

FORMALISM AND ANTI-FORMALISM
AS CONTINUITIES AND DISCONTINUITIES

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Aylin Ađar

ABSTRACT

FORMALISM AND ANTI-FORMALISM AS CONTINUITIES AND DISCONTINUITIES

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When form is in consideration, there exist two seemingly distinct attitudes to form giving activity, which seem to be constantly in opposition, namely formalist and anti-formalist approaches. The aim of this study is to explore the sources of, and interactions and transformations between formalist and anti-formalist design processes, without overlooking the conventional formalist understanding. The intention is to find out how a tendency in architecture, which challenged the understanding of a pure, timeless, unchangeable, ideal form emerged as a new problematic of architectural form. In that respect, the discussion will be concentrating on some figures of both architectural theory and practice to reach an accumulation of a theoretical and practical knowledge on the issue, to disclose the true potential of architectural form in the contemporary world.

Keywords: Form, *Informe*, Formalism, Anti-Formalism, Open and Closed Structures.

ÖZ

BİÇİMCİLİK VE KARŞI-BİÇİMCİLİK SÜREKLİLİKLER VE KESİKLİKLER OLARAK

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Biçim düşünce konusu olduğunda, biçim üretme faaliyetine yön vermiş, değişmez olarak karşı karşıya gelmiş gibi görünen, görünüşte farklı, iki tavır bulunmaktadır. Bu çalışmanın amacı, geleneksel biçimci anlayışı göz ardı etmeden, biçimci ve karşı-biçimci tasarım süreçleri arasındaki kaynakları, ve etkileşimleri ve dönüşümleri araştırmaktır. Amaç saf, zamana ait olmayan, değişmez ve ideal biçim anlayışına meydan okuyarak mimaride yer bulan bir eğilimin, nasıl mimari biçimin yeni bir sorunu olarak ortaya çıktığını keşfetmektir. Bu bakımdan, kuramsal ve uygulama bilgi birikimlerine ulaşarak, mimari biçimin gerçek potansiyelini açığa vurmak adına, tartışma mimari kuram ve uygulama bağlamında katkıları bulunmuş örnekler üstünde yoğunlaşacaktır.

Anahtar sözcükler: Biçim, *Biçimsiz*, Biçimcilik, Karşı-Biçimcilik, Açık Yapılar ve Kapalı Yapılar.

To My Father, My Mother and My Brother

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CHAPTER 1

INTRODUCTION

In architectural examples, a specific understanding of *form* and *order*, namely *formalism*, has been widely and excessively utilized. However looking at history, at architectural manifestations and especially at today's architectural theory and practice, besides the dominant approaches, we see that there existed side by side, other valid, controversial and innovative architectural approaches regardless of generally adopted tastes.

The aim of this study is to explore the sources of, and interactions and transformations between *formalist* and *anti-formalist* attitudes (formalist and non-formalist (*informal*) design processes), mainly looking at the issue from the perspective of the latter tendency which has been challenging the idea of a pure, timeless, unchangeable, ideal form. I argue the anti-formalist (non-formalist) attitude in architecture as an alternative process of becoming, possessing the notions of temporality, change and transformation within itself, that offers a path to go beyond the certain limitations induced by the formalist arguments.

The *informe* (formless), the anti-formalist impulse in modern art and architecture was mostly identified with Georges Bataille's strong defense of

informe.¹ Rosalind Krauss and Yve-Alain Bois recently reexamined, Bataille's *formless* as a key rereading of what they see as a continuously present counter-current in the avant-garde art of the twentieth century and as a tool of Bataille's rejection of all conventional boundaries. Rosalind Krauss and Yves-Alain Bois, in their exhibition² and later the book *Formless: A User's Guide*³ seek for an answer for finding the potential operating "force" within principles of the notion of the *informe*.

Bataille claimed, "a dictionary begins when it no longer gives the fixed meanings of words, but their open ended tasks instead." He continued, "Thus *formless* is not only an adjective having a given meaning, but a term that serves to bring things down in the world, generally requiring that each thing have its form. What it designates has no rights in any sense and gets itself squashed everywhere, like a spider or an earthworm. In fact, academic men to be happy, the universe would have to take shape." Bataille concluded, "aiming that the universe resembles nothing and is only *formless* amounts to say that universe is something like a spider or spit."⁴ It was this line of thought as a result of which the following study is initiated. I believe that Bataille's argument could be seen as an attack on claims to *reduce* the world to unchangeable *formal*⁵ truths and an assault on a mutually accepted definition of "form" that seems to belong to a timeless logic.

1 See Georges Bataille, "Formless," *Visions of Excess: Selected Writings, 1927-1939*, ed. Allan Stoekl and trans. Allan Stoekl (Minneapolis: University of Minnesota Press, 1985), p.31. The article first appeared as an entry in the *Dictionnaire critique in Documents* 7, December 1929. quoted in Yve-Alain Bois and Rosalind E. Krauss, *Formless: A User's Guide* (New York, Zone Books : MIT Press, 1997), p.5. My first encounter with Bataille's ideas on the subject and the presence of a discussion on the issue of the concept of "formless" occurred during the discussions held in the lectures of Assoc.Prof. Dr. Emel Aközer in Arch 610 Advanced Themes in Architecture and Urban Design II, Spring 2001-2002.

2 The catalogue for this exhibition; *L'Informe: Mode d'emploi*, (Editions du Centre Pompidou, May 21 to August 26, 1996.

3 Yve-Alain Bois and Rosalind E. Krauss, *Formless: A User's Guide* (New York, Zone Books : MIT Press, 1997)

4 Georges Bataille, *Visions of Excess: Selected Writings, 1927-1939*, ed. and trans. Allan Stoekl (Minneapolis: University of Minnesota Press, 1985), p.31, quoted in Yve-Alain Bois and Rosalind E. Krauss, *Formless: A User's Guide* (New York, Zone Books : MIT Press, 1997), p. 5.

5 The "formal" is used here in the sense as in "formalistic." That is, as in the case of "of or pertaining to established forms or methods," unlike its other general usage "done or made according to the forms." See *The International Encyclopedia of Science*, ed. James R. Newman, s.v. "formal"; *Collins Concise Dictionary of The English Language*, large print ed., s.v. "formal."

Formalism can be defined as the excessive attachment or adherence to purely formal properties of an artwork at the expense of its nonformal properties that results in the internalization of the aesthetic value of the work of art. And I believe, the interpretations of form mostly written by historicists and critics, looked at the issue generally from a “formalist” point of view.⁶ Accordingly, “formalist” definition of space, seeking the absolute, had to find its definition also within spatial limits. If this is the case, is there a possibility of looking at the ‘formalism’ from different and alternative perspectives, which challenge the idea of a pure, timeless, unchangeable, ideal form understanding?

Herbert Read (1893-1968) was a poet, literary and art critic who wrote mainly about art, society and education. His aesthetic theory, embracing contradictions, incorporates a concept of “formlessness” with its implicit definitions.⁷

Peter Eisenman argued in his essay, “En Terror Firma: In Trails of Grotexes,”

In the 18th century, Immanuel Kant began to destabilize this singular concept of beauty. He suggested that there could be something else, another way to conceptualise beauty other than as goodness, other than as natural. He suggested that within the beautiful there was something else, which we called sublime. When the sublime was articulated before Kant, it

6 For example, Suzi Gablik who tries to understand art with a study on “formal relations.” She writes “In many ways, the propositional logic which distinguishes formal-operational thought is a safer and less controversial ground for linking many modern styles together than others that might come to mind.” Suzi Gablik, *Progress in Art* (New York, 1976), p.87. See for example the definition of “art” by Georg Kubler. In the place of Ernst Cassirer’s definition of “art as symbolic language,” Kubler puts forward a definition of art “as a system of formal relations.” George Kubler, preamble to *The Shape of Time; Remarks on the History of Things* (New Haven, Yale University Press, 1962), p.vii. Moreover, Kubler suggests the study of art as “formal sequences” and then “linked solutions,” which refers to its “class of being.” He seems to favor the establishment of norms for the classification of forms in the historical reconstruction of things. Kubler, *The Shape of Time; Remarks on the History of Things*, 1962, p.33. See also, Martin Jay, who defends the same argument, Martin Jay, *Force Fields: Between Intellectual History and Cultural Critique* (New York: Routledge, 1993), p.156.

7 See David Thistlewood, *Herbert Read : Formlessness and Form: An Introduction to His Aesthetics* (London ; Boston : Routledge & K. Paul, 1984), p.x. David Thistlewood’s book mediates on Herbert Read’s aesthetic achievements and ideas.

was in dialectical oppositions to beauty. With Kant came the suggestion that the sublime was within the beautiful, and the beautiful within the sublime.⁸

Eisenman goes on to state that,

What does this mean for architecture? In order to achieve the necessary internal displacement, architecture would have to displace the former ways of conceptualizing itself. It would follow then that the notion of the house, or of any form of the occupation of space, requires a more complex form of the beautiful, one that contains the ugly, or a rationality that contains the irrational.⁹

The aesthetic experience, for example, for Dewey¹⁰, was a moral encounter that interconnects the human being to the universe and the individual growth to cultural development, in order not to create a “chasm” between ordinary and aesthetic experience. In that sense the approach to architecture and accordingly to architectural form, should include a liberating and uniting character that does not try to impose a pre-established order leaving “relations” open-ended.

Joseph Margolis in his essay “Beneath and Beyond the Modernism/Postmodernism Debate” claims, “The modernists are as bad as the postmodernists; and the postmodernists are as bad as the modernists. The trick is to penetrate beneath the surface of the ostensible quarrels of the day.”¹¹ He writes,

It’s not the choice between modernism and postmodernism that counts. It’s the recovery of historicity: the admission that thinking has an inherently historied structure, that thinking history, that the norms of argumentative validity, evidence, confirmation and disconfirmation, truth and knowledge, legitimation, rationality, and the rest cannot be captured abstractly (“syntactically” or “logically” or “formally,” as it is said in the modernist idiom) but only in the regularized use of interpreted discourse, which (on the argument) is itself historically formed and transformed.¹²

8 Peter Eisenman, “En Terror Firma: In Trails of Grotexes,” in *Deconstruction: Omnibus Volume*, ed. Andreas Papadakis et al. (London: Academy Editions, 1989), p. 152.

9 Ibid., p.153.

10 See for example, John Dewey, “Art as Experience,” in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns (Chicago: University of Chicago Press, 1964), p.579-646.

11 Joseph Margolis, “Prologue: Beneath and Beyond the Modernism/Postmodernism Debate,” in *What, After All, Is a Work of Art?: Lectures in the Philosophy of Art* (Pennsylvania State University Press, 1999), p.60. Joseph Margolis is Professor of Philosophy at Temple University, Philadelphia, USA.

12 Ibid., p.63

Alan Colquhoun argued, “While one of the aims of formalist art history was to break the hold of normative classical aesthetics, these aims could only be achieved by establishing more general norms which would apply to all art, of whatever period. It thus tended toward the establishment of ahistorical laws, and in doing so resembled classical theory itself.”¹³

In that sense, this is not a critique of Modernism, or modernist architectural practice. The intention is not to take part in a naïve Modernism-Post-Modernism debate either. This study rather explores the use value of a potential non-formalist attitude in the field of architecture to reach a certain amount of knowledge that enables looking at the issue of form from a broader perspective far from prejudices and to unveil the true potentials of architectural form in the contemporary architectural world. But how can we reach to that accumulation of knowledge?

Therefore as to achieve this end, the nature of the notion of formalism in architecture and its possible foundations will be discussed with the help of a general reading of ancient treatises that offer theories on the realization of “form.” Plato’s *Timaeus* will be referred to comprehend the notions of “order”, “Being” and “becoming,” and “copy” as described by Plato. These notions constitute the basis of Plato’s theory of “ideal form.” Plato’s theory had a considerable impact on development of a certain approach towards “form” and the following “formalism.”

The discussion on the constitution of a notion of formalism will be carried to the domain of architecture referring to Vitruvian principles that have been taken as base for theoretical and practical production in the western architectural tradition. Accompanied by his triad –*firmitas, utilitas, venustas*–, the six Vitruvian principles “*order, arrangement, eurythmy, symmetry, propriety, and economy,*”¹⁴ notions that

13 Alan Colquhoun, “Rationalism: A Philosophical Concept in Architecture,” in *Modernity and the Classical Tradition: Architectural Essays, 1980-1987* (Cambridge, Mass. : MIT Press, 1989), p.76.

14 Vitruvius, *The Ten Books on Architecture*, trans. Morris Hicky Morgan (New York, NY: Dover Publications, Inc., 1960), p. 13-17.

had a considerable impact on formal composition of architecture will be investigated.

The means, such as harmony, proportion and the golden section, and the use of them in very early architectural examples could be discussed referring to figures such as; Plato, Aristotle, Augustine, Pythagoras, Hegel, and Alberti.

In the following chapters, the introduction of certain new conceptions as counter arguments will be added to the discussion. Such as Jay Hambidge's book *The Elements of Dynamic Symmetry* or Albert van der Schoot's argument, in his essay, *Rationality and Irrationality in Architecture* that rejects the belief that in reality the renaissance artists and architects used the golden section.¹⁵ Jay Hambidge introduces a differentiation between two types of symmetry due to their characteristics, namely "static" and "dynamic." According to Hambidge, while the former type has "a sort of fixed entity or state," the latter is suggestive of "life and movement." He adds, "possibly the former is but a special case of the latter, as a circle for example, is a special case of an ellipse. At any rate there is no question of the superiority of the dynamic over the static."¹⁶ Albert van der Schoot, on the other hand, argues that the golden section was not an important proportion, claiming that since the golden section is in fact mathematically irrational.¹⁷ Using Le Corbusier's ideas on the concept of rationality and irrationality in architecture, he provides a comparison between two Dutch architects – Dan van der Laan and Ton Alberts.

15 Albert van der Schoot, "Rationality and Irrationality in Architecture," in *Jaarboek voor esthetica 2001*, Frans van Peperstraten red. [online] (Vormgeving: Joanne Vis Druk: KUB-drukkerij, Tilburg, p.200-211. [cited 29 December 2004]); available from World Wide Web: (<http://www.nge.nl/Jaarboek2001/>). This paper was presented at the SANART 4th International Symposium and Art Events in METU Cultural and Conventional Center, Ankara, on "Art and Science," organized by SANART Association of Aesthetics and Visual Culture, 1-3 June 2000. Albert van der Schoot studied musicology and philosophy in Amsterdam, and music pedagogy at the Liszt Academy in Budapest. He lectures on aesthetics and philosophy of culture at the University of Amsterdam.

16 Jay Hambidge, introduction to *The Elements of Dynamic Symmetry* (New York, Dover Publications, 1967), p.xii.

17 Van der Schoot, "Rationality and Irrationality in Architecture," p. 201.

In this context, a second question should be investigated. Are the definitions of “form” and “*informe*” the same in every cultural, social and even technological and scientific context (system)? Or the concepts mentioned are socially, and culturally bound concepts?

This discussion will be based on changing definitions of “formalism” that took place during this period of transformations. In order to exemplify the subject in discussion certain significant historical examples or styles will be mentioned or focused on. Even “order,” which is indisputably a fundamental requirement, has come to mean as Rudolph Arnheim criticizes, “a reduction to simple geometric shape and the standardization of everything for everybody.”¹⁸

Yet I believe the anti-formalist attitude in architecture is not a historically bound concept, and that it has taken its position in different historical times within different space definitions distorting the classical space understanding and questioning the equally traditional humanist subject.

The aesthetic notions and preconceptions on form have been handed on through generations. In the period from the beginning of architectural theory with Vitruvius, till the transformations that were induced by the Enlightenment, the French Revolution and the Industrial Revolution, we observe references to ancient doctrines. Cosmology, the conception of world, realized by Newton put an end to the medieval interpretation of cosmos, yet Euclidean geometry was still at the bases of use. The Renaissance architecture, too, as regards knowledge of form giving followed the principles that were based on these ancient treatises.

Likewise, Classical style used the elementary forms, aiming at an architectural composition that carried a unity with the use of proportion and harmony. Developing out of the Renaissance, yet not favoring the quest for the

¹⁸ Rudolf Arnheim, *The Dynamics of Architectural Form* (Berkeley: University of California Press, 1977), p.162.

classical solidity, balance and harmony sought by Renaissance, the artists and architects of Baroque and Mannerist styles challenged objectivity, explored subjective effects, and searched for the unity and harmony in a genuine and innovative way. The reaction against Baroque and Rococo styles, together with the influences of the Enlightenment (that secularized the thought) and appeal to antiquity prepared the way to the Neoclassicism (mid 18th to late 19th). It is quite interesting that the Neoclassical style in architecture influenced the formation of two opposing discourses or traditions of thought that resulted in two different formal expressions (or forms), namely rationalist discourse and romantic discourse.

It is said that the modern era differs from the past, owing to the radical transformations that took place in socio-cultural, political and technological contexts, triggered by the Enlightenment, the French Revolution and the Industrial Revolution. Yet as Eisenman argues considering the issue of “form” in modern architecture,

...the Modern Movement can be seen to be continuous with the architecture that preceded it. Modern architecture therefore failed to embody a new value in itself. For in trying to *reduce* architectural form to its essence, to a pure reality, the moderns assumed they were transforming the field of referential figuration to that of non-referential “objectivity.” In reality, however, their “objective” forms never left the classical tradition. They were simply stripped down classical forms, or forms referring to a new set of givens (function, technology). Thus, Le Corbusier’s houses that look like modern steamships or biplanes exhibit the same referential attitude toward representation as a Renaissance or “classical” building. The points of reference are different, but the implications for the object are the same.¹⁹

However, now in this period of transformations in contemporary architectural theory and practice, in spite of some architects or artists, who try to find utopian solutions to the issue of form, there existed some others who try or tried to fulfill the need to develop new forms of expression. In that sense, I argue that the presence of an underlying non-formalist attitude could be traced back in the

¹⁹Peter, Eisenman, “The End of the Classical: The End of the Beginning, the End of the End,” in *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt (New York: Princeton Architectural Press, 1996), p.214

history of architecture. The German Marxist Theodor Adorno once wrote “it is barbaric to continue to write poetry after Auschwitz.”²⁰ With this statement he claimed the end of an art that alienates itself from society, he implied a change in the definition of art and asked how art could find its own voice with the suffering of populations. I believe, the idea of the “re-evaluation of values” challenged all previously known fact that earlier defined western culture.

In this study, departing from these questions, I want to search an answer to a final question. Against established approaches that carry mainly the traces of a western system of thought, which seeks for a possibility of finding a universal order, are there other systems of “order” that breed (open up) different systems of “form”? What are the counter arguments? This question will be answered by referring to the arguments that are developed by critics and architects on the issue.

Physicists and mathematicians, such as Nikolai Ivanovich Lobachevsky²¹ and Georg Friedrich Bernhard Riemann,²² who worked on new theories of geometry, opened a way for realization of the possibility that in fact geometries could contain Non-Euclidean relationships. The interest in new geometries, the realization of the fourth dimension and non-Euclidean geometry opened the way to new space conceptions, new formal relations or definitions. Sudden release of the new possibility of forms, served the purpose of disengagement with preconceived enduring forms and orders for things.

20 Theodor W. Adorno, *Commitment*, in vol. 2 of *Notes to Literature*, ed. Rolf Tiedemann; trans. Shierry Weber Nicholsen (New York: Columbia University Press, 1992), p.87. For more on the subject, see also Jean-François Lyotard, “Discussions, or Phrasing ‘after Auschwitz,’ ” in Jean-François Lyotard, *The Lyotard Reader*, ed. Andrew Benjamin (Oxford ; Cambridge, Mass. : Blackwell, 1989), p. 360-392.

21 Nikolai Ivanovich Lobachevsky (1792-1856) was a Russian mathematician. His significant accomplishment “(announced in 1826) was the creation of one of the first comprehensive systems of Non-Euclidean geometry.” Philip’s Science and Technology Encyclopedia, ed. Steve Luck, 1999.

22 Georg Friedrich Bernhard Riemann (1826-1866) was a German mathematician. His work builds on Augustin Cauchy’s foundations of the theory of complex variables. he studied the theory of complex variables, and he developed in particular, what we now call Riemann surfaces. “With Augustin Cauchy, Riemann formalized the theory of Integration. he also made advances in complex analysis and number theory. His work on differential and Non-Euclidean geometry was used by Einstein to develop his general theory of relativity.” Philip’s Science and Technology Encyclopedia, ed. Steve Luck, 1999.

The situations that were earlier described as chaotic give way to new definitions like “irregularity,” which was earlier identified with “chaos.” Moreover, following the developments in mathematics, the mathematician Benoit Mandelbrot introduced a concept to define the irregular objects that nature possesses, but that can not be described mathematically: fractals. Fractals, inspired by both nature and the human activity, offer a challenge for classical geometry and necessitate a new formulation of the definition of ‘order’. In this context The Fractal concepts will be discussed as a relatively new mathematical tool and fractal geometry as an example of a technology touching to the core of design composition referring to Mandelbrot’s *The Fractal Geometry of Nature*²³ and Carl Bovill’s *Fractal Geometry in Architecture and Design*.²⁴

Now, in the century we are living in, we observe the dissolution of ancient dimensions and fixed reference points. The six “cubic” dimensions (above and below, front and behind, right and left) Aristotle attributes to universal space no longer seem to keep their superiority. Moreover, Vitruvian notions, accompanied by his triad –*firmitas, utilitas, venustas*– and the six principles of “*order, arrangement, eurhythmy, symmetry, propriety, and economy*”²⁵ which have had a considerable impact on theoretical and practical production in the western architectural tradition started to be questioned for our own space and time.

Following the studies on the fourth dimension, the notion of time and its role in the opposition of *becoming* to that of *Being* has been unrevealed. I believe, the search for the timeless, unchangeable and ideal represents the struggle to reach the Eternal *Being*, avoiding the *becoming*, that proceeds in Time.²⁶ Time, Stanford

23 Benoit B. Mandelbrot, *The Fractal Geometry of Nature* (San Francisco: W.H. Freeman, 1983).

24 Carl Bovill, *Fractal Geometry in Architecture and Design* (Boston: Birkhäuser, 1996).

25 Vitruvius, *The Ten Books on Architecture*, trans. Morris Hicky Morgan (New York, NY: Dover Publications, Inc., 1960), p. 13-17.

26 Plato, *Timaeus*, trans. Benjamin Jowett (Indianapolis, NY: The Bobbs-Merrill Company Inc., 1949); Plato, *Timaeus*, in Perseus Digital Library [online] (Tufts University [cited 12 October 2004]); available from World Wide Web: (<http://www.perseus.tufts.edu/cgi-bin/ptext?lookup=Plat.+Tim.+17a>)

Kwinter praises as novelty. Novelty as he describes is “a modality, a vehicle, by through which something new appears in the world...What has made it a problem for thought-and its problematic nature predates our own modernity, reaching back to the time of the Greeks- is the way it is seen to introduce a corrupting element or impure principle into the pristine and already full world of “Creation.”²⁷ Kwinter claims, “Time always expresses itself by producing, or more precisely, by drawing matter into a process of *becoming-ever-different...*”²⁸ he maintains, “The problematization of *time* entails a challenge to the primacy of the role of space, and the reintroduction of the classical problem of *Becoming* in opposition to that of Being.”²⁹ Zaha Hadid once wrote, “Time is crucial in the sense that one has to respond to the moment.” And I believe this is possible at times when the notion of timelessness could be subordinated in the process of the realization of form.³⁰

Ayşe Erzan’s paper titled “Abstract Machines and Calculable Grammars of Geometrical Shapes”³¹ will be discussed with its relatively new and refreshing view. Alternative pattern formations will be studied by discussing cellular automata and abstract machines. Erzan’s view is particularly challenging for its approach to architecture, regarding the methods of modeling it and for the further implications that this approach brings forth as regards the issue (concept) of architectural form.

I assert it is worth investigating the possibilities for the transformation of knowledge of form giving after the experience of the twentieth century where examples of the informal approaches could be displayed to develop a common ground to understand the contemporary transformation of traditional readings of form. In this context, Peter Eisenman’s Berlin Holocaust Memorial and Daniel

27 Sanford Kwinter, *Architectures of Time: Toward A Theory of the Event in Modernist Culture* (Cambridge, MA: MIT Press, 2001), p.5.

28 Ibid., p.4.

29 Ibid., p.II.

30 Zaha Hadid, “The Ambition of the New,” in *Anytime*, ed. Cynthia C. Davidson (Cambridge, Mass. : The MIT Press, 1999), p.91.

31 Ayşe Erzan, “Abstract Machines and Calculable Grammars of Geometrical Shapes,” in *Anytime*, ed. Cynthia C. Davidson (Cambridge, Mass. : The MIT Press, 1999).

Libeskind's Jewish Museum Berlin in Germany, Foreign Office Architects' (Farshid Moussavi and Alejandro Zaera-Polo) Yokohama International Port Terminal in Yokohama, Japan, Frank O. Gehry's Walt Disney Concert Hall in Los Angeles, California, USA and Hiroshi Hara's, Kyoto Train Station in Kyoto, Japan will be discussed in detail.

The dissolution of the fixed dimensions and the ancient space conception necessitate the re-organization (re-consideration) of architectural appearances in terms of their form and representation. Moreover, the break of tradition from modernism indicates the process where the idea of form and the form giving processes change. It is worth laying out the *anti-formalist* approaches to architectural form to articulate and to develop a common ground for a potential "operative anti-formalism." In that sense, in this thesis I shall try to articulate and develop a formalist and an anti-formalist view towards architecture, in the light of the aesthetic theories. I shall then try to explore the possibility of a potential of anti-formalist attitude in architecture, focusing on today's architectural examples. I believe in the need of a new architectural thinking elucidated in terms other than formalistic, keeping in mind that both approaches are important to understand today's architectural theory and practice.

CHAPTER 2

FORM, FORMALISM: DEFINITION OF THE TERMS

On the way to search the potentials of an anti-formalist (or non-formalist) attitude, before discussing the aesthetic notions on form and the possible foundations of formalism in architecture, for a conceptual clarity it may be appropriate first to clarify how this study approach to the notion of formalism.

The dictionary definitions of the term “formalism” in general usage are the following:

formalism n. **1.** scrupulous or excessive adherence to outward form at the expense of inner reality or content. **2.a.** the mathematical or logical structure of a scientific argument as distinguished from its subject matter. b. the notation, and its structure, in which information is expressed. **3.** (Theatre) a stylized mode of production. **4.** (in Marxist criticism) excessive concern with artistic technique at the expense of social values, etc. **5.** the philosophical theory that a mathematical statement has no meaning but that its symbols, regarded as physical objects, exhibit a structure that has useful applications. Compare: logicism, intuitionism.³²

As for this study, “formalism” designates a body of thought, which entails solely or primarily the formal features to be the constituent parts of an artwork³³ and

³² The Collins English Dictionary, 2nd ed., s.v. “formalism.”

³³ Painting, sculpture and architecture are considered to be visual arts.

of its artistic value.³⁴ Formalist theory displays a normativistic character being after the establishment of standards for “absolute form” achieved through purely formal considerations.

As Bernard Huet argues, “Any system that tends to reduce reality to a certain number of norms, standards and styles leads to formalism.”³⁵

As for the definition of formalism, there are several other definitions. Alan Colquhoun defines formalism “as that type of thought which stresses rule governed relationships rather than relationships of cause and effect. According to this definition, formalism is related to a purely mathematical definition of function. It studies the structures of given fields independently of what exists outside those fields; it is concerned with the “how” of things, not with the “why.” This seems to be the characteristic of late-nineteenth-century and early-twentieth-century thought in widely different disciplines – philosophy, mathematics, art and architecture.³⁶ Colquhoun, names the art historians Franz Wickoff, Aloïs Riegl, and Heinrich Wölfflin as the representatives of the formalist point of view.³⁷

Bohdan Dzemidok writes,

In aesthetic and art criticism, the term “formalism” is used in many different contexts. Formalism may mean a methodological orientation in art studies, a specific conception of an artwork, or a position taken on the theory of value and valuation of an artwork. Of course, a connection exists among these three basic perceptions of formalism: a methodological attitude, formalism entails, *explicite* or *implicite*, a specific conception of an artwork, which in turn entails a specific stance on the theory of value and valuation of the work. This is so because, if one believes that the formal structure is what truly constitutes a

34 In fact, this definition is derived studying the definition of “formalism” after Bohdan Dzemidok. See Bohdan Dzemidok, “Artistic Formalism: Its Achievements and Weaknesses,” *The Journal of Aesthetics and Art Criticism* 51, no.2 (1993).

