



**A READING ON ARCHITECTURAL FORMS OF DIGITAL AGE
THROUGH GILLES DELEUZE’S PHILOSOPHICAL CONCEPTS**

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BY

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ETHICAL STATEMENT

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(M. Sc. Thesis)

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ABSTRACT

With the recent digital break, there have been great changes in architectural design and manufacturing practices. In addition, it is a fact that, in the historical process, architecture have had a lot of communication and mutual interaction with fields such as art, philosophy, politics and technology. In this context, within the scope of this thesis, the developments in digital design technologies experienced in the early 90s and the concept of fold by Deleuze, which can be seen as basis of these developments, have been examined. The motivation of the thesis is to read the traces of the concept of folding on contemporary architectural productions and to seek answers to the question of whether Deleuze's philosophy still having potentials for contemporary architects and designs. A field study was conducted with the analysis made on 4 designs of Bjarke Ingels, one of the star architects of the 21st century, in various scales and programs. In this process, the selected structures were attempted to read through the fold concept. In addition, the concepts of rhizome, multiplicities, fracture and smoothness that form the tectonics of the fold have been included in the study as sub-evaluation criteria. The hypothesis has been tested by evaluating the findings and the research question has been answered. As a result of the research, it has been seen that Deleuze's philosophy still has traces and potentials in the digital world of the 21st century, and the thesis has been concluded with suggestions that will deepen future studies in this field.

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GILLES DELEUZE'ÜN FELSEFİ KAVRAMLARI ÜZERİNDEN DİJİTAL ÇAĞIN MİMARİ FORMLARI ÜZERİNE BİR OKUMA

(Yüksek Lisans Tezi)

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ÖZET

Yakın tarihte yaşanan dijital kırılma ile mimari tasarım ve üretim pratiklerinde oldukça büyük değişimler yaşanmıştır. Bunun yanı sıra, tarihsel sürece bakıldığında mimarlığın sanat, felsefe, siyaset, teknoloji vb. gibi alanlarla da oldukça fazla iletişime girdiğini ve karşılıklı bir etkileşim içerisinde olduğu da söylemek mümkündür. Bu bağlamda, bu tez kapsamında 90'ların başında yaşanan sayısal tasarım teknolojilerinde olan gelişmeler ve bu gelişmelere altlık olan, Deleuze'ün kıvrım kavramı incelenmiştir. Tezin motivasyonu, kıvrım kavramının çağdaş mimarlık üretimleri üzerindeki izlerinin okunması ve Deleuze'ün felsefesinin çağdaş mimarlar ve tasarımlar için potansiyellere sahip olup olmadığı sorusunun yanıtlarının aranmasıdır. 21. Yüzyılın star mimarlarından olan Bjarke Ingels'in çeşitli ölçek ve programlardaki 4 tasarımı üzerinden yapılan analizler ile bir alan çalışması yürütülmüştür. Bu süreçte seçilen yapılar kıvrım konsepti üzerinden okunmaya çalışılmış, kıvrımın tektoniklerini oluşturan rizom, çokluklar, kırılma ve pürüzsüzlük kavramları da yardımcı değerlendirme kriterleri olarak araştırmaya dahil edilmiştir. Bulguların değerlendirilmesi ile araştırma sorusu yanıtlanarak, hipotez test edilmiştir. Araştırma sonucunda Deleuze mimarlığının 21. Yüzyılın dijital dünyasında hala izleri ve potansiyelleri olduğu görülmüş, bu alanda yapılacak gelecek çalışmaları derinleştirecek önerilerle tez sonuçlandırılmıştır.

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SYMBOLS AND ABBREVIATION

In this study, the used symbols and abbreviations are explained below.

Symbols

Definition

m²

Square meter

Abbrevation

Definition

ALCA

Agence Livre Cinema & Audiovisuel

BWO

Body without Organs

BIG

Bjarke Ingels Group

FRAC

Fonds régional d'art contemporain)

MECA

Maison De L'économie Créative Et De La Culture En
Nouvelle-Aquitaine

OARA

Agence Livre Cinema & Audiovisuel

1. INTRODUCTION

Scope of the thesis

Today, the architectural paradigm faces a different theoretical and practical shift of mind with the emergence of digital design tools. Besides these changes, changing rational systems, art, social situations, and philosophy are also influential in shifting the architectural paradigm. It would not be wrong to say that these parameters have influenced architecture since the beginning of architectural history. In this thesis, the effects of philosophy and changing digital design/fabrication technologies on architectural theory and practice have been examined. Philosophical movements have always influenced the productive minds of the period. The effects of this situation on architecture can be observed inevitably in the 19th and 20th centuries. In this range, Gilles Deleuze and his philosophical corpus were chosen to study among the many philosophers and philosophical movements that influenced the history of architecture. The main reason for this is that Deleuze's philosophical concepts can provide more interactive and up-to-date responses to the emerging technological productions of today. Although the intersection of digital architecture and Deleuze's philosophy has been studied many times in recent years, it has not been seen that the main concepts discovered in this intersection are read through the architectural productions of the new age.

Research Question

When Architectural design (or any other design-related field) processes are looked through, it can easily be observed that architecture internalizes its inputs from various fields such as philosophy, technology, art, sociology, history, etc. For instance, many design-related references can be found within the literature of philosophy. Gilles Deleuze's works give references to everything in a wide range: social situations, linguistics, anthropology, and formal clues of design. This research has emerged from this point; can we find formal references through Deleuze's philosophical concepts? Is it possible to read new ages' digital architecture through parameters derived from Deleuze and Guattari's works?

Hypothesis

The relationship between Deleuze and architecture, which started with the research question, took us on a journey to question our hypothesis: "Deleuzian philosophy can offer a range of potentials to the new generation architects at the building scale and the urban scale." As a result of the research and analysis, the research has been completed with the approval of this hypothesis. It is understood that it is possible to design many scales with complexity and potentiality by taking formal references from Deleuze.

Limitations and assumptions

The limitations in this study started with the investigation of the cases to be analyzed. The research has been carried out on the structures produced with digital design tools after the 2000s. Four buildings designed by BIG Architects between 2007-2019, which are thought to be related to the theoretical background and Deleuze's concepts, were selected. On the other hand, Fold, Multiplicity, and Rhizome, which are the concepts chosen for analysis, were the three concepts that stood out in explaining the intricate relations in the architectural design process from a different perspective a certain consistency.

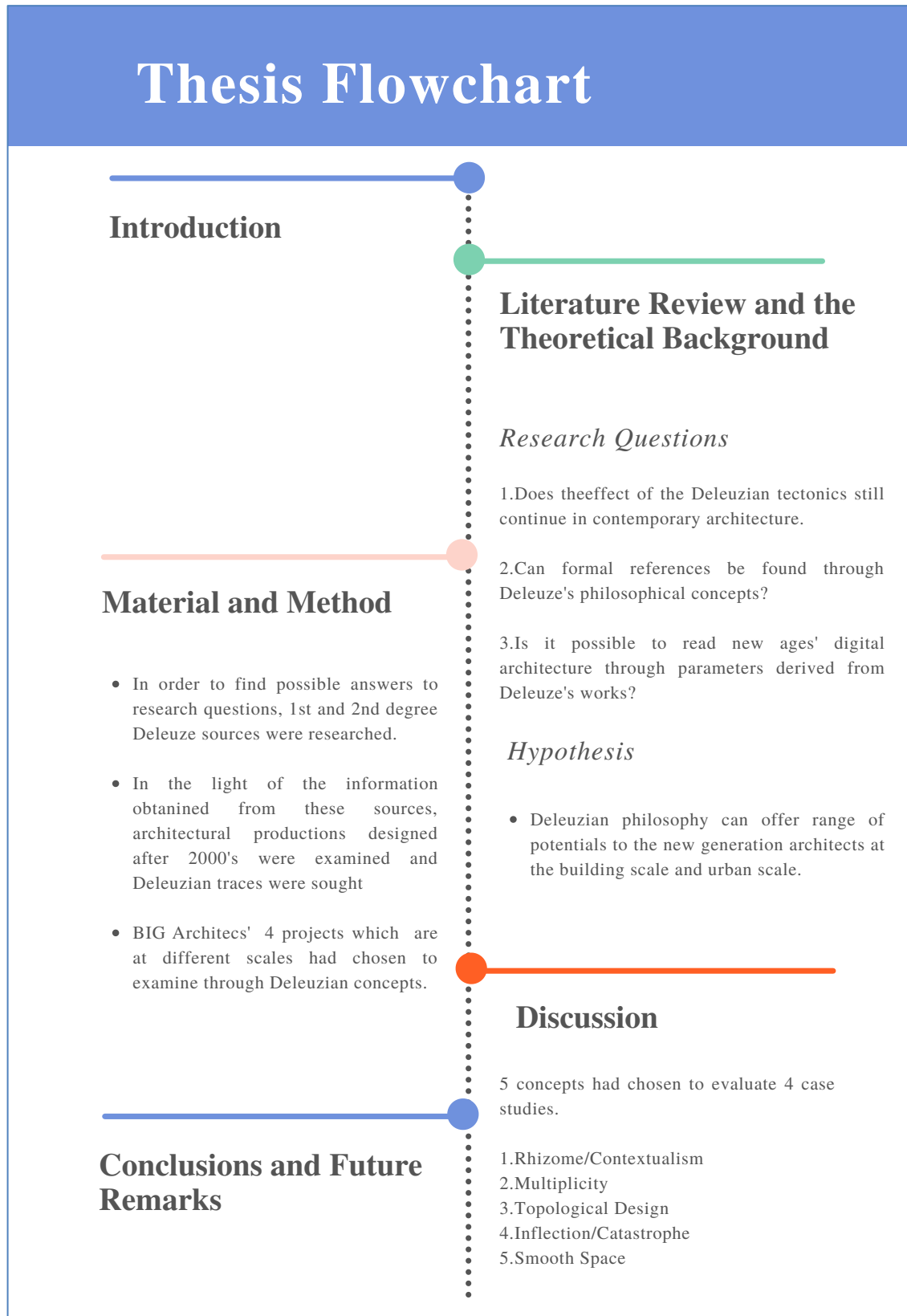
Methodology

For this research, various concepts could be selected from Deleuze's literature, and many evaluations could be made in terms of these concepts. However, the concept of Folding, which constitutes the mainframe, has created a base that cannot be replaced by any other concept in the context of this thesis. One of the most important reasons for this is that one of the most important concepts of the architecture of the 90s is folding. Many contemporary architectural styles we encounter today have emerged with the transformation of Folding. Folding, one of the most important concepts of the theoretical foundations of digital design, is the most crucial parameter of the mainframe of the thesis. On the other hand, Folding has been tried to be handled as a whole throughout the main concepts of Deleuze, which are rhizome, multiplicity, and the sub tectonic of the Fold; inflection, and smoothness. Apart from these concepts, architectural, urban and theoretical research could, of course, be done with many Deleuzian concepts. For example, relationships that buildings establish on an urban scale could be questioned through the body without organs, or an architectural style

and method of a designer could be questioned by difference and repetition. Nevertheless, adding those notions of Deleuze had a risk to distract the attention from the topic of the thesis, Fold.

On the other hand, the reasons for these four cases are another main decision of the thesis. BIG Architects has various projects designed at different locations of the world and in a range of different programs. The reason why these four projects were chosen among the projects of BIG is that these projects have different programs and different scales, and they show traces of Deleuze in the wide range of projects of BIG, even though they are projects that have been produced/designed at different times. With the urban scale Slussen project, we can read the effects of Fold in urban space. Alternatively, on a small scale, with the Serpentine pavilion, we understand how the designer can approach human-scale situations through tectonics of digital design and Fold. Also, MECA and Adelaide Contemporary show the versatility of the digital design tectonics (Which is originally folding) on the same programmatic, at different contexts.

