

The concepts of symmetry and eumetry in Panayotis Michelis' thinking

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Panayotis Michelis (1903-1969) is the most significant Greek theoretician whose work focuses on the aesthetics of architecture. His thinking became known from his literary and academic work as a professor in the National Technical University of Athens from 1941 until 1969. He was highly influenced by the 19th century philosophical thinking in Germany; the romantic idealism of that era as explored in Schopenhauer's and Nietzsche's scripts on Art played an important role in the formation of his own Theories of Aesthetics.

This paper will focus on two specific concepts of Michelis' thinking: the concept of symmetry and eumetry. Symmetry refers to the existence of two isomeric elements and is the result of a strict mathematical procedure. Order and harmony which arise from the study of symmetry, led Michelis to the introduction of the concept of eumetry in his theoretical thinking. Opposite to symmetry, eumetry refers to the existence of equivalent elements, neither equal nor identical, while it requires different procedures in order to be achieved. Eumetry became part of his thinking because he realized that there are asymmetric forms which are characterized by the same or greater order and harmony than other symmetric ones. Eumetry is actually a latent symmetry, because it carries all the high values of symmetry without being formed by the same mathematical rules. Therefore, eumetry can derive from asymmetric forms, while symmetric forms will always embody eumetry. In his book *Architecture as Art*, Michelis states that although symmetry indicates order, it is not capable of delivering the optimum aesthetic outcome while he considers eumetry to have the maximum aesthetic value.

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Michelis uses examples of Greek architecture to study the dynamics of the aforementioned concepts, in an attempt to find diachronic values governing the architectural form. The analysis of these specific aspects of his thinking will augment a deeper understanding of Greek architecture and of those elements that affected Greek architectural thinking of his era as well as how they have reached nowadays.

Introduction

The means and ways through which architects elaborate with the form vary depending on the social and political circumstances of each era. The parameter, however, which remains unchangeable, is the intention of the architect to achieve an effective dialogue with the recipient. The manipulation of form becomes a means of conveying ideas because the visual effect of an architectural project constitutes the initial contact between a building and a person. Therefore, given that the architect aims to stimulate the recipient's mind, the form is not reduced to an exclusively optical parameter. The senses and intellect, as the two means through which the individual perceives and processes the world, constitute the basis on which an argument on the form is initiated. The aim of this research is to highlight the importance of form, as a visual and conceptual parameter in the architectural language.

An important chapter on the subject was Panayotis Michelis' work, a Greek architect of the last century. Michelis sought techniques through which the form of an architectural object is moving from the recipient's perception to his logic and emotion. In his studies, the form is not treated as an image therefore his analysis is based on its conceptual implications: the form is detached from any operational requirements to become the communicational tool of the architectural language. Additionally, the rythmological variations of the form as studied by Michelis are always placed within the broader historical context that they occur, and therefore the link between architecture and society becomes evident.

The theoretical discussions on architecture in Greece during the late 19th and early 20th century were directed, for many reasons, towards the adoption of the principles of an outlandish Neoclassicism. The next few decades, from the '30s until the '50s, were characterized by the ideological debate on tradition and innovation, which was expressed as a conflict between attachment to the local characteristics of a place and the doctrines of Modernism. Influenced by his era, Michelis embraces many elements of Neoclassicism as noble values of architecture but is also investigating patterns to interrupt the strictness of the form.

The present study deals with the concepts of symmetry and eumetry as a key element in Panayotis Michelis' thinking.¹ Through the analysis and use of these two concepts, Michelis attempts a comparison of logic and emotion in architecture. To determine this relationship and define the notion of a piece of art, Michelis studied influential philosophers of the 18th and 19th century, such as Kant, Schopenhauer, Nietzsche and others, and incorporated some of their thoughts into his theoretical work. Influenced by Arthur Schopenhauer's reflections on the concept of the Idea and Miloutine Borissavlievitch's optical observations, Michelis framed his own theory on the characteristics that the form should bear in order to produce a "great architecture" and communicated his ideas to the Greek architectural community through his teaching and publications.

Biography²

Panayotis Michelis (1903-1969) was born in Patras in 1903. He graduated from the School of Architecture in Dresden, Germany in 1926 and then worked in architectural offices in Dresden, Patras and Athens. Soon after he stopped working as a freelancer to concentrate on his writing, research and teaching. For several years he was the Professor of the Theory of Architecture in the Department of Architecture in the National Technical University of Athens. He participated in international councils, gave lectures at universities across Europe and the U.S. and taught at Harvard University as a research scholar. His rich auctorial work includes books such as "Architecture As an Art" (1940), "An Aesthetic Approach to Byzantine Art" (1946), "The Aesthetics of Reinforced Concrete Architecture" (1955), "Aesthetic Considerations" (1962) to name but a few. Part of his work has been translated into several languages such as English, French, Italian, Serbian, Romanian, Korean and Japanese.