35 Bernard Huet, “Formalism – Realism,” in *Architecture Theory since 1968*, ed. K. Michael Hays (Columbia University Graduate School of Architecture, MIT Press, 1998), p.259.

36 Alan Colquhoun, “Rationalism: A Philosophical Concept in Architecture,” in *Modernity and the Classical Tradition: Architectural Essays, 1980-1987* (Cambridge, Mass. : MIT Press, 1989), p.75-76.

37 *Ibid.*, p.76.

work of art, then one will look, consistently, for its significant value.³⁸

Dzemidok goes on to state that, "...in the theory of value and valuation of art work we provisionally define formalism as a theory according to which the value of a work of art *qua* artwork – its *artistic* value – is constituted *exclusively* (radical version) or *primarily* (moderate version) by its formal aspects. Its "meaning" or its (conceptual, cognitive, material, etc.) "content" has no important consequences for its value. Hence, only the formal aspects should be considered as criteria of artistic excellence."³⁹

On the account of the usage of "form" Bohdan Dzemidok refers to the British aesthetician David Pole,

...David Pole, for example, characterizes "form" as a "polar term" which "has its meaning bound up with its correlates." He mentions three possibilities: "form as opposed to matter," "form as opposed to content," and "form as opposed to formlessness." In addition to these three basic ways of understanding form, Pole suggests a fourth possibility: "form as structure" where structure "is constituted by a system of relations, and it is opposed to content, what they relate."⁴⁰

Dzemidok's analyses definitions of the terms "form" and "content" as he writes,

Building upon Ingarden's, Tatarkiewicz's, and Pole's conclusions, one may suggest that there are four basic meanings in which the concepts of "form" and "content" are used with reference to works of art. I will start with the simplest, commonsensical understanding of these terms:⁴¹

1. The content of a work of art may mean everything represented and expressed in a work, while the form may describe the means and ways of representing and expressing that something.

The three following distinctions are arranged according to the principle of ever broader understanding of the term "form" in relation to works of art.

38 Bohdan Dzemidok, "Artistic Formalism: Its Achievements and Weaknesses," *The Journal of Aesthetics and Art Criticism* 51, no.2 (1993): p.185

39 Ibid., p.185.

40 Ibid., p.185; Dzemidok cites: David Pole, *Aesthetics, Form and Emotion* (London: Duckworth, 1983), p.81.

41 Ibid., p.186.

2. "Form" may be understood as a certain arrangement of parts, a structure of elements, or a global composition of elements of a work or some other object. In such a case, its correlative is content, understood as a selection of all the elements of the work, its "matter" ("material") or, as Ingarden puts it, "the material endowment" a work of art, or, to put it still differently, its "substance." When the form is understood so narrowly, the individual sensual qualities (colors, lines, shapes, sounds, sonorities, etc.) are not considered to be formal elements (only their interrelations are considered as such); they are the substance of the artwork.

3. Sensual qualities may be treated as the formal aspects of an artwork, if by "form" one means those things, that are directly and sensually perceived in the work. (Tatarkiewicz often uses here the term "appearance.") This definition holds for nonartistic phenomena as well.

4. Finally, theoreticians sometimes take "form" to signify not some significant aspects or side of an artwork, but the artwork itself, in which the formal elements (in the narrower definition) and elements of content are united into certain organic totality, into a certain self-contained structure abstracted from the world. In this sense we talk not about the form of an artwork, but about an artwork as an artistic form. "Form" is thus considered to be either the so-called idea of the work (which can be with some approximations reconstructed), or the material substratum of the work (which had not been subject to artistic shaping yet, e.g., the topic and the linguistic substance in literature). This type of conceptualization is noted by Ingarden in his work of 1958.⁴²

As Dzemidok stresses, "One may be considered a "formalist" with respect to artistic values if one believes that only the formal aspects of an artwork (in whichever sense enumerated) are constitutive of the value of a work of art. In this view, nonformal elements of the work (representation, thought, emotion, information, morality, etc.) are artistically irrelevant, because the value of a work of art consists exclusively in the manner of presenting and expressing the meanings contained."⁴³

Moreover, Dzemidok states that,

According to formalists, in our experience and appreciation of a work of art we should concentrate exclusively (or mostly) on its formal aspects, i.e., (when formal aspects are broadly understood) not only on the arrangement, construction, or composition of elements (e.g., sensual qualities or words), but also on those very sensual qualities (sounds, colors, pitches, rhythms, dynamics, bodily movement, etc.). According to them this should be so because it is only when we act this way that we value the work of art as *a work of art*, that is as an art object which is autonomous and self-sufficient.⁴⁴

42 Ibid., p.186; Dzemidok cites: Ingarden "O formie i treści dzieła sztuki literackiej," *Studia z estetyki* 2 (Warszawa: PWN, 1958): 343-475); Tatarkiewicz, see for example "Dwa pojęcia formy" ("The Two senses of Form," 1949).

43 Ibid., p.186.

44 Ibid., p.187.

Dzemidok adds “It is only its formal properties which are relevant for its aesthetics – i.e., unique, truly significant for art – value (= artistic value). All the so-called life values – the values connected with representation of the external world, or with the expression or evocation (stimulation) of ideas and emotions – are absolutely irrelevant to the aesthetic value of the work (to its artistic value).”⁴⁵

Dzemidok makes two broad distinctions within formalism, between artistic and aesthetic formalism. And the identification of artistic formalism and aesthetic formalism is important in terms of the definition of formalism and consequently another notion, “anti-formalism.” Anti-formalism, as a concept takes its stand against the artistic formalism, against the idea of form as the preconceived outcome of a formal intention, imposing a pre-established order in the realization of form.

To distinguish artistic from aesthetic formalism, Dzemidok defines “artistic value” and “aesthetic value.” Accordingly, he defines *artistic formalism* and *aesthetic formalism*. As he writes, *artistic formalism*,

...is a stance claiming that the artistic value of an artwork, that is, the value of an artwork as an artwork, is constituted exclusively (or primarily) by the variously understood form of the work. The nonformal aspects of the work (its material and content aspects, or its cognitive, historical, social, etc., significance), on the other hand, have *no* or *no significant* influence on the artistic value of the work.

Aesthetic formalism, on the other hand, is a body of ideas according to which the aesthetic value of natural or created objects (or of states of things) is determined by its form understood as the visibly (sensually) perceived overall appearance of the object or the arrangement of its parts. Objects have the ability to generate aesthetic experiences because of their external appearances -what David Prall calls the "aesthetic surface."⁴⁶

In that sense Dzemidok argues that *aesthetic formalism*,

...is a justifiable point of view. In perceiving any natural object (including the human body) or any artifact (including an artwork) from a purely aesthetic point of view, we pay attention to its external appearance or its structure (composition, construction, arrangements of parts)...The failure to distinguish between aesthetic and artistic formalism allowed

45 Ibid., p.187.

46Ibid., p.189; Dzemidok cites: David Prall, *Aesthetic Judgment* (New York: Crowell, 1967), p.19.

certain theoreticians to use the unassailability of aesthetic formalism as a justification for artistic formalism, which in my opinion, is unacceptable.⁴⁷

Aesthetic formalism can be understood as proper whereas artistic formalism should be accepted to be “extreme.” Later, in Chapter 4, a definition of “extreme formalism” referring to Nick Zangwill will be mentioned.⁴⁸

Stephen Pepper discussed the nature of formalist approach within another context touching to its normative value on the way to the establishment of the proper standards. Stephen Pepper in his book *The Basis of Criticism in the Arts*⁴⁹ identified four criteria in reaching judgments: formism, mechanism, contextualism, and organicism.⁵⁰ He says, “None is completely corroborated by its evidence, so that we cannot accept any of them as an entirely true or adequate description of our world. We might regard them as four different approximations to the nature of the world. They are cornering it, so to speak, from different sides.”⁵¹ Pepper on the account of “formism” maintains,

Formism has had a longer period of dominance in the history of occidental culture than any other relatively adequate philosophy. As the view of Plato and Aristotle (their differences are in the nature of a family quarrel), it was the most persistently influential view in classical thought, and through Augustine and Thomas Aquinas it saturated medieval thought. In spite of the violent reaction against it in the Renaissance, it has maintained a steady though dwindling influence through the modern period. It probably reached its lowest ebb in the nineteenth century, though it was in that very century that it thrust up two of its best representatives in aesthetic criticism – namely Ruskin and Taine.⁵²

Pepper gives the names of some figures and their substantial “formist books on aesthetics:” Santayana’s *Sense of Beauty*⁵³ and Aristotle’s *Poetics*.⁵⁴

47 Ibid., p.189.

48 Nick Zangwill gives a definition of “extreme formalism” in his forthcoming essay, “In Defense of Extreme Formalism about Inorganic Nature: Reply to Parsons,” *British Journal of Aesthetics* (April, 2005) (forthcoming).

49 Stephen C. Pepper, *The Basis of Criticism In The Arts* (Cambridge, Mass. : Harvard University Press, 1945). Pepper makes the classification of “arts” as painting, sculpture, architecture, music, literature, drama, and dance.

50 Ibid., p.9.

51 Ibid., p.9.

52 Ibid., p. 97-98.

53 George Santayana, *The Sense of Beauty* (New York: C. Scribner’s Sons, 1896).

Pepper, rather than establishing his thought on form in relation to physical expression declares “formism” as a mode of thought prior to the visual expression of its physical form. As Pepper asserts, “...the norm establishes the basis for a judgment of value.”⁵⁵ In this case what is referred, as value is the aesthetic value and as Pepper claims it has got to do with “conformity to natural norms.”⁵⁶ And relating the concept of “norms” to the discussion of formalistic aesthetics, he distinguishes three ways of defining this conformity, three formistic definitions of value:

Pepper writes, “First, there is the definition of aesthetic value as the representation of a norm”⁵⁷ which is achieved through the imitation of the norm. As he claims this definition constitutes the basis of mimesis theories where he refers to the tradition of Platonic cosmology.

The aspiration for the ideal necessitates reaching to a “universality of value” which is thought to be possible to acquire through the establishment of “universal norms” or models. Pepper adds, “The artist sees the universal, the norm, through the particular, and the beauty of the representation is in proportion to the degree in which the artist has been able to penetrate to the universal implicit in the particular and exhibits the ideal.”⁵⁸ So the artist aims for the essence and beauty is thought to be arrived through the ideal. However, this description is open to criticism, since it suggests a definition of beauty, in fact that does not integrate the human in the process, aiming at a pure form independent of human existence and experience.

54 Aristotle, *Poetics*, in Perseus Digital Library [online], Aristotle, *Aristotle in 23 Volumes*, vol. 23, translated by W.H. Fyfe. Cambridge, MA, Harvard University Press; London, William Heinemann Ltd. 1932 [cited 1 August 2004]; available from World Wide Web: (<http://www.perseus.tufts.edu/cgi-bin/ptext?lookup=Aristot.+Poet.+1447a>).

55 Pepper, *The Basis of Criticism In The Arts*, 1945, p.101.

56 Ibid., p.105.

57 Ibid., p.105.

58 Ibid., p.105.

Pepper continues, “Second, aesthetic value has been defined as conformity with the norm implicit in the art object itself.”⁵⁹ He goes on to state that, “Third, aesthetic value has been defined as conformity to or expression of a culture...A work of art has aesthetic value in proportion as it gives expression to its age.”⁶⁰ Yet this definition can, also, be criticized since as Pepper declares, “This definition tends to run over into a cultural relativism very congenial to contemporary art historians, and in marked contrast to the universality of aesthetic values emphasized in the first formulation of aesthetic value for formism above as representation of the universal.”⁶¹

In that sense as Pepper notices, “Formism in its stress on the perceptions and reactions of the normal man thus acts as a sort of governor over the whole aesthetic field. It holds art to the healthy golden mean, to what is sane and sound.”⁶²

Pepper wrote,

And strangely enough a tragedy can represent the norm best of all. It is entirely natural that the tragic flaw theory of tragedy had its origin in Aristotelian thought. For how can you most effectively depict the power of the ideal or normal man? Not by depicting a thoroughly well adjusted man. He makes no mistakes, and the full potentialities of his nature are not made apparent. A weak man, of course, will not do. But depict a strong man who is almost normal but has some flaw...then we see what man can do, and what he is like when he exerts himself to the utmost, and we become aware of man’s complete potentials by perceiving what he would have been without the flaw.⁶³

Pepper’s example of tragedy, in my opinion, served an interesting explanation for the possibility of the conformation of the “ideal” in the depiction of its contrary. This line of thought reminds one also of Augustine’s views in his identification of God in the passage:

59 Ibid., p.106.

60 Ibid., p.106.

61 Ibid., p.106.

62 Ibid., p.111.

63 Ibid., p.109.

But whoever is still a slave to his passions or is keenly desirous of perishable goods, or, even though he flee from these and live a virtuous life, yet if he does not know what pure nothing is, what formless matter is, what a lifeless informed being is, what a body, is what species in a body is, what place and time are, what *in a place* and *at a time* signify, what local motion is, what non-local motion is, what stable motion is, what eternity is, what is to be neither in a place or nowhere, what is beyond time and forever, what it is to be nowhere and nowhere not to be, what it is to be never and never to be –anyone who does not know these matters, and yet wishes to question and dispute about even his own soul –let alone investigating about the Most High God, Who is better known by knowing what He is not – such a one will fall into every possible error.⁶⁴

Jon Lang relates the Gestalt theory to aesthetic philosophy, and he mentions Arnheim, who has studies on the Gestalt theory as the exemplar of the formist approach to aesthetics.⁶⁵ Arnheim's writing on the Gestalt theory of expression was first appeared in his book *Art and Visual Perception*.⁶⁶ Arnheim, working through his material acquired a task, in his own words, “ a presentation of visual thinking as the common and necessary way of productive problem solving in any human activity.”⁶⁷ Yet Arnheim’s studies on visual thinking tend not to stay in formal limits.

Arnheim explains the instance of “dynamism” related to the Gestalt theory of expression. In his book *Towards A Psychology of Art; Collected Essays*, in the section “dynamic complexity of form” he writes, “the pleasurable effect of harmony, symmetry, etc., which is emphasized by classical art theory, can be derived from the above findings of Gestalt research. Even so, the organism does not tend simply to equilibrium. It strives to obtain a maximum of potential energy and to apply the best possible equilibrium to it. Aesthetically, this may correspond to the old formula of unity in variety, that is, the desire of organizing a maximum of dynamic richness in well-balanced form.”⁶⁸

64 Augustine, “De Ordine,” trans. Robert P. Russell, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.181.

65 Jon T. Lang, *Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design* (New York: Van Nostrand Reinhold Co. 1987), p.183.

66 Rudolf Arnheim, *Art and Visual Perception; A Psychology of The Creative Eye* (Berkeley, University of California Press, 1954), p.88-89. The book was written in 1951 and first published in 1954.

67 Rudolf Arnheim, *Toward a Psychology of Art; Collected Essays* (Berkeley, University of California Press, 1972), p.3.

68 Ibid., p.45.

So one of the very basic features of the Gestalt psychology, “isomorphism,” in fact explains the concept of movement and motion, yet it has been always tried to be understood within formalist limits. It is true that as Arnheim argued, “...There is a tendency in perception to create the most regular, symmetrical, stable form.”⁶⁹ He wrote, “This was the result of Max Wertheimer’s investigation on the organization of visual stimuli.”⁷⁰ Yet he goes on to state that, “Other studies showed that when, through dim illumination, short exposure, distance in time, etc., the influence of the stimulus is weakened, the receiving apparatus acquires the freedom of exercising a formative influence on the percept. Under such conditions, transformation result in the direction of more symmetrical and more regular structure...the implication is that well-organized visual form produces in the visual projection areas of the brain a correspondingly balanced organization. This adds a physiological explanation to the psychological and aesthetic fact that well-organized form produces pleasure.”⁷¹

Arnheim gives the example of Heinrich Wölfflin's ideas, referring to the findings of Wölfflin on his book *Baroque and Renaissance*, where he relates the perceptual factors to visual dynamics. The observations of Wölfflin disclose the significant position of the concept of “movement” in Baroque architecture. Arnheim writes,

For example, Heinrich Wölfflin has analyzed the architecture, sculpture, and paintings of the Italian Baroque style. One of the basic characteristics of this style, according to him, is movement. Among the formal traits of the Baroque style, Wölfflin notices a “tension in the proportions,” expressed, for instance, in the change from circular to elongated shape, from the square to the rectangle. He finds a “sense of direction.” Also, there is ample use of convergent and divergent shapes as well as curved contours and surfaces. Instead of the right angle, softly fluent transitions lead from one direction to another. Juxtaposition of elements is replaced by overlapping. In the representation of the human figure, the limbs do not act independently and freely, but draw the rest of the body into the movement.⁷²

69 Ibid., p.45.

70 Ibid., p.44.

71 Ibid., p.44.

72 Arnheim, *Toward a Psychology of Art; Collected Essays*, p. 79.

Arnheim adds, “When form units overlap, movement results from the tension created by the incompleteness of the covered units. The tendency to reestablish completeness by pulling the overlapping units apart is experienced as a dynamic effect.”⁷³

In the “dynamics of obliqueness” Arnheim argues, “Obliqueness always entails a crescendo or decrescendo because it is seen as a gradually increasing deviation from, or approximation of, the stable positions of the vertical and horizontal. In perspective obliqueness the phenomenon operates in two different ways. First, an obliquely placed object shows an inner tension in the direction of moving toward, or away from, the frontal plane or an orthogonal plane (perpendicular to the frontal plane). An obliquely oriented object is charged with potential energy as distinguished from the stillness of any location parallel to the frontal plane.”⁷⁴ This is a remark that better explains the notion of “movement” and “motion.”

The Gestalt psychology, known also as the Gestalt theory of the Berlin school, can be defined as “a psychological theory, which provides a framework for a wide variety of psychological phenomena, processes, and applications. Human beings are viewed as open systems in active interaction with their environment. It is especially suited for the understanding of order and structure in psychological events. According to the Gestalt psychology, people naturally organize their perceptions according to certain patterns.”⁷⁵

Form, isomorphism and field forces are three concepts necessary to understand the Gestalt theory.⁷⁶ In fact, instead of developing more thought on the

73 Ibid., p. 80.

74 Arnheim, “Form,” in *Art and Visual Perception; A Psychology of The Creative Eye*, p.88-89.

75 “Gestalt psychology,” [online] [cited 10 October 2004]; available from World Wide Web: (http://www.fact-index.com/g/ge/gestalt_psychology.html).

76 Lang, *Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design*, p. 86.

notion “field forces,” the Gestalt theory is tried to be understood within the boundaries of the concept of isomorphism.

Although Max Wertheimer is known to be the founder of the movement, Kurt Koffka⁷⁷ and Wolfgang Köhler are known to be early 20th century theoreticians, who worked on the subject.⁷⁸ Koffka (1886-1941) who was a Gestalt psychologist, asserting the “behavior” to be a keystone, defined psychology as “the science of consciousness, of mind, and of behavior.”⁷⁹ The principle of isomorphism, linking the behavioral with physiological processes, with its explanation of the “equality of form,” constitutes the basic principle of the Gestalt theory of perception. Abraham S. and Edith H. Luchins define “isomorphism” literally as “equality or sameness (iso) of form (morphism). In mathematics an isomorphism between two systems requires a one-to-one correspondence between their elements (that is, each element of one system corresponds to one and only one element of the other system, and conversely), which also preserves structures.”⁸⁰

As Koffka asserts, “Thus, isomorphism, a term implying equality of form, makes the bold assumption that the “motion of the atoms and molecules of the brain” are not “fundamentally different form thoughts and feelings” but in their molar aspects, considered as processes in extension, identical.”⁸¹ Koffka clarifies the principle of isomorphism, as “according to which characteristic aspects of the physiological processes are also characteristic aspects of the corresponding

77 Kurt Koffka introduced the Gestalt programme with an article to readers in the USA in the *Psychological Bulletin* in 1922. He later published *Principles of Gestalt Psychology* in 1935, while he worked in Smith College in the USA.

78 “Gestalt psychology” [online] ([cited 10 October 2004]); available from World Wide Web: (http://www.fact-index.com/g/ge/gestalt_psychology.html).

79 Kurt Koffka, *Principles Of Gestalt Psychology* (New York: Harcourt, Brace & World, 1963), p.25.

80 Abraham S. Luchins and Edith H. Luchins, 1999, “Isomorphism in Gestalt Theory: Comparison of Wertheimer’s and Köhler’s Concepts,” in the Gestalt Archive of the International SOCIETY FOR GESTALT THEORY AND ITS APPLICATIONS (founded in 1978), [online] ([cited 1 August 2004]); available from World Wide Web: http://www.gestalttheory.net/archive/luch_iso1.html). This paper was prepared in the context of the *11th Scientific Convention of the International Society for Gestalt Theory and Its Applications* (GTA) (March 1999), in Graz/Austria, and was first published in *Gestalt Theory - An International Multidisciplinary Journal* 21, no.3 (November 1999): p. 208-234.

81 Koffka, *Principles Of Gestalt Psychology*, 1963, p.62.

conscious processes.”⁸² He writes, “The concept of order in its modern form is derived from the observation of living beings. But that does not mean that its application is restricted to life. Should it be possible to demonstrate order as a characteristic of *natural* events and therefore within the domain of physics, then we could accept it in the science of life without introducing a special vital force responsible for the creation of order. And that is exactly the solution which the Gestalt theory has offered and tried to elaborate.”⁸³

The Gestalt laws take several forms: proximity, similarity, closure, good continuance, closedness, area and symmetry.⁸⁴ The Gestalt theory of perception influenced further research into form and formal relations being a supporter of the idea of “good form”⁸⁵ and accordingly “good composition.”

Artistic Formalist approach of excessive concentration on architectural form, reducing it to a static or idealized form, of separation of architecture from human experience, exclusive concentration of architects on the formal aspects can be contested. As Dzemedok notices, “Concentration on artistic form was never a sufficient nor a necessary condition of creating master pieces.”⁸⁶

82 Ibid., p.109.

83 Ibid., p.17.

84 Lang, *Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design*, p.86.

85 See Arnheim, *Toward a Psychology of Art*, p.45.

86 Dzemedok, “Artistic Formalism: Its Achievements and Weaknesses,” p.191.

CHAPTER 3

AN INQUIRY ABOUT "FORMALISM": BASIC THEORIES AND HISTORICAL REFLECTIONS

In discussing the anti-formalist attitude in architecture as a process, it is important first to lay the foundations of the notion of “formalism” in architecture. Theories about form created a tradition of philosophical thought, and were handed down over centuries, serving as “models” for the development of the notion of “formalism” in ideological, philosophical, aesthetic and architectural grounds. In the following pages certain theories on form will be traced.

3.1 Basic Theories and Vitruvius

3.1.1 Plato (427-347 BCE): Theory of Forms

Plato, the student of Socrates and the teacher of Aristotle, in his written dialogues,⁸⁷ delivers “a doctrine of Forms.” In *Timaeus*, Plato’s “theory of Forms”

⁸⁷ Written in dialogues, Plato’s writings carry an imitative character. Plato’s critical thinking concerning the nature of creation (both human and divine) based on “imitation.”

can be well traced where he speculates on the myth of creation of the universe and of mankind.

Plato's *Timaeus* provides a detailed explanation of the creation of the universe. It starts by the following distinction:

What is that which is Existent always and has no Becoming? And what is that which is Becoming always and never is Existent?⁸⁸

Then it continues:

Now the one of these is apprehensible by thought with the aid of reasoning, since it is ever uniformly existent; whereas the other is an object of opinion with the aid of unreasoning sensation, since it becomes and perishes and is never really existent.⁸⁹

With the statement above Plato differentiates between two worlds; one is *intelligible* and the other is *sensible*. The former formulation is accompanied with "ideal Forms" whereas the latter with sensible objects. The intelligible world is governed by numbers and mathematical computations, which is not physical and can only be apprehended by *reason*. The sensible world, on the other hand, is the world we live in, designed directly after the 'Divine Model' by its architect.

'Being' is *Idea* or unchanging "Form," which is eternal and only comprehensible through the operations of the mind through *reason* and *intelligence*. 'Becoming' is something generated which needs to have a cause and belongs to the things sensible that are in constant flux. In other words, every concrete sensible object on earth is created as the copy of the idea showing a variety of appearance, refers to what is named as 'becoming.' These two distinctions bring forth two different concepts, 'Being' and 'becoming,' and also introduce a third definition, 'copy.' The Universe is the 'copy' that is composed by the divine maker (the

88 Plato, *Timaeus*, [28a] in Perseus Digital Library [online] (Tufts University [cited 12 October 2004]); available from World Wide Web:(<http://www.perseus.tufts.edu/cgi-bin/ptext?lookup=Plat.+Tim.+17a>)

89 Ibid., [28c].

Demiurgos) as the imitation of 'Being.' While 'Being' is identified with truth, 'becoming' is identified with belief, which is the outcome of mere opinion.⁹⁰ In that sense, the word "Form" in Platonic philosophy seemed to correspond to the Platonic *Idea*.

The evolution of form, in Plato's *Timaeus*, is described to be starting from a chaotic situation. As told in the *Timaeus*, order is created out of disorder, shaping the chaotic matter into form by imitating the external order of 'Being.' As it can be comprehended by the following statement:

For God desired that, so far as possible, all things should be good and nothing evil; wherefore, when He took over all that was visible, seeing that it was not in a state of rest but in a state of discordant and disorderly motion, He brought it into order out of disorder, deeming that the former state is in all ways better than the latter.⁹¹

In search for timeless principles in the creation of eternal perfect forms 'Being' has always been the model to be applied. If the 'Being,' *intelligible Idea*, the essential truth, which sets the order, is the measure of all things, in arriving at "Forms," the perfect forms introduced as the right exemplars to be resorted. Unsurprisingly, *cosmos*, which is identified with 'Being,' *Idea*, is conceived to be spherical:

...He fashioned it to be One single Whole, compounded of all wholes, perfect and ageless and unailing. And he bestowed on it the shape, which was befitting and akin. Now for that Living Creature which is designed to embrace within itself all living creatures the fitting shape will be that which comprises within itself all the shapes there are; wherefore He wrought it into a round, in the shape of a sphere, equidistant in all directions from the center to the extremities, which of all shapes is the most perfect and the most self-similar...⁹²

90 For further information on Plato's mediation on "opinion" see Plato, *Republic*, trans. Robin Waterfield (Oxford, England ; New York : Oxford University Press, 1993).