Table 1.1. Thesis flowchart.



2. LITERATURE REVIEW AND THEORETICAL BACKGROUND

In this section, Deleuze and Guattari's works and their connections with design processes have been introduced to draw a framework for this research. This phase of literature review conducted from primary and secondary sources and described to clear the main concepts developed by these two philosophers, their connections between architecture and design processes, technology, spatiality and parameters.

Later, theories of the digital design and fabrication tools have been examined and introduced to relate and intersect through the substructure that has been built at the first part of literature review. On this phase, all the necessary concepts and terminologies have been searched to understand the philosophy and tectonics of digital design theories.

2.1 Philosophical Concepts by Gilles Deleuze

This part of the dissertation discusses the relationship between philosophy and architecture by focusing on discourses by Deleuze. Firstly, an introduction of the general influence of Deleuze's philosophical concepts on design disciplines has been revealed; then, the effects and the potentials of his concepts on design processes have been discussed in detail.

Many different fields feed the discipline of architecture and its boundaries are not clear as social sciences such as sociology, philosophy, design disciplines, etc. Therefore, architecture can be called an "interdisciplinary practice." Some designers are influenced by and interacted with engineering, mathematics, statistics, etc., while the others can feed on more untechnical situations, literature, art, philosophy, metaphysics, etc. The intersection of philosophy and architecture as a mutual relationship that feeds each other in the context of this thesis. Several architect-philosopher collaborations demonstrated the potentials of this kind of relationship. Eisenman and Derrida's theoretical collaboration can be mentioned as one of the most famous relationships to develop theoretical outcomes such as Park de la Villette (Fig. 2.1.). Moreover, Greg Lynn's interpretation of Deleuze's fold is one of the most important theoretical principles of digital design theories. Also, Eisenman's folding interpretation and further architectural works throughout the folding concept have created one of the many architectural styles of the digital age.

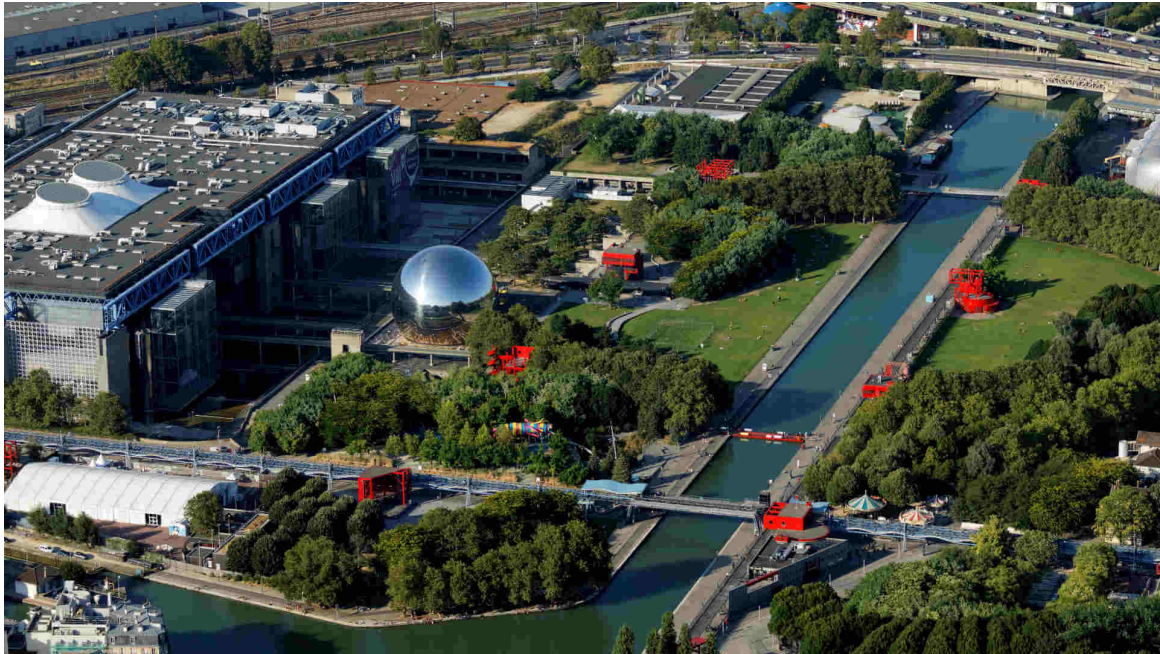


Figure 2.1. Park de la Villette ([URL:1](#))

Deleuze and Guattari have worked on several books with a common voice. In addition, they worked on several books separately. Their most recognized collaborative work is *Capitalism and Schizophrenia* - Volume 1, *Anti-Oedipus* (1972); Volume 2, *Thousand Plateaus* (1980). Their works and Deleuze's other collaborations with other philosophers affected architectural theory and practice through many lines of flights. In this part of the thesis, some important concepts of Deleuze to understand in a section of architecture and design disciplines has been selected as Rhizome, Multiplicity, Body without Organs, The Fold, Machines and architecture. The following chapters describes these concepts in detail and constitutes a framework to analyze the case studies.

2.1.1. Rhizome

The rhizome is a concept by Deleuze and Guattari (1987), which contrasts the tree-like hierarchical metaphors. The tree has specific roots buried in the land at a particular location and leads to twigs in a particular way. Therefore, here is a production system: first the roots, the stems, then the other radicles. There, and not elsewhere, the roots are buried. The twigs

are attached to the body, the fronds to the twigs. (May, 2005, p. 133) It is etymologically from the words' rhizo', which means combining form and 'rhizome' as biological term; "cause to strike root, root into the ground, plant". Deleuze and Guattari use the rhizome concept to describe the connections between the most different and the most alike objects, states, and motions, space, humans, etc. (Parr, 2010, p. 232) The root-tree's metaphysical truth is binary logic. That is to think whether this way of thinking has never found common ground for multiplicity. In terms of attaining the two related conceptual methods, a straightforward critical unity could be expected. (Deleuze & Guattari, 1987, p. 5) (Deleuze & Guattari, 1987, p. 5)

Deleuze and Guattari say on the Thousand Plateaus, "A rhizome as subterranean stem is absolutely different from roots and radicles. Bulbs and tubers are rhizomes". A Rhizome is differing from tree-like hierarchies, and it does not recognize authorities or order of emerging. When a rhizome had a chance to re-organize and spread, it can transform and intersect with other matters such as the body without organs. Any point of a rhizome can and should be connected to the others. This is different from the tree or the root, which draws a dot and sets an organization. A rhizome initiates constant links amongst reproductive lines, conditions in relation with arts, sciences, design, sociology, philosophy, and communal strives. The rhizome works through differentiation, creation, acquisition, seizure, and offshoots. At the point where the rhizome separates from the visual arts, the internal dynamics tectonically developed by the rhizome come into play, such as establishing relationships, being reversible, connecting to multiple situations, and reinventing itself through lines of flight. With these properties, the rhizome can be compared to forming a map. The rhizome is more like a map than a tracer case. The point where the map and tracing differ is the intersection and contact between the map and reality. The map creates a subconscious dimension; throughout these dimensions, the connections between the fields and the relationships established by bodies without organs deepen and become consistent. The map is open to external intervention, connectivity, multidimensional situation, just like the rhizome. (Deleuze & Guattari, 1987, pp. 13, 22) The relationship of the rhizome through different dimensions can be seen in figure 2.2. This diagram shows a similarity with the tectonics of the map, and it can be perceived as potentials in systematical orders.

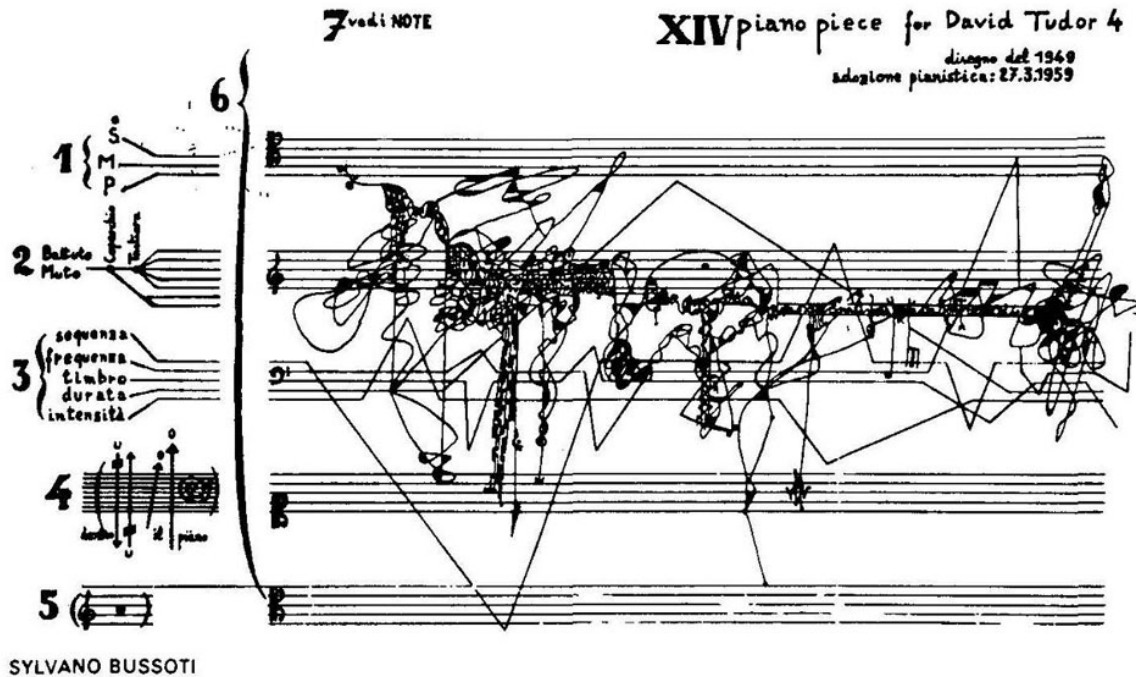


Figure 2.2. An illustration about rhizomatic relationships (Deleuze & Guattari, 1987, p. 3)

A semiotic chain tends to act like a tuber combining various actions, perceptive, mimetic, gestural, and cognitive conditions. A rhizome is a kind of multiplicity. The multiple situations do not need to be structured as layers adding on the vertical dimension, and it can form by subtracting unique from the multiplicity that can be account for in its context. (Deleuze & Guattari, 1987, pp. 7, 8) The multiple state of being is an intersection of various-dimensional patterns of stratum or vastness of unity which has unique essence of the matter. It is also a machine that links to other nexus of matters and reinvents a new state of stratified magnitudes. Rhizomatic situations are any nexus of matters conduct through intersections accompanied by one another, operating as a machine for assembling new matter, new deeds, new concepts, new bodies. Bodies and things continuously get through to new dimensions by crossing or intersecting with each other with varying and disparate entities by the passage of time. Rhizome portrays a different way of conceptualizing the realm as a unity which is the state of Deleuze's perception. Rather than an ordered series of structured unities in which semiotic identities or theoretical frameworks can be assembled from absolute root to tree-like system, Deleuze and Guattari believed that the idea of the cosmos and its constituents can be expressed through the rhizomatic interventions of objects – revolutions, densities, and polymorphic configurations. By comparison to the falling growing based assortment of structures, rhizomes do not possess a classified ordering for their composite interrelations. (Parr, 2010, pp. 233, 234) While the tree adopts a hierarchical order, the rhizome is a kind

of alliance in the way of coexisting. The tree constructs its own tectonics with the verb to be, but the rhizome creates itself with the conjunction "and ..., and ..., and ...". Being a rhizome is a root-like situation but with more potential. Rhizomatic situations are a way of being about generating series of productive probability by penetrating other things through new stems and fibers. A rhizome may lose its bodily integrity or be ruptured. However, with the possibilities of its internal tectonics, it will begin again through its remaining parts or new filaments that it connects with new situations. The rhizome represents an intermediate state, a state of coexistence, a kind of intermezzo. (Deleuze & Guattari, 1987, pp. 9, 25) Rhizomatic states are the potential for creating multilayer states. This potential organizes and enriches relationships between layers and relations with the outside. The stratification situation can also be associated with Deleuze's multiplicities.