Symmetry and Eumetry

Panayotis Michelis' work focuses on the aesthetic approach of architecture, which he considers equally through its visual, conceptual and philosophical dimension. Michelis' develops his arguments in detail through logical correlations in an attempt to avoid arbitrary conclusions. Embracing, in general, Vitruvius' principles on the three dimensions of architecture: «firmitatis, utilitatis, venustatis» (Vitruvius 1997, p. 56), he approaches architecture by analyzing it in three dimensions: the functional, the technical and artistic (Michelis 1951, pp. 12-15).

¹ In Greek *syn* as a word prefix indicates a correspondence between two parts, while *eu* gives a positive meaning to the word following, like for example the words euphoria, eutopia, etc.

² Further details of Michelis' biography at Hellenic Society for Aesthetics website at www.hellenicaesthetics.gr

The functional dimension is constituted of elements aiming at specific needs of the individual. The technical dimension relates to the construction of the architectural object and the integrity of materials and modern technology, in accordance with the purpose that the project is supposed to fulfill. The artistic dimension is characterized by an aesthetic autonomy achieved through the harmony of proportions (Michelis 1951, p. 18). The functional and technical dimensions are not by themselves capable of producing a piece of art (Michelis 1951, p. 18). These dimensions are generated by the imminent and utilitarian human needs and therefore cannot distant themselves from the narrow materialistic framework by which they are defined. On the contrary, the artistic dimension relates to an intellectual process. Harmony is achieved through the eumetry and eurhythmy of forms on a visual and conceptual basis. The artistic dimension may well contain the functional and constructive dimension, whereas a form narrowed to the human or constructional needs, therefore an exclusively functional or technical dimension, cannot achieve the artistic dimension (Michelis 1951, p. 18). The power of the artistic dimension lies in its capability to dematerialize, because the aesthetic criteria by which it is modulated are based on the intellectual stimuli of the observer or user. Michelis' critical approach on these three dimensions of architecture is set under the angle of architecture as an art. So even the functional and technical dimensions of the architectural object are obliged to serve the artistic dimension, otherwise they lack value.

In order to define the artistic integrity of an architectural object, Michelis introduces and compares the concepts of symmetry and eumetry. He quotes (Michelis 1951, p. 74) the example of dichotomizing a vertical line on the horizontal axis, and notices that if the dichotomy is done empirically without the use of any geometric instruments, then the lower part because it bears the carriages and in order to achieve a perfect aesthetic outcome, will be bigger than the upper part. For example, in the ancient Greek architecture, the Doric columns show an intense thickness from top to bottom and in the historian of architecture Haralambos Bouras' (1999, p. 201) view this is in order to increase "the impression of stability of the column".

Symmetry constitutes a mathematical relationship between two similar elements. On the contrary, eumetry exhibits the existence of a proportional relationship among the parts of the whole, and therefore implies the equivalence rather than equality. Therefore eumetry appears as a result of the human imperfection which is however based – and therefore controlled, by the perception of symmetry. Eumetry virtually carries all the noble values of symmetry but is not formed by the same mathematical rules. In his book *Architecture as an Art*, Michelis (1951, p. 75) claims that while eumetry may carry an asymmetric form, "symmetry is not enough without eumetry". Therefore, symmetry, as a sign of order, is not capable of delivering the optimal aesthetic result, while eumetry produces the maximum aesthetic value. The superiority of eumetry lies in the combination of visual and conceptual integrity. Symmetry represents solely a visual balance while eumetry also satisfies the conceptual

balance of the whole. The conceptual symmetry is a condition beyond the appearance associated with the conceptual value of the parts of the project.

In the example of the church of Panaghia Kapnikarea in Athens (11th century), Michelis states that the conceptual symmetry prevails over the spatial symmetry, because the symmetry of the church is determined by the conceptual significance of the parts: the two domes, which are the most important element of the building, redefine its the symmetry, not by their form but by their conceptual gravity, shifting the aesthetic center of gravity. A similar example is the Palace of the Doges in Venice. According to Michelis' theory of eumetry, the mathematical dichotomy on the horizontal axis observed in the elevation of the building is opposed to the rules of harmony, as the height of the base is not bigger than that of the upper part of the building. However, the permeability of the lower part of the palace and thus its unification with the city redefines the conceptual significance of the lower part. Therefore, the symmetry of the building shifts compensating for the lack of visual harmony of the individual parts. This complete and dynamic relationship between the parts and whole, Michelis defines it as harmony.