91 Plato, *Timaeus*, [28a], in Perseus Digital Library [online] (Tufts University [cited 12 October 2004]); available from World Wide Web:(<http://www.perseus.tufts.edu/cgi-bin/ptext?lookup=Plat.+Tim.+17a>)

92 Plato, *Timaeus*, [33a+b].

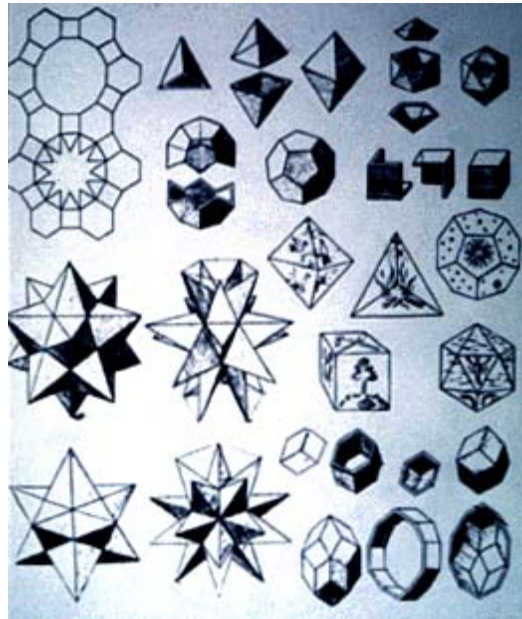


Figure 3.1. Engraving by Johannes Kepler from *Harmonices Mundi*, 1619 (*Harmonies of the World*, 1619)

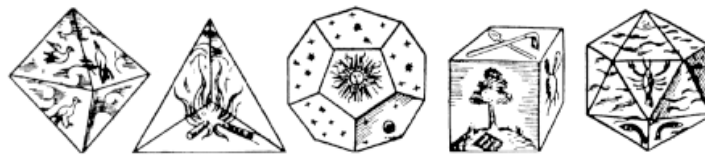


Figure 3.2. The close up of the five Platonic bodies as depicted in the engraving by Kepler from *Harmonices Mundi*, 1619 (*Harmonies of the World*, 1619)

Plato wrote about the five solids known as the “Platonic solids.” There are five kinds of Platonic solids (fig. 3.2). On the Platonic solids Plato says, “...as regards the numerical proportions which govern their masses and motions and their other qualities, we must conceive that God realized these everywhere with exactness, in so far as the nature of Necessity submitted voluntarily or under persuasion, and thus ordered all in harmonious proportion.”⁹³ The chaotic matter is shaped into form after the model of “eternal Forms,” using the constituent parts of the universe, the four elements, namely: “fire,” “air,” “earth,” and “water.” In the

⁹³ Ibid., [56c].

construction of the universe, these four Platonic bodies are bound together in various mathematical ways following the proportioning rules as premised by the ‘Being,’ *intelligible Idea*, the essential truth. The tetrahedron, the octahedron, the cube the icosahedron (and isosceles triangles) are the molecules of “fire,” “air,” “earth,” and “water.” In that sense, the tetrahedron was the form of fire, the octahedron was that of air, the cube was that of earth, the icosahedron was that of water. The fifth Platonic solid, the dodecahedron represented the *cosmos*. And as suggested by Plato these solids are the source of all the visible material things in the world. Proportionally combined parts create the “Whole.” “The double intervals” (the powers of 2 i.e., 2, 4, 8) and the “triple intervals” (the powers of 3 i.e., 3, 9, 27)”⁹⁴ are made use of while the whole is formed using the perfect mathematical relationships.

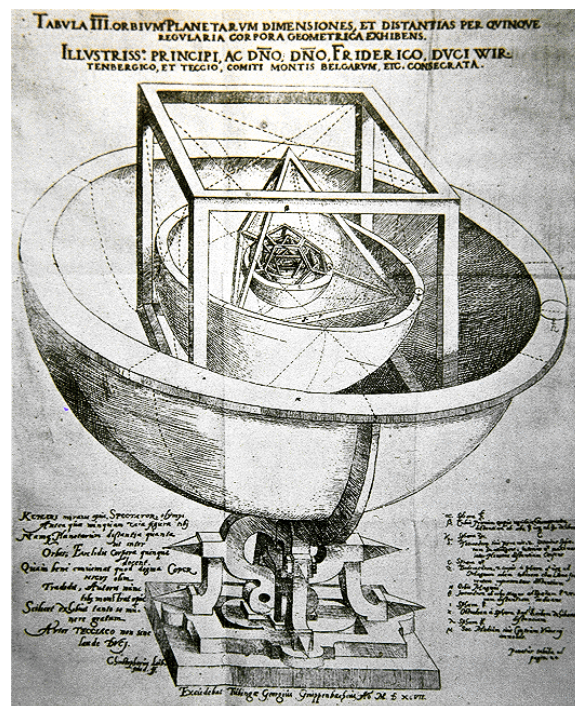


Figure 3.3. Engraving by Johannes Kepler, which depicts his Platonic model of the solar system.

94 Plato, *Timaeus*, [35a].

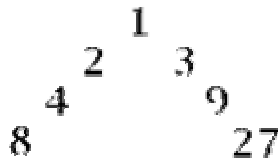


Figure 3.4. *Lambda*. The intervals of the double and triple intervals, three double and three triple that Plato speaks about in his *Timaeus*

Wittkower writes, “In the wake of the Pythagoreans, Plato in his *Timaeus* explained that cosmic order and harmony in the squares and cubes of the double and triple proportion starting from unity, which led him to the two geometrical progressions, 1,2,4,8 and 1,3,9,27. Traditionally represented in the shape of a Lambda the harmony of the world is expressed in the seven numbers 1,2,3,4,8,9,27 which embrace the secret rhythm in macrocosm and microcosm alike. For the ratios between these numbers contain not only all the musical consonances, but also the inaudible music of the heavens and the structure of the human soul (fig. 3.4).”⁹⁵

Plato’s “theory of Forms” follows his philosophical thought based on metaphysical idealism and possesses a quest for perfect expressions achieved by mathematical operations and “means.” Plato ordained his “theory of Forms” both for the creation of everyday world and also for his social utopia, which aimed at the arrival to the “ideal structure for human society.”⁹⁶ Aiming at a deliverance of a “discourse” that meant to be followed as a task; Plato by sharing his philosophy went beyond presenting a mere explanation. Platonic thought became a tradition. “The Forms” of this tradition have been in use by followers of Plato and have found expression in the works of “formalists” even though in modified sense.

⁹⁵ Wittkower, *Architectural Principles in the Age of Humanism*, p.104.

⁹⁶ See Plato, *Republic*.

3.1.2 Aristotle

Aristotle (384-322 BCE) believes that, art partly imitates “nature” and partly by idealizing it completes nature’s deficiencies. Aristotle follows Plato on his metaphysical idealism; that eternal ‘Being’ is the source of the universal truth. Yet unlike Plato Aristotle, seeking for true knowledge in this world, concentrated not only on the *pure good*, the ‘Being’ but he adopted an objective, interpretive, approach to the real world and the matter. Moreover, Aristotle’s *Poetics*, a formalist book on aesthetics in part, can be regarded as an answer to Plato’s criticism of imitative arts. Plato criticizes imitative arts finding them deceptive, while Aristotle thinks that they are useful for learning.

Aristotle while speculating on the nature of creation looked at nature and tried to discover how it works in relation to artistic creation for the sake of achieving a more complete understanding of “reality,” the physical world at large. Against the absolute perception of the world, Aristotle believed in the importance of the scientific inquiries in the process of life and he worked on the categorization and hierarchies in nature. Concepts like “chance,” “mistake,” and “randomness” come into discussion with Aristotle’s integration of nature into discussion.

However, Aristotle’s definition of form and its realization in material medium also stay within the idealistic limits. Aristotle holds an idea of art, which is perfect; such that whatever nature lacks art makes up for it. We can clearly understand from the following paragraphs that Aristotle holds an idealistic view for the definition of form, art and artist:

...from art proceed the things of which the form is in the soul of the artist. (By form I mean the essence of each thing and its primary substance.)⁹⁷

97 Aristotle, “From Metaphysics, Book VII,” in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.91.

Art indeed consists in the conception of the result to be produced before its realization in the materials.⁹⁸

Art is a state concerned with making, involving a true course of reasoning ...and whose origin in the maker not in the thing made...⁹⁹

Speculating on the myth of creation, Aristotle sets standards. For the standard of artistic goodness he writes, "...so that we often say of good works of art that is not possible either to take away or to add anything, implying that excess and defect destroy the goodness of the work of art, while the mean preserves it; and good artists, as we say, look to this in their work."¹⁰⁰

According to Aristotle, proper end of the art is the beautiful. Symmetry, harmony and definiteness are the integrals in the creation of beauty. Plato and Aristotle's speculation on the myth of creation contributed to the development of the fundamentals of the notion of "form" of modern western thinking and of ongoing "formalism."

3.1.3 Marcus Vitruvius Pollio

Vitruvius (late 1st century BC – early 1st century AD) was a Roman author, architect and military engineer. Vitruvius is the writer of the earliest surviving ancient architectural treatise *De Architectura* which is a textbook written for Roman architects (fig. 3.5). The work consists of ten books divided into the subjects: (I) town planning and the qualifications of a proper architect, (II) building materials,

98 Aristotle, "From Metaphysics, Book VII," trans. William Ogle, R. P. Hardie, and R. K. Gayetrans, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.86.

99 Aristotle, "From Nicomachean Ethics, Book VII," trans. W. D. Ross, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.83.

100 Aristotle, "From Nicomachean Ethics, Book II," trans. William Ogle, R. P. Hardie, and R. K. Gayetrans, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.94.

(III) and (IV) temples and architectural orders, (V) civic buildings, (VI) domestic buildings, (VII) pavements and plaster, (VIII) water supplies, (IX) geometry, astronomy, etc., and (X) civil and military machines.¹⁰¹ He, with his comprehensive treatise, constitutes a referent for other architectural treatises. In the domain of architecture, Vitruvian principles have constituted a basis for architectural production on both practical and metaphysical grounds. According to Vitruvius, “Architecture depends on Order (in Greek taxis), Arrangement (in Greek diathesis), Eurythmy, Symmetry, Propriety, and Economy (in Greek oikonomia).”¹⁰² These six Vitruvian principles have had a profound effect on formal organization as regards architectural composition. Vitruvius considered the concept of *proportion* and *symmetry* as necessary elements in any architectural design work and studied the proportions so the human form, anthropometry of the man reflected a canon of proportion. Vitruvius wrote,

The design of a temple depends on symmetry, the principles of which must be most carefully observed by the architect. They are due to proportion...Proportion is a correspondence among the measures of the members of an entire work, and of the whole to a certain part selected as standard. From this result the principles of symmetry. Without symmetry and proportion there can be no principles in the design of any temple; that is, if there is no precise relation between its members, as in the case of those of a well shaped man...Therefore, since nature has designed the human body so that members are duly proportioned to the frame as a whole, it appears that the ancients had good reason for their rule, that in perfect buildings the different members must be in exact symmetrical relations to the whole general scheme.¹⁰³

The early Greek philosophers regarded certain simple geometric figures such as circle or square as the symbol of unity and of perfection. The centralized forms, square or circle (the perfect forms) as the symbol of unity and perfection was used as a cosmic symbol. It was the expression of the divine, and represented the macro cosmos, the universe, created by the divine order. Single center is the symbol

101 Vitruvius, *The Ten Books on Architecture*, trans. Morris Hicky Morgan (New York, NY: Dover Publications, Inc., 1960).

102 Vitruvius, *The Ten Books on Architecture*, in Perseus Digital Library [online]. Vitruvius. The Ten Books on Architecture, trans. Morris Hicky Morgan (Cambridge: Harvard University Press. London: Humphrey Milford. Oxford University Press. 1914): p.13. [cited 1 August 2004]; available from World Wide Web: (<http://www.perseus.tufts.edu/cgi-bin/ptext?lookup=Vitr.+1.preface+1>).

103 Vitruvius, *The Ten Books on Architecture*, trans. Morris Hicky Morgan, 1960, p.72-73.

of the unity of the divine. The Vitruvian man placed in a square and circle related the microcosm to macrocosm, as the reflection of ‘Divine law.’ The studies of Vitruvius, transmitting “proper arrangements for buildings,”¹⁰⁴ founded the Renaissance architectural composition canon, or the *canon of proportions*.

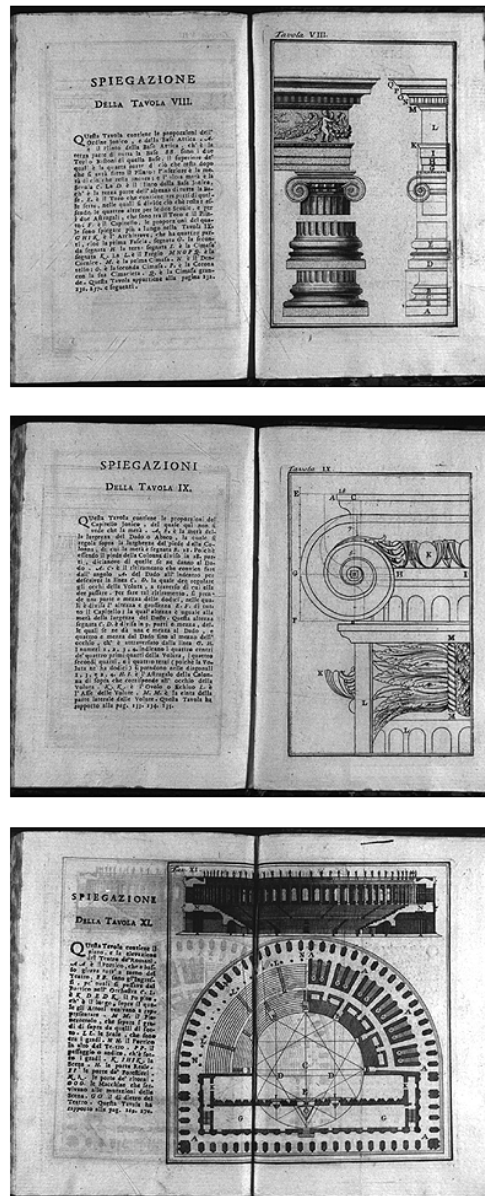


Figure 3.5. Images from an eighteenth century Venetian compendium on Vitruvius from the Perkins Library at the University of Pennsylvania

104 Ibid., p.73.

3.1.4 Augustine

As mentioned earlier, formalist view was the most influential view in classical thought, and Augustine was among the important figures that helped it saturate medieval thought.

Augustine was a philosopher, thinker, writer, theologian, and an important figure for the evolution and the understanding of the metaphysical basis of formalism. Augustine was drawn to Neo-Platonic tradition. Sacrificing the relation between the work of art and the social history, Augustine selects the canon of 'Divine' to develop his theoretical scheme of thought. So how it is possible to reach the contemplation of things divine?

In Augustine's *De Ordine*, the eleventh chapter starts with the definition of reason. Reason is defined by Augustine as a merit. Reason, as Augustine maintains, is a mental activity to be used as a "guide to the knowledge of God or of the soul; either of the soul within us or of the world-soul."¹⁰⁵ Moreover, for a better grasp of the terminology in relation to the description of reason, it may be important to understand in which definitions the terms rational and reasonable used by Augustine. Augustine refers the term "rational" as "whatever uses reason or possess the faculty of reasoning" and "reasonable" as "whatever has been done or spoken according to reason."¹⁰⁶

According to Augustine, reason is number¹⁰⁷ and reason owes its power to "numerical proportions;"¹⁰⁸ calculated measurements in the way going towards the "One." Numerical proportions are divine and eternal. They are believed to be seen

105 Augustine, "De Ordine," trans. Robert P. Russell, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.173.

106 Ibid., p. 174.

107 Ibid., p. 182.

108 Ibid., p. 180-181.

and achieved by the mind so they are immortal and they give way to perfection. As Augustine describes, "...because whatever the mind is able to see is always present and is acknowledged to be immortal, numeric proportions seemed to be of this nature."¹⁰⁹ In that sense, materiality or rather "material form" accepted reluctantly.

All things come into being in accordance with order. Augustine, in understanding "the order of things", resorts to 'Divine law.' He believed, through the reflection of the 'Divine law,' in perfection, soul can see the truth. Augustine is after discerning the 'Divine order,' which is eternal, timeless and unchanging. And as the outcome of this thought, he defines beautiful as what is lasting, that is, not the material aspect but the ratio; the numeric proportions.

As Augustine maintains,

That ratio was no truer yesterday than today, nor will it be truer tomorrow or a year hence. Even if the whole world should fall in ruins, that ratio will always necessarily be: it will always be such as it is now. Contrariwise, what world has today, it did not have yesterday and it will not have it tomorrow. In fact, not even for the course of an hour during this very day has it had the sun in the same position. And so, since nothing in it is permanent, it does not have anything in the same way for even the shortest interval of time.¹¹⁰

In that sense nothing in the world of sense is permanent. On the contrary, in the intelligible world, as Augustine clarifies, "every part is as beautiful and perfect as the whole."¹¹¹ Moreover, in picturing man's relation to the world of sense Augustine clarifies:

In this world the soul looks for permanence, *constantia*, and eternity, but never finds them, because only the lowest kind of beauty can be achieved by such transience, and whatever there is in this world which in any degree copies, *imitatur*, permanence, is transmitted, *traicitur*, through, *per*, our soul by God; for an appearance, *species*, which is changeable only in time, is precedent, *prior*, to an appearance which is changeable both in time and in space. The Lord has thought the soul of men what they should not love. "Love not the

109 Ibid., p.180.

110 Ibid., p.184.

111 Ibid., p.185.

world.... For all that is in the world, the lust of the flesh, and lust of the eyes, and the pride of life < is not of the Father but of the world>.”¹¹²

Placing man in the line of discussion, Augustine maintains an interesting analogy between man and the supreme Being: God. The human is the reflection of God and as one turns to his true self there he finds or faces God within himself and becomes “One” with Him. “Unity” is achieved through the soul’s connection to God; after becoming one with God, soul lives for eternity. “Soul” uses the body and its senses for “mind,” for the delight of the mind through the senses.¹¹³ Augustine distinguishes between the delight of the senses and the delight of the mind through senses. The latter is the key to truth, not a mere following of the feeling.

Augustine declares turning to God as essential. And he suggests turning aside from “the objects of sense” as a way for anyone to return to himself. In Augustine’s thought inclining towards the mental part of us results with us reaching to the level of spiritual things, where the relation between the flesh and the mind breaks off; or rather mind declares its authority to body. While “rational element” opens the way to ‘Divine’ or makes the ‘Divine order’ visible; “mortal element”, being deceptive, distracts one from his true path.

In that sense as for the definition of art, art is thought of by Augustine as a form of mental activity, constructed by the mind rather than adopted by the mind from the matter. Augustine shares the philosophical attempt to understand art in the universal categories of ‘Being’; art has to have rationality. Augustine assesses the “rhythm”, being a merit that comes from God, as trigger of man’s mental activity by enabling man to move towards God and numerical proportions as a tool to achieve what he calls “the active conformation of the mind of the artist”¹¹⁴ namely “art.” According to Augustine, This is an idea, that expounds “man as the image of God”

112 Augustine, “De Musica,” trans. W. F. Jackson Knight, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.195.

113 Ibid., p.196.

114 Ibid., p.190.

and makes, in the mind of Augustine, the work of art so universal yet to be discovered by the individual.

3.1.5 G. F. W. Hegel

The German philosopher G. W. F. Hegel has a method of formal, schematic a priori structuring of his philosophy with the profound attempt to realize a “science of art” that led him to write a history and metaphysics of beauty. Hegel considers philosophy as a science and according to him a way of expressing this science is the philosophy of Fine Art.

Hegel, whose ultimate goal is human consciousness, articulates his ideas on aesthetics and art placing “the Absolute Mind” or “the Absolute Spirit” at the center of his philosophical thinking. “The Absolute,” for Hegel, is the highest phase for the evolution of the spirit or the mind. Hegel postulates an idealistic philosophy in holding the opinion that spirit or mind constitutes the only reality.¹¹⁵ Accordingly Hegel defines art as the work of the spirit. This idea attributes an “infinite”, “universal” or “cosmic character” to art. Beauty is the *Idea* of the Absolute, which finds its form in art, as the sensuous presentation of the Absolute. Yet Unlike some other philosophers who interpreted reason as a form of intellectual intuition whose ultimate object is art, philosophy takes its seat on top as the superior entity in reaching the truth.

Art as claimed by Hegel “is to represent divine ideals.”¹¹⁶ This is a remark, which well postulates the idealist philosophy that Hegel holds. Hegel believes art

115 William H. Harris, and Judith S. Levey ed., *The New Columbia Encyclopedia* (New York and London: Columbia University Press, 1975).

116 Georg Wilhelm Friedrich Hegel, “Philosophy of Fine Art,” trans. F. P.B. Osmaston, in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.399.

stands on a higher stage than Nature. He maintains, “Nature is not sufficient for Divine Being to operate. God is more honored by that which mind makes and creates than by every thing brought into being and fashioned in the natural process.”¹¹⁷

As Hegel defined, “God is a Spirit, and it is only in man that the medium, through which the Divine passes, possess the form of spirit fully conscious of the activity in which it manifests its ideal presence.”¹¹⁸

For Hegel both the content and form have to be ideal. Yet it is interesting that Hegel in his *The Philosophy of Fine Art* writes:

The Chinese, Hindoos, and Egyptians, for example, in their artistic images, sculptured deities and idols, never passed beyond a formless condition, or a definition of shape that was vicious and false, and were unable to master true beauty.” And this was so for the reason that their mythological conceptions, the content and thought of their works of art, were still essentially indeterminate, or only determinate in a false sense, did not in fact, attain to a content which was absolute in itself. Viewed in this sense the excellence of works of art is so much the greater in the degree that their content and thought is ideal and profound.¹¹⁹

In that case, the good form is thought to be representing the Absolute, that is the truth, whereas what is outside the *proper composition* is declared as formless and false. Yet it can be argued that the distinct notions of beauty can exist.

Moreover, human imitation, Hegel believes, fails as contrasted with the natural example. Since;

It lags so far behind of Nature. In other words art is limited in its means of representation. It can only produce one-sided illusions, a semblance, to take one example of real fact addressed exclusively to one sense. And, moreover, if it does wholly rely on the bare aim of mere imitation, instead of Nature’s life all it gives us ever is the mere pretence of its

117 Ibid., p.399.

118 Ibid., p..399.

119 Ibid., p.429.

substance. For some such reason the Turks, who are Mohammedans, will not put up with any pictures or copies of men and other objects.¹²⁰

Hegel rejected the material qualities of the work of art and he believed that the artistic expression should reach the human spirit with the transition of the divine power; it is the spiritual that should reside in the sensuous form. He stated that art's function is to reveal the truth under the mode of art's sensuous or material configuration, to display the reconciled antithesis and by this means to prove that it possess its final aim in itself, in its representation. Hegel believed that art inevitably has been so concerned with the function and with the sensuous form that the idea and the absolute spirit belonging to its content have been neglected. Consequently this rejection of art brought him to the conclusion that, "art is dead," and now it is the time for the philosophy of art. That is, human consciousness realizes itself progressively, and now humanity has progressed so much that art cannot become a vehicle for appearance of consciousness.¹²¹ Nature, everyday appearance can only talk for itself, it cannot create. This reveals a tendency for art to find its place within the critique and institutionalization. This is the technological model that can take many "forms" as we have observed in Post-modern architecture.

According to Hegel, Idea gradually develops into three particular forms of artistic beauty, postulating three relations of the Idea to its external presentation; classified as "symbolic," "classic," and "romantic." Within each one, he distinguishes a system of individual arts, i.e. architecture, sculpture, painting, music, and poetry.

In Symbolic art the ideal content is less than sensuous form can express. The characteristic medium of symbolic art is architecture. In classical art, the ideal content is in its highest level that outer form can express. Here the Idea is evolved to its most suitable sensuous expression. The classic art is that of sculpture, which

¹²⁰ Ibid., p.413.

¹²¹ In Hegel's thought the consciousness of himself, man, achieves in two ways, "self realization" and "self-production."

is, as Hegel thinks, concerned with the human form. Since, it carries the concept of the Divine. Finally, in romantic art the idea becomes alien to its sensuous form since the ideal content is so developed and the form is not capable to express it as the Idea necessitates. Romantic art takes three forms; painting, music and poetry.

As Hegel maintains, within each of the particular forms of art, there must occur an agreement (similarity in form or character, conformity) between the ideal content and imaginative structuring, “so that the concept or idea is unified with its outer appearance. It is in this sense that beauty is the sensuous appearance of the Idea, or the show of the Absolute Concept.”¹²²

3.2 Historical Reflections

3.2.1 Renaissance

The preoccupation concerning God in the Middle Ages, gave way in the Renaissance to an interest in the “human.” Humanism as a cultural movement indicated a shift of emphasis from God to the human, suggesting a harmony in macrocosm and microcosm. Humanism as a new current of thought, accompanied by the dissolution of the introverted closed medieval tradition, introduced new attitudes; new methods and a new look to human history with an appeal to the classical ideals and forms.¹²³

122 “Georg Wilhelm Friedrich Hegel,” in *Philosophies of Art and Beauty: Selected Readings in Aesthetics from Plato to Heidegger*, ed. Albert Hofstadter and Richard Kuhns, 1964, p.380.

123 “Humanism,” *The Columbia Electronic Encyclopedia*, 6th ed. [online] (Columbia University Press., 2004, [cited 11 July 2004]); available from World Wide Web: (<http://www.bartleby.com/65/hu/humanism.html>). See also *The International Encyclopedia of Science*, ed. James R. Newman, s.v. “Medieval and Renaissance Science.”

In terms of the formal qualities, Renaissance “style” was a revival of classical antiquity, designating a characteristic closed formal composition and an adherence to certain rules of antiquity, that used simple traditional Greco-Roman forms, classical elements and “orders”; Doric, Ionic and Corinthian order in relation to building tasks. Renaissance architecture shows an architectural quality in correspondence to Vitruvian categories –*firmitas, utilitas, venustas*–.

The Greek revival accompanied by the revival of the ancient traditions, in particular those of Plato, Aristotle and Pythagoras introduced to the Renaissance a rationalist, numerically structured worldview, placing man at the intellectual center of things. Renaissance architect and painter Sanzio Raffaello’s (also known as Raphael) depiction of this philosophical heritage in his painting, *The School of Athens* is remarkable (fig.3.6).¹²⁴ Different ages were brought together in this Renaissance painting. We see some significant men of past and present in debate, such as Plato, Aristotle, Socrates, Pythagoras, Euclid, and Raphael himself.



Figure 3.6. Sanzio Raffaello, *The School of Athens*, fresco, width at the base 770 cm, 1509.

¹²⁴ When commenting on the picture Andrew Graham-Dixon observes, the picture portrays that “Human knowledge is a continuum, a conversation between different ages.” Andrew Graham-Dixon, “Renaissance: Apocalypse IV,” in the BBC’s documentary *Renaissance* (composed of six parts), writ. and narr. by Andrew Graham-Dixon, prod. and dir. Roger Parsons (BBC Worldwide Ltd, 1999), television series.

In Renaissance, nature, which was imitated in the works of the architects in transforming natural forms in giving order to architectural form, was seen through the ideal of a purely mathematical explanation. Albert Dürer's (1471–1528) famous engraving *Melancholia I*, well illustrates the preoccupation of the Renaissance man with geometry and the involvement of the Platonic solids in the process (fig.3.7).



Figure 3.7. Albrecht Dürer, *Melancholia I*, engraving, 24 cm x 18.5 cm, 1514.

This preoccupation with mathematics and science, mainly contributed to an experiment of formal effects. The Renaissance created a notion of “form” that was the symbol of perfection. Formal qualities of architecture were tried to be achieved with the aid of numbers due to their permanent values on the way to Absolute

perfection. In fact, it was an approach that can be regarded as quiet formalist and quantitative where the adoption of a restricted form understanding became the overriding principle of artistic creation. The engraving also well encapsulates the intellectual dimension (of world or life) in reaching knowledge and in discovering truth through the world.¹²⁵ In the engraving, the existence of the sphere, square (at the right hand side top, also now known as the magic square), the cube whose sides have been cut off to create an optical illusion (it appears to be a polyhedron with pentagonal sides) whose faces appear to consist of two equilateral triangles and six somewhat irregular pentagons are interesting.

Accordingly, architectural form was developed after the formal models of the ancient theories of Pythagoras and Plato¹²⁶ and, was created according to a measure, which based itself on Euclidean geometry and on the principles of, symmetry, harmony and proportion. The universe was thought to be endowed with the science of numbers and the human was considered to possess the mathematical harmonies of the universe. The system of proportions used in architecture was basically derived from the musical harmonies and the human proportions.