2.1.2. Multiplicity

The multiplicity instantaneously apprehended as such insofar as it approaches or moves away from zero, each distance being non-decomposable. (Deleuze & Guattari, 1987, p. 31) The first discussion of the multiplicities in Deleuze's philosophy can be seen in Bergsonism. Deleuze underlines two kinds of multiplicities in Bergsonism: extensive numerical multiplicities and continuous intensive multiplicities. (Roffe, 2010, p. 176) Notions of extensive and intensive are taken from thermodynamics, where they are interpreted not as a divergence between virtualities also between magnitudes or quantities, while extensive multiplicities (size, volume, length) are additive and intensive multiplicities are not. Producing and thinking through multiplicity has some important aspects. The term was first emerged for reinventing the way of discussions and posing spatial problems. (Delanda, 2005, 83) Deleuze and Guattari mention about this situation on Thousand Plateaus (1977):

"Multiplicities that are extensive, divisible, and molar; unifiable, totalizable, organizable; conscious or preconscious- and on the other hand, libidinal, unconscious, molecular, intensive multiplicities composed of particles that do not vary without entering another multiplicity and that constantly construct and dismantle themselves in the course of their communications, as they cross over into each other at, beyond, or before a certain thresholds. The elements of this second kind of multiplicity are particles; their relations are distances, their quantities are intensities, differences in intensity."

Multiplicity arises when we no longer approach it with traditional concepts of subject and object and begin to build our thinking system through layers. A "multiplicity" has only determinations, dimensions, and layers; it has no subject and object in its internality. (Deleuze & Guattari, 1987, p. 8) Ontologically, when it is concerned with determining the existence of being, Deleuze embraces Bergson in submitted multiplicity as an alternative to one or more. The inference of Deleuze's selection of multiplicity as an ontological structure and the totality of a multiplicity as constant are pointed out when Deleuze argues that multiplicity distributes "the many as such" and that organizational strategy "does not require unity to structure a system at all." (Vartabedian, 2018, p. 8)) The concept of unification occurs only if the signifier or a correlating subjectification process has an energy acquisition in the multiplicity: this is the situation for a pivot unity that forms the foundation for a range of biunivocal associations amongst impartial constituents or positions, or for the "one" that separates the subject according to the rule of a binary logic of distinction. Unity allows the empty dimensions to be articulated to form systematic situations. From this perspective, beings -things- do not consist of units of measure; stratified "multiplicities" and variations organize our existence. (Deleuze & Guattari, 1987, p. 8) Unities contain stratum, which assembles to multiplicities and sometimes diverges from each other. This leads us to the terms in the second volume of the *Capitalism and Schizophrenia*, there are two terms – "strata" refer to the formal organization of inscribed bodies, and 'assemblage' denotes multiplicity that holds together singular bodies in relations of exteriority also it holds together bodies without summing them as a seamless whole. (Jensen & Rödje, 2010, p. 112) When viewed on a macro scale, organisms are seen as an independent whole consisting of units or organs. However, on a micro-scale, we see that a vast array of "multiplicities" repeats forever in the organism, independent of organs and units. (Buchanan, 2008, p. 24)

Multiplicities and stratified situations do not need to imply multiple situations. Another kind of state of being is Monad. Leibniz (1714) describes spirituality and materiality through Monad as a metaphysical situation. Leibniz borrowed this concept from Neoplatonists; describes the state of being "one", the integrities surrounding the multiplicity, and the systems that produce the series of multiplicities that produce the status of "one" through the concept of Monad. In the Deleuzian theory, the term was developed precisely an attempt to dodge the conceptual conflict between the multiple and the One, to avoid the dialectical, to

achieve in procreating the multiple in a pure state, to cease to visualize it as a numerical fragment of the misplaced unity or totality, or as an organic part of the unity or totality yet to emerge, but rather to differentiate between different varieties of multiplicity. (Deleuze & Guattari, 1987, p. 32) While multiplicities cannot be stratified independently of folds. Since this is the case, multiplicities are produced when enveloped and folded. However, its envelopments and productions and their consequences and explanations are indeed precise motions that need to be interpreted in a common togetherness that makes complex all of them and complicates all the Ones. However, the reason why Monad is associated with Leibniz can be explained under two reasons; Mathematics of inflection permitted him to introduce the encompassing sequence of multiples as intersecting sequences of never-ending series. On the other hand, the metaphysics of implementation allowed him to submit the encompassing unity as a separate irreducible unity. (Deleuze, 1993, p. 31) This can be understood from Deleuze and Guattari's statement on the tectonics of multiplicity (Thousand Plateaus, 1977) "The multiple must be made, not by always adding a higher dimension, but rather in the simplest of ways, by dint of sobriety, with the number of dimensions one already has available. Subtract the unique from the multiplicity to be constituted." Unity can refer to the internality or externality of things. Rather than the distinction between interior and exterior (which is a relative and reversible situation), it is essential to distinguish between the different kinds of multiplicities. Their coexistence, intertwining, intervention, and displacement through each other, their layers and magnitudes. (Deleuze & Guattari, 1987, p. 36) Layers and spirit of these strata are elements of multiplicities. In the context of the internality of things, the multiplicities that replace the multitudes are the essence of things themselves. Everything is a multiplicity as long as it reproduces an idea over and over again. The multiplicities may also consist of many-layered states or particular states of unity which leads to the One. The unity of the One as a multiplicity is capable of eliminating the two contrasted states of one-many and many-one types. The multiplicity is inherently defined throughout all situations, without outer allusion or alternative to uniform space where it could be immersed. Spatial-temporal interactions undeniably preserve multiplicity but sacrifice interiority; principles of perception sustain interiority but end up losing multiplicity. (Deleuze & Patton, 1994, pp. 182, 183) Abstract lines, lines of flight, or deterritorialization where these notions alter the earth's spatiality and interact with multiplicities explicates the multiplicities. Gridal stability cannot correspond to the layered state of the multiplicities. The line of flight marks the reality of a finite number of dimensions that the multiplicity effectively fills; the impossibility of a supplementary dimension, unless

the line of flight transforms the multiplicity; the possibility and necessity of flattening all of the multiplicities on a single plane of consistency or exteriority, regardless of their number of dimensions. (Deleuze & Guattari, 1987, p. 8)

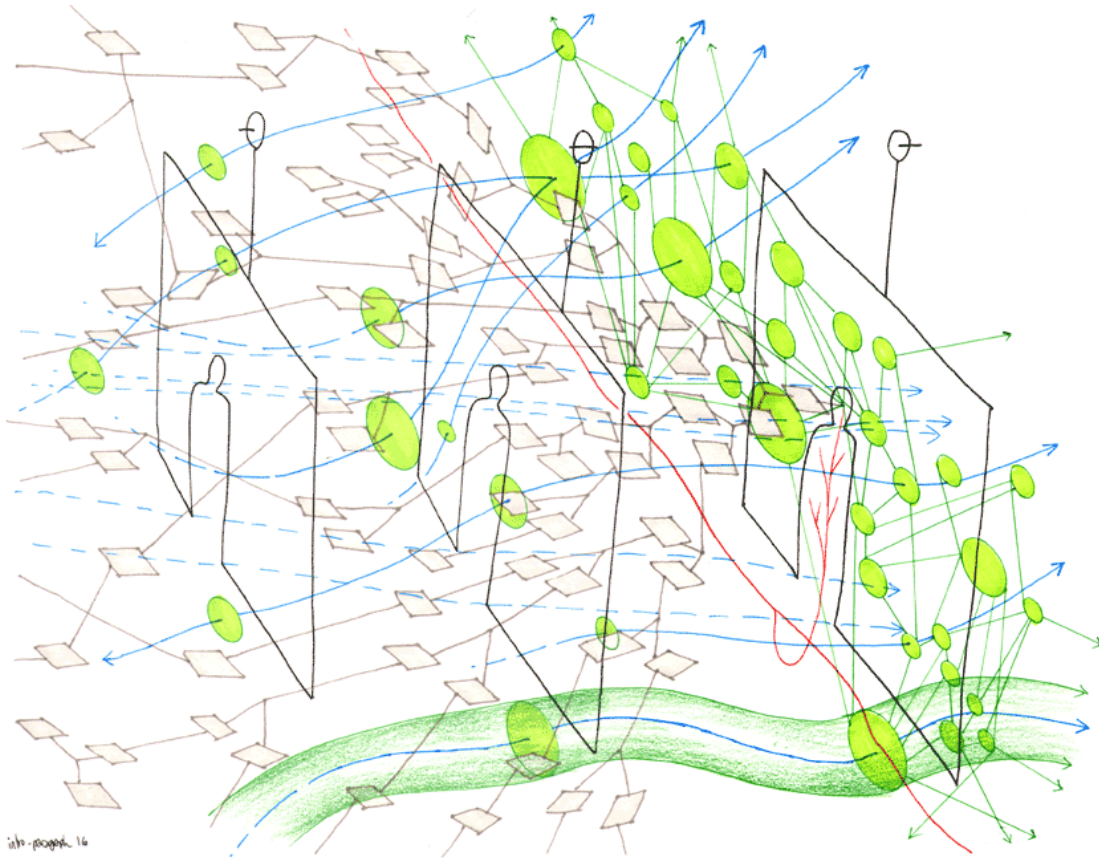


Figure 2.3 Multidimensional relations through Multiplicity. (URL 2.)

Although these concepts that Deleuze interrogates seem abstract, they aim to provide a coherent framework for making sense of the world. The "multiplicities" do not seek the foundations of the philosophy of existence on a transcendental plane. As the Things (such as us/we) exist in the multiplicities and integrate into the multiplicities as multiplicities, the things (which are also multiplicities) take part of both the subject and the object role in changing situations contexts. The virtual counterparts of our actual multiplicity enable continuous movement and change, even where the world of reality appears to be the most solid and brutal. (Roffe, 2010, p. 177) Multiplicities provide an opportunity to avoid this rigid situation and make new productions. With these possibilities, the multiplicities integrate with other things, disintegrate, disappear, reinvent themselves, explode, connect, organize, etc. These possibilities inherited from the multiplicities lead us to discuss Deleuze's

body without organs which is the concept of interrelations of bodies, multiplicities, rhizomes, all abstract and tangible "things".