Points of convergence in the theories of Panayotis Michelis and Miloutine Borissavlievitch

Michelis' definition of harmony has been influenced by the thinking of Miloutine Borissavlievitch, Serbian architect and theorist of the 20th century who formulated his own architectural design theory and which relies on the visual and aesthetic perception. His writings were published in Serbia and France in the time period between the two World Wars, and were widely distributed mainly in the Anglo-Saxon countries up until the 1960's.

Borissavlievitch's theory refers to the relationship between the parts and whole, defining harmony as the mutual dependence of the individual components of a whole (Borissavlievitch 1925, p. 9). Harmony derives from diverse elements which manage to give the impression of one (Borissavlievitch, 1925, p. 22). Similarly, harmony means the analogy of the parts and therefore he considers the distinction between harmony and analogy to be artificial (Borissavlievitch 1925, p. 9).

Borissavlievitch however, remains mainly restricted to the visual identification of the form as the primary stimulus of vision. The visual observations and aesthetic effects stand on the basis of his analysis. Limited by the perception of the visual outcome and its direct impact on humans, he does not extensively investigate the architect's intention when attempting to represent an idea in his work. Thus, in his writings, he focuses neither on the conceptual implications, that the form may bear nor on the revelation of the idea as a necessary expression of human nature.

Michelis, who had closely studied Borissavlievitch's thinking, seems to have been strongly influenced by it, as in his writings he espoused a big part of the Serbian architect's theories on the harmony of form. In order to define harmony more thoroughly, Michelis introduces the concept of the rhythm in his analysis. The rhythm is a typological arrangement of the form (Michelis 1951, p. 69), a method of classification related to the recognition and simultaneously the separation of similar elements. Therefore, the rhythm differentiates and categorizes the individual components and thus is an external "tautology" of the form (Michelis 1951, p. 69). Through the categorization of the components, a type – i.e. a rhythm – can obtain many forms and exhibit intense morphological variations, whilst respecting the principles forming the rhythm it belongs to. It is a methodological tool with which the architect categorizes and then elaborates the possible developments of the form, which Michelis confronted not as a simple morphological shift but as an alteration in the conceptual approach deriving from the architect's transformations of thinking which eventually are reflected on the form.

Similar to Borissavlievitch's thinking Michelis' definition of harmony unites the different components, i.e. different rhythms. Harmony is interpreted as the unity of the parts and Michelis borrowing Borissavlievitch's phrase «*unité dans la variété*», states that harmony is "unity in variety"³. Thus harmony does not mean uniformity, but coexistence of contrasts. Therefore, the individual components do not constitute multiple diversities but an inseparable unit. So if the rhythm indicates a quantitative classification of similar items, harmony is the qualitative coordination of contradictions in a coherent whole.

Michelis' analysis on the form does not derive exclusively from a visual analysis, like Borissavlievitch's. Rhythm and harmony are not defined solely through visual criteria. In Michelis thinking the morphological outcome is generated primarily by a conceptual approach to the form: the form in order to obtain meaning and value must constitute the reflection of human thinking. Michelis' influences from Borissavlievitch's theory on the visual perception of the form are enriched by Schopenhauer's philosophical analysis on the Idea.

The influence of Arthur Schopenhauer's thought on Panayotis Michelis

Michelis read Schopenhauer during his first years at Dresden. According to Schopenhauer, aesthetics is a timeless and spaceless concept. The aesthetic experience requires the absence of both individuality and will (Diffey 1990, p. 141) therefore the aesthetic perfection is placed beyond one's individual taste. According to Schopenhauer, the aesthetics of a piece of art is linked to the Platonic Idea, without, however, giving it a negative connotation as Plato did.

³ The term "unity in variety" used by Michelis in order to define harmony is a translation from Borissavlievitch's definition on harmony: *unité dans la variété*.

Schopenhauer regards the piece of art as the reflection of thinking and not as a double representation of a pure Idea, whose value has been deducted due to this double imitation. For Schopenhauer, it is in the representations of art that the essence of the world is revealed (Krukowski 1992, p. 54), as they manifest human thinking. Beauty is detached from the practical, the specific and clear reality (Knox, 1978, p. 136). If aesthetics remains the expression of one's personal taste, then it is ruled by the expectation of visual harmony, and is therefore unable to communicate with the world behind the appearance, and thus remains a visual and not a conceptual process.