In fact, in the Renaissance we see an analogy between the human figure and architectural form and proportion. As Wittkower claims, “The Renaissance, in addition, fully embraced ancient anthropometry. Following Vitruvius (whose treatise reflects Greek ideas), Renaissance theory and practice pronounced axiomatically that the proportions of architecture much echo those of the human body.”¹²⁷ As Wittkower wrote “With the Renaissance revival of the Greek mathematical interpretation of God and the world, the invigorated by the Christian

125 Andrew Graham-Dixon, “Renaissance: Apocalypse IV,” in the BBC's documentary *Renaissance* (composed of six parts), writ. and narr. by Andrew Graham-Dixon, prod. and dir. Roger Parsons (BBC Worldwide Ltd, 1999), television series.

126 Rudolph Wittkower, *Architectural Principles in the Age of Humanism* (London, A. Tiranti; New York, Random House, 1962), p. 102.

127 Rudolph Wittkower, “Le Corbusier's Modulor” in *Four Great Makers of Modern Architecture: Gropius, Le Corbusier, Mies van der Rohe, Wright* (New York, Da Capo Press, 1970). It is the verbatim record of a symposium held at the School of Architecture, Columbia University, March-May, 1961.

belief that Man as the image of God embodied the harmonies of the Universe, the Vitruvian figure inscribed in a square and a circle became a symbol of the mathematical sympathy between microcosm and macrocosm. How could the relation of Man to God be better expressed, we feel now justified in asking, than by building the house of God in accordance with the fundamental geometry of square and circle?”¹²⁸ The use of the humanly proportions seemed to guarantee a higher order of perfection and the classical ideal was the proportionally ordered totality. The relation of man to God was achieved by building with the geometry of circle and the square (fig.3.8, fig.3.9, fig.3.10).¹²⁹

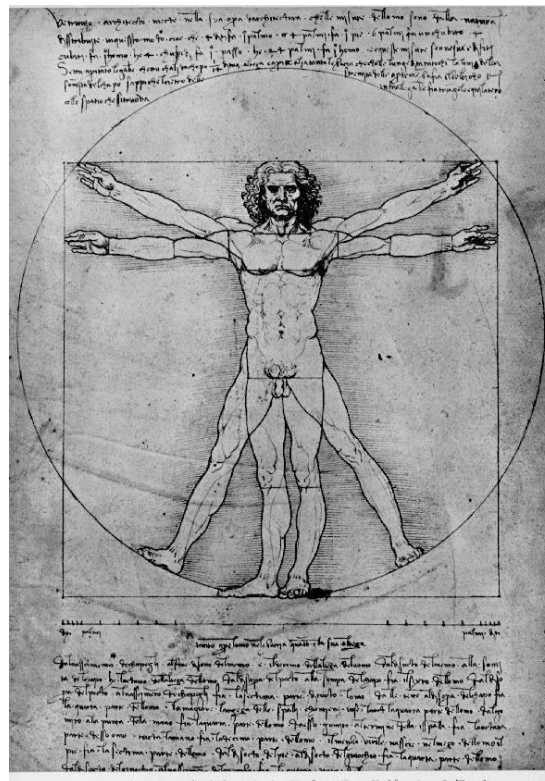


Figure 3.8. Leonardo da Vinci, Vitruvian figure, drawing, pen and ink on paper, 34.3 x 24.5 cm, Gallerie dell' Accademia, Venice,1492.

128 Wittkower, *Architectural Principles in the Age of Humanism*, 1962, p. 16.

129 Wittkower, "The Religious Symbolism of Centrally Planned Churches," in *Architectural Principles in the Age of Humanism*, p. 27-28.



Figure 3.9. Vitruvian figure, from Francesco Giorgio, detail, *De Harmonia Mundi*, Venice, 1525.

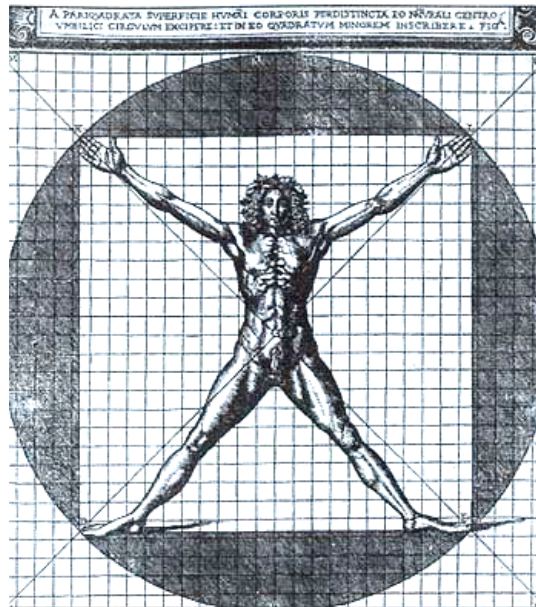


Figure 3.10. Vitruvian figure from Cesariano's *Lucio Vitruvio Pollione de Architectura*, Como, 1521.

In the Renaissance, another analogical approach than can be observed is between musical harmonies and architectural proportions. The idea was the transfer of musical proportions, of the audible to the visible for proper creation (or design).

Music was the source of invisible harmony and it was more valuable for that reason. In fact, it can be interpreted that the devotion to musical harmonies in reality was related to the quest for attainment of perfection in “Form” which corresponds to the Platonic *Idea*, ‘Being’ or to the Absolute Form. Pythagoras observed the proportional relation between the numerical progressions and the musical tone. He discovered that the Greek musical scale depends on the division of a string in certain ratios; 1:2 (octave), 2:3 (fifth), 3:4 (forth), 1:4 (double octave). Musical “consonance” was to be achieved through the properly proportioned division of the strings. If you have two strings exposed to the same degree of tension, and then you divide one of the strings in half of its length, you get a pitch one octave higher in the shorter string than the longer. Accordingly if the length of the strings proportioned in relation to each other as 2:3, the result in the difference of pitch is a “fifth,” if proportion is 3:4, than the difference is “forth” and if it is “1:4” than the difference is called a “double octave.”¹³⁰

Pythagoras’s discovery of the numerical progression of the Greek musical system led the Greeks to think that such a numerical relationship manifests the harmonic structure of the universe. Similarly the architects of the Renaissance returned to the Greek sources that mediated on mathematical system of proportions.

Moreover, Plato’s “theory of Forms” ordained on the basis of how the universe was composed and how to reach to the levels of divine creation shaped the renaissance and later western approach to the concept of “form” and “proportion.” Rudolf Wittkower claimed,

Plato, in his *Timaeus*, expounded a geometrical theory which was no less influential. He postulated that certain simple figures of plane geometry were the basic stuff of which the universe was composed. I have no doubt that it was mainly owing to Plato’s never-forgotten cosmological theory that such figures as the equilateral triangle, the right-angled isosceles

130 John Boyd-Brent, “Pythagoras: Music and Space,” in *About Scotland Arts Pages* [online], [cited 11 July 2004]; available from World Wide Web: (<http://www.aboutscotland.com/harmony/prop.html>).

triangle, and the square were charged with a deep significance and played such an important part in the Western approach to proportion.¹³¹

Just as the ancient Greeks believed that the achievement of satisfaction came with the geometry, Renaissance architects believed that architecture should be composed of mathematics, translated into spatial units. They decided on the dimensions of a room, a façade or even an entire plan, according to the rules they developed by combining Pythagoras' theory of means with the ratios of the intervals of the Greek musical scale. Wittkower suggests looking at Alberti and Palladio to understand the influence of the Greek musical scale on architectural proportion of the Renaissance in theory and practice.¹³²

In his *The Ten Books of Architecture*¹³³ in Chapter VI, Leon Batista Alberti (1404-1472) develops the relationship between the proportions of numbers and the measuring of areas.¹³⁴ Vitruvius' comprehensive architectural treatise constituted a referent for other architectural treatises including Alberti. Alberti, who was a Renaissance architect, reinterpreted the classical rules derived from antiquity in his architectural work with his use of the proportion.¹³⁵ Vitruvius had suggested, "Beauty consists in the harmony of proper proportions."¹³⁶

As Wittkower writes, like Vitruvius, Alberti gives a mathematical definition of Beauty:

131 Rudolph Wittkower, "Le Corbusier's Modulor," in *Four Great Makers of Modern Architecture: Gropius, Le Corbusier, Mies van der Rohe, Wright* (New York, Da Capo Press, 1970), p.199. The verbatim record of a symposium held at the School of Architecture, Columbia University, March-May, 1961.

132 Rudolph Wittkower, *Architectural Principles in the Age of Humanism* (London, A. Tiranti; New York, Random House, 1962), p.107

133 Leon Battista Alberti, *Ten Books on Architecture*, ed. Joseph Rykwert, trans. into Italian by Cosimo Bartoli, into English by James Leoni (London, A. Tiranti, 1955).

134 John Boyd-Brent, "Alberti: Harmony and Proportion," in About Scotland Arts Pages [online], [cited 11 July 2004]; available from World Wide Web: (<http://www.aboutscotland.com/harmony/prop2.html>).

135 Ibid.; Wittkower, *Architectural Principles in the Age of Humanism*, 1962.

136 Jale N. Erzen, "Renaissance," class notes from *ARCH 122: Introduction to Architecture*, Spring 1997-98. Professor Jale N. Erzen, Middle East Technical University, Ankara, Turkey. A copy of this article is in the author's possession and may be consulted by contacting the author at erzen@arch.metu.edu.tr

According to Alberti's well-known mathematical definition, based on Vitruvius, beauty consists in a rational integration of the proportions of all the parts of a building in such a way that every part has its absolutely fixed size and shape and nothing could be added or taken away without destroying the harmony of the whole.¹³⁷

Wittkower goes on to state that Alberti in the light of this definition describes the character of the architecture and especially the ideal churches:

This conformity of ratios and correspondence of all the parts, this organic geometry should be observed in every building but above all in churches. We may now conclude that no geometrical form is more apt to fulfill this demand than the circle or forms deriving from it. In such centralized plans the geometrical pattern will appear absolute, immutable, static, and entirely lucid. Without the organic geometrical equilibrium where all the parts are harmonically related like the members of a body, divinity cannot reveal itself.¹³⁸

Alberti had believed that best forms for the design of the church were of these basic forms, first circle and then came other forms derived from circle such as, square. He believed that nature loves the round form. Alberti mathematically divided the façade of the church Santa Maria Novella, in Florence, out of a single square where proportions 1/1, 1/2, 1/4 has been used. Alberti's work depends on mathematical relations (fig.3.11, fig 3.12).

Roman architect Vitruvius' belief that temples should reflect the divinely ordained human proportions of the human body influenced the artists and the architects of the Renaissance and laid the foundation of the Renaissance canon of proportion. Leonardo drew his well-known man (fig.3.8). Although the plan of a conventional church is the shape of a crucifix, Donato Bramante (1444-1514), Italian Renaissance architect and painter, reviving this belief, in his centrally designed church S. Maria della Consolazione (fig.3.14, fig.3.15) at Todi, Umbria, Italy, used circle to reflect (symbolize) God's transcendental perfection.¹³⁹ Ideal form had a peculiar importance and the artistic ideals came before "functionality." This is the "formalist" attitude in design with an over preoccupation with form,

137 Wittkower, *Architectural Principles in the Age of Humanism*, 1962, p.7.

138 Ibid., p.7.

139 Andrew Graham-Dixon, "Renaissance: Apocalypse IV," in the BBC's documentary *Renaissance* (composed of six parts), writ. and narr. by Andrew Graham-Dixon, prod. and dir. Roger Parsons (BBC Worldwide Ltd, 1999.), television series.

which is basically arrived at by an aesthetics related to the traditional, or the natural. In the church's design, no organic relationships existed between the elements, where we see an additive compositional principle and a closed structure. The building is characterized by its five majestic domes and was built between 1509 and 1607.



Figure 3.11. Alberti, S. Maria Novella, Florence.

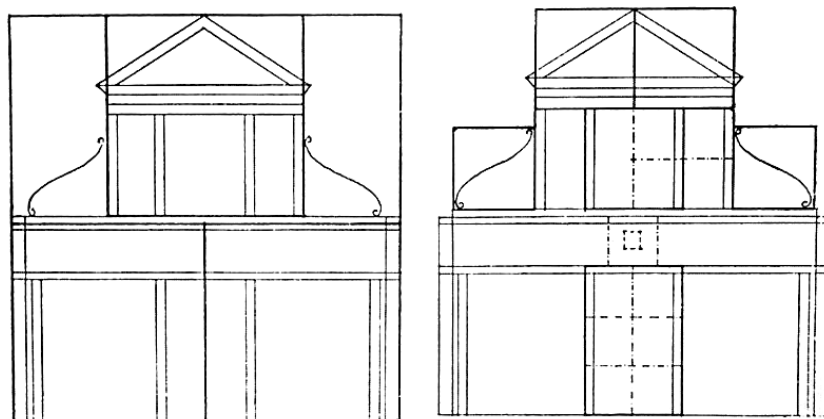


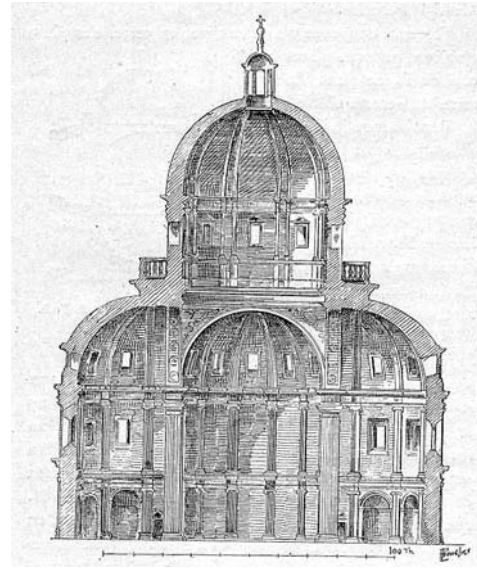
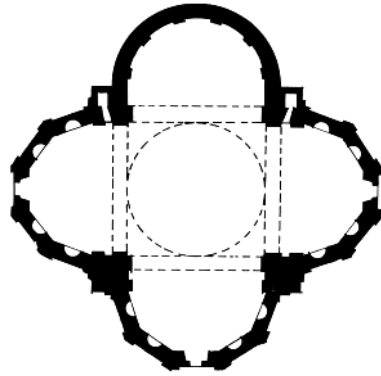
Figure 3.12. Diagrams of the façade of S. Maria Novella, Florence.



Figure 3.13. Leonardo da Vinci, designs of centralized buildings, pen and ink on paper.



3.14. Donato Bramante, S. Maria della Consolazione, Todi, 1504.



3.15. Plan *above left*, and section *right*, of S. Maria della Consolazione, Todi, 1504.

The Pythagorean concept “all is number”¹⁴⁰ and some mathematical relationships representing the structure of the universe led to the discovery and the application of mathematical system of proportions. The *golden section* is said to be one of these relationships that have been in use since the time of antiquity. However, Albert van der Schoot has contested the idea as regards the importance of golden section in architecture. He has argued that golden section was rather an irrational proportion to be used by the Renaissance artists and architects.

The golden section can be geometrically defined as a line that is divided into two unequal lines so that the ratio of the lesser portion to the greater and the greater to the whole is a constant; 1.618, the golden ratio. The golden rectangle is the rectangle whose length of its sides when proportioned gives the golden ratio. The golden section offers a potential possibility for the geometric growth. It is said that

140 See Rudolph Wittkower, *Architectural Principles in the Age of Humanism* (London, A. Tiranti; New York, Random House, 1962), p.27.

the representatives of the modern architecture have also used the mean, golden section.

Albert van der Schoot at the very beginning of his paper “Rationality and Irrationality in Architecture” writes,

Vitruvius, source of inspiration for many generations of architects, leaves no doubt about it: temple-building is a serious matter, subject to rules and regulations of many kinds. Among the primary assignments of the architect worthy of the lofty task of building a house for the gods is the duty to make sure that the measurements of his work can be rationally accounted for. The concept of rationality, which Vitruvius has in mind here, is primarily a mathematical one. It implies that the *ratio*, the *logos* of the walls and the doors should come to the fore. The composition of temples comes into being from *symmetry*, says Vitruvius, and architects have to stick carefully to the ratio of that symmetry. Mathematical rationality (a proportion is rational if its terms can be expressed as integers) goes in hand in hand with the intellectual rationality needed to explain why, e.g., in a Dorian temple, the height of a pillar is the sixfold of the thickness of its base.¹⁴¹

Van der Schoot goes on to argue that, “This is the very reason why all those textbooks are wrong which try to convince us that the *golden section* was an important proportion for Renaissance (let alone *classical*) architects. It was not, and it could not have been. It would have been a major flaw in the Vitruvian prescriptions to raise such an irrational proportion as the golden section to the status of standard for architectural measurements. A division according to the golden section (or according to *extreme and mean ratio*, as the classical Euclidean formula has it), is by definition not measurable in terms of integer numbers; it is, in other words, *irrational*, and the mathematical meaning of things term has a transfer to its more quotidian sense.”¹⁴²

Renaissance architecture concentrating exclusively or primarily on formal relations remained largely metaphysical. The architectural works of this tradition could only take restricted form. Renaissance architecture is a good representation of the inability of formalism to take form in reality with its pure metaphysical ideas.

141 Van der Schoot, “Rationality and Irrationality in Architecture,” p.200-201.

142 Ibid., p.201.

3.1.6 Baroque

Baroque age took place between the styles, the Renaissance and the new classicism that emerged in the second half of the eighteenth century.¹⁴³ Beginning from 1520's, architects started to break the rules of the antiquity. The culture of the Renaissance was transforming into a multitude of forms.¹⁴⁴

The Renaissance architecture followed the rules established by ancient theories, which were the models, and the result was the development of a formal discipline. It is interesting that Baroque style growing out of this tradition stood up against the quest for the formal expression of 'the eternal truth' in the appearance of pure formal perfectness, creating an individualistic, dynamic, flexible space understanding (style) welcoming originality, individualism and freedom in design. The formal nature of the former style is fought against with the conscious strive for "dissolving" it. Heinrich Wölfflin, for example, welcomed baroque as an "artistic sensibility"¹⁴⁵ and he saw in baroque the disappearance or the loosening of "the habit of seeing the divine in every suggestion of antiquity"¹⁴⁶. The crown of the "man" seems to have been shaken up.

Baroque architecture is significant for this study due to several reasons. First for its working out the themes, "motion" and "movement," and also for indicating a mode of resistance to the well-defined, finite static idealized form conception of renaissance turning architectural form into a dynamic and playful space experiment and doing it in the limits of the Cartesian system (space).

143 This Classical Revivalism, in 1760s we came across, can be defined as the rebirth of the classical era.

144 Andrew Graham-Dixon, "The End of The Renaissance VI," in the BBC's documentary *Renaissance* (composed of six parts), writ. and narr. by Andrew Graham-Dixon, prod. and dir. Roger Parsons (BBC Worldwide Ltd, 1999.), television series.

145 Heinrich Wölfflin, *Renaissance and Baroque*, trans. Kathrin Simon (Cornell University Press, 1967), p.25.

146 *Ibid.*, p.24.

Ratcliff, as a writer and critic believes that both the classical and the Baroque show a character of good composition and he seems not satisfied with baroque's success in escaping from the classical ideals. He writes, "Yet the "classical" and the "Baroque" share an underlying structure. And the standards of the good composition have evolved little in the past three hundred and fifty years. Because so much else, from technique to subject matter, has changed so drastically since the 1600s, this is easy to overlook."¹⁴⁷ Yet these remarks prove what has Wollheim come to realize while discussing a possible way to differentiate between the formal from the non-formal features of a painting. He writes,

If I allow that an operation for separating off the formal from the non-formal features of a painting could prove to be intuitively plausible, why did I not allow that there might be an intuitively plausible way of distinguishing between a Formalist and a non-Formalist vocabulary? The short answer is that form is basically a perceptual, not a lexical or linguistic, concept. If a vocabulary is Formalist, this can be so only for one reason: that is, because the features of a painting that I will pick out are those which will turn out to interest a Formalist. There cannot be anything inherently Formalist in the vocabulary itself; nor is the question whether a given vocabulary is formalist a matter on which we can have intuitions.¹⁴⁸

It is true that both styles adopted the classical vocabulary and these elements were mainly borrowed from the "classical" architecture of Antiquity.¹⁴⁹ Yet the architecture of the Renaissance and the Baroque used the same basic elements relating them in varying ways. The challenge to formal strict discipline within the system finds its reflection in the change of form. Although both styles aimed at "unity", they differed in their way to achieve it. The outcome of Baroque design was the achievement of complex compositions that made use of geometric forms. But this time unlike Renaissance the forms are so intricately composed that fluid form is the outcome this integration. Motion phenomena in baroque and the means to introduce it, the water element, of dynamic staircases, of the spiral forms are carefully studied. Walls became a uniform mass, softened, and rounded. The

147 Carter Ratcliff, "I Like The Free World," *Artforum* 25, no. 6 (1987): p.81.

148 Richard Wollheim, "On Formalism and Pictorial Organization," *The Journal of Aesthetics and Art Criticism* 59, no.2 (2001): p.129.

149 Ibid., p. 146

concept of motion will also be discussed, in Chapter 5, in relation some contemporary examples, such as Frank O. Gehry's Walt Disney Concert Hall and Foreign Office Architects' Yokohama International Port Terminal.

The representatives of the baroque style and mannerist exemplars contained a certain peculiar attitude towards the issue of form and the invention of new compositional combinations (followed) came after. Mannerism developed out of the Renaissance, yet not favored the quest for the classical solidity, formal perfection, balance and harmony sought by Renaissance. The artists and architects of Mannerist style challenged objectivity, explored subjective effects, and searched for unity and harmony in a genuine and innovative way.

Mannerist style contained a certain peculiar attitude towards the issue of form. Breaking with the formal principles followed during the period, symmetry gives way to diagonal composition. The effects of light and shade are experimented. Severe distortions of perspective and scale, complex compositions are practiced with a playful exaggeration of Renaissance forms.

Although the etymology of the word "Baroque" is not certain, there exist theories. The rough-shaped pearl is one meaning attributed to the name Baroque, shows how the style seemed from the other side as irregular or rather absurd. This attribution rough-shaped pearl, on the other hand, I believe represents perfectness enrolled with imperfection that results with uniqueness, a description very well represents the adherents of the Baroque style who offered a different perspective to the issue of form.

Wölfflin, in the preface of his "Renaissance and Baroque," in his very preliminary statement, introduces the intention of the book as "a contribution to the history of style rather than individual artists and explains his aim as "to investigate the symptoms of decay and perhaps to discover in the 'capriciousness and the return

to chaos' a law which would vouchsafe one an insight into the intimate workings of art.¹⁵⁰

There are some conclusions that can be drawn out of this declaration. The first comment, I believe can be drawn out about the call made to bring about an awareness of an unhistorical bound, dual opposition and the evolution of form that is ruled by this duality. Germain Bazin draws attention to the dual charter of the two opposing principles in Renaissance and Baroque. He comments on Wölfflin's study of the nature of "transition from Renaissance to Baroque," he claims, "the Swiss art critic Heinrich Wölfflin, who in his work *Renaissance und Barock* (1888, revised 1097), was the first critic to refer to the baroque as an independent category, a positive concept contrasted with the Renaissance which had preceded it."¹⁵¹

Bazin writes,

Later, going beyond the concept of the Renaissance, he [Wölfflin] defined the classical position in general (*Die klassische Kunst*, 1898), and in his *Kunstgeschichtliche Grundbegriffe* (1915) he carried his ideas on stage further by treating the notion of the baroque, like that of the classical, as above history, and formulated a theory according to which the evolution of form in art is governed by two opposing principles which have much in common with the Apollonian and Dionysiac principles postulated by Nietzsche in his *Die Geburt der Tragödie* (1870). In aesthetic terms, Wölfflin defines the classical baroque dualism in terms of five pairs of opposites: linear and pictorial; plane and depth; closed form and open form; form which weighs down and form which takes flight; unity and multiplicity.¹⁵²

Second point to be made is about the character attributed to the Baroque style: chaotic. However since the transformation carried was a conscious one, Baroque style with its consciously carried out transformation achieved the dissolution of one "formal style" into another style with unique character and a so-called "chaotic" one. Certainly where the former style, namely Renaissance,

150 Heinrich Wölfflin, preface to the first edition *Renaissance and Baroque*, trans. Kathrin Simon (Cornell University Press, 1967).

151 Germain Bazin, *The Baroque: Principles, Styles, Modes, Themes*, trans. Pat Wardroper (Greenwich, Conn., New York Graphic Society, 1968), p.16-17. See Heinrich Wölfflin, *Renaissance and Baroque*, trans. Kathrin Simon (Cornell University Press, 1967).

152 Ibid., p.17.

welcomed pure formal appreciations, baroque was there to loosen it. Wölfflin refers Baroque as “progression from a strict to a ‘free and painterly’ style, from the formed to the formless,”¹⁵³ and basically as the “dissolution” of a formal style. He adds, “The spell of formlessness was beginning to work.”¹⁵⁴

As regards Baroque Wölfflin wrote,

The aim of the painterly style is to create an illusion of movement; its first element is composition in terms of areas of light and shade, its second is what I should call the *dissolution of the regular*, a free style or one of painterly disorder. What is regular is dead, without movement, unpainterly.¹⁵⁵

Wölfflin defines unpainterly, what baroque style successfully opposed, in three steps. Unpainterly is the straight line and flat surface, a rhythmic suggestion and finally as the symmetrical composition.

I believe the concepts introduced by the Baroque style, which affects the change in the strict formal qualities carry importance. The introduction of the notion of “motion” (or “movement”) should be exemplified.

The greatest founder and forerunner of the Mannerist style was Michelangelo. Oval form used for the first time by Michelangelo in his work; Piazza del Campidoglio (fig.3.16, fig.3.17). Oval form is a dynamic form free from a single center, with two focal points it suggests movement. Staircase is also used as a dynamic element.

153 Wölfflin, *Renaissance and Baroque*, p. 15.

154 Ibid. p.23.

155 Ibid.p. 32.



Figure 3.16. Michelangelo Buonarroti, Piazza del Campidoglio, general view, Rome, 1538 to 1584.

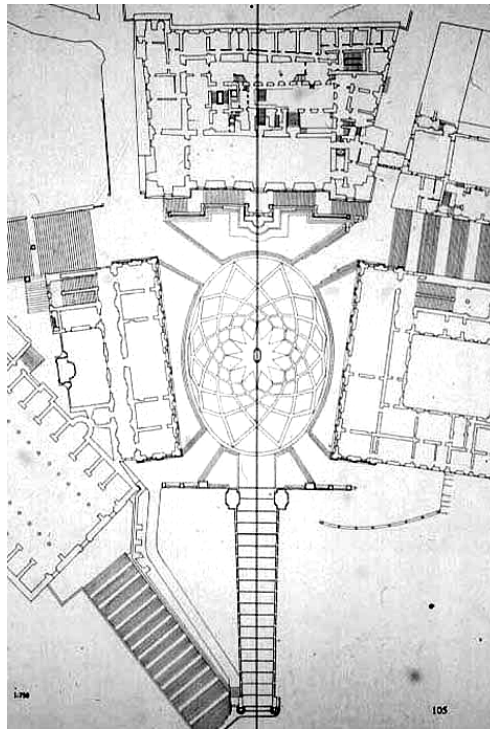


Figure 3.17. Piazza del Campidoglio, plan of buildings.

Oval form also had started to be seen in church plans, such as in Bernini's, Church of San Ancheal al Quirinale. Raphael, an early mannerist breaks with the rules of classicism later moving towards the mannerist side.



Figure 3.18. Francesco Borromini, S. Carlo alle Quattro Fontane, front and corner, Rome, Italy.