2.1.3. Body without Organs

The phrase "Body without Organs" (BwO) emerged from Antonin Artaud's (1947) works, and it alludes to an infrastructure that is also identified as the stratum of density, which is a non-formed, unorganized, unstratified, or de-stratified body or notion. The logic of Sense (Deleuze, 1990) was the first place the term has emerged in the Deleuzian framework further *Anti-Oedipus* and *A Thousand Plateaus* (Deleuze and Guattari, 1987) are the works that the term has expatiated. (Parr, Message p.37) The BwO is what remains of you when you take it all away. What has taken away is, in fact, the fantasy and the meanings and subjectivities as a whole. The BwO is produced in such a sense that it can be filled only by intensities. Only intensities are going through and circulating. Still, the BwO is not a scene, a place, or even support for something to eventuate. The BwO enables intensities to pass; it develops and spreads them in a spatio that is itself intense deficient in extension. The semi-permeable membrane of the body without organs turns into a slippery and impermeable surface to machine organs and does not interact. It even creates counter-flows to prevent interaction. (Deleuze & Guattari, 1977, p. 8) The BwO is not a three-dimensional spatiality, nor it is a spatiality; It is a matter that occupies space to a certain degree — to the degree that corresponds to the intensity produced. (Deleuze & Guattari, 1987, pp. 151, 153) Body without organs is developed 'alongside' the relations of the desiring flows. On figure 2.4, the zones add up to a range of spaces; however, this whole is never offered, as the opportunity for further communication and development is always present. Legitimately, the body without organs is the depth that has been created. Therefore, illegitimately, one may conclude that the body without organs was the original subject or territory from which finite domains or zones were formed. The BwO is assumed to be the ground or life against which the human organism has defined itself. (Colebrook, 2005, pp. 192, 193)

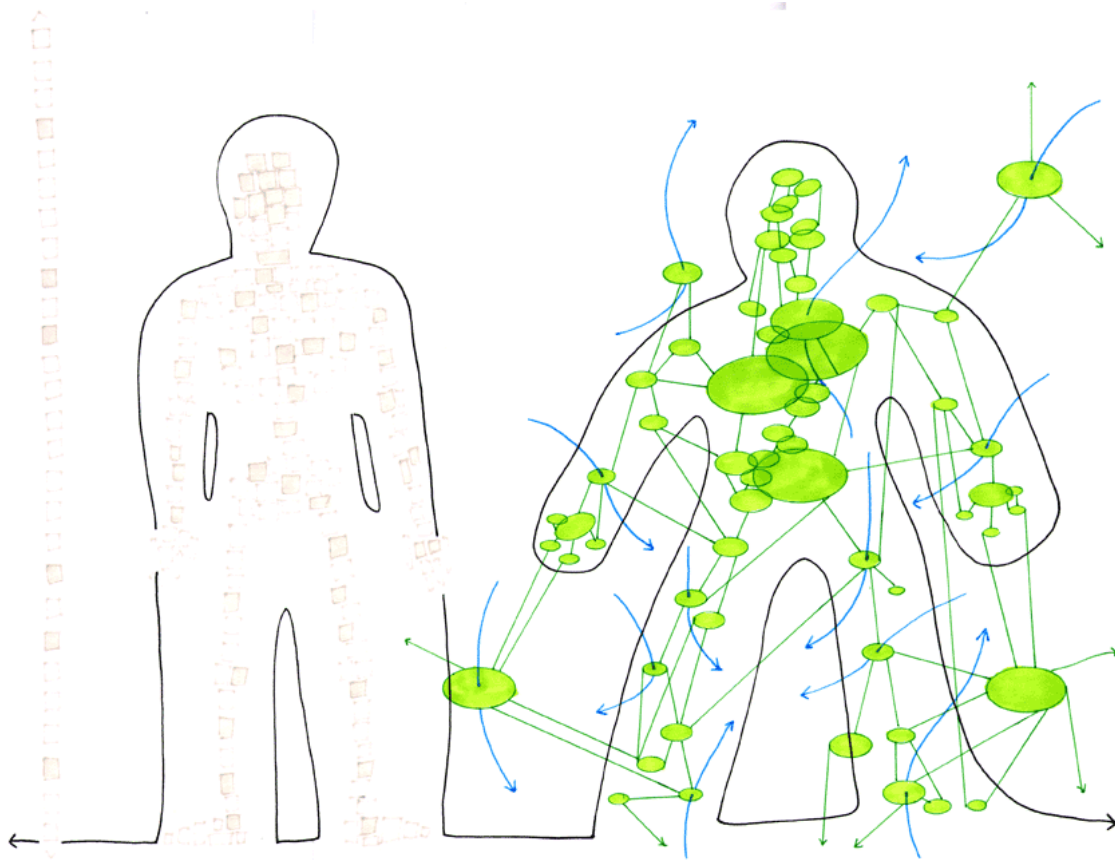


Figure 2.4 Desiring flows alongside the body without organs. (URL 2)

This multi-sided notion of BwO is given Deleuze to concrete the relations of productivity and connections of the cosmos itself. The full body without organs is the unproductive, the barren, the unengendered, the unconsumable. The body without organs is non-productive; however, it is made, at a certain level and at a particular phase in the connective synthesis, identifying the subject and the object: the schizophrenic table is a body without organs. The body without organs is not the evidence of the initial nothingness, nor is it what is left of the misplaced unity. Above all, it is not a projection; it has nothing at all to do with the body as its own or with the perception of the body. It is the body without a form and perception. This imageless, organless, non-productive body resides where it is created. The body without organs corresponds to the anti-productional context; yet another feature of an interconnective or productive integration is that it combines production with anti-production through anti-productional tectonics. (Deleuze & Guattari, 1977, pp. 8, 9) Instead of moving explicitly to invert or deconstruct terms dominant in the development of identity and consciousness, Deleuze and Guattari (1977) propose that other – perhaps more affective – fields of immanence and states of being are implicit within, throughout, and all around them.

The Body without organs is not an organism or ordered unity; furthermore, it does not exist in contrast to the organism or subjectivity concepts, and it is never entirely free from the stratified conditions of proper language, state, community, or other agencies. Furthermore, given this, it is both everywhere and nowhere, fragmented and homogeneous. (Message, 2010, p. 27) A completely sealed body that had no world would be deprived of the means of a consistent life; a hollow body without boundaries would not be a body at all, would not have a consistent individuality. What is needed, then, is a boundary or membrane that allows interaction with the outside, but the outside, which is always exterior to this boundary body, and which is treated in such a way as to generate only the alteration or anxiety necessary for continuous self-maintenance. (Colebrook, 2011, p. 16) Although, This transparency of the exterior surface also relates to folding. It intersects with other magnitudes, folds or merges, generates new dimensions, and becomes part of other body without organs.

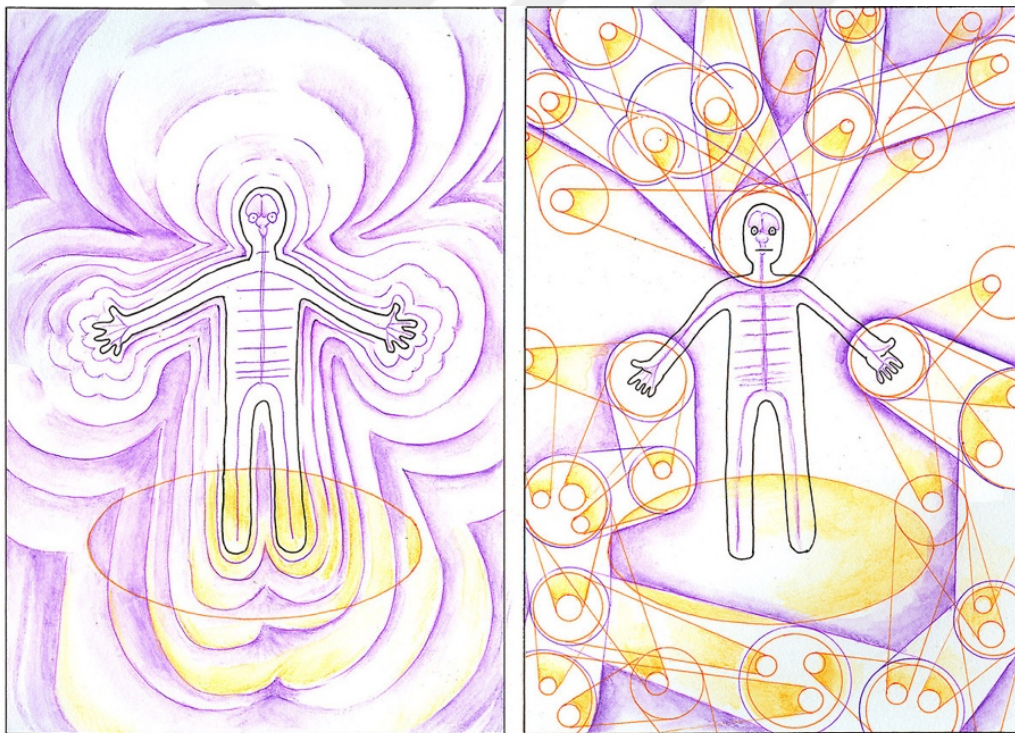


Figure 2.5 A difference between sealed body and body without organs. (URL 2)

The BwO is a condition of imagination where perceptions are allocated; it is the condition before the development unfolds, in which all opportunities are instinctive, and there are prejudices of rationality about what the development could emerge. As stimuli or inner stress activate a line of flight, the forms gather, allowing for the development of a condition- a framework, a leitmotiv, a specification of being. The purpose was that the model in its initial situations would be eminent and emerge due to the numerous dynamics at folding and

unfolding throughout the ecosystem. (Ballantyne, 2007, p. 36) As can be seen, the concepts of Deleuze always have tectonics that feeds each other. Rhizomes and multiplicities, multiplicities and bodies without organs, their relation to folding; They all try to make sense of the world in unity and solidarity. Among these concepts, the concept of folding will be examined in the next section

2.1.4. Deleuze and machines

Deleuze and Guattari's problematizations of machines lead them, by contrast, to a concept of multiplicity without an essence – or better, with a "nomadic" essence- a complex configuration of machinic and enunciative elements called and assemblage. (Bogard, 2009, p. 15) According to Deleuze and Guattari; The assemblages have a dual simulacrum: a concept of material, that is, a machinic form constructed of variation of adjusted subjects and dynamic parts; and a manner of idiom consisting of declarations and enunciated systems. Machinic systems are all around; actual machines, factual machines: machines which are used by machines, machines operate other machines, including all the essential pairings and contacts. An organ machine is stuck to a power-containing machine: with a mutual or parasitic assemblage. (Deleuze & Guattari, 1977, p. 9) A machine inhibits a motion of matter or energy, such as when a child's mouth in a mouth-breast assemblage consumes the fluid of her mother or a turnstile funnel a crowd via a doorway. The form of the machine alludes to the order in which the parts are selected and assembled, the parameter of the assembly of the machine. All kinds of machines have existed like part of stratum such as machines of imagination, matter, abstract, desiring, etc. (Deleuze & Guattari, 1987, p. 43) Each of these machines, each of these possible states of being, is a zone of intensity. (Buchanan, 2008, p. 42)

Moreover, desiring-machines are the main concepts Deleuze underlines when the tectonics of reality need to be understood. Desire machines are binary machines, consistent with binary legislation or system of laws restricting interactions: one machine is always connected to any other. The creative production, the process of development, is ultimately intersecting in trait: "and . . ." "and then . . ." That is why a motion-developing machine consistently exists, and another machine linked to it breaks in or creates a fractal of this motion. Constant motions of flowing and fractal matters are combined with desire relentlessly through the nature of partials and apart. Desire triggers the stream to flow; flowing reverse itself and

shatters through the streams. Each "object" presumes the consistency of a motion; each flow, the image of divergence. But interaction is formed with another machine, through a lateral direction, and if that, either machine affects the other's current or "perceives" distorted its own existing. Therefore, the linking of the fractal network of object-flow heterogeneity often has another form: product/producing. The reason "why" production is a positive action that production is always something that has been transplanted onto the fractal, which is similarly processed machine to machine connections. (Deleuze & Guattari, 1977, pp. 4, 5) Essentially, Deleuze and Guattari want to demonstrate this: Throughout the complete phase of psychosis, the schizophrenic demonstrates to us the fundamental nature of desire as an artificial operation. Deleuze and Guattari demonstrated the tectonics of the desiring-production of nature with the situation of the schizophrenic process. Before being a schizoid state of mind that has become an alienated entity through autism, schizophrenia is the operation of desire and desire-machine development. (Buchanan, 2008, p. 40)

