenomenon that is constituted as a way of organizing perceptual accents. This significant observation changes our established views on architecture, where rhythm is often treated primarily as a visual phenomenon, identified in the static perception of repeating elements.

In contrast, our design-research studies, rhythms formatted by moving subjects. Consequently, rhythmic configurations can refer to perceptual patterns as well as to temporal processes. From this perspective, rhythm can be associated with the Kantian concept of configuration as well as with mnemonic codifications.

Bergson's concept of *image-movement* originates in the temporal character of mnemonic codifications. Deleuze adopted this concept in his philosophical approach to the cinematic image. Under this view image-movement may be considered as the transforming over time spatial intuition.

The correlation of the *image-movement* with the mechanism of the cinematic image can partly explain and interpret the way images are structured by our perceptual mechanism. Moreover, it serves as a tool for designing a kind of perceptual montage that occurs during our experience, reconstructing our own reality.

On concluding, we suggest that the design of time in architecture presupposes temporal characteristics to be contained in something perceptible. On the other hand, a fundamental feature of time is the rhythm which, to be experienced, must be applied to something perceivable. In this sense, we consider that the issue of temporality is reduced to the design of rhythmic organizations of the tangible elements of architecture. Correspondingly, rhythmic organizations can shape the temporal perception of the subject.