Francesco Borromini's S. Carlo alle Quattro Fontane (fig.3.18 and fig.3.19) also known as S. Carlino constitutes a good example of the baroque style in Rome. It is composed of 5 oval forms merging into each other forming a concave convex dynamic façade undulation. Borromini, altering the traditional formal compositional understanding, created architectural compositions, which were the result of "the

contrast between convention and freedom.”¹⁵⁶ Walls are no longer static but showing a dynamic character and suggesting movement.



Figure 3.19. San Carlo alle Quattro Fontane, view upward into oval dome.

The oval medallion on the facade over the entablature, dissolution of the corner, the concave and convex undulating, lively façade form are the exemplars of the transformation of the classical system of Greek and Roman architecture.

Sacred wood by Pier Francesco “Vicino” Orsini is a Baroque garden (fig.3.20, fig.3.21). Leaning house, which looks like falling down in fact, indicates the fall of the Renaissance culture. Andrew Graham-Dixon while commenting on the garden observes here in the garden Sacred Wood, “Art no longer imitates

¹⁵⁶ Francesco Borromini’s S. Carlo alle Quattro Fontane, [online] ([cited 29 October 2004]); available from World Wide Web:([http:// greatbuildings.com](http://greatbuildings.com)).

nature, but tries to triumph over it.”¹⁵⁷” The presence of grotesque images is significant.



Figure 3.20. Pier Francesco Vicino Orsini, Sacred Wood, leaning house, Bomarzo, Italy, 1552.



Figure 3.21. Pier Francesco Vicino Orsini, Sacred Wood, mask or Hades' face, Bomarzo, Italy, 1552.

¹⁵⁷ Andrew Graham-Dixon, “The End of The Renaissance VI,” in the BBC’s documentary *Renaissance* (composed of six parts), writ. and narr. by Andrew Graham-Dixon, prod. and dir. Roger Parsons (BBC Worldwide Ltd, 1999.), television series.

CHAPTER 4

ANTI-FORMALISM: DEFINITION OF TERM

The definition of form, in its general sense, as a totality of relations between the formal features seems incomplete.¹⁵⁸ However, when D'Arcy Wentworth Thompson's formulation is considered, it gets easier to understand the completing character of the nonformal phenomena in the formal arrangement. D'Arcy described form as "diagram of forces." It is possible then, to think form as the result of a process rather than a static or idealized entity, the pre-conceived outcome of a formal intention. D'Arcy Wentworth Thompson writes;

The form, then, of any portion of the matter (of a work of art)...and the changes of form which are apparent in its movements and in its growth (in its development) may in all cases alike be described as due to the action of force. In short, the form of an object is a "*diagram of forces*", in this sense, at least, that from it we can infer or deduce the forces that are acting or have acted upon it: in this strict and particular sense, it is a diagram - in the case of a solid (in the case of a finished work of art) of the forces which *have been* impressed upon it when its conformation was produced ... in the case of a liquid (in the case of a work in progress)...of the forces which *are for the moment* acting on it to restrain or balance its own inherent mobility.¹⁵⁹

158 See for example the definition of art by Georg Kubler, "as a system of formal relations" which is mentioned earlier in the introduction of this study.

159 D.W.Thompson, 1942, *On Growth and Form*, enlarged edn., (Cambridge U. P., 1917), p.16, quoted in David Thistlewood, "Formlessness and Form" in David Thistlewood, 1984, Herbert Read: Formlessness and Form: An Introduction to His Aesthetics, (London Boston: Routledge & K. Paul), p.128

Carter Ratcliff argues,

The authority of science and technology inclines us to believe that just about anything, if examined carefully enough, will show a tracery of cause and effect. Louis Agassiz thought he could detect genetic endowments (causes) by analyzing the physical characteristics of Amazonian fish (effects). Faced with a work of art or a landscape, we assume casually, as 18th-century theoreticians of the picturesque assumed after long deliberation, that certain forms work as causes to produce the effects that we elaborate into esthetic judgments. It's a reductive assumption, one that excludes the influence of cultural tradition and the power of the will to shape perception...Locating events like earthquakes or avalanches in the mind, images like that imply a mechanistic model of cause and effect, stimulus and response.¹⁶⁰

Yet Ratcliff questions, "But what if we're not culturally cued to fit our experience to those stimulus-response patterns? What if we are cued but for some reason refuse to go along? Those questions tend not to come up, for the mechanistic model's application to our looking has become a powerful tradition in the modern West, linking mind and world in patterns that give an air of "scientific" authority to the picturesque. Modernity wants to scientize everything, including pictorial composition."¹⁶¹

As Ratcliff even goes further on to state that, "Images of life off-planet tend to display principles of good composition too, whether subtly or brashly. Look at the scifi picturesque in the new-found lands of the "Star Wars" movies (fig. 4.1)."¹⁶²

It seems that we are culturally and socially bounded with a certain definition of form. Against established approaches that are basically the outcomes of western thinking, which seeks for a possibility of finding a universal order as characterized by symmetry, and a perfect hierarchy between of its parts, that is the proper composition, there are other systems or patterns of *order* that open up different systems of "form" And indeed historically unbound, there have been other minds that have refused to go along with the flaw. If one takes the modern western tradition as exemplar can see that, quest for the "new" together with a search for

160 Ratcliff, "I Like The Free World," p.85.

161 Ibid., p.85.

162 Ibid., p.80.

essential values is the dilemma of modernist culture. Since the idea of the new belongs to an avant-garde sensibility whereas the idea of Absolute values remains to be at its basis classicist. “New” by definition takes its stand against the “normative.” The so-called counter anti-formalist impulse could perhaps be understood as another sensibility that infers a shift, an activity of change, of disorientation where the notions like fragmentation, ethnicity, difference, irregularity, and hybridity have been welcomed.

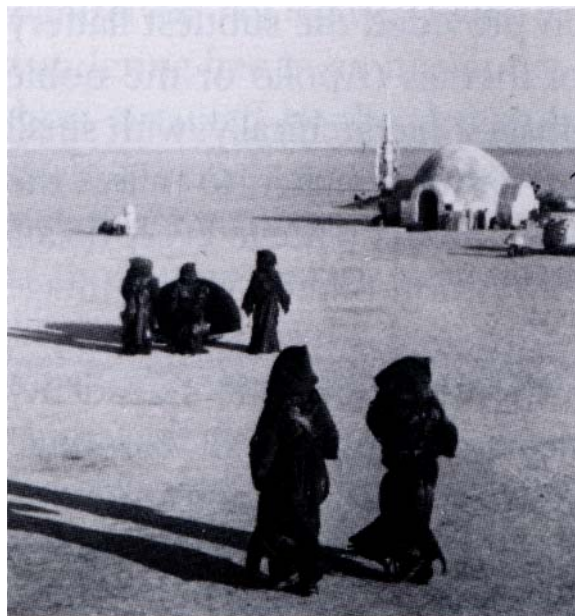


Figure 4.1. George Lucas, *Star Wars: Episode IV - A New Hope*, still from color film 35mm., 121min., Twentieth Century Fox, 1977.

Nick Zangwill, in his essay “In Defense of Extreme Formalism about Inorganic Nature: Reply to Parsons” defines his understanding of anti-formalism. Yet his description takes its place in the formalist grounds. He writes:

Moderate formalism lies between two extremes. On one extreme is extreme formalism, according to which the aesthetic value of something is entirely ‘internal’ to it, in the sense that it does not at all depend on its wider *history* or on its *context*. On the other extreme is anti-formalism, according to which, the aesthetic value of a thing always (or mostly) depends on its history or wider context. The extreme formalist position was advanced (for visual art) by Clive Bell and Roger Fry at the beginning of the Twentieth Century, and (for music) it was advanced by Eduard Hanslick in the middle of the Nineteenth century, but it has not been very popular since then. Anti-formalism dominates contemporary aesthetics, particularly in the USA. (Examples would be Arthur Danto and Kendall Walton.) The right view, I say, falls between these extremes. According to *moderate formalism*, many aesthetic judgments make essential reference to history or context, and many do not.¹⁶³

Zangwill’s description of “moderate formalism” resembles to Dzemedok’s notion of “aesthetic formalism.” Yet how this study defines anti-formalism is quite different than Zangwill’s definition of anti-formalism. Anti-formalism rather indicates a line of thought that seems to realize the potential collapse of the idea of pure reasoning of form. In that sense, Dzemedok’s approach is more comprehensive and closer to the definition that this study is trying to make. Moreover, Zangwill’s approach also tends to stay within the theoretical limits, postulating an idea as limited as the definition of “artistic formalism.”

Anti-formalism, takes its stand against (artistic) formalism, criticizing the reduction of “the artwork’s value to purely aesthetic properties” as Dzemedok puts it¹⁶⁴. It is an attitude, which argues that the nonformal features of an artwork should also participate in the constitution of the work and non-formal features (as Dzemedok also mentions, its material and content aspects, its cognitive, historical,

163 Nick Zangwill, “In Defense of Extreme Formalism about Inorganic Nature: Reply to Parsons,” forthcoming in *British Journal of Aesthetics* (April, 2005) (forthcoming). Nick Zangwill cites: Clive Bell, *Art* (London: Chatto and Windus, 1913); Roger Fry, *Transformations* (London: Chatto and Windus, 1918); Eduard Hanslick, *On the Musically Beautiful* (Indianapolis: Hackett, 1986); Arthur Danto, *The Transfiguration of the Commonplace* (Cambridge, MA: Harvard University Press, 1981); Kendall Walton, “Categories of Art”, *Philosophical Review*, 1970; reprinted in *Aesthetics and the Philosophy of Art*, ed. Peter Lamarque and Stein Olsen (Oxford: Blackwell, 2004). Zangwill develops his definition of moderate formalism in chapters 4-8 of his book, Zangwill cites himself: Nick Zangwill, *The Metaphysics of Beauty* (Ithaca: Cornell University Press, 2001).

164 See the discussion in the Chapter 3 of this study.

or social significance, its context or program, its subject matter or theme) are as important as the formal properties.

For a terminological clarity, it will be suitable (advantageous) to have a comparative look at the terms “formalism” and “anti-formalism,” pointing out at what points they depart from each other. In the very first paragraph of his essay “Artistic Formalism: Its Achievements and Weaknesses,” Dzemidok mentions the “controversy between artistic formalism and anti-formalism.” Dzemidok writes in the following pages,

In the last thirty years of aesthetics, the controversies between formalists and anti-formalists have lost their centrality in the questions of artistic and aesthetic values. There are, however, reasons to believe that, currently, the question of formalism and the related controversies are again becoming more relevant. But, as Marcia Eaton has rightly noticed, “this ‘form and content debate’ has been broadened recently and might be described as the ‘form-context debate.’”

In the nineteenth century and the first half of the twentieth century the controversy raged between the formalists and contentists (Eaton) or, to use Isenberg’s terms, between formalists and representationalist. As Isenberg puts it, the controversy was over which is more important: form or content. At present, on the other hand, when the controversy erupts, the question is whether a work of art should be experienced and appreciated exclusively “as an object in and of itself,” or experienced, interpreted, and valued within a broader (artistic and cultural) context. This is the fourth sense of form I described above.¹⁶⁵

The approach to form in anti-formalist arguments in this study stands against this fourth sense of form. Further in the following pages of the essay, referring to the nature of anti-formalist theory Dzemidok writes, “Questioning artistic formalism has recently become relevant amidst the emergences of theories which – while defending the cultural nature of art and recognizing the relevance of the historical and social context of its existence and while arguing for the relevance of the cognitive significance of artworks, and protesting against reducing the artwork’s value to its purely aesthetic properties – question formalism both in its traditional and its modernized (isolationist) forms.”¹⁶⁶ David Pole, Noël Carroll, and

165 Dzemidok, “Artistic Formalism: Its Achievements and Weaknesses,” p.186-187.

166 Ibid., p.187.

Misiewicz, as Dzemiđok mentions, are the representatives of this pluralist point of view.

As Dzemiđok argues, “Anti-formalists, however, such as Witkiewicz’s chief opponent Karol Irzykowski, are of the opinion that, in evaluating a work of art, we not only are allowed to, but also should, take into consideration not only the formal properties of a work of art but also such elements as the ideas contained in the work, emotional expressiveness, the fidelity to the represented external reality (in case of representational art), the depth of insight into, and analysis of, the moral and psychological problems of man. In the reception and evaluation of an artwork, we are unable, and we do not need to, limit ourselves to appreciation of its formal properties: of interest are also its possible cognitive and moral merits.”¹⁶⁷ Besides the evaluation of the works of art, this argument should also hold true for the realization of the works of art.

It is at this point that Dzemiđok differentiates between artistic and aesthetic formalism. In that sense, anti-formalist position, standing against artistic formalism, seems to be among the opponents, which promotes the need for a differentiation between the artistic and the aesthetic formalism.

He adds, “Consequently, formalism contributed also to the development, and increasing sophistication, of anti-formalist (cognitivist, representationalist, emotionalist, culturalist, etc.) conceptions of art and art values. As can be seen in simple comparison of anti-formalist theories of the second half of the twentieth century and their nineteenth-century predecessors, a need for re-thinking formalist arguments resulted in a greater sophistication of such theories.”¹⁶⁸

As regards anti-formalism, Dzemiđok explains; “Contemporary anti-formalism is much more moderate and does not ignore or negate the significance of the formal aspects of artworks. Contemporary anti-formalists reject only the

¹⁶⁷ Ibid., 187.

¹⁶⁸ Ibid., p.190.

tendency toward absolutization of the formal aspects of artworks and the claims of radical formalism which postulate that (a) the extraformal (substantive, cognitive, philosophical, historical, etc.) aspects are absolutely irrelevant to the artistic value of an artwork and that (b) application of any nonformal criteria of valuation is unjustified.”¹⁶⁹

Anti-formalist views, on the contrary, claim the relevancy of the “extraformal” features in the valuation of a work of art. And in fact architecture is an art form where the “extraformal” aspects are most evident.

Anti-formalism, or in other saying “formless,” as explored does not stand for “without form” or “shapeless.”¹⁷⁰ In the same way, it is quite clear that it is not possible to reach to a formless content in architectural practice. However as a tendency in art, Carter Ratcliff defines formless as the “composition as the west has known it since the Renaissance appears even in the Italian painting of the ’50s known as *l’informale*. The word sounds like English “informal” – that is, “casual” – but it actually means “unformal,” lacking form.”¹⁷¹ He adds, “Obviously no painting can lack form completely, yet painters can eliminate from their work the formal relationships that establish pictorial order. *L’informale* presents the spectacle of painters like Giulio Turcano, Ennio Morlotti, Leone Pancaldi, and a few others trying to follow Pollock and Barnett Newman as those two painters traveled toward open zones beyond the reach of composition.”¹⁷² He writes, “...The French equivalent to *l’informale* was *l’informel*, also known as *tachisme*, a style whose practitioners could bring themselves to offer only the archest of allusions to spontaneity... The French often feel a particularly acute distress when a spectacle, in the world or in art, does not look properly composed.”¹⁷³

169 Dzemidok, “Artistic Formalism: Its Achievements and Weaknesses,” p.190.

170 The dictionary definitions of the term “formless,” as an adjective, in general usage is “without form: shapeless.” The New International Webster’s Dictionary and Thesaurus, encyclopedic ed., s.v. “formless.”

171 Ratcliff, “I Like The Free World,” p.81.

172 Ibid., p.81.

173 Ibid., p.81

According to some art critics Jackson Pollock is one of the exemplars of the movement, *l'informale*.¹⁷⁴ Pollock, with his drip paintings (fig. 4.2), was able to recover process and hold on to it as part of the end form of the work. The process helped him to go beyond the personalization of the hand to the more direct revelation of matter itself.



Figure 4.2. Jackson Pollock, Full Fathom Five, detail, oil on canvas with nails, tacks, buttons, coins, cigarettes, etc., 129 cm x 76.5 cm, 1947.

Pollock's work was a radical break in pictorial practice soon to take the attention of the Minimalist artists including Robert Morris.¹⁷⁵ As Robert Pincus-Witten writes, on the account of one of her art pieces, which was described "as an

174 See Yve-Alain Bois and Rosalind E. Krauss, in the preface of *Formless: A User's Guide* (New York, Zone Books : MIT Press, 1997), p.9.

175 See Robert Morris, "Anti Form," in *Continuous Project Altered Daily: The Writings of Robert Morris* (London: MIT Press, 1993), p.41-49.

unfinished work,”¹⁷⁶ Eva Hesse said, “this piece is very ordered...Chaos can be as structured as non-chaos. That we know from Jackson Pollock.”¹⁷⁷

Anti-formalism is the product of attempts for a process of re-formulations of order, challenging the idea of a pure, timeless, unchangeable, inert, ideal form understanding. And in fact Piranesi’s rejection of “good composition” constitutes, in that sense, a significant example. His struggle was against the established order.

I think it is important to say something about Classical and Romantic styles. Unlike classicists who saw the cosmic order, when looking at nature what romantics saw was disorder and chaos. Personal values came before any rules or standards. Romantic style challenged the norms, in that sense challenged the formalistic approaches too.

The ideal of the classic style was to achieve a universal objectivity with the establishment (prosecution) of permanent values and strive for the universal truths. Idealization and perfection shaped the classical idea of beautiful. We came across with a definition of beauty that is the product of the rules, norms and standards ordered after the perfect. Beauty of form owes to and is very much regulated by the rules of proportion and harmony. (Form was seen to be a tool. To come to the desired external expression) Artistic creation was canonical with the use of number and it was based on imitation of the earlier examples brought with the tradition that made use of the ideal types.

Elementary forms mixed with “orders” and applied with their clear-cut simple yet well-ordered and precise characters. Symmetry and the use of axes ended

176 Robert Pincus-Witten, *Postminimalism into Maximalism: American Art, 1966-1986* (Mich.: UMI Research Press, 1987), p.57.

177 Ibid., p.57.

up with a “mechanical unity”¹⁷⁸. External form is decided at the first stage of the architectural design; we observe a deductive composition.

The romantic style, with its use of intricate forms, on the other hand, in terms of architectural composition and form demonstrates a quite different approach compared to classical style. The beautiful was the outcome of artistic creation; yet it was sublime beauty that produced irregular, complex, playful, surprising and explosive effects. The pre-determined form leaves its place into a (picturesque) composition attained with aid of “the inductive method” where a form inside-out composition prosecuted. The result is the “organic unity”¹⁷⁹ which exhibits dynamism and picturesque groupings.

Romantic movement flourished against the principles of Neo-classicism in late 18th century in Europe. Piranesi can be considered as early “romantic” working in the 18th century. Yet Piranesi, as a figure, should be seen as late baroque or not fitting to any style. Giovanni Battista Piranesi (1720-1778), also called Giambattista Piranesi, had an ambiguous look towards space and the ‘formal composition’ in architecture. Piranesi reveals the potential that chaotic behavior may possess and attempts for a process of reformulations of order. His well know series, *Carceri*, or Prisons, consisted of 14 plates. As opposed to classicists, employing the traditional orders of architecture, Piranesi’s *Carceri*, shows a unique, innovative character in both form and content (fig. 4.3). Elusiveness of the resolved forms loosely structures the seemingly irrational pictorial composition.

The forms and the spatial inventions in Piranesi’s labyrinthine atmosphere, are far from being a representation of a perfect arrangement of forms, they are, in fact, in flux with no trace of the Vitruvian principles, proportioning and harmonical understanding. John Wilton-Ely in his book on Piranesi puts it as rather the “display

178 Tansel Korkmaz, “Classical vs. Romantic,” class notes from *ARCH 122: Introduction to Architecture*, Spring 1997-98., Middle East Technical University, Ankara, Turkey. A copy of this article is in the author’s possession.

179 Ibid.

of anti Vitruvian forms.”¹⁸⁰ He goes on to say that “...it was Piranesi’s dissatisfaction with conventional modes of Classical design established by the Renaissance which the *Carceri* first revealed, and which was to introduce a new formal language as the 1750s came to a close.”¹⁸¹

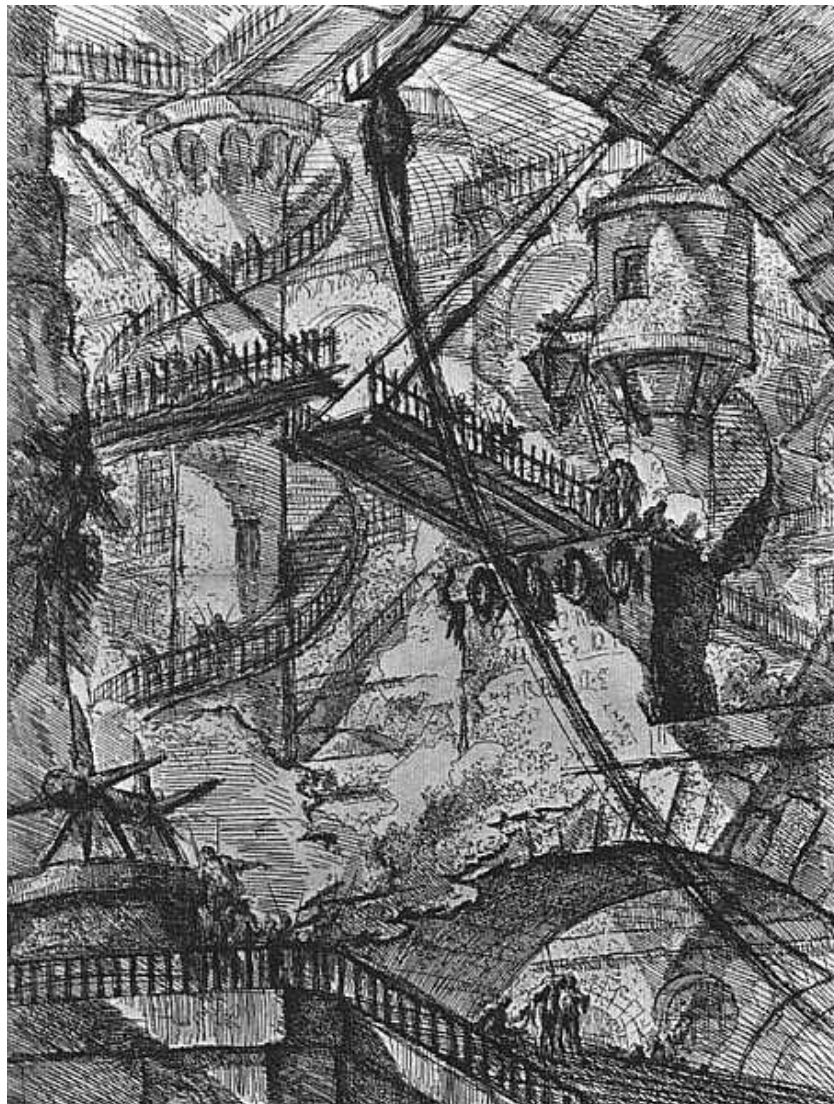


Figure 4.3. Giovanni Battista Piranesi, *Carceri*, The Prisons, plate VII, 1st state, etching, 1760.

180 John Wilton-Ely, *The Mind and Art of Giovanni Battista Piranesi* (London : Thames and Hudson, 1978), p.85.

181 *Ibid.*, p.85.

CHAPTER 5

ARGUMENTS AND NEW CONCEPTIONS

5.1 Dynamic Symmetry

The dual character of the notions “formalism” and “anti-formalism,” in Jay Hambidge’s approach shows itself as the duality of the “classical formalism” vs. “organicism.” Outward expression takes the form of imitation using the referents that are anthropometric/ organic features, that is human or the plants.

Jay Hambidge in his book *The Elements of Dynamic Symmetry* describes the Static and Dynamic Symmetry, differentiates between the two symmetries and discusses the sources for the study of Dynamic Symmetry. He praises the “Dynamic Symmetry” to be superior to the “Static Symmetry” since he claims, “the basic principles underlying the greatest art so far produced in the world may be found in the proportions of the human figure and in the growing plant” and the dynamic symmetry is the symmetry whose principles of design to be found in the architecture of man and of plants.”¹⁸²

¹⁸² Jay Hambidge, introduction to *The Elements of Dynamic Symmetry* (New York, Dover Publications, 1967), p.xi.

Static Symmetry, Hambidge defines is “a symmetry which has a sort of fixed entity or state. It is the orderly arrangement of units of form about a center or plane as in the crystal.”¹⁸³ He gives a snow crystal as an example (fig. 5.1). He marks the static symmetry as “the spontaneous type”¹⁸⁴ referring the possibility of its use by an artist or craftsman unconsciously.

Hambidge writes, “Static Symmetry, as used by the Copts, Byzantines, Saracens, Mahomedans and the Gothic and Renaissance designers, was based upon the pattern properties of the regular two-dimensional figures such as the square and the equilateral triangle. The static symmetry used by the Greeks, before they obtained knowledge of dynamic symmetry, depended upon an area being divided into even multiple parts, such as square and a half, three-quarters, one-quarter, one-third, two-thirds, etc.”¹⁸⁵

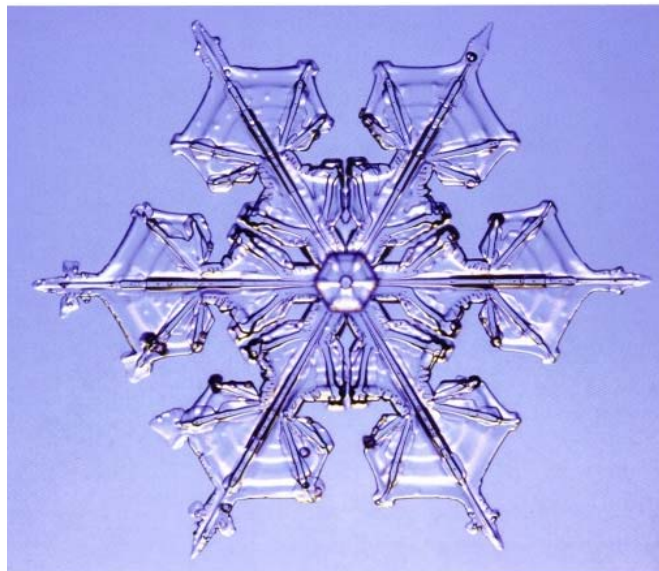


Figure 5.1. Photograph of a snowflake.

183 Ibid., p.xiii.

184 Ibid. p.xiii.

185 Ibid., p.xiii.

The Egyptians and the Greeks used dynamic symmetry. Hambidge argues, "According to Vitruvius the Greeks learned symmetry from the human figure and were most particular in applying it to their works of art, especially to their temples. This however, is not more reliable than other Vitruvian statements. The roman architect had no knowledge of symmetry beyond a crude form of the static."¹⁸⁶

In that sense, dynamic symmetry in nature, Hambidge describes, "is the type of orderly arrangement of members of an organism such as we find in a shell or the adjustment of leaves on a plant. There is a great difference between this and the static type. The dynamic is a symmetry suggestive of life and movement."¹⁸⁷

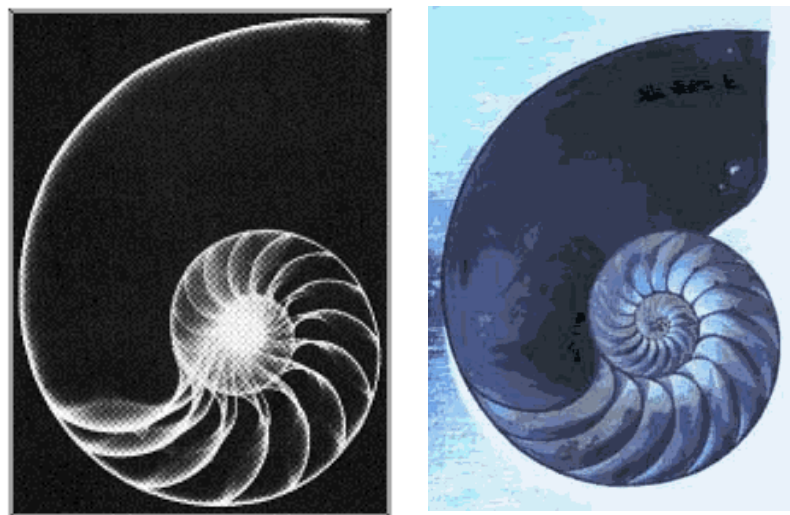


Figure 5.2. Nautilus Shells (Equiangular Spiral)¹⁸⁸

186 Ibid., p.xv.

187 Ibid., p.xv.

188 In 1638, Rene Descartes (1596-1650), during the study of dynamics, developed the equation for the "equiangular spiral" also known as the "logarithmic spiral", or "golden spiral." Later, Jakob Bernoulli (1654-1705) conducted extensive investigations on the subject. This spiral is called "equiangular spiral" since any radius vector drawn from the center O to any point on the spiral makes the same angle with the curve. This spiral utilizes the Fibonacci numbers, the Golden Ratio, and the recursion method that is widely used in computer science. The polar equation for the equiangular spiral curve is $r = ae^{\theta \cot b}$, unlike the "Spiral of Archimedes" which is referred as "a growth that just adds" that has the form: $r = a\theta$ equiangular curve occurs in nature, where the growth of an organism is proportional to the size of the organism, for example with the Nautilus shells.