From the one machine -desire- we might derive another machine -abstract-. Abstract machine notion is derived from Foucault's works which often question the power of systems and fractals. Perhaps his most famous study of an abstract machine is the criticism of discipline. It should be considered discipline to be an abstract system. There is no such thing as the absolute actuality that one could refer to or distinguish from the diverse varieties it lasts. Instead, it puts up various procedures below a certain power scheme. Through Deleuze and Guattari, it could be claimed that the discipline, like other abstract machines, over-codes a society's molar lines. Unless an abstract machine is developed from the repetition of a range of molar lines, the establishment works to create and sustain the abstract machine. "In the scientific practices there is no "State" related branch, but it is in an interaction with an abstract machine which is almost impossible to understand without a condition of state and range of motions that it creates. In the middle of the material systematics and its way of making identities through, a notion as an abstract machine is hard to relate with a current situation of any society. The state, even though hanger-on, is a core aspect of a community that hopes to keep the system by enforcing consistency through its horizon. The state, according to Deleuze and Guattari, does not arbitrate. It does not utilize its corrupting influence on the cannons of pressure to avoid a series of collective minds controlling everything else. Then, the state is authoritarian by disposition. The state is conscious of discipline and generates the situations whereby abstract systems could strengthen the individuality of molar lines and materialize them to the same type of regimen.

The state is parasitized, dominant, and harsh that generates a complex mutualism with capitalism. (May, 2005, pp. 141, 142)

The Body without Organs is also a machine, through this concept, a second theme appears: The BwO as such, as it were, a liquid surface on which the inorganic functioning of the organs takes place; a non-productive or anti-productive surface that thwarts the productive activity of the organ-machines, at times making them stop dead in their tracks in a catatonic stupor. However, the actual foes of the BwOs are not the organs themselves. On the contrary, the common foe of both the organ systems and the BwO is the systematic inward box of organ bodies, which is the entity that enforces a dictatorship of despotic, collaboration, inclusion, reactivity, and coproduct on the organs. In this sense, the organs of the organism are indeed the enemy of the Body without Organs, which attempts to repulse them, to denounce them as so many apparatuses of persecution.

2.1.5 The Fold

Deleuze has not made a clear explanation or determination on architecture and space as can be understood from the network of concepts and relations mentioned above. However, the situations, relationships, and concepts he proposed form an organic connection with space and production chains. If this ambiguous relationship and concepts are seen as a catalyst that will push an architect to establish rhizomatic relations, to design multiplicities and relations, the real effect of Deleuze's philosophy on architecture has emerged in design practices. However, there is one concept that Deleuze created; the fold, which is vastly adopted by the theory of digitalization and architects. The fold is interpreted through designers and academicians; it is also one of the fundamental concepts of digital design theories since the 1990s. In Deleuze's *The Fold: Leibniz and the Baroque*, the first paragraph starts with explaining and finding traces of the fold notion in Baroque. Baroquesk mind, Deleuze says, generates never-ending folds. The term "baroque" refers to an operational characteristic or a trait rather than a substance. It does not make up things: all folds arise and gather from the various periods and geographies. However, the Baroque characteristic is whirling the shapes, driving them towards the eternal circle of spatio, sequentially folding repeatedly. The folding of the Baroque unravels into endlessness constantly. The baroque moves through two infinities as if endlessness consists of two phases and two floors (figure 2.6); it separates the folds in two ways: the folds of matter and the folds in the soul. Multiplicity is not something

that has many strata, and it is also something that folds in many directions and intersections. (Deleuze, 1993, p. 3) The "Baroque House" becomes the allegory that opens and encapsulates the space of the study that follows. The Baroque is not an essence but a trait, a line that creates folds by twisting and turning them to infinity, "fold after the fold ... fold according to fold". The house is divided into two labyrinthine floors. The folds of the soul occupy a second floor, and the folds of matter reside on the first or public floor. The upper level is a double room or even a camera obscura adorned with a suspended canvas, "diversified by folds" as if it were a living skin. These folds (with springs or cords on the opaque canvas) represent innate knowledge, which is moved to action when, under the solicitude of matter, "vibrations" spring through "a few tiny openings" on the lower floor. Thus, folds assure a strange but indeed physical communication between matter and soul. They take the form of arteries in marble that resemble an "undulating lake stocked with fish". The arteries are inherent concepts within the spirit, such as folded figures or abstract sculptures produced from a block of solid stone. Body and soul are marbled in different ways. (Stivale, 2005, p. 176)

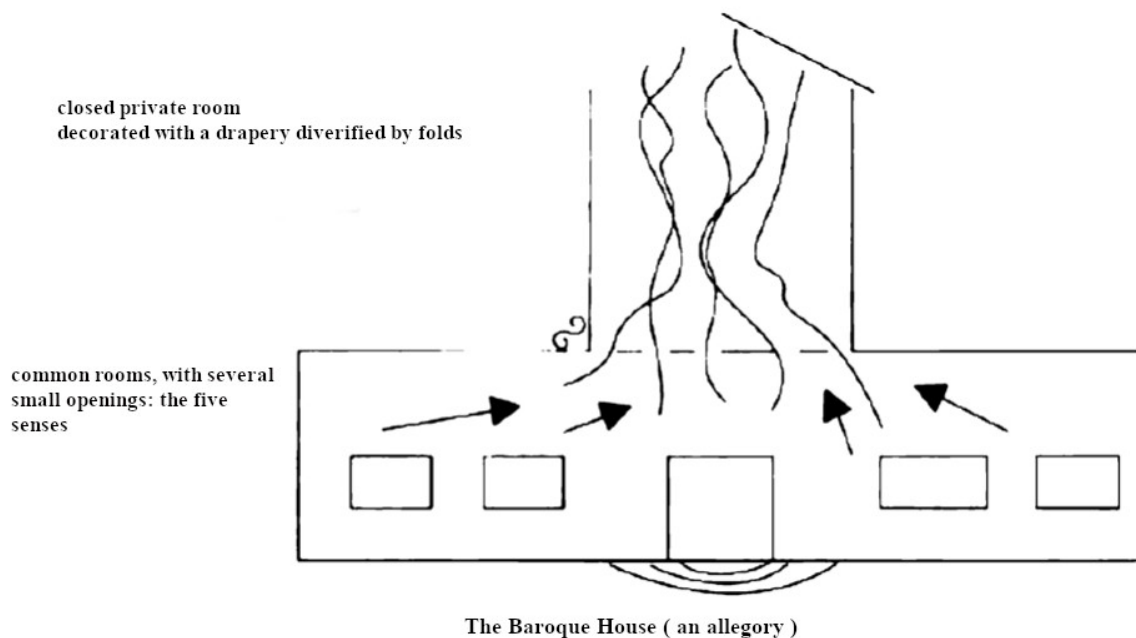


Figure 2.6. Baroque house of Deleuze.

Two floors represent the duality of the matter and abstraction. With the metaphor of two floors, in the lower segment, the material context of the bodies, such as ordinary subjects of the reality that emit waves, intersect and cooperate. This comprehensive and multilayered

equation, thus, the earth has two layers, two temporalities or two parts, one of which is wrapped or folded into monads, and the other is adjusted or folded within the material. If these two conditions have confused as mental structure, the whole system collapses into itself through reality and metaphysics. On the upper stratum, there is a line with varying contours, without dimensions, a continuum of infinite conjugation, in which the existential axes of hallow mark the orientation of the single monads in equilibrium for each branch. (Deleuze, 1993, pp. 101, 102) Between the pleats of matter and the folds of the mind, there are two labyrinths. Since it has several folds, a labyrinth is etymologically multiple. The multiple is not something with many elements. It is also something that can fold in many directions and sections. A labyrinth symbolizes each level: Matter and its sections form a never-ending labyrinth. The mind's labyrinth of independence and its actions. A fold in the middle of two folds. However, the similar concept of marble veins is attributed to both in different circumstances. The folds of matter that envelop organisms preserved in the mass are often referred to as veins. The veins may also represent intrinsic ideas in the soul, such as distorted forms or strong figures frozen in the mass of marble. The matter has been marbleized in two diverse ways. (Deleuze, 1993, p. 4)

Folding does not allow jump on one variety to another; almost the opposite, the varieties relate to the irreducibility of folding processes. (Deleuze & Guattari, 1987, p. 47) Like a cave within a cave, a fold is mostly folded throughout a fold. Unfolding is not the contrast of folding but rather tends to follow the fold through to the next fold. Tension-release, contraction-dilation, and folding and unfolding are not necessarily contradictory. Endogenous folds establish an organism, while exogenous folds establish an inorganic matter and are often evaluated without or by the associated context. Folds are mostly referred to by other folds. Folding-unfolding now refers to enveloping-developing, involution-evolution rather than tension-release or contraction-dilation. When a lifeform perishes, it does not truly disappear but instead folds onto itself, suddenly involving itself in a newly hibernating seed by skipping all intermediate phases. Everything flows as if the pleats of matter had no inherent logic. That is because the Fold is still within two folds, and the between-two-folds tend to extend through a lot: through inorganic bodies and animals, organisms and animal souls, animal souls and fair souls, and bodies and souls. (Deleuze, 1993, pp. 3 - 9)

When the tectonic foundations of the fold deepened, it can be seen that the concept of inflection is one of the inherent tectonics. The convenient hereditary aspect of a vectorial curve or fold is inflection. (Deleuze, 1993, p. 14) As a full definition in the Lexico dictionary, inflection means: "A change of curvature from convex to concave at a particular point on a curve." That is the hereditary aspect of the productive, spontaneous line that extracts. Because of their virtuality, inflection represents the point where spaces become indistinguishable from time. Thus, throughout the fold, inflection as the defining pattern of space should be interpreted through figurative and mathematical dimensions. (Harris, 2005, pp. 42,43) It illustrates his resemblance to the Baroque and Leibniz, as well as his opposition to Kandinsky. Cartesian thinking, whose axes are solid and whose point is stiff, is set in motion by an outside force. On the other hand, Klee describes the argument as a "nonconceptual concept of noncontradiction" that shifts around an inflection. It is the position where the tangent intersects the arc that is the point of inflection. This is the point of folding. Klee starts out with three figures in a row. Inflection is the first to be drawn. The second shows that an exact and unmixed figure cannot exist. There can never be "a straight line without curves intermingled," and neither "curve of a certain limited nature unmixed to another, and in tiny parts as well as large parts," as Leibniz expressed it, though "one will never be able to resolve upon such particular surface in a form as one could if there were atoms." The third imposes a shade on the convex edge, thereby disengaging concavity and the orientation of its curve, which alternately switches directions from the position of inflection. Thus, inflection is the virtual, the ideal quintessential, of the line or point. The first is vectorial, meaning it functions through an orthogonal or tangent surface of reflection and symmetry. They operate by manipulating inflection at a pivotal point, in an ogive, or angled dome, referring to optical rules. The ogive demonstrates the nature of a body in motion that advocates the arrangement of lines of flowing liquid, and in return, the profound pattern of a waterfall as water is lined together in a linear direction. Another kind of conversion is projective: it conveys the projection of intrinsic spaces identified by "hidden variables" and parameters or singularities of potency into external space. In this context, Thom's transformations are a morphology of biological organisms, containing seven foundational happenings: the crease, the fold, and the hyperbolic, the dovetail, elliptical, the butterfly, and parabolic center.' (Deleuze, 1993, pp. 14-16) Another explanation is needed while explaining the tectonics of the point to fold states in this way; the tectonics production of the fold over fold, through fold.