The concept of Schopenhauer's timeless Idea as a prerequisite for art is respective to the eternal values which, according to Michelis, are inherent in the piece of art and determine Beauty and harmony. Michelis (1951, p. 5) argues that art "while bound to the conditions of a specific place and time in order to serve us, gives its work a value beyond place and time". So the architect as an artist while influenced by his era and extracting his information and stimuli from society, manages to produce a piece of art only when he manages to overcome the strict frame of space and time surrounding him and creates a timeless and spaceless piece of work. The philosophical issues that art may stimulate are related to the eternal meditations of the individual as an entity and not related to each era. This fact is reflected on the work patterns produced by the different arts and explains the reasons why "an amazing similarity of forms of different eras and different cultures" (Michelis 1951, p. 5) is observed, since art reflects and comments on the common and eternal values, adapting them to contemporary social reality. The architect as an artist in order to respond to his society, needs to put aside his individuality and become a "measure of the society" (Michelis 1951, p. 307), thus to eliminate his personal will.

Schopenhauer while referring to architecture as one of the arts treats symmetry as a mathematical condition that is associated with the appearance rather than the idea of the form and therefore cannot by itself constitute a noble value of art. Schopenhauer's formalism and ideology are related to a type of balance and equalization of the opposites, a relationship of action and reaction and not a regularity, a proportion or symmetry (Borissavlievitch 1926, p. 134). Similarly, according to Michelis, the austere geometric compositions fail to convey the real meaning of art. The typical implementation of the rules deprive from the form its artistic value because they fail to create a unified whole that does not permit any division or alteration (Michelis 1951, p. 36). These forms aim at the functional organization of space and at serving the users. Actually however, they achieve nothing, since they lack of conceptual content and therefore the result does not satisfy the user neither aesthetically nor practically (Michelis 1951, p. 36).

Michelis considers the imitation of forms as an act devoid of meaning. The essence lies in the inner "language" used by the architect in order to convert the architectural object into a piece of work that surpasses the narrow constructive frame, a piece of work that eventually goes beyond the material world and

reaches noble values. Specifically, he notes that "the technical work is a cold and silent mental outcome reminding the cylinder as a geometric body, while the architectural object is imprinted as a live creature not allowing you to make any thoughts on the existence of the geometric form" (Filippidis 1984, p. 200).

Despite however, the strong theoretical explorations of the world behind the appearance and the criticism on the superficial visual perception, Michelis did not actually go into as much detailed analysis as Schopenhauer. He embraces the theory of the German philosopher on the concept of the Idea and strongly rejects the meaningless repetition and imitation of forms, but he does not analyze the specific characteristics that determine the value of the Idea. Schopenhauer's reflections on the Idea, his detailed analysis on the lack of will, time and space, appear vaguely in Michelis' thinking. Although his visual observations and analysis are quite extensive and he does indeed devote a significant amount of his written work on the analysis of the form, he remains closer to Borissavlievitch's approach on the piece of art than to Schopenhauer's theories. It is not because he does not embrace the importance of the Idea beyond the form, but because he does not specify clearly the characteristics that the Idea should have in order to generate a piece of art. On the contrary, his analysis on the form states quite clearly the morphological characteristics required to create a piece of art. For example, in his book *Architecture As an Art*, he extensively uses mathematical equations in order to argue on the reasonable stability and integrity of the forms established by the golden section or by the rules of symmetry, whereas he does not deal thoroughly with the evaluation of the Idea lying beyond the concept of symmetry as a well established morphological pattern.

Epilogue

From the visual analysis of the form to its conceptual implications, Michelis' reasoning is searching for the mechanisms lying beyond the concept of eumetry, i.e. a state of detachment of the mater from the strict mathematical rules. By incorporating the concept of imperfection, eumetry may lead to a mental and emotional stimulation or as Le Corbusier would state "a touching upon the human axis".

Concluding, Michelis' work still remains important and up to date as he attempted to give answers to questions that even today we have dealt with in this conference. By recognizing the importance of emotion in art, he illustrated his personal opinion on the means and ways that this may occur. Through logical reasoning and mathematical meditations, he sought for the methods and means through which architecture can escape from the pure geometry and dematerialize. The conceptual relation between symmetry and eumetry as studied by Michelis, is one not merely based on appearance, but on the communication of human thought indicating the conflict between logic and emotion, and therefore the desired transition from an architectural object into a piece of art. Symmetry

expresses the argumentation of rule and logic on the form. Eumetry reveals the intention to surpass the austere rational thinking of the Enlightenment. According to Michelis, in order for architecture to pass from the field of science to that of art, it has to embody in its characteristics, the anthropocentric variables of eumetry. The breaking or exception to the rule, the imperfection, and the noncompliance to the strict application of theory, allows the architect to pass from the context of objectivity promoted by science, to that of artistic subjectivity. Symmetry and eumetry constitute for Michelis the two fundamental concepts through which he manages to create a firm basis for his architectural theory.

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