Hambidge argues, “Its great value to design lies in its power of transition or movement from one to another, in the system. It produces the only perfect modulating process in any of the arts. This symmetry cannot be used unconsciously although many of its shapes are approximated by designers of great native ability whose sense of form is highly developed. It is the symmetry of man and plants, and the phenomenon of our reaction to classic Greek art and to certain fine forms of other art is probably due to our subconscious feeling of the presence of the beautiful shapes of this symmetry.”¹⁸⁹

Leonardo of Pisa (1170-1250), is known as Fibonacci and the following numbers are known as the “Fibonacci series”: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, ...

Golden ratio is the value arrived at by taking the ratio of successive terms in the Fibonacci series. If any two consecutive numbers in the sequence are taken and the larger number is divided by the smaller, the result is very close to the Golden Ratio. Example: $13/8=1.625$ and $89/55=1.6181818$ etc.

The hidden humanism is quite clear behind Hambidge’s argument. Yet he goes beyond the definition of classical formalism. Suggesting organicism in opposition to classical formalism. In that sense being a formalist, Hambidge contributes to later arguments, which suggests a more dynamic approach in the process of the realization of form. In fact, the study of mathematical properties of the dynamic symmetry seems to feed the studies on the realization of the possibility of the concept: fractals.

¹⁸⁹ Hambidge, *The Elements of Dynamic Symmetry*, 1967, p.xvi.

5.2 Fractals

The Polish mathematician Benoit Mandelbrot had doubted that the Euclidean geometry was not enough to describe every object. Mandelbrot is known as a pioneer of chaos theory and fractal geometry. He conceived, developed, and applied fractal geometry that is used in order to find “order” in seemingly erratic shapes or processes. His *The Fractal Geometry of Nature* was published in 1977 and the “Mandelbrot set” (fig.5.3) was defined in the year 1980 named after Mandelbrot himself as a well-known fractal object.¹⁹⁰

Benoit Mandelbrot starts the very first page of his famous book *The Fractal Geometry of Nature* saying that: “More generally, I claim that many patterns of Nature are so irregular and fragmented, that, compared with *Euclid* – a term used in this work to denote all of standard geometry- Nature exhibits not simply a higher degree but an altogether different level of complexity. The number of distinct scales of length of natural patterns is for all practical purposes infinite.”¹⁹¹

Mandelbrot continues,

The existence of these patterns challenges us to study those forms that Euclid leaves aside as being “formless”, to investigate the morphology of the “amorphous.” Mathematicians have disdained this challenge, however, and have increasingly chosen to flee from nature by devising theories unrelated to anything we can see or feel.

Responding to this challenge, I conceived and developed a new geometry of nature and implemented its use in a number of diverse fields. It describes many of the irregular and fragmented patterns around us, and leads to full-fledged theories, by identifying a family of shapes I call *fractals*. The most useful fractals involve *chance* and both their regularities and their irregularities are statistical. Also, the shapes described here tend to be *scaling*, implying that the degree of their irregularity and/or fragmentation is identical at all scales.¹⁹²

190 Philip's Science and Technology Encyclopedia, ed. Steve Luck, s.v. “Mandelbrot.”

191 Benoit Mandelbrot, *The Fractal Geometry of Nature* (W H Freeman and Co., 1982), p.1

192 Ibid., p.1.

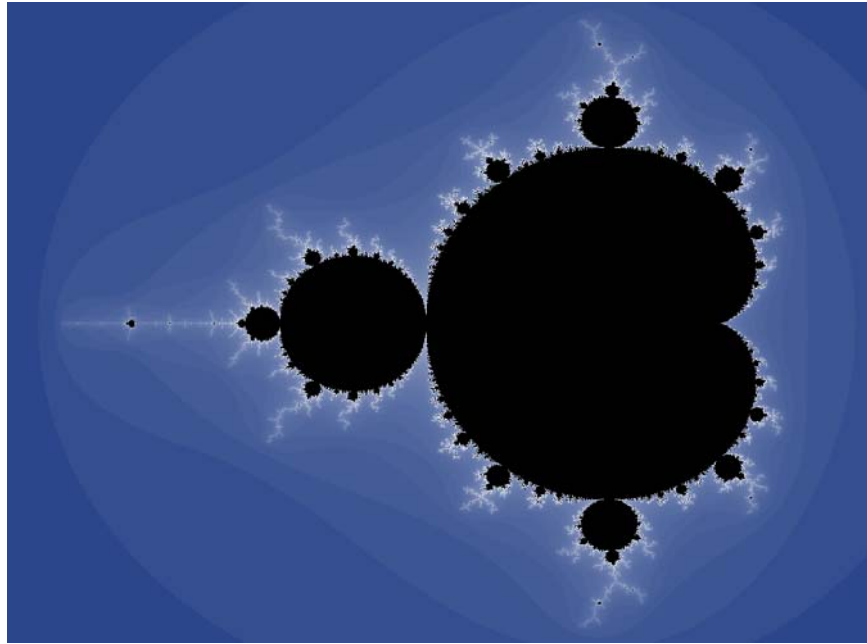


Figure 5.3. Mandelbrot set, by Benoit Mandelbrot. It is a set that refers both to a general class of fractal sets and to a particular instance of such a set.

F.J.Dyson very clearly summarizes the theme of Mandelbrot:

Fractal is a word invented by Mandelbrot to bring together under one heading a large class of objects that have [played]...an historical role...in the development of pure mathematics. A great revolution of ideas separates the classical mathematics of the 19th century from the modern mathematics of the 20th. Classical mathematics had its roots in the regular geometric structures of Euclid and the continuously evolving dynamics of Newton. Modern mathematics began with Cantor's set theory and Peano's space-filling curve. Historically, the revolution was forced by the discovery of mathematical structures that did not fit the patterns of Euclid and Newton. These new structures were regarded...as "pathological," ...as a "gallery of monsters," kin to the cubist painting and atonal music that were upsetting established standards of taste in the arts at about the same time. The mathematicians who created the monsters regarded them as important in showing that the world of pure mathematics contains a richness of possibilities going far beyond the simple structures that they saw in Nature. Twentieth-century mathematics flowered in the belief that it had transcended completely the limitations imposed by its natural origins.¹⁹³

The term fractal literally stands for “a geometric pattern that is repeated at ever smaller scales to produce irregular shapes and surfaces that cannot be

¹⁹³ Ibid., p.3.

represented by classical geometry. Fractals are used especially in computer modeling of irregular patterns and structures in nature.”¹⁹⁴

Fractal geometry is also associated with *chaos theory*. It is interesting that with the advances in mathematics and technology chaos acquired a different meaning than it does in its general usage. As it is described, “Although chaos is often thought to refer to randomness and lack of order, it is more accurate to think of it as an *apparent* randomness that results from complex systems and interactions among systems.”¹⁹⁵ Moreover, “Chaos, with reference to *chaos theory*, refers to an apparent lack of order in a system that nevertheless obeys particular laws or rules; this understanding of chaos is synonymous with *dynamical instability*, a condition discovered by the physicist Henri Poincaré in the early 20th century that refers to an inherent lack of predictability in some physical systems. The two main components of chaos theory are the ideas that systems - no matter how complex they may be - rely upon an underlying order, and that very simple or small systems and events can cause very complex behaviors or events. This latter idea is known as *sensitive dependence on initial conditions*, a circumstance discovered by Edward Lorenz (who is generally credited as the first experimenter in the area of chaos) in the early 1960s.”¹⁹⁶

In that sense *chaos theory* defines the two terms *chaos* and *order* not to be distinct, underlying a possible relation between the two terms.

According to James Gleick, author of *Chaos: Making a New Science*, *chaos theory* is “a revolution not of technology, like the laser revolution or the computer revolution, but a revolution of ideas. This revolution began with a set of ideas having to do with disorder in nature: from turbulence in fluids, to the erratic flows

194 The American Heritage Dictionary, 4th ed., s.v. “fractal.”

195 “Chaos Theory” [online], [cited 29 October 2004]; available from World Wide Web: (http://whatis.techtarget.com/definition/0,,sid9_gci759332,00.html)

196 Ibid.

of epidemics, to the arrhythmic writhing of a human heart in the moments before death. It has continued with an even broader set of ideas that might be better classified under the rubric of complexity.”¹⁹⁷

Interestingly, complexity is defined in science as “field of study devoted to the process of self-organization. The basic concept of complexity is that all things tend to organize themselves into patterns, e.g., ant colonies, immune systems, and human cultures; further, they go through cycles of growth, mass extinction, regeneration, and evolution. Complexity looks for the mathematical equations that describe the middle ground between equilibrium and chaos, such as the interplay between supply and demand in an economy or the relationship among living organisms in an ecosystem.”¹⁹⁸

Fractal geometry can be generated mathematically in computer graphics, in that sense they can be described in algorithms. Ayşe Erzan gives clues of the use of this technology for architectural intentions.

5.3 Studying Pattern Formations

I would like to discuss now the relatively new and significant view that has been introduced by Ayşe Erzan in her paper titled “Abstract Machines and Calculable Grammars of Geometrical Shapes.”¹⁹⁹ I find the view that Erzan conveys before us particularly interesting and challenging for its approach to architecture,

197 James Gleick quoted in “Chaos Theory” [online] ([cited 29 October 2004]); available from World Wide Web: (http://whatis.techtarget.com/definition/0,,sid9_gci759332,00.html). See James Gleick, *Chaos Making a New Science* (Cardinal, 1988).

198 The Columbia Encyclopedia, 6th ed., s.v. “complexity.”

199 Ayşe Erzan, “Abstract Machines and Calculable Grammars of Geometrical Shapes,” in Anytime, ed. Cynthia C. Davidson (Cambridge, Mass.: The MIT Press, 1999), p.258-265. The paper was presented in ‘Anytime’ conference held in Turkey.

regarding the methods of modeling it and for the further implications that this approach brings forth as regards the issue of architectural form.

To use the definition Erzan makes, modeling here is used to mean, “mimicking the spatio-temporal patterns, motifs and rhythms exhibited by the system.”²⁰⁰ And if one think of architecture in general as a system (as in the case of anti-formalist conception which values the non-formal variables as significant in the process of the realization of form), rather than a single built object, this idea finds its reflection on the process of composition of the very architectural form itself.

Relating his views to architectural space, adhering it as a system, Erzan argues, “the functions, processes, and so on defined by an architectural plan and eventually by the built object involve motions, circulation, and complex flows in space-time which can not be rendered in terms of the trajectory of a single particle. The moment we go from a single particle to a continuous, deformable medium we have to face the problem of a multitude of –in fact, infinitely many- trajectories, one for every point of the medium (fig. 5.4 and fig.5.5).”²⁰¹

While the motion of “a single particle” can be described by “ordinary differential equations” a system with a multitude of trajectories that contains interactions necessitates the use of “partial differential equations.” She writes, “In contrast to the motion of a single pointlike particle, described by so-called “ordinary differential equations” that admit a unique solution once the initial position and velocity are specified, continuous media extended over macroscopic regions of space have to be described by “partial differential equations,” which presents a greater difficulty.”²⁰²

200 Ibid, p. 259.

201 Ibid, p. 259.

202 Ibid., p. 260.

Erzan adheres studying partial differential equations advantageous since she writes, “Spatially, extended complex systems far from equilibrium (maintained off-balance by forces like gravity) are capable of producing spontaneously evolving spatio-temporal patterns such as the swirls and eddies in a river. The astounding thing is that over long time periods and at large enough scales, the patterns produced by very disparate phenomena resemble each other, at least over large temporal and spatial scales. In fact, it is this feature that makes it worthwhile to study classes of partial-differential equations since they are capable of describing, at least in some coarse-grained fashion, the spatio-temporal behavior of ecological systems, epidemics, the economy, the urban development or the weather.”²⁰³ One can understand from this statement that studying with “partial differential equations” is especially promising since it gives the opportunity to describe the patterns of such macroscopic structures.

Further meditating on spatially extended systems, Erzan introduces “cellular automata” as an alternative way of studying pattern formation rather than with partial differential equations. She writes, “these are very simple abstractions that represent an extended system using points on a grid, which may be either “on” or “off” (occupied or empty; black or white, “0” or “1” and so on). They are thus particularly suited to digital computation. The temporal evolution of any given configuration is governed by elementary rules, which specify how each site must be updated with every step in time. In most cases, these rules involve only a given site and its nearest neighbors; interactions between units are very short range”²⁰⁴

Erzan mentions two types of cellular automata (fig.5.6) one “deterministic”, and other “stochastic.” She continues, “Both spontaneously produce arbitrarily complex, scale invariant, fractal patterns.” She goes on to state that, “It should be remarked that both of the cellular automata introduced above are completely “casual”; effects originating from a point source remain within a “causality bound”

203 Ibid., p.260.

204 Ibid., p.260-261.

with its apex at that point. Effects cannot precede causes. How then, do we model things that happen without any apparent cause (or due to a confluence of myriad causes)? With a random number generator! (When we call something random we usually mean that it depends on too many things at the same time for us to be able to model it realistically using a dynamical system with a few variables. A random number generator is a computational device for generating a sequence of numbers that apparently comes from a system with a large number of variables.)²⁰⁵

In that sense cellular automaton approach is as called by Erzan a “universalist” or a “genericist” approach. Erzan discusses the cellular automaton approach as a scientific approach, claiming to offer universal abstract “generic” machines that are capable of modeling anything. Erzan explains, “the claim is that diverse systems, over sufficiently long times and large distances, exhibit spatio-temporal behaviors that can be mimicked by generic “machines.” The “explanation” is not sought in the building blocks and their interactions; reproduction of sufficiently coarse-grained spatio temporal patterns by generic machine what constitutes an “explanation.” The generic machine is the “explanation.”²⁰⁶

Moreover, the components of cellular automata carry the Boolean character (0’s and 1’s), which at the same time lay at the basis of computer technology.²⁰⁷

Erzan writes, “Perhaps the attraction of working with 0’s and 1’s, as opposed to arbitrary numbers, is the immediate way in which they can be translated into patterns (black and white pixels, for example). The rule can here be understood as

205 Ibid., p.261

206 Ibid., p.261.

207 Boolean algebra developed by the English mathematician and logician George Boole (1815-1864), as a form of symbolic logic. It simply can be defined as “an abstract mathematical system that allows algebraic manipulation of logical statements, primarily used in computer science and in expressing the relationships between sets (group of objects or concepts).” Set in mathematics can be called as collection of entities that may be (real) objects or conceptual entities. Not only involved in many areas of mathematics it has also important applications in other fields as well, such as computer technology and atomic and nuclear physics. See Philip’s Science and Technology Encyclopedia ed. Steve Luck, 1999.

moving directly from pattern to pattern, from one state of spatial relations to another, without the intermediacy of numbers.”²⁰⁸

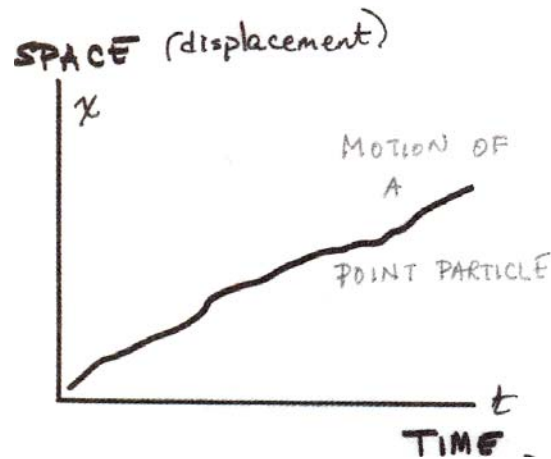


Figure 5.4. Erzan’s illustration of “the world-line of a point particle,” which shows the motion of a point particle at finite rate of motion or “speed.”

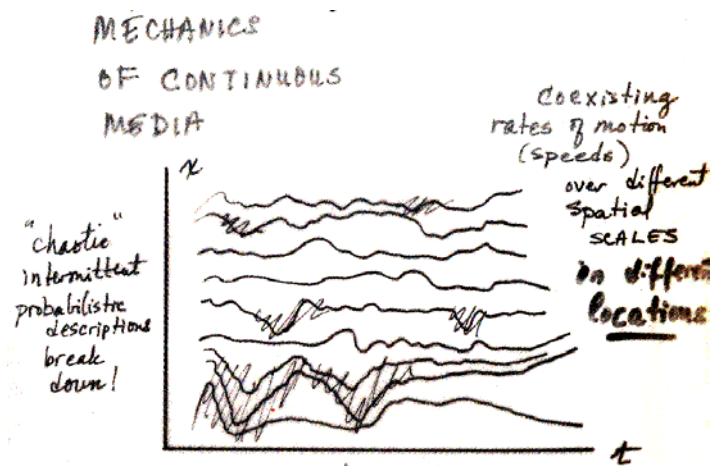


Figure 5.5. Erzan’s illustration of “motion of a continuous medium,” facing a multitude of trajectories.

208 Erzan, “Abstract Machines and Calculable Grammars of Geometrical Shapes,” 1999, p.263.

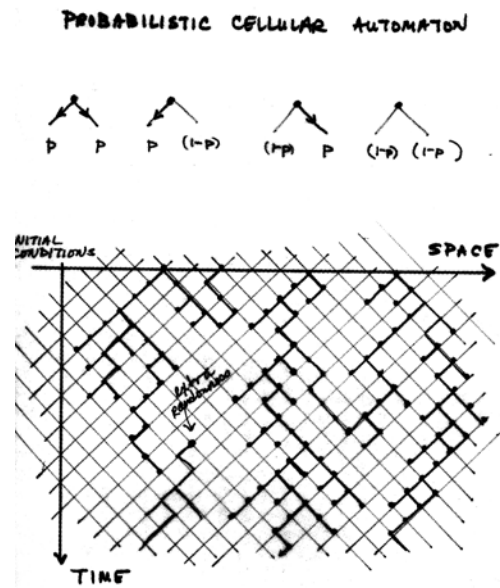
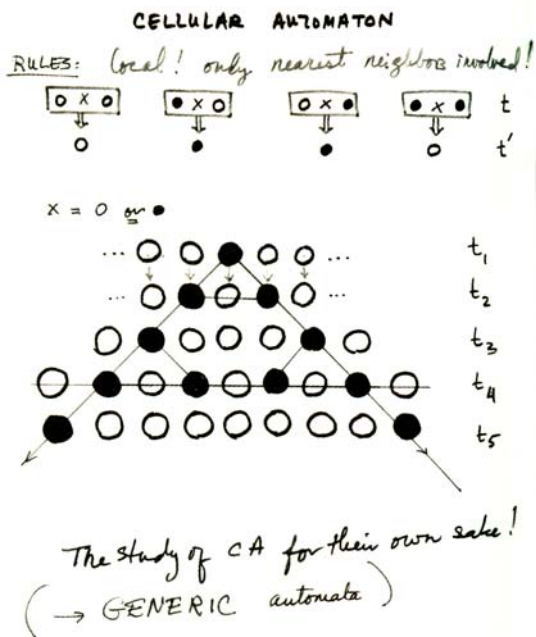


Figure 5.6. Erzan's illustrations of "a deterministic cellular automaton, *above left*, and of "a stochastic cellular automaton," *right*.

The production of reality through cells may seem generating a real without reality, so called a hyperreal.²⁰⁹ Yet developments in other fields of study play a very important role in the whole schema of discussion. It is inevitable that architecture will effect, be affected and transform with the developments and changing and meshing (being open to) other fields of study would only nourish architecture and architectural form.

209 Jean Baudrillard, *Simulacra and Simulation*, trans. Shelia Glaser (Ann Arbor: University of Michigan Press, 1994), p.1-2, quoted in Erzan, "Abstract Machines and Calculable Grammars", 1999, p.262.

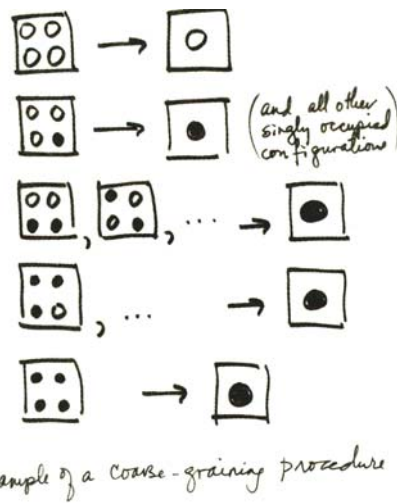


Figure 5.7. Erzan’s illustration of an “example of a course-graining procedure.”

Moreover, Erzan as a physicist observes “today, many scientists wonder in a similar vein about the way in which the study of cellular automata, of their abstract, pristine structures, or ‘systems of signs,’ which pride themselves on their generality and genericity, in many ways preempts the more strenuous, arguably more serious efforts to model real physical, biological, or even sociological systems.”²¹⁰ As Erzan claims “such maps of reality can engender new domains of scientific investigation, new territory.” She argues, “As observed, the study of cellular automata is the hope of the many scientists not only for its surprising ability to generate patterns capable of describing scientific phenomena but also for its future potential position with its generic ability in the context of social and cultural practice.”²¹¹

In the field of architecture, concentrating on the studies of John Rajchman, Greg Lynn and Stanford Kwinter, Erzan realizes a common approach as she claims, “that has to do with the possibility that instead of archive of shapes (either as the

210 Erzan, “Abstract Machines and Calculable Grammars of Geometrical Shapes,” 1999, p. 262.

211 Ibid., p.261.

signifier or as signified), one may use algorithms to generate sequences of geometrical shapes.”²¹²

Erzan going one step further suggests “As opposed to a compendium of all possible shapes and sequences of shapes, cellular automata afford economically storable and classifiable sets of rules, i.e., diagrams or abstract machines. Acting on an initial configuration, these are able to generate periodic or endlessly evolving sequences of shapes. The abstract machine can be used to model both the finished buildings and the functions that will be discharged in and by them. These sequences can be completely deterministic or can incorporate stochasticity; they may be periodic, quasi-periodic, or even chaotic; their use is completely up to the artist or architect.” She adds, “whether or not they are pleasing, useful, etc., is a matter of experimenting with different parameters and configurations. But they suggest new ways to enlarge our vocabulary, not only of individual shapes and the relationships among them but also self-propagating sequences.”²¹³ She writes,

The algorithms were designed as ways of generating all connections between all possible signifiers. With the enlightenment and nominalist thought, it became clear that not all possible propositions are true propositions, and in place of algorithms “to generate all propositions” (producing a one to one map of reality), the search was on for calculable grammars modeled after mathematics.²¹⁴

Erzan’s discussion gives clues about the current shift of the emphasis from “objects” to rather the interest in the “connections,” or rather “in the grammar that governs connections”²¹⁵ which suggests new computable grammars of new geometrical shapes. As soon as there occurs such a shift of emphasis from the objects to connections, which are generated by different rules or logic, it promises the creation of new diagrams and/or new geometrical shapes and expressions.

212 Ibid, p. 262.

213 Ibid., p.262.

214 Ibid., p.263.

215 Ibid., p.263.

Erzan discusses the possibility of computable grammars of geometrical shapes. She continues, “Here the exciting possibility of computable grammars of geometrical shapes presents itself.”²¹⁶ As she explains she tries to suggest, “one may, using cellular automata, construct grammars that are both sufficiently abstract and also “verifiable” in that they correspond to some “reality” outside of the language.”²¹⁷

As Erzan comes to point out, discussing cellular automata as a spatially extended system is to some extent productive for its potential as generators of formal languages, where the form will be that outcome of a process rather than a pre-conceived outcome of a formal intention. I believe it is more particularly interesting for its further contribution to architecture.

Architecture, defined by Erzan as “ ‘the art of ‘the map which precedes territory,’ the narrative precedes action. It is at the same time aware of the territory, the multiple narrative-generating trajectories, or the river-narrative, observed from a point poised above the flood, so to speak.”²¹⁸ Erzan claims that, “the architectural design is one realization of a “machine” that once set in motion, produces all of the complex behaviors identified by the functions discharged in this space of human activity.”²¹⁹ She adds “The fact that both periodic and complex spatio-temporal patterns can be generated by the same cellular automaton gives rise to the possibility that the complexity of architectural design can likewise be parameterized and the function to be generated coded in a universal machine.”²²⁰

Certain related activities that challenge architecture and architectural form further will be explored and be tried to be exemplified in the following pages.

216 Ibid., p.264.

217 Ibid., p.264.

218 Ibid., p.265.

219 Ibid., p.265.

220 Ibid., p.265.

5.4 Non-Euclidean Relationships

Alberto Pérez-Gómez writes:

When a physician talks about a crisis in the condition of a patient, he is describing a moment when it is unclear whether the patient will survive or succumb. In a true sense, this is now the condition of Western culture. In the last century and a half, man has done his utmost to define the human condition and ironically has lost the capacity to come to terms with it; he is unable to reconcile the eternal and immutable dimension of ideas with the finite and mutable dimension of everyday life.²²¹

Gómez refers to Husserl as one of thinkers of our century who has been able to realize this crisis and also to reveal its “unique character.” He writes, “According to Husserl, the beginning of the crisis coincides with the end of classical geometry, still a geometry of the *Lebenswelt*, the world as lived, and the appearance of non-Euclidean geometries, which occurred around 1800.”²²²

Euclidean geometry was considered to be “the geometry” until the moment when some mathematicians independently developed the system of non-Euclidean geometry. Carl Friedrich Gauss, Nikolai Ivanovich Lobachevsky, Georg Friedrich Bernhard Riemann, von Helmholtz, and Poincaré are among the important mathematicians and scientists contributed to the discovery of non-Euclidean geometries.

Euclid in his *Elements*,²²³ written in about 300 BC, proposed five basic postulates:

1. A straight line can be drawn from any point to any point.
2. A finite straight line can be produced continuously in a straight line.

221 Alberto Pérez-Gómez, “Introduction to Architecture and the Crisis of Modern Science,” 1983, in *Architecture Theory since 1968*, ed. K. Michael Hays (Columbia University Graduate School of Architecture, MIT Press, 1998), p.467.

222 Ibid., 467.

223 See Euclid, *The thirteen books of Euclid's Elements*, trans. from the text of Heiberg, with introd. and com. by Sir Thomas L. Heath, 2d ed., rev. with additions (New York, Dover Publications, 1956).