When fluctuation is allowed to interfere in the space of intrinsic homothesis, all tectonics transform, from now on it is not possible to calculate an angular point between two others, regardless of how adjacent they are to one another; however, the possibility to still incorporate a detour by making each phase the spot of a new folding remains. That is how flows transfer through the fold to fold instead of point to point, and how every edge is distorted to define the formal forces of the pure substance that reach the surface and are presented as a series of diversions and secondary folds. In order to respond inflection in a motion poised through space and ground, the line inherently folds into a vortex. An inflection creates a fold from differentiation, and this inflection extends the fold or variation to infinity. (Deleuze, 1993, p. 17)

Mathematics of the Folds

The definition of Baroque mathematics is born with Leibniz. Leibniz tried to reconcile the old rationalism of order with the radical dynamization of cosmos, attempting to capture the infinity of natural processes within the notion of the fold. (Prominski & Koutroufinis, 2009)

The irrational number is the intersection of two convergent sequences, one of which has no limit in extremum point. The irrational number denotes the drop of a curved arc on a horizontal path of rational points, revealing the latter as a misleading infinity, a plain indefinite with an infinite number of lacunae. Curved lines must be balanced along with straight lines in the case of folding tectonics. The angle of the circle implies a series of inflections, as tectonics of a labyrinth that generates a point-fold when curved and straight lines meet. In other words, there is always an inflection that creates a fold through differentiation and takes the fold or differentiation to an infinite number of folds or modifications. The fold is Force, as illustrated by the irrational number that emerges as an extraction out of a root, and the differential section that arises as a state of variance as a correlation of multiplicity and power. The act of folding is itself a force. (Deleuze, 1993, p. 18)

Maybe these mathematical explanations are the main reason that folding and digital design theories are overlapping. It is clear that folding is not an arbitrary practice; it is a philosophically and mathematically verified notion that influenced architecture.

It is considered that consciousness itself is a kind of fold, ontologically, a case of what Deleuze names the outer elements that fold inward. In particular, the notion of the fold

encourages Deleuze to imagine productively about subjectivity development and overall, with the opportunities and construction of humanless rationality varieties. In addition, on one point, the fold is a criticism of conventional explanations of subjectivity, which implies pure interiority and exteriority. (O'Sullivan, 2010, 102)

While there is a result of this folding situation, time also folds and creates new dimensions, new spatio through folding over and over (Figure 2.7). According to Badiou (2000) "the new is a fold of the past" in Deleuze's work. Folding of the surfaces to create inherent spaces that offer a subjective state. Thought and life emerge from outerness; instead of emerging from inwardness, these affect subjects. Badiou classifies the fold through retention, such that "everything new is an enfolded selection of the past". (Crockett, 2013, p. 16)) Through Bergson, Deleuze demonstrates how matter is transient in form, as all are folding and unfolding in space, where that folds, unfolds, and refolds is a legacy that never passes away. Therefore, the past in itself is a differentiation. There are no consistent personas, just the phases of limited differentiation which can be realized in the current time. (May, 2005, p. 61)

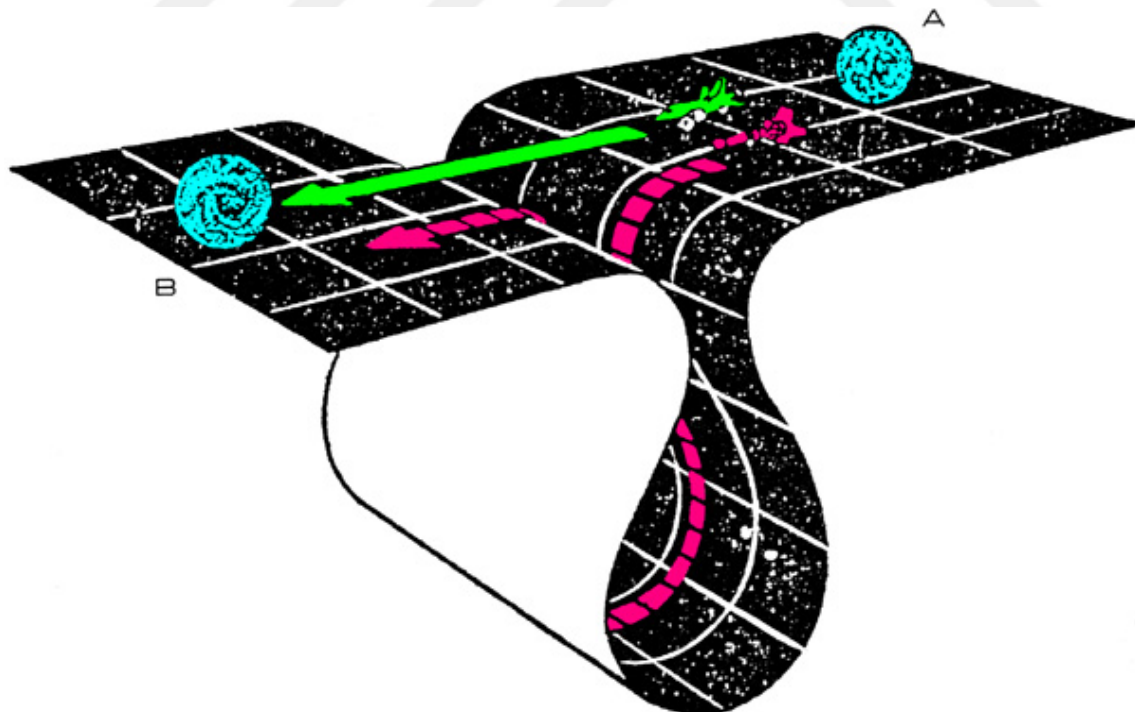


Figure 2.7 Folding of time through worm hole. (URL 3)

Indeed, there may still be other foldings, such as the Oriental fold. That, as Deleuze remarks, may not even really be a fold and subsequently not quite a materializing process. The interaction of art towards this unfolding may have been a ceremonial one. That is not to mention the development of potentially reachable universes and the development of rationality; relatively, they are still, if indeed they permit direct connections to stuff such as the abolished from which these universes and things have occurred. Then there is an unfolding that still follows the fold, which may generate new folds, thus giving us up to what is also to be folded. (O'Sullivan, 2010, p. 106) The folding concept has been the most popular concept of Deleuze by architects and designers. Moreover, this concept will be re-examined under the title of digital architectural theory and technologies in the second subtitle of this section.

2.1.6. Deleuze and architecture

The diffusion of Deleuze and Guattari's philosophy in design experience and logical thinking in architecture since the 1980s has been rapid and multi-faceted. The form and evaluation of the variations among seamless and layered space, the omnipresent formal translations of the folding system, the occupations of concepts such as immanence and virtual in digital architecture, the use of Deleuze's conceptual frameworks have influenced more than a century of architectural thought and is manifest in the design of a global range of contemporary built environments. The Deleuzian theory also proposes vital strategies to critical environmental, political, and social issues that architecture should strive to struggle with and contribute significantly to the interaction between aesthetics and ethics. (Frichot & Loo, 2013, p. 1) In 2010 Sykes edited *Constructing a New Agenda: Architectural Theory 1993-2009*, Deleuze's name appears in five texts with at least another owing part of their conceptual scope, method, and sometimes vocabulary to Deleuze; most of these were associated with the early or middle reception of Deleuze into architecture. It is hard not to see the omnipresent yet 'vaguely perceptible' realm as a nod in the direction of the Deleuzian virtual; a question would have been circled by both the first and second generation of writers on Deleuze in architecture. (Jobst, 2013, p. 66)

Architecture as a residential and regional practice confirms this: regulatory changes are produced, and reorganizations of main items are the collective sections of the city. More recently, issues such as reinforced concrete made it possible for the architectural community to free itself from models such as tree poles, branch beams, and trees using green vaults. Not

only is concrete a heterogeneous substance that level of consistency differs depending on the ingredients in the blend, yet steel is intercalated as per a rhythm; furthermore, its self-supporting interfaces develop a dynamic rhythmic framework whose 'structures' have various parts and fluctuating intervals relying on the strength and orientation of the pressure to be stimulated. (Deleuze & Guattari, 1987, pp. 328, 329) Following these embodiments derived above, it is helpful to understand another layered situation -Intercalation-. Intercalation has a wide range of definitions, which defines the layer of the content contained among strata of something very diverse and unique in a geological context. Reinforced steel is interlaced in a system like the instance of Deleuze and Guattari, and likewise, architectural developments are interlaced in existence, formulating and contextualizing. Structures are components of machines. Construction-object is a fraction machine that is triggered and happens to fertile when it is in need. A single structured-fractal, something as basic as a tiny cabin, can be used in various scenarios at the individual moment or by the diverse society of people. Then it becomes members of different machines and, in every other case, develops anything unique. Which structures create a territory – a spatio where specific system rules or appears to be apparent. (Ballantyne, 2007, pp. 54, 60) W When these layered relationships are analyzed through the Deleuzian philosophy, a multi-potential way out opens up for a designer. These ways out lead to the production of different concepts for every possibility; concepts have tectonics like multiplicity, rhizome, etc. As mentioned in previous chapters, the production of philosophy for Deleuze is a sequence of production of concepts. Even this basic understanding is precious for a designer.

2.2 Theory of digital design in architecture

Architecture and technology have always interacted with each other. Within a development of technology architecture also developed through. One of the first braking points of architecture-technology is the Agricultural Revolution (Neolithic Revolution), a turning point of architecture-humanity relations. This revolution caused to transform the way of living many nomadic societies to gathered and settled down. The other breaking point is Industrial Revolution; the development of machines, serial production, new building materials, and new structural systems has changed the architectural design and manufacturing practices. (Tozlu, 2017, pp.17,18) Also, there are phases of the industrial revolution. For the last 150 years, humanity exposed to series of inventions, developments, and scientific innovations. The first phase of the industrial revolution was the machines. The

second phase is serial production, and the third was the invention of computers. Nowadays, we are in the fourth phase of the Industrial Revolution through the internet, virtuality, and artificial intelligence. When the ancestors of the new emerging structural technologies examined, Joseph Paxton's Crystal palace can be mentioned as one of the pioneers of this industrial spirit integrated and new mind of producing architecture of its time. Also, the Crystal Palace was an announcer of steel and glass buildings. In addition, the Eiffel tower in Paris was a representer of the mind of reaching the high as possible with the newly developed structural elements. (Kolarevic, 2003, p. 3) This collective new age's creating mind has evolved and improved with developments of the series of innovations. For the duration of history, technology and society have established a feedback loop: developments in technology have influenced the pace of the alterations in architecture, arts, design, and sciences; these civilizing developments have led, in turn, to new technological discoveries. (Rahim, 2006, p. 10) Within the last thirty years, the architectural paradigm has changed by the evolution of digital design tools and their integration into architectural processes. These new digital tectonics of architecture have made a cultural shift of design practices, this means for a discipline like architecture which has a system of knowledge through the beginning of history, multi-layered discipline intersected within many fields such as arts, design technology, and engineering, and the approach of design thinking and tectonics are shifting. (Oxman & Oxman, 2014, p. preface). The mentality of digital design environments in architecture has reconstructed the design process of architects, the way that the builders construct, and how the industry can transform and adjust. (Marble, 2012, p. 7)

As moving towards the middle of the 21st century, humanity is surrounded by a new objectscape where our spatial perception has undergone great changes. Smart objects, digital design and production techniques, digital environments, and social and technical developments brought by these environments, such as augmented reality, virtual reality, and other contemporary developments, affect our thinking structure and reactions to situations as humanity. (Marenko, 2015, p. 55) The computational tools in architecture have begun to stimulate a new set of approaches identified as the materialization of architecture. That term has added the material content as one of the main inputs of design elements through the process. Throughout the re-embracing of architecture to its foundations of the design process, digital fabrication techniques have created new aspects of form, design procedures, and substance that can be considered digital architecture. (Oxman & Oxman, 2014, p. preface) In a theoretical way, digital design tools have re-invented many sub-categories such

as topological, non-Euclidean geometric space, kinetic and dynamic systems, folding approaches, and genetic algorithms. The virtual-based designing process as new tectonics of the architecture is a holistic procedure that is dynamic, open-ended, and has given a chance to interact with the parameters through the whole process. (Kolarevic, 2003, p. 3)

From this context, in this study, the prominent concepts and terms on the theory of digital design in architecture have been studied and presented as follows.