3. A circle may be described with any center and distance (radius).
4. All right angles are equal to one another.
5. If a straight line falling on two straight lines makes the interior angles on the same side together less than two, right angles, the two straight lines, if produced infinitely meet on that side in which angles are together less than two right angles. (The fifth postulate is called the parallel postulate.)²²⁴

Non-Euclidean geometry can simply be defined as “any geometry based on postulates different from Euclid’s. The term usually is applied to a geometry that differs from Euclid’s in regard to the fifth, or parallel postulate.”²²⁵ Mathematicians tried to prove this fifth postulate and turn it into a theorem yet as it is stated that, “None succeeded, and mathematicians of the 19th century - N.I. Lobachevsky, János Bolyai, K.F. Gauss – inferred that postulate is truly independent of the other postulates. Hence it was logically possible to adopt a contradictory postulate.”²²⁶ It is worth here to mention the two ways consecutively the mathematicians Lobachevsky and Riemann drew about the fifth postulate:

There are two ways in which the fifth postulate can be contradicted, leading to two different conclusions about parallels. We may assume that, even if the interior angles are together less than two right angles, the lines may fail to meet. With this assumption, it follows that through any point not on a given line, many parallels to the line exist. This is the assumption used by Lobachevsky, and the geometry that results is called Lobachevskian, or hyperbolic, geometry. We may, equally well, assume that if the interior angles are equal to two right angles, the two lines still must meet if produced sufficiently far. With this assumption there are no parallels. The non-Euclidean geometry of Riemann is based on this. . . Riemann assumed that a line may have a finite length without being terminated; a circle is a model of such line. This geometry is called elliptic geometry.²²⁷

N. I. Lobachevsky, in 1826 reported his research on the non-Euclidean geometry and later in 1829 published a work on non-Euclidean geometry, a treatise of hyperbolic geometry, also known as Lobachevskian geometry.²²⁸

224 The International Encyclopedia of Science, ed. James R. Newman, s.v. “Euclidean geometry.”

225 Ibid., s.v. “Non-Euclidean geometry.”

226 Ibid., s.v. “Non-Euclidean geometry.”

227 Ibid., s.v. “Non-Euclidean geometry.”

228 See “Non-Euclidean geometry,” [online] ([cited 1 December 2004]); available from World Wide Web: (http://en.wikipedia.org/wiki/Non-Euclidean_geometry#History).

Working on Euclid's axioms and postulates, German mathematician, Georg Friedrich Bernhard Riemann (1826-1866), in 1854, in a lecture, founded the bases of Riemannian geometry. The field of Riemannian geometry is more comprehensible than simply constituting a definition of non-Euclidean geometry. Riemann's Non-Euclidean geometry is considered to be a special case of Riemann's geometry.²²⁹

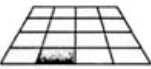





TABLE 7.6 Comparison of Major Two-Dimensional Geometries		
Euclidean geometry	Hyperbolic geometry	Elliptic geometry
Euclid (about 300 B.C.)	Gauss, Bolyai, Lobachewski (about 1830)	Riemann (about 1850)
Given a point not on a line, there is one and only one line through the point and parallel to the given line.	Given a point not on a line, there are an infinite number of lines through the point that do not intersect the given line.	There are no parallels.
Geometry on a plane	Geometry on a pseudosphere	Geometry on a sphere
		
The sum of the angles of a triangle is 180° .	The sum of the angles of a triangle is less than 180° .	The sum of the angles of a triangle is more than 180° .
 $D = 90^\circ$	 $D < 90^\circ$	 $D > 90^\circ$
Lines are infinitely long.	Lines are infinitely long.	Lines are finite in length.

Figure 5.8. Comparison of major two-dimensional geometries.

Riemannian geometry introduces a theory of space and can be defined as “ a type of geometry in which the space involved is not necessarily uniform; e.g. it could be like the surface of a mountain region. Riemannian geometry led to new insights into the nature of geometry, and played a crucial role in Einstein's theory of relativity.”²³⁰ Einstein's theory of relativity is known as a theory that “represents the

229 The International Encyclopedia of Science, ed. James R. Newman, s.v. “Riemannian geometry.”

230 Ibid., s.v. “Riemannian Geometry.”

world in terms of the Riemannian geometry of a curved, four-dimensional space-time, its non-uniform curvature corresponding to non-uniform gravitation.”²³¹

Discovery of non-Euclidean geometries contributing to the studies on theory of space has been opening the eyes of architects to the true nature of architectural form. As Branko Kolarevic asserts, “Each of these non-Euclidean geometries has a peculiar application. Riemannian geometry is used in navigation, and Poincaré geometry is used in ballistics and for the representation of electromagnetic forces. What makes these and other non-Euclidean geometries interesting from an architectural point of view is the possibility of mapping objects between them, thus providing for a radically different conceptualization of space. Some modeling software, for example, providing for limited transformations of the Cartesian modeling space, which can approximate spatial characteristics of some of the non-Euclidean geometries.”²³²

Kolarevic’s last remark on the relation of Euclidean and non-Euclidean geometries is particularly remarkable. He writes,

Another interesting concept, which Bernhard Riemann introduced, is the concept of curvature of space and the space of positive and negative curvature. In this definition of space, Euclidean “flat,” planar space occupies the median position, having zero curvature. Euclidean geometry is then just a special kind of geometry, a special point on the infinite scale of bending, or folding, that produces “flatness” as a manifestation of an equilibrium that is established among various influences producing the curving of space in the first place. In other words, in the Riemannian conception of space, the “boxes” and “blobs” are simply instances on a sliding scale of formal complexity – a box could be turned into a blob and vice versa by simply varying the parameters of space within which they are defined.²³³

Kolarevic adds, “. . . both Euclidean and non-Euclidean geometries are part of the same geometric universe, in which the Euclidean geometry is simply one special case, albeit one that has been firmly established in architectural thought and practice over the last few centuries.”²³⁴

231 Ibid., s.v. “Riemannian Geometry.”

232 Branko Kolarevic, ed., “Digital Morphogenesis,” in *Architecture in the Digital Age Design and Manufacturing* (London and New York: Spon Press, 2003), p.15.

233 Ibid., p.15.

234 Ibid., p.14.

CHAPTER 6

CASE STUDIES

It was Vitruvius who suggested the means to be carried to the architectural domain. Vitruvian principles have been taken as base for theoretical and practical production in the western architectural tradition of thought. Eisenman writes, “At the root of the present conceptual structure of architecture is the Vitruvian triad of commodity, firmness and delight (use, structure and beauty). He goes on to state that, “the beautiful as a dialectical category has been understood as a singular and monovalent condition; it has been about goodness, about the natural, the rational and the truthful. It is that to which architects are taught to aspire in their architecture. Thus they search for and manifest conditions of the beautiful as a form in delight in the Vitruvian sense.” This mathematical definition of the beautiful as Eisenman notices remained unchanged in Modern architectural tradition. Believing “that beauty is goodness”²³⁵ follows the illusion that good form is proper composition. And proper composition is mostly accompanied (identified) with an idealized, static form conception, which restricts the investigation for the potentials of architectural form.

235 See Leo Tolstoy’s remark, “It is amazing how complete is the illusion that beauty is goodness,” quoted in Peter Eisenman, “En Terror Firma: In Trails of Grotexes,” in *Deconstruction: Omnibus Volume*, ed. Andreas Papadakis et al. (London: Academy Editions, 1989), p. 152.

Formalism as a theory seems problematic in the sense that besides its excessive concentration on formal relations in conceiving form, it was also after the establishment of the “standards of good composition,” basically derived from an aesthetics, which is related to nature or to claims of objective laws. In reality there are many different kinds of applications, which claim to be formalist, thereby defeating the (formalist) claim for the normative. Artistic formalism concentrating exclusively or primarily on formal relations, devaluing the non-formal aspects (as Dzemidok describes, its material and content aspects, or its cognitive value, historical, social, etc., significance) of the work remained largely metaphysical. Formalist theory, with the inability to come to terms with reality, could only take restricted form. And in fact architecture as an art form has many other dimensions than purely formal and outside of the limits of conventional.

In fact, formalism contributed to the development of to the anti-formalist approaches to flourish. The “avant-garde,” cultivating against modernism, found a nourishing ground in modernist dynamics. Inevitably, with the inability to come to terms with the events in immediate reality, the notions that modernism finds hard time to suppress reveal themselves, resulting in a free play of hybridity modifying the modernist “theoretical” form and space. In fact certain concepts such as “hybrid space” and “pluralism” are Post-Modernist contributions to architecture. However, Post-modernists were not critical in terms of the process in reaching form, they have simply returned to the use of classical elements.

As Dzemidok noticed, “The recent art avant-garde attacked the whole aesthetic paradigm of traditional art, thereby questioning the whole previous art and the need for it. In this way artistic formalism was betrayed by its most loyal and trusted ally, the avant-garde.”²³⁶

236 Dzemidok, “Artistic Formalism: Its Achievements and Weaknesses,” p.191.

In his book *Force Fields: Between Intellectual History and Cultural Critique* Martin Jay stresses an approach by mentioning Peter Bürger's well-known distinction between modernism and the avant-garde.²³⁷ Jay says, "Whereas modernism remained within the institution of art, seeking to explore the limits of self-referentiality, the avant-garde sought to reunite art with life, thus allowing the emancipatory energies of the former to revitalize the latter."²³⁸ Accordingly, he argued, the high modernist purification of form fits well into the first of these categories. And the counter impulse could perhaps be understood as a part of the avant-garde's project.²³⁹

As Foucault stated, "the problem is no longer one of tradition, of tracing a line, but one of division, of limits; it is no longer one of lasting foundations, but one of transformations that serve as new foundations, the rebuilding of foundations."²⁴⁰ I assert it is that transformation encountered between modernism and the avant-garde and we have been encountering in the field of contemporary architecture.

The classical formalist architecture structured within the framework of the standard of proper composition and the notion of form stayed within limits. What the classical introduced as the proper composition necessitates a reconsideration and the re-organization in terms of its form, for our own space and time. Contemporary architectural practice now questions these basic assumptions and suppositions, which up to now has been at the root of modern architectural theory and practice.

Fortunately, looking at the current architectural theory and practice, one can distinguish new approaches against (contradictory to) the purely formal experiments. Architectural practice seems to start a search for the sensibility of the anti-formal. So what is that "order" to breed a new approach to "non-formal" and

237 Martin Jay, *Force Fields: Between Intellectual History and Cultural Critique* (New York : Routledge, 1993), p.156, quoting Peter Bürger, *Theory of Avant-Garde*, trans. Michael Shaw (Minneapolis, 1984).

238 Jay, *Force Fields: Between Intellectual History And Cultural Critique*, 1984, p.156.

239 Ibid., p.156.

240 Michael Foucault, *Archeology of Knowledge and the Discourse on Language* (Pantheon Books, New York, 1972), p.5.

“formal” phenomena? At this point, Anti-formalism can be defined as a relativist and a pluralist discourse, in that sense, suggesting a more liberal form understanding with a sensibility of non-formal aspects.

Anti-formalists, welcoming non-formal reality, consider not only the formal but also the non-formal elements to be the constituent parts in the work, in its reception, evaluation and composition. The danger of turning anti-formalism into another formalism, would be overcome by the concern for the variables in the process of the realization of form sometimes reducing the significance of formal appearances or sometimes creating unity within variety.

There are many examples that could be discussed here such as neo formations of Morphosis, blobs, skins and nets of Greg Lynn, the field conditions of Stan Allen (Allen compares the Great Mosque at Cordoba in Spain to Le Corbusier’s unrealized project “Venice Hospital” and relates their compositional style one to another²⁴¹).

This study will examine five projects of five different architects; Peter Eisenman’s Berlin Holocaust Memorial and Daniel Libeskind’s Jewish Museum Berlin, in Germany, Foreign Office Architects’ (Farshid Moussavi and Alejandro Zaera-Polo), Yokohama International Port Terminal in Yokohama, Japan, Frank O. Gehry’s Walt Disney Concert Hall in Los Angeles, California, USA and Hiroshi Hara’s, Kyoto Train Station, in Kyoto, Japan. Each example that has been chosen to be presented here, portrays the different significant potential aspects of one common approach, namely anti-formalist, and each is particularly important for its challenging classical geometry and formalist approach, for suggesting a new formulation of the term “order” and “form,” and for questioning the classical problem of *becoming* in opposition to *Being*. These examples suggests a sensibility of the anti-formalist attitude with their approach to form that is far from static, and

241 Stan Allen, *Points and Lines: Diagrams and Projects for the City* (New York: Princeton Architectural Press, 1999).

with their concern for the non-formal aspects (such as material and content aspects, historical, cultural or social values, the site, economic and social conditions, program, and context), in the process of the realization of form. They are going to be discussed to give a better picture to understand the standing point of contemporary architecture in theory and in practice today in relation to the anti-formal.

6.1 Peter Eisenman, Berlin Holocaust Memorial, Germany, 1998

Eisenman's design for the National German Holocaust Memorial in Berlin constitutes an interesting example. The "form" of the structure is created while the spectator experiences the internal structure of the building, in that sense the building meant to be entered. The grid does not have a center that spectators can occupy. The work of architecture here, originates in the interpretive activity of the reader or the spectator. In that sense every single person creates his or her own experience, transforming the building's space from a static, to a temporal one while walking through the grid and accordingly creates his or her own expression. Architect here does not envision a timeless aesthetic form. And the work does not seem to have a fixed form, especially during the time of experience when the form is really created, and carries the character of becoming.

Eisenman stresses, "The context of our monument in Berlin is the enormity of the banal. It suggests that when a supposedly rational and ordered system grows out of scale and exceeds its intended purpose, it in fact loses touch with human reason. Our use of a dense, seemingly regular grid of pillars is no longer a guarantee of coherence between space and time. Rather, this grid begins to reveal the innate disturbances and the potential for chaos in all system of seeming order, to show that all systems of a closed order are bound to fail. This potential is manifest as a

disjunction between the time of the project, that is, its internal time, and the subject's experience of the project.”²⁴²

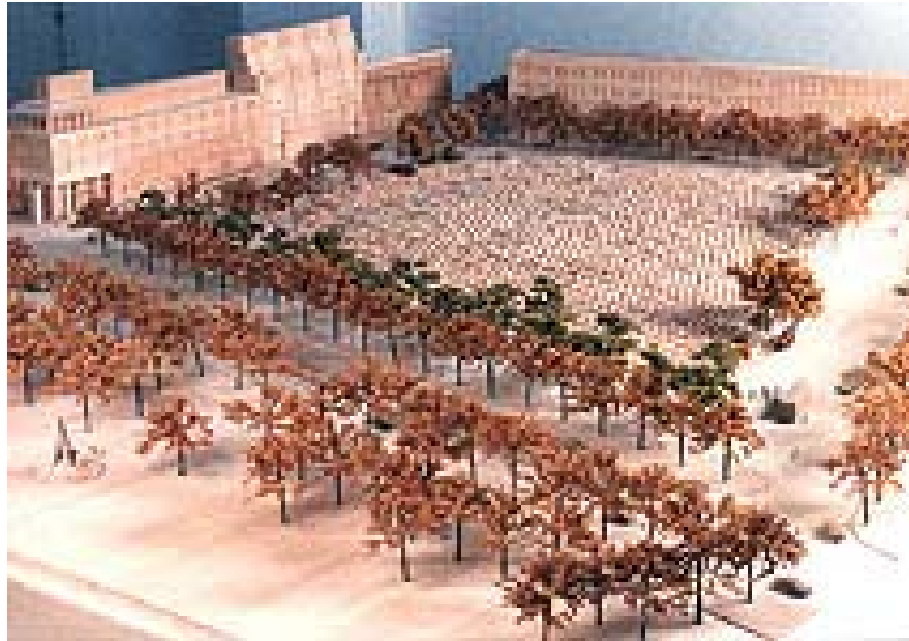


Figure 6.1. Peter Eisenman, Berlin Holocaust Memorial, Germany, 1998-in progress.

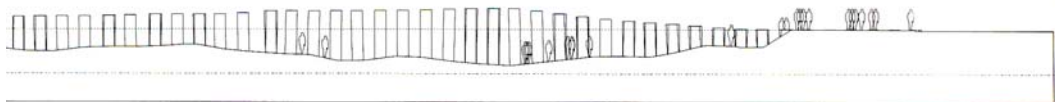


Figure 6.2. Peter Eisenman, Berlin Holocaust Memorial, section view, detail, Germany, 1998-in progress.

Eisenman asserts, “In this context our monument attempts to present a new set idea of memory as distinct from nostalgia. In order to do this, the time of our

²⁴² Peter Eisenman, “Time Warps: The Monument,” in *Anytime*, ed. Cynthia Davidson (Cambridge, Massachusetts: MIT Press, 1999), p. 250-257.

monument, its duration, is made different from the time of human experience or any possible understanding.” He adds, “there is no place to enter, no one place to exit; there is no center, no goal to be reached. It is neither mazelike nor does it have a hierarchy. Rather, the field destroys hierarchy and the internationality of movement. In this it destroys the illusion of security of the order of the regular internal grid as well as the frame of the Berlin street grid. This makes for a place of loss, contemplation, a memory void in the present.”²⁴³ It is in that sense that Eisenman avoids representation of a particular building type.

Eisenman in his essay *Post-Functionalism* mentions two distinct tendencies of architectural form, which seem to summarize what we have been discussing so far:

One tendency is to resume architectural form to be a recognizable transformation from some pre-existent geometric or platonic solid. In this case, form is usually understood through a series of registrations designed to recall a more simple geometric condition. This tendency is certainly a relic of humanist theory. However, to this is added a second tendency that sees architectural form in an atemporal, decompositional mode, as something simplified from some pre-existent set of non-specific spatial entities. Here form is understood as a series of fragments—signs without meaning dependent upon, and without reference to, a more basic condition. The former tendency, when taken by itself, is a reductionist attitude assumes some primary unity as both ethical and an aesthetic basis for all creation. The latter, by itself, assumes a basic condition of fragmentation and multiplicity from which the resultant form is a state of simplification. Both tendencies, however, when taken together, constitute the essence of this new, modern dialectic.²⁴⁴

Eisenman's design for the Holocaust Memorial seems to satisfy the latter tendency with the awareness of former.

243 Ibid., p.256.

244 Peter Eisenman, “Post-Functionalism,” in *Architecture Theory since 1968*, ed. K. Michael Hays (Columbia University Graduate School of Architecture, MIT Press, 1998), p.239.

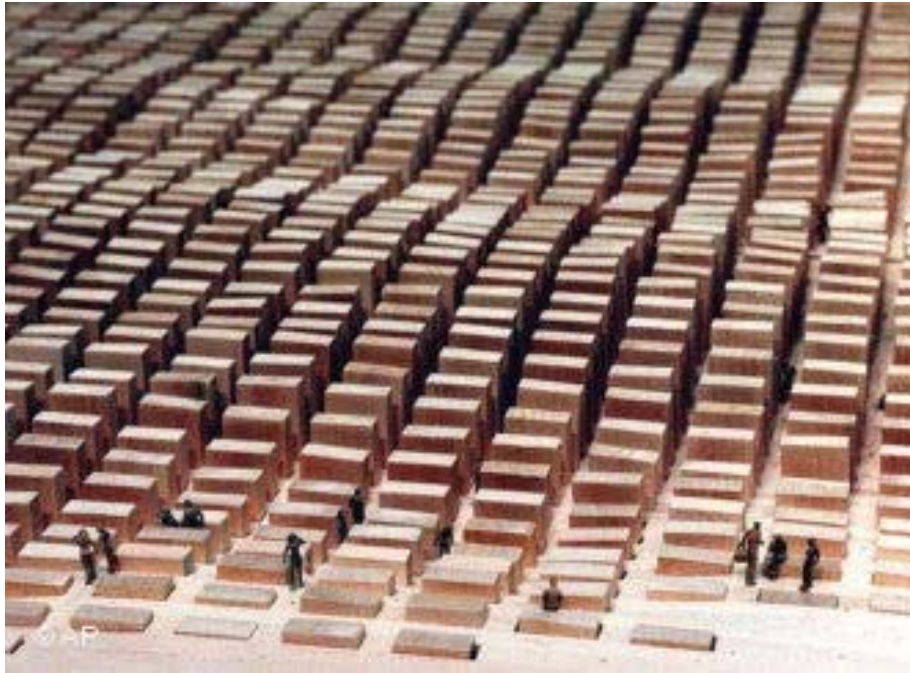


Figure 6.3. Peter Eisenman, the Berlin Holocaust Memorial, concrete pillars, detail, Germany, 1998-in progress.



Figure 6.4. Peter Eisenman, the Berlin Holocaust Memorial, concrete pillars, detail, Germany, 1998-in progress.

6.2 Daniel Libeskind Jewish Museum Berlin, Germany, 1999

In the Jewish Museum in Berlin, Libeskind's architectural response was making the invisible visible by representing the cultural and historical legacies of the Jews in Germany, against the repression of the German and Jewish history, yet it was at the same time avoiding the suggestion of continuity of the bitter (pungent) Jewish past. In that sense, the building estranges itself; it is not meant to be friendly. It is this defamiliarization Young notices: "...the stabilizing function of architecture, by which the familiar is made to appear part of a naturally ordered landscape, will be subverted by the antithetical effects of the unfamiliar. It is a memorial architecture that invites us into its seemingly hospitable environs only to estrange itself from us immediately on entering."²⁴⁵



Figure 6.5. Daniel Libeskind, the Jewish Museum Berlin, Berlin, Germany, 1999.

245 James E. Young, "Daniel Libeskind's Jewish Museum in Berlin: the Uncanny Arts of Memorial Architecture," *Jewish Social Studies* 6, no.2, [online] ([cited 1 December 2004]); available from World Wide Web: (<http://iupjournals.org/jss/jss6-2.html>).

Shiny reflective exterior skins the inner space, differentiating it severely from the outer. In some parts of the building, through letting the light inside from the top, over the high walls, only a vertical connection with the world is permitted. Walls torn and ripped, comes together in shifting axes, producing sharp edges and creating rather a disturbing enclosure. The museum built in a Baroque neighbor built around strong Baroque axes. It does not, however, aim to fit into its environment in terms of its formal character yet it remains fairly modest and is dissolved when viewed in silhouette. Classical Euclidean geometrical structuring seems to give way to a quite different scheme, attempting to go beyond the limits of classical geometry.



Figure 6.6. The Jewish Museum Berlin, Berlin, Germany, 1999.

In the design of the Jewish Museum, what is constituted “between the lines,” that is, space is the main concern of the architect, not the walls. Libeskind calls the project “Between the Lines”, since he explains,

...it is a project about two lines of thought, organization and relationship. One is a straight line, but broken into many fragments; the other is torturous line, but continuing infinitely.” He adds, “These two lines develop architecturally and programmatically though a limited but definite dialogue. They also fall apart, become disengaged and are seen as separated. In this way, they expose a void which runs through this museum, a discontinuous void.”²⁴⁶

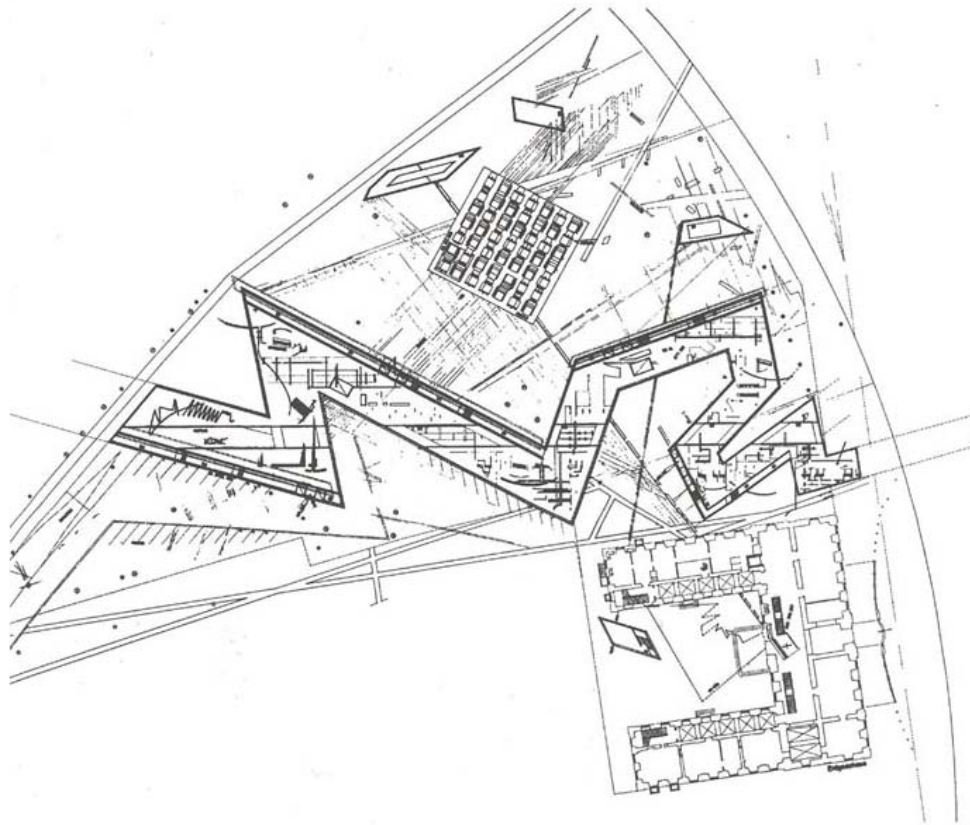


Figure 6.7 The Jewish Museum Berlin, site plan, competition stage.

²⁴⁶ Daniel Libeskind, “Between the Lines,” in *Daniel Libeskind, Radix-Matrix : Architecture and Writings*, ed. Andrea P.A. Belloli; trans. Peter Green (Munich ; New York : Prestel, 1997), p.34.

This statement focusing on two lines of thought reveals the dual character of the project, which suggests two different forms. Generated around the concept of “absent presence”, where void is the expression of the absence, the building introduced in Libeskind’s own words “a new type of organization which is organized around a center which is not, around what is not visible.” In terms of architectural form he claims, “...but not bound by means of any obvious forms, rather through an absence of meaning and an absence of artifacts.”²⁴⁷

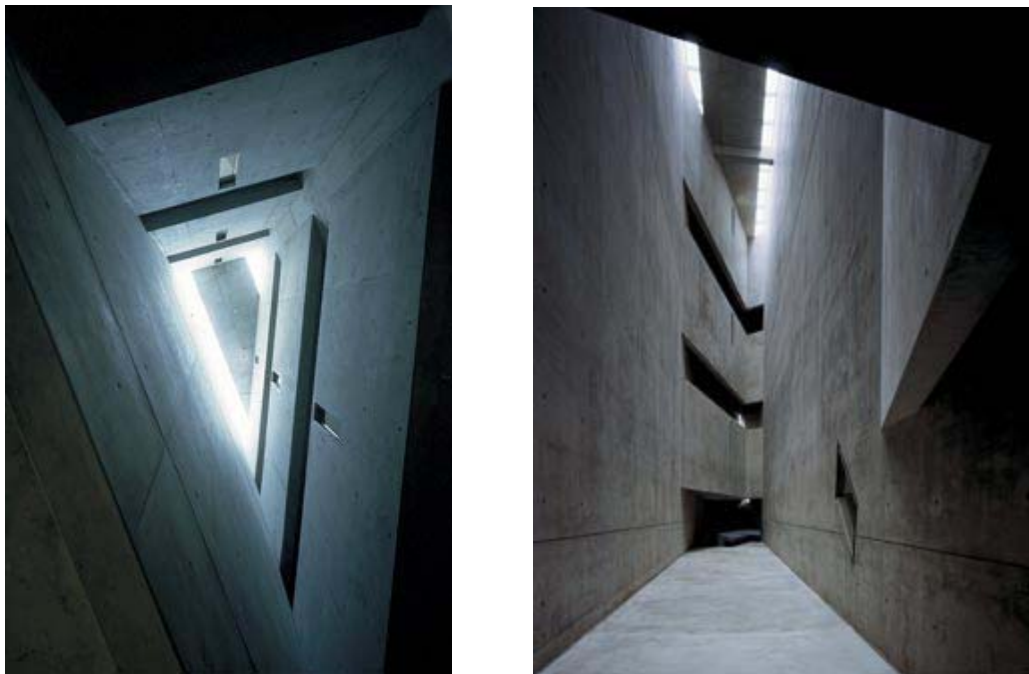


Figure 6.8. The Jewish Museum Berlin, *above left 1st void underground, right 6th void, 1999.*

Daniela Bertol defines “a perceived physical space” as “a solid-void dialectic.”²⁴⁸ He writes, “The presence (solid)—absence (void) of matter configures

²⁴⁷ Ibid., p. 34.