2.2.1 Folding in architecture

Folding in Architecture was a profile of Architectural Design published in 1993 as a discourse of the end of the 19th century's architectural theory. Architectural philosophy was busily debating deconstructivism and its mostly orthogonal embodiment of architecture at the beginning of the 1990s. Under the influence of some Parisian philosophers, the American critical theory of the time was guiding. Gilles Deleuze was the first to influence the theory, and further on, the considerable part was Eisenman's publications that began to elaborate an architectural discourse of the fold. (Carpo, 2013, p. 35) The Fold was the catalyst for a culture transformation that lasted the entire decade and peaked in the 1990s. Fold's tectonics could produce a new wave of avant-garde, which was labeled as "topological" and criticized as a pioneer architectural expression of the time's emerging digital innovations. (Carpo, 2014)

In order to explain the concept of folding, first of all, it is necessary to discuss the contextual framework that affects the formation of a new architectural style. The inability of the methods of postmodernism to respond to the requirements of that period of the architectural environment is one of the leading factors of the emergence of folding. In deconstructivism, one of the most fundamental tectonics of postmodernism, the project of the new is rejected. (Kipnis, 1993) Looking at the theory and process of the architectural production two decades before the concept of folding, it is seen that post-modern architects are in search of an architectural production that is heterogeneous, fragmented, fed by contrasts and juxtapositions. (Lynn, 2004) Moreover, collage is a method adopted through postmodernism and deconstructivism in this way of making heterogeneous production. Postmodernism embraced grafting as the favored form of recombination to counter Modernism's destituting tendency for erasure and substitution. With all of its variability, the collage system provided

the most compelling grafting conceptual framework in its potential boundaries. However, with the technological developments and the change in the mindset in the early 90s, the response of collage to the desired heterogeneous situation is insufficient. Collage can only regenerate itself through identifying unrostered data formerly on a regular basis. Collage's insufficiency arises from the motivation to establish a widely decentralized political space that recognizes the heterogeneity and variations. The main reason for this insufficiency is the changing of emphasis from post-structural semiotics through the concern of the latest breakthroughs in mathematics, technology, and the modification of political space, which is mostly marked as a shift from Derridian to Deleuzian discourse. (Kipnis, 1993) In Deleuze's philosophy, the concept of fold opens up new time-space tectonics. As Deleuze mentions in *The Fold*, if Leibniz's abandonment of Cartesian rationality is established with architecture, the gridal space is abandoned for more flexible and smooth space. (Eisenman, 2004) Deleuze's fold is emblematic of differential equations; it is mathematically defined as a spot of inflection. On the other hand, a location of inflection is the maximum or minimum of the originating curve's function's first derivative. (Carpo, 2014) The fundamental innate characteristic of the non-linear fold is inflection. As Deleuze states in *The Fold* (1993):

"Cartesian, for whom angles are firm, for whom the point is firm, set in motion by an exterior force. For Klee, however, the point as a "nonconceptual concept of noncontradiction" moves along an inflection. It is the point of inflection itself, where the tangent crosses the curve. That is the point-fold. Klee begins with a succession of three figures. The first draws the inflection. The second shows that no exact and unmixed figure can exist. As Leibniz stated, there can never be "a straight line without curves intcnningied." nor any "curve of a certain finite nature unmixed with some other, and in small parts as well as large," such that one "will never be able to fix upon a certain precise surface in a body as one might if there were atoms." The third marks the convex side with shadow, and thus disengages concavity and the axis of its curve, that now and again changes sides from the point of inflection. Thus, inflection is the pure event of the line or of the point, the Virtual, ideality par excellence. The first are vectorial. or operate by symmetry. with an orthogonal or tangent plane of reflection. They work according to optical laws. transforming inflection at a turning point. in an ogive. or pointed arch." (Deleuze, 1993, pp. 14-15)

Deleuze's philosophical imagination is drawn from mathematicians like Rene Thom and Benoit Mandelbrot, whose topographies suggest resonances with other domains, other spaces. (Rajchman, 2004, p. 77) As design tools for architectural folds, Rene Thom's descriptions guide creators to the many types of folding conditions. (Carpo, 2013, p. 38) Topological mapping in general, and catastrophe models in particular, uses several factors on a fluid surface where more or less flexible forms of connection are feasible. Topology

considers material frameworks that become immune to persistent modifications that instantly change their form, the most significant architectural characteristics related to all adaptations are examined—supposed to be an inherently deformable conceptual substance that can be distorted, except for disruption. The critical advancement created by Thom's equations is the spatial representation of the multiplicity of potential co-present happenings at any level. Cartesian distortions and their utilization of flexible topological form generating techniques offer a range of possibilities to the linear morphological transformations of independent architectural types. (Lynn, 2004)

The theory of Thom's nets was generated to understand catastrophic events. What these events have in common is the failure to determine the precise moment when a catastrophe emerges. The morphology of multiple potential associations eliminates the lack of exactitude. The diagrams use cusps rather than fixed coordinates to describe possible catastrophes with reasonable accuracy. Thom's diagrams allocate X and Y forces throughout two axes of a gridded surface like any standard diagram. Only a single location of overlap among any two X and Y coordinates will be possible on a homogenous surface. Thom's models have a pliable topological framework that can enfold in several sections. Domains of convergence are found among these folds or cusps. Multiple points of Since the topological geometry encapsulates space above and around its surface, such co-existing Z-dimensional domains are possible. Multiple vectors of intensity tend to imply these intense event zones as a result of proximity and affinity. There is no predetermined point where a catastrophe emerges in catastrophic events; instead, these cusps represent a range of possible events. Many potential encounters establish the cusps, indicating various flows through the thresholds of varying degrees of uncertainty. The mathematical system of Thom arranges diverse powers to identify different forms of interactions. (Lynn, 2004, p. 40)

There would seem to be a set of curves that indicate constant variables for each curve and the diminution of parameters to a "single and distinct variability" of the interacting or tangent parabola: the fold. As if decreasing a series of curves formed by parameters indivisible from a set of potential conjugations or through a surface of parametric curvature that it is itself describing, the aim is no longer characterized through an archetype of form but by a pure event. (Deleuze, 1993, pp. 19 - 21) New architecture, in general, entails a transition away from semiotics toward space, geometry, topology, and event, but it is categorized into two categories: "deformation" and "information". The purpose of deformation is to establish

transforming associations that reject being trapped into rigid formations. (Kipnis, 1993, p. 102) Since smooth space is intensive and constant, deformation is encouraged by the versatility of topological mathematics in reaction to exogenous events. Bending, flipping, and folding are not arbitrary; they produce an intensive curvilinear logic that aims to internalize social and relational factors within a design. In this way, rather than ideal forms, events become intimately involved with versatile flows. The world distorts these versatile flows, which are not only embodiments of spatial powers. (Lynn, 2004, p. 38) The information strategy implies developing a collage by attaching various abstract and programmatic elements within a sturdy, faded piece of aesthetics to trigger the resulting faded resulting spaces, graphic patterning, conceptual imagination, digital aspects, and events are being used. (Kipnis, 1993, p. 58)

Topological geometry, morphology, morphogenesis, Catastrophe Theory, and computer technology are all examples of continuous shifts that include the complex incorporation of variations within a consistent yet heterogeneous framework. Smooth composites are formed by different elements that retain their identity while being mixed inside one seamless field of various independent substances. (Lynn, 2004, p. 39) Deleuze refers to smooth space as vectorial, topological, projective, and this spatial state as "space is occupied without being counted". (Deleuze & Guattari, 1987, pp. 361, 362) Smoothing does not reduce disparities but rather combines free diversities through free-flowing mixing and blending tactics. Since smooth composites are not homogeneous, they cannot be condensed. Smoothness is described by Deleuze (1993) as "continuous variation" and "continuous development of form". (Lynn, 2004, p. 30) Smooth space should not be mistaken with homogeneous space. According to Deleuze and Guattari:

"Homogeneous space is in no way a smooth space ... Smooth space is precisely the space of the smallest deviation: therefore, it has no homogeneity, except between infinitely proximate points, and the linking of proximities is effected independently of any determined path. It is a space of contact, of small tactile or manual actions of contact, rather than a visual space like Euclid's striated space. Smooth space is a field without conduits or channels. A field, a heterogeneous smooth space, is wedded to a very particular type of multiplicity: nonmetric, acentered, rhizomatic multiplicities that occupy space ... forms a smooth space that gnaws, and tends to grow, in all directions." (Deleuze & Guattari, 1987, pp. 370 - 371 - 382)

Deleuze's texts, which attempted to identify baroque style and mind, rediscovered fold as an abstract spatial framework, a figure and non-figure, a structure and non-structure, which, as a conceptual metaphor, has resulted in smooth spaces and intermediate spaces between the interior and the exterior, the building, and its context. (Kolarevic, 2003, p. 3) Outer surface is not a predetermined boundary but a dynamic matter animated by oscillatory motions, folds, and foldings that collectively form an inside: they are not something other than the exterior, but precisely the inside of the exterior. It's the endless fold, or the endless folds of immanence, that curves the outside of the forms to produce the inside. (Deleuze, 1988, p. 97) Deleuze imagined existence as a surface that is free of inside and outside by the fold. Instead, a plied surface can be folded inwards and outwards depending on the flows of the folding. Any fold in one direction could inevitably occur in a fold in the opposite axis on the fabric's obverse surface. Interiority and exteriority are both created from a singular continuous fiber throughout this process. (West-Pavlov, 2009, p. 234) Either pliancy and smoothness offer a way out of the opposing systems where architecture can either collapse or remain united under the pressure of variation. Pliancy enables architecture to participate in complexity by allowing it to be versatile. It may be achievable to sustain dynamic relations of differences by flexible, unforeseen, local interactions rather than repressing them with predetermined points of resolution or arresting them in contradictions. The smooth spaces defined through such seamless but differentiated frameworks result from curvilinear tendencies that can create complex distortions in reaction to programmatic, structural, economic, aesthetic, political, and contextual inputs. The curvilinear concept calls for intense interaction with contextual events in the folding, bending, and curving of shape. (Lynn, 2004, pp. 30 - 32)