²⁴⁸ Daniela Bertol, “Architecture of Images: An Investigation of Architectural Representations and the Visual Perception of Three-Dimensional Space,” *LEONARDO* 29, no.2 (1996): p.88.

the space of our physical experience.’’²⁴⁹ Yet Bertol mentions the role of the perception as the additional element for a more comprehensive definition of space. Libeskind, in a similar manner, creates this solid-void dialectic, including the relation between the visitor, that is, the perceiver and the building, that is perceived. And this continuous dialectic as Libeskind attributes to his architectural space possesses a peculiar effect on architectural form. In fact architectural space synthesized at the moment of architectural experience. As Vidler notices, in the Jewish Museum in Berlin, “Libeskind has very consciously reinterpreted the founding premises of “space architecture,” to use R.M. Schindler’s term, in such a way as to create an architecture that does not simply construct space or shape space, but that is almost literally built out of space.’’²⁵⁰



Figure 6.9. The Jewish Museum Berlin, *above left* roads underground, *right* interior view, 1999.

249 Ibid., p.88.

250 Anthony Vidler, *Warped Space : Art, Architecture, and Anxiety in Modern Culture* (Cambridge, Mass. : MIT Press, 2000), p.238.

Libeskind writes, “My work attempts to express this inadequacy at the heart of perception for which no (final) terms are provided; a lack of fulfillment which prevents manifestation being reducible to an object-datum. Only as horizons, in relation to time, can forms appear in this exploration of the ‘marginal’ where concepts and premonitions overlap. There is a presentation, not always according to the mode of imperfection; an internal play in which deferred completeness is united with a mobilized openness. The work remains an indefinite architectural thinking which is neither a physics nor a poetics of space.”²⁵¹

Stressing the inadequacy of objectification, Libeskind, celebrates the triumph of experience over objectification. He asserts:

I am interested in the profound relation which exists between intuition of geometric structure as it manifests itself in a pre-objective sphere of experience and the possibility of formalism which tries to overtake it in the objective realm. In fact, these seemingly exclusive attitudes polarize the movement of imagination and give an impression of discontinuity, when in reality they are built different and reciprocal moments – alternative viewpoints- of the same fundamental ontological necessity.²⁵²

In his essay “Three Lessons in Architecture” Libeskind gives clues about his idea of duality focusing on the pair of notions, equilibrium and destabilization. He puts what he calls *difference*, in the center of his thought and he uses this concept as a guide for the constitution of his space understanding. In his own words:

...a kind of *difference*—to use Derrida’s word—and I will try to make this difference apparent by saying only one thing: that is equilibrium could have been attained, it would have been attained a long time ago. Equilibrium could have been attained under two conditions only. One is that reality would have indeterminate or indistinct, a kind of Heisenberg/ Mondrian postulation that equilibrium is achievable within a context of indeterminacy. This did not happen. On the other hand, equilibrium could have been achieved by postulating a global meaning of the world, a boundless but finite world. But needless to say neither of these realities have been experienced, and they won’t be. So what there is the shape of space of the world which on a permanent basis produces a destabilised, let say an eternal, movement of imperfection and difference. It is this shape of space I would like to speak and explore in a very tentative manner because no language exists for it

251 Daniel Libeskind, “Micromegas,” in *Radix-Matrix: Architecture and Writings, Daniel Libeskind*, ed. Andrea P.A. Belloli; trans. Peter Green (Munich ; New York : Prestel, 1997), p.14-15.

252 Ibid., p.14.

today. No language has been agreed upon in which to discuss such a phenomenon.²⁵³

The tension created by the incompleteness, destabilization, imperfection or difference meets the effort to attain the equilibrium in its literal sense, the stable form, or rather as the Gestalt theory of expression describes it as the “equality of form.” In fact as earlier described in Chapter 2 of this study, the visual dynamism (movement) is the outcome of this tendency to re-establish completeness in a well-balanced form. This awareness of Libeskind as regards visual dynamics makes Libeskind’s space “a space open to becoming”²⁵⁴ forcing the limits of the Cartesian space.

Young regards the Jewish Museum as an example of process architecture. He writes that it “is always on the verge of Becoming—no longer suggestive of a final solution.”²⁵⁵ In fact as Young reminds us, “He [Libeskind] thus allowed his drawings to work through the essential paradoxes at the heart of his project: how to give a void form without filling it in? How to give architectural form to formless and to challenge the very attempt to house such memory?”²⁵⁶

253 Daniel Libeskind, “Three Lessons in Architecture,” in *Daniel Libeskind, Radix-Matrix : Architecture and Writings*, ed. Andrea P.A. Belloli; trans. Peter Green (Munich ; New York : Prestel, 1997), p.38.

254 Elizabeth Grosz uses this terminology when she comments on Bergson and his concept of space. “It is not an existing, God-given space, the Cartesian space of numerical division, but an unfolding space, defined, as time is, by the arc of movement and thus a space open to becoming, by which I mean, becoming other than itself, other than what it has been...” Elizabeth Grosz, “The Future of Space,” in *Anyhow*, ed. Cynthia C. Davidson (New York : Anyone Corp. ; Cambridge, Mass. : MIT Press, 1998), p.246.

255 James E. Young, “Daniel Libeskind’s Jewish Museum in Berlin: the Uncanny Arts of Memorial Architecture,” *Jewish Social Studies* 6, no.2, [online] ([cited 1 December 2004]); available from World Wide Web: (<http://iupjournals.org/jss/jss6-2.html>).

256 Ibid.

6.3 Foreign Office Architects (Farshid Moussavi and Alejandro Zaera-Polo), Yokohama International Port Terminal, Yokohama, Japan, 1995-2002

The innovative design, Yokohama International Port Terminal, by Foreign Office Architects represents a new kind of architecture and promises a new architectural form understanding

The building constitutes a challenge to the three dimensional Euclidean space and the classical idealized form conception. With the plasticity and flexibility of its surfaces, it transformed the utopian, ideological space into a new idea of space which utilizes the notions of movement and mobility providing (indicating) a four dimensional experience.



Figure 6.10. Foreign Office Architects (Farshid Moussavi en Alejandro Zaera-Polo), Yokohama International Port Terminal, aerial view, Japan, 1995-2002.



Figure 6.11. Yokohama International Port Terminal, *above top* and *bottom* roof terrace park setting, 1995-2002.

The terminal building is consists of three levels, which forms a one continuous space, includes an open-air roof garden on top. The terminal building, out of folded steel, allows a fluid transition between the levels, and also between the elements of the building such as walls, floor and the roof. Identical surface flooring runs through the building both inside and out melding the walls, the floor and the roof, into a continuous space.

Literally the building does not reflect any destructive interference, or a literal formlessness but a seamlessly running continuous structure achieved by interconnecting surfaces. A similar approach is noticeable in Frank O. Gehry's design Walt Disney Concert Hall Building, where we see the hints of a surface architecture, which possesses a potential for dynamic space architecture.

Architectural form is the result of a process of composition that seems to be in operation while integrating the urban fabric in the process both visually and physically. The building welcomes pedestrian visitors. The roof turned into a usable surface, generating a park, a landscape on the roof, a form of environment open to public. Severe distinction between the private space and public space is dissolved.



Figure 6.12. Yokohama International Port Terminal, interior, 1995-2002.

The building presents an urban significance. It goes beyond to serve only domestic and international cruise terminal facilities, it also provides citizens with conference space, shops, restaurants and multi purpose hall. It also offers traffic

facilities, including public parking, pick-up and drop-off traffic plaza and coaches parking.

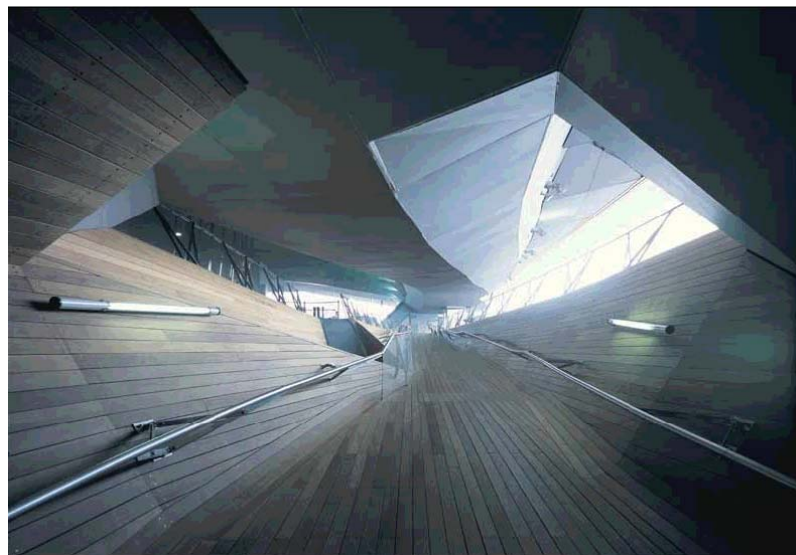


Figure 6.13. Yokohama International Port Terminal, *above top* and *bottom* interiors, 1995-2002.



6.14. Yokohama International Port Terminal, glass panels on the exterior surface, 1995-2002.

Kazys Varnelis in his essay *A Brief History of Horizontality: 1968/1969 to 2001/2002* writes, “The Yokohama Terminal distinctly fails to develop a façade or any kind of iconographic quality. Far from being a shining exemplar of the new, Maya-driven era of the blob – if that era will ever arrive - the project is anti-formal, indeed, anti-appearance, infrastructural rather than architectural.”²⁵⁷

The building as a terminal building, as the place of flow, resembles the flow of movement, avoiding a significant outer expression. This façadeless or rather a “faceless” architecture attracted the attention of Toyo Ito. Kazys Varnelis noticed, “Toyo Ito, who served as one of the jurors, understood the infrastructural nature of the building and applauded it. In contrast to the common reading of the Yokohama Terminal as a virtuoso work of formalism, Ito suggests precisely the opposite: “In this proposal the concept of façade does not exist. É In contrast to this posture [the monument exemplified by the Sydney Opera House], the proposal by [FOA's]

²⁵⁷ Kazys Varnelis, “A Brief History of Horizontality: 1968/1969 to 2001/2002,” in the journal *Pasajes de Arquitectura y Critica* (March 2003), [online] (This article is the third in a series for the journal *Pasajes de Arquitectura y Critica*, Madrid [cited 1 December 2004]); available from World Wide Web: (<http://varnelis.net/projects/horizontality/>)

Zaera Polo and Moussavi formulates an architecture where the form hardly has significance. It could be called an “architecture without exteriors.”²⁵⁸ He continues “For Ito, the Yokohama Terminal acts as not a self-sufficient entity but rather as a state between two geological conditions, the undulation of the slabs creating a union between fluid ocean and solid land: “The architecture is nothing more than a point of passage, an instrument of change of velocity between modes of transportation or aspects of nature.”²⁵⁹

6.4 Frank O. Gehry and Partners, Walt Disney Concert Hall Building, Los Angeles, California, USA, 1999

Designed by architect Frank O. Gehry, Walt Disney Concert Hall not follows the rules and attempt to go beyond the conventional idea of architecture and architectural form.

What is significant in this example is that form is shaped from the inside, in this case, as the outcome of undulating folds of stainless steel, curves and wraps. The sculptured interior shows itself on the exterior skin. Perspective changes with the each change of the viewing angle. As we have discussed earlier in Yokohama International Port Terminal, walls, floors and roof becomes surfaces. In here this similar approach finds a different outer expression compared to the case of Yokohama.

258Kazys Varnelis, “A Brief History of Horizontality: 1968/1969 to 2001/2002,” 2003 quoting Toyo Ito, “Yokohama International Port Terminal, Architecture without Exteriors,” “Terminal del puerto internacional de Yokohoma,” *Arquitectura sin exteriors*,” 2G 16 (2000): p. 86.

259Kazys Varnelis , “A Brief History of Horizontality: 1968/1969 to 2001/2002,” 2003, also Varnelis quoting Toyo Ito, “Yokohama International Port Terminal, Architecture without Exteriors,” “Terminal del puerto internacional de Yokohoma,” *Arquitectura sin exteriors*,” p.87.



Figure 6.15. Frank O. Gehry and Gehry Partners, Walt Disney Concert Hall, aerial view facing south, Los Angeles, California, May 2003.



Figure 6.16. Frank O. Gehry, sketch of Walt Disney Concert Hall, January 1990.



Figure 6.17. Walt Disney Concert Hall, *above left* entrance, *right* construction, west side, Los Angeles, California, 2003.

In the construction of this complex structure, advanced technologies and advanced software programs are used. A French computer program called CATIA (Computer-Aided Three-dimensional Interactive Application), which was developed for the aerospace and automotive industries, facilitates the entire challenging geometrical structure, a technology that made it possible to go beyond the conventional, substituting right angles with curved ones.

The Disney Concert Hall consisting of a main auditorium, two smaller performance theaters and two intimate outdoor amphitheaters and an outdoor public garden became a new architectural landmark.

6.5 Hiroshi Hara and ATELIER □, Kyoto Train Station, Kyoto, Japan, 1997

Designed for West Japan Railway Company²⁶⁰ by Hiroshi Hara, Kyoto Train Station consists of a terminal building and a commercial development structured over an operating rail system. JR Kyoto Station is the transportation hub in Kyoto, Japan. The station also acts as an airport gateway too. It has connection with the Kansai International Airport therefore connecting the city to cities. In fact it shows that the building finds its place within a larger context with its hard to grasp form.



Figure 6.18. Hiroshi Hara and ATELIER □, Kyoto Train Station, Kyoto, Japan, 1997.

In addition to the terminal building, station building as a commercial development is a juxtaposition of a variety of facilities, “hotel, department store, shopping mall (boutiques, cafés and restaurants), cinemas, museum, exhibition

²⁶⁰ “Featured Clients, Kyoto Station Building, vol.10,” [online] (OBAYASHI CORPORATION, 2001-2002, of building construction and civil engineering., [cited 16 December 2004]); available from World Wide Web: (<http://www.obayashi.co.jp/english/featured/index.html>)

venues, offices for prefectural government services, parking lots²⁶¹ The facilities connected by pedestrian plazas and suspended walkways enabling a connection between the east and the west sides of the building.



Figure 6.19. Kyoto Train Station, exterior view.



Figure. 6.20. Kyoto Station, the interior valley.

261 Corinne Tiry, "Stations Help Define Urban Image -Kyoto and Lille-Europe," *Japan Railway and Transport Review* no. 28 (2001): p.18-21, [online] [cited 16 December 2004]; available from World Wide Web: (<http://www.jrtr.net/jrtr28/pdf/contents.pdf>).

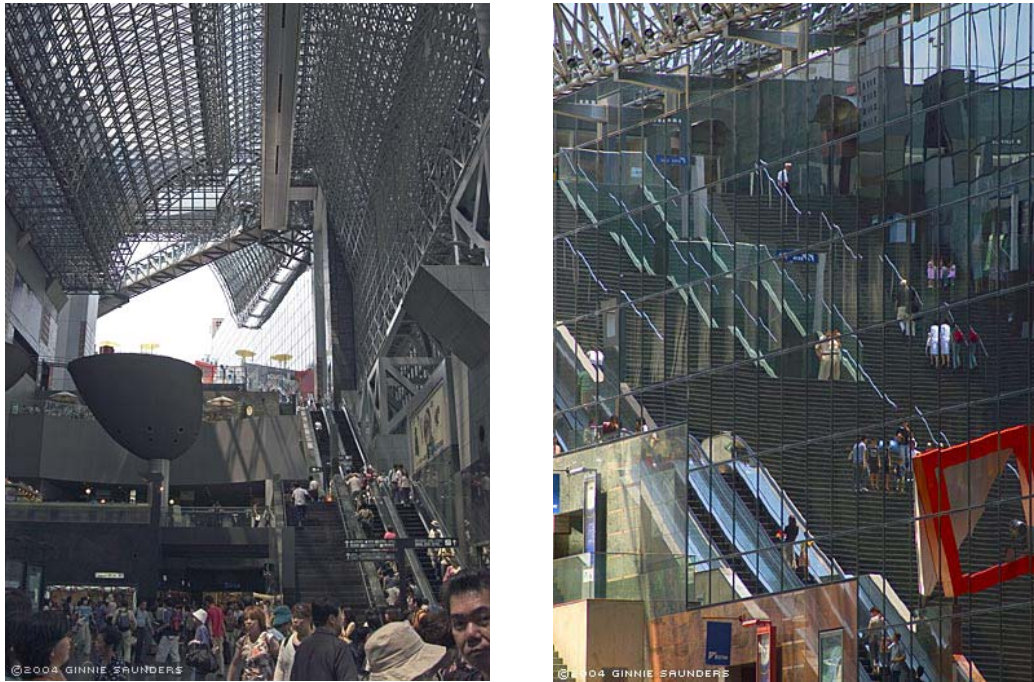


Figure 6.21. Kyoto Train Station, *above left*, the central concourse, the large atrium space, constructed with steel frame and glass roof, with the huge stairway connects the fifth floor to the roof, *right*, reflective exterior façade.

The collage of the conventional and non-conventional activities takes place in the new, non-traditional architectural spaces, achieved by scale variances, fluid spaces and interconnecting system of networks.

The rectangular overall solid formal appearance of the building is in conflict with the irregularly detailed cubic façade and the dynamic irregular atmosphere of the interior. Moreover, the width of the Kyoto Station Building east to west extends 470 meters and it is 60meters tall. Although the shape of the building is that of a rectilinear due to its large scale here one cannot grasp the facade of the building, or one cannot picture a totality of form. In that case, the Kyoto Train Station solves the program of a terminal a little different than the Port Terminal of Yokohama. Kyoto, too, provides a spatial experience subordinating the form in the process. But this time a faceless architecture is the result of the large scale of the building, its use of

materials (reflective shiny surfaces), the different workout of the structural system, the complexity of the program and the design method followed in reaching the architecture of the space.

The interior space of the station and its large atrium space act as a recreational area, as a public plaza. A space provided for the pedestrians on top and the “sky-plaza” on the roof to embrace Kyoto’s cityscape. The building not only welcomes the passengers, but it also becomes a commercial attraction for the consumer society. Being an international cultural sightseeing spot and a tourist destination The Kyoto Train Station is filled with crowds of people. The station-building site interconnects with the surrounding urban realm and invites people in.



Figure 6.22. Kyoto Train Station, *above top*, “open sky plaza” on top of the building, commanding a view of Kyoto, *bottom*, an aerial corridor linking the east and west areas.

CHAPTER 7

CONCLUSION: THE SIGNIFICANCE OF ANTI-FORMALIST (NON-FORMALIST) UNDERSTANDING IN ARCHITECTURAL DESIGN

...the tradition of architectural presence and objecthood has always been taken as natural, also as natural the representation of man and his origins. This was accomplished in a formal language that was also taken to be natural the column and the beam, the arcade and the arc, the capital and the plinth, for example were all thought to be natural to architecture...The idea that architecture must be in the tradition of truth, must represent its sheltering function, must represent the good and the beautiful constitutes a primitive and unnoticed repression.²⁶²

With the statement above Eisenman draws our attention to the need of the search for new forms and representations as the outcome of the new contemporary process of organizations.

This study is an attempt to understand the current tendencies and justify the existent categoral porosity among the representatives of modern architectural theory and practice. The discussion takes place within the framework of the arguments

²⁶² Peter Eisenman, "Blue Line Text," in *Deconstruction: Omnibus Volume*, ed. Andreas Papadakis et al. (London: Academy Editions, 1989), p.150.

between the formalist and anti-formalist attitudes, primarily looking at the issue from the perspective of the latter tendency which constitutes a challenge to the attempt to establish “absolute” norms for artistic form; in its classical sense or in its general sense, a rejection of “objecthood” as Bataille argued.²⁶³

The nature of the notions of “formalism” and “form” are tried to be discussed in the light of the aesthetic theories. Then the nature of the notion of “formalism” and its possible foundations in architecture are tried to be conceptualized with the aid of a reading of ancient treatises that consists of “theory of forms.” Platonic thought with its foremost significance discussed first. Platonic idealism can be described simply as “Form -as- Idea.” Plato’s theory initiated the development of a certain notion of form. Formalist thought is later discussed through Aristotle, Augustine, and Hegel, whose ideas spread and transmitted western thought over centuries. Formalist thought saturated architectural thinking through Vitruvius. Vitruvius’ ideas and principles were overviewed in this context.

Renaissance and Baroque architectures are discussed comparatively as two styles both structured within the Cartesian system yet possessing two distinct attitudes towards form and space. Both Renaissance and Baroque styles possessed the same elements. And it is true that, behind the so-called chaotic baroque style, there existed still a formal order and a formalist conception. However, within the limits of the Cartesian system, the Baroque presented a conscious critical transformation of the formal nature of the former style into a multitude of forms challenging an understanding of form that is absolute, idealized, inert, and preconceived as the outcome of a formal intention. The Baroque also appreciated the value of aesthetic experience. It also exhibited an open structure against the closed structure of Renaissance.

263 Yve-Alain Bois and Rosalind E. Krauss, *Formless: A User's Guide*, p.13-41.

Jay Hambidge adhering “dynamic symmetry” as superior over the “static symmetry”, has in fact celebrated the potential power of “movement” over “fixity.” The hidden humanism is quite clear behind Hambidge’s argument. Yet he goes beyond the definition of classical formalism, suggesting organicism in opposition to classical formalism. In that sense being a formalist, Hambidge contributes to later arguments, which suggest a more dynamic approach in the process of the realization of form.

Reminding us of the opposition of *becoming* to that of *Being*, and clearing the way for the possibility of new patterns of order, the study of non-Euclidean geometries opened the way to new space conceptions, new formal relations or new definitions. The developments in mathematics, science and technology and the ability to go beyond Cartesian reductionalism, enabled a reconsideration of what earlier had been avoided or ignored, declared as chaotic, irregular, or irrational. The formulation of fractals, for example, indicates the end of classical mathematics that based (or limited) itself on the figures Euclid and Newton. In fact, the concept of “fractals” has constituted a challenge for classical geometry and architecture. Interestingly in his book *Fractal Geometry in Architecture and Design* Carl Bovill discusses fractal concepts as a relatively new mathematical tool and fractal geometry as an example of a technology touching to the core of design composition.²⁶⁴ Bovill suggests two ways for the use of fractal concepts in architecture and design; first “as a critical tool” and second “to generate complex rhythms for use in design.” Moreover, chaos theory, that has been associated with the fractals, proliferating on the relation of chaos to order, underlies a possible relation of “complexity” and “mathematical equations,” describing a bend between the terms “equilibrium” and “chaos.”

Ayse Erzan in her "Abstract Machines and Calculable Grammars of Geometrical Shapes" has explored the possibilities of the new patterns of

²⁶⁴ Bovill, *Fractal Geometry in Architecture and Design*, p.3.

organization. It is clear that, in fact, fractal geometry can be generated mathematically in computer graphics, in that sense they can be described in algorithms. Ayse Erzan's study not only explains the generation of fractal patterns through computer systems but also offers a potential for the study of alternative pattern formations in the field of architecture.

The suppositions of artistic formalism now seem to be questioned by contemporary architectural practice, opposing classical architectural tradition, exploring the involvement of architecture with life and immediate reality. Some influential significant works of contemporary architects that are in close relation to the current ideas on examination of space in and out of its formal qualities were discussed with the intention to show that there are cases where architecture no longer exclusively aims to serve a higher order within the limits of pure, timeless, unchangeable, ideal form understanding isolated from life.

Anti-formalist attitude in fact suggests a design process where architectural totality is arrived at within the consideration of both the formal and non-formal features (such as the information on site, economic and social conditions, program, and context) as elements. The resulting form is the product of a process rather than the preconceived outcome of a formal intention.

The value of aesthetic experience is undermined in artistic formalism where the inert valuation of the artwork becomes the dominating character in the creation of form. Anti-formalism is a line of thought that encourages the fulfillment of the need to develop new forms of expression with an appreciation of the value of aesthetic experience. Anti-formalism in that sense cannot be defined as a sensibility that is static, inert, or restricted.

This study, as discussed, previously, examined five projects of five different architects. Peter Eisenman's Berlin Holocaust Memorial is a project that is against the closed order. In this work unlike artistic formalist attitude, the (in the valuation

of the work its) (conceptual, cognitive, etc.) content (as Dzemidok mentioned previously) of the work has important consequences. In that sense, the context of the project is to present an architecture that goes beyond rational constructions within its seemingly well-ordered, regular system. The project promotes the irrational presenting a destruction of order, both the order created within the project by the use of a regular grid and the order of the surrounding environment. Moreover, Unlike artistic formalism where the architect plays a pre-determiner role in the creation of form and the value of the aesthetic experience is undermined, in this work the subject's experience is considered as integral to the creation of the project and accordingly to its form. The work reconsiders and questions what the classical introduced as proper composition and offers a re-organization in terms of its form, for our own space and time.

In Daniel Libeskind's Jewish Museum Berlin, in Germany, Libeskind creates an architectural space that is the outcome of a solid and void dialectic, which includes physical experience as a relation between the visitor and the architectural work. Here the form is the outcome of a process rather than a pre-conceived outcome of a formal intention or an imposing pre-established order. The project is an architectural work, which, as a structure, contains the relations between a dynamic structure that is synthesized in experience and a static scheme that tries to overtake it in the objective realm. The project identifies objectification with formalism and in that sense it looks for the possibilities that would extend this static understanding. Therefore, the tension is tired to be created by the dualities between the stable form, equilibrium, and destabilization, perfection and imperfection, fixity and movement. The project offers an alternative solution to formalism. The project can be seen as an attempt to create a dialectic between formalism and anti-formalism.

Foreign Office Architects' (Farshid Moussavi and Alejandro Zaera-Polo) design, Yokohama International Port Terminal, in Yokohama, Japan, constitutes a challenge to the three dimensional classical Euclidean space and idealized form

understanding. The project is a seamlessly running continuous surface structure. The walls, floor and roof, turned into surfaces, into a form of environment that interacts with the environment, become surfaces that create (structure) an unbounded space, transforming the utopian space, challenging the three dimensional classical Euclidean space and idealized form understanding as adopted in formalist theory and practice. This project looks at the issue of form from a broader perspective. It enables the search of the potentials of architectural form in the contemporary architectural world. This project concentrates not only exclusively or primarily on formal relations, but values the non-formal aspects of the work.

Frank O. Gehry's Walt Disney Concert Hall Building is a project that does not follow established rules. As in Yokohama Port Terminal, walls, floors and roof become surfaces yet this time the outer form is shaped from the inside by these surfaces. The project challenges the conventional traditional form understanding.

Hiroshi Hara's, Kyoto Train Station, in Kyoto, Japan is an important example to understand the future of architectural projects and architectural form. The non-formal features of the work participate in the constitution of the work and these features (in this case, its material and content aspects, its social significance, its context or program) seem to be as significant as the formal properties. The station as a commercial development is a connection of various facilities that are juxtaposed with interconnection systems of networks and fluid spaces. The large scale and the scale variances of the project house both the conventional and the non-conventional activities. Form is subordinated in the process. Although the overall regular rectangular form of the building is there at every moment of the experience of space by the visitors, due to its large scale and the scale variances, it is hard to grasp it totally. In that sense the project creates a dialectic between formalism and anti-formalism.

In fact, design processes which introduces the potential of breaking with the old traditions of dealing with the architectural design problems and accordingly new

space conceptions which provide the new systems of “order” whose processes on the way to the realization of “form” should inevitably be studied to open up new possibilities in contemporary architecture. I hope to prove that the two concepts, “formalism” and “anti-formalism” have the potential to transform into one another and they can be studied as continuities and discontinuities. As an after thought, in consequence of this research it can be stated that what we call anti-formalism could itself turn into a formalist attitude.

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