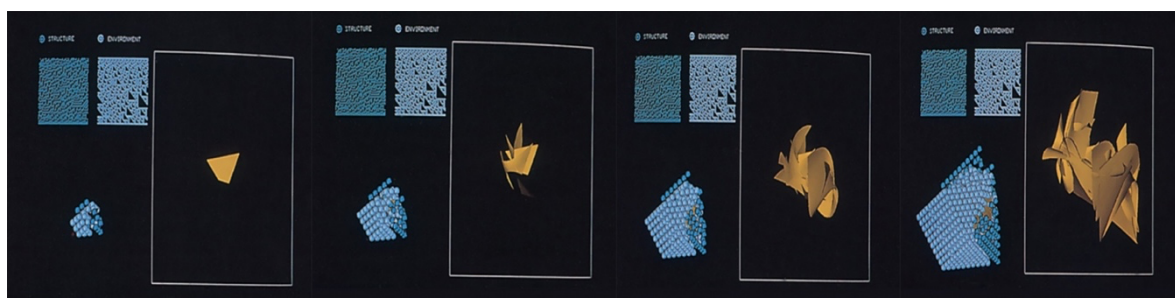


Figure 2.8 Folding process on computational environment (Schumacher, 2016)

The folding flows are non-linear processes that concurrences, overlaps, folds to create

unities, inwardness, exteriority, and stratified matters. This new discourse means new opportunities through fluidity of interconnections which was expressed as "folding", a design approach that breaks away from the Euclidean geometry of discrete volumes embodied in Cartesian space, and as its ultimate expression utilizes topological form conception and the "rubber-sheet" geometry of consistent curves and surfaces. Folding is one of the many terms and concepts, such as affiliation, smooth and striated space, pliancy, and multiplicity, appropriated from Deleuze's work *The Fold*. Deleuzian literature intended to explain baroque aesthetics and thinking, reintroduced fold as an ambivalent spatial framework, a figure and non-figure, an organization and non-organization that, as a structural metaphor, led to smooth surfaces and transitional spaces between the interior and the exterior, the building, and its location. The effect of folding is a new distinctive architecture of formlessness that questions existing notions of built space, its aesthetics, and utility. (Kolarevic, 2003, p. 3)



Figure 2.9 Stratification of folding process (Vyzoviti, 2003)

Folding as a generative process in architectural design is essentially experimental. Opportunities are kept in the morphogenetic process, the sequence of transformations that affect the design object. (Vyzoviti, 2003, p. 8) Folds substantially do not contain fractures, overlay gaps, or implants. Their continuous variations describe the changes in folds. (Fig. 2.2) (Wildgen, 1982, pp. 24, 25)

The folding surface provides creases that provide structural sturdiness, 'like an origami construction', challenging the conceptual separation of load-bearing structure and the building envelope. In a self-organizing folding design procedure, the design goal is not a

definite purpose to be accomplished. In the analytical sense, the contextual, conceptual, and functional models that arise from the procedure are converted into conceptual samples. The purpose here is to relate architectural features to a schematic that lays out the specifications of the object, system, and spatio. (Walliss & Rahmann, 2016) Perhaps the most initial feature of folding is the consistency of the space, surface, and form it provides, allowing for smoothness distinguished from most other tooling methods. Folding can be understood as a representational approach that provides a direct dynamic, sustained relationship between design elements and a generative technique that can prove value to the designer by exploring surfaces and how they can be further refined. (Dunn, 2012, p. 293) As seen in Figures 2.10 and 2.11, the fold command can be read easily to produce a current parametric architectural product. It is also possible to increase these examples in the context of parametric and topological design.

```

1  import("ProtoGeometry.dll");
2
3  class Diagrid
4  {
5      length : double;
6      width : double;
7      rows : int;
8      columns : int;
9      diagrid : SubDivisionMesh;
10     folded : double;
11
12     constructor ByLengthWidthRowsColumns(length : double, width : double, rows : int, columns : int, folded : double)
13     {
14         nr : int = rows * 2;
15         nc : int = columns;
16         unitLength = length / nr;
17         unitWidth = width / nc;
18
19         vertices = buildVertices(nr, nc, unitLength, unitWidth, folded);
20         faces = buildFaces(nr, nc);
21         diagrid = SubDivisionMesh.ByVerticesFaceIndices(vertices, faces, 0);
22     }
23
24     constructor BySurfaceRowsColumns(surface : Surface, rows : int, columns : int, folded : double)
25     {

```

Figure 2.10 Codes of Diagrid Pavillion in Maxscript (Jabi, Woodbury, & Johnson, 2013, p. 180)

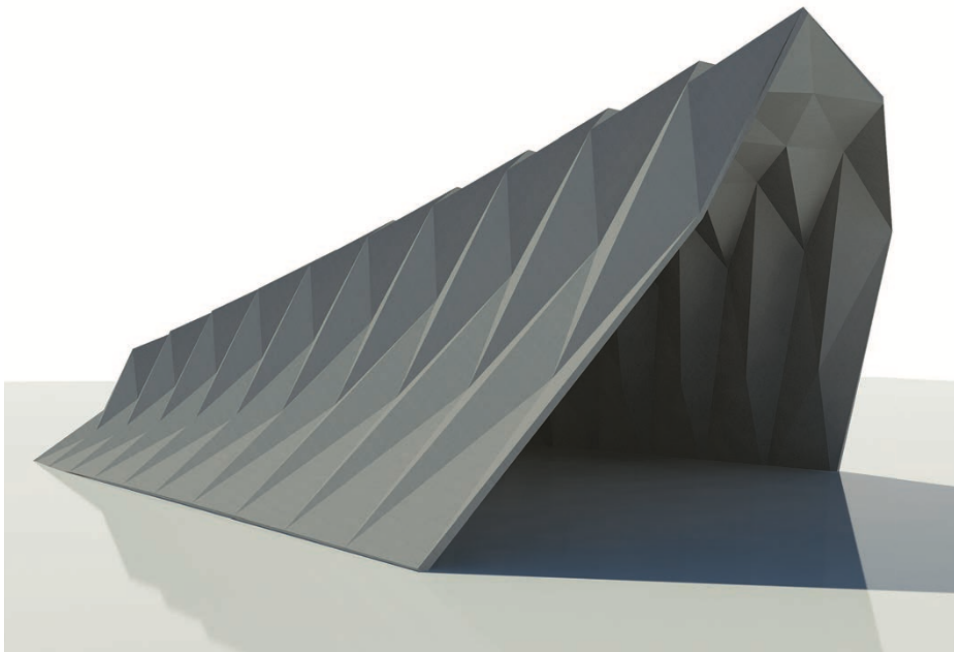


Figure 2.11 Diagrid pavilion coded in Maxscript. (Jabi et al., 2013, p. 189)

The stratification of Deleuze's philosophy is also related to the value that emerges from a process of differentiation and exploration. This multi-stratification can also be a direct observation in folding, which is evident when the tectonics and potentials of folding are descended; it has more consequences than bringing the two surfaces together. Alternatively, they may be more subtle systematics that needs to be studied, such as multiplicities, rhizomes, flight lines, and bodies without organs. Reading and developing Deleuze's multi-layered philosophy in many digital design techniques is possible and has potentiality just as folding.

2.2.2 Non-standard architecture

The non-standard represents current architectural developments that make extensive use of recent digital architecture technology, and its conceptual database is distinguished by multifaceted, complex structures that imply a rebirth of the organic paradigm. (Mennan, 2008)) The term “non-standard” has meaning in two fields of knowledge, both of which appear heterogeneous upon the first inspection. In its very formulation, the idea of “non-standard” obviously evokes, on the one hand, a non-acceptance of industrialization as a guiding order of Modernism in which endeavors to deploy standardized mass production. However, non-standard also refers to mathematics, more specifically to Non-standard

Analysis, the title of Abraham Robinson's work. Non-standard analysis opposes the formalism of mathematical language, focused on its objectivity, by introducing open, infinitesimal models, simple tools of approximation that presuppose the nature of an external, constructive mathematical reality. Non-standard analysis posits dynamic structuralism, an abstract semantics that underprints the interrelation between phenomena and meaning. It is establishing a general and formal hermeneutics that can become directly involved at the core of an overall physics of phenomena. (Migayrou, 2016, p. 20)

Early modernist and non-standard examples of amorph lineage display a fascinating systematic remembrance that, although minor, hides epistemological, cognitive, angular/statistical, and computational inequalities. The so-called hermetic systematic frameworks of organic practice have become progressively clear as dynamic and analytical experiments emerged. Organic design is being simplified and integrated with increasing technological functionality, which is being generated by innovations in virtual-based tectonics and methods used in producing and managing varieties. (Mennan, 2008) Complexity processing is increasingly happening a hot topic in modern digital developments, keeping and facilitating naturalization and formalization as the dual key organizational processes faced in handling this complex nature. (Mennan, 2014) With improvements in complexity processing, unstandardized forms are becoming more concrete through a multi-layered mind of parametric and algorithmic mind. The unstandardized form is indeed a declaration of absence of ego applied to the endless: it is a solid response to the whole stratum of mundane processes and philosophic theory, once distinguish among system and disorder, ego and disparity, invariable and variable common and unique, meaning and existence. Non-standardization launches an unprecedented simultaneity of mental and material processes, asking for an adaptation of serial modes of production to altering modes of conception. (Mennan, 2008) Nevertheless, there is no single descendant, like organicism, dynamic research, amorphous dynamics, contemporary biodiversity, etc. Several rougher details exposed by the modern studies shed light on the phenomenological framework and encourage us to suspect that the cosmos would be much more imaginative, dynamic, self-organizing. (Jenks, 2013, p. 83) Non-standard architecture, by contrast, has established itself as a domain of unprecedented materialization because it takes for in the very heart of a formal schematism that today derives all sectors of human activity. (Migayrou, 2016, p. 31)

Non-standard producing mind introduces an unparalleled concurrentness of conceptual and

substantial operations, allowing for the application of sequential development methods to varying modes of creativity and improving manufacturing processes-CNC milling machines, fast producing technologies, intelligent molding-allow the simulation and materialization of any specific period of design in tensioned configuration through the use of iterative processes. The revolutionary paradigm of development, made possible by the increasing unilaterality of the structured/algorithmic dialects, breaks down the gap between conceptualization and manufacturing and has important consequences for the interaction through shape and tradition. (Mennan, 2008) The question is whether or not the framework is actively investigated: are we simply seeing a correlation between technology and architecture or anything broader? Is it only a question of using computers and designing curved buildings – a fashion – or a change in the mental landscape? To be specific: how much do architects understand fractals, emergence theory, folding, nonlinearity, and self-organizing systems? (Jenks, 2013, p. 85) These are the dilemmas and self-interrogating questions of the emerging technological potential effects on the architectural paradigm.

2.2.3 Parametric architecture

The idea and use of the term "Parametricism" predated the possibility of using actual computational processes and seems to have emerged in the 1940s when the Italian architect Luigi Moretti used the term *Architettura Parametrica*. Between 1940-1942, the relationship between architecture and parametricism has searched and derived by Moretti even with the conditions that lack computers. Nonetheless, through the 1960s, At the XII Triennale di Milano, with the service of a 610 IBM computer, he exhibited models of the parametrically built stadium. It would appear that Moretti was possibly the first to produce a three-dimensional architectural model using a complex set of digital-resolved parametric relationships. In Moretti's view, *Architettura Parametrica* was an answer to the fast-changing post-war Italian society: a new, scientifically-inspired analytical approach in which urban planners, first and foremost, and then architects, could respond to the challenges of reconstruction. (Bottazzi, 2018, p. 101) Also, it is known that earlier works of Gaudi are parametric too. As it is now known, Parametric design does not differ significantly from the way Moretti defined it in the 1940s, but the terminology has evolved. (Fraser, 2016, pp. 18,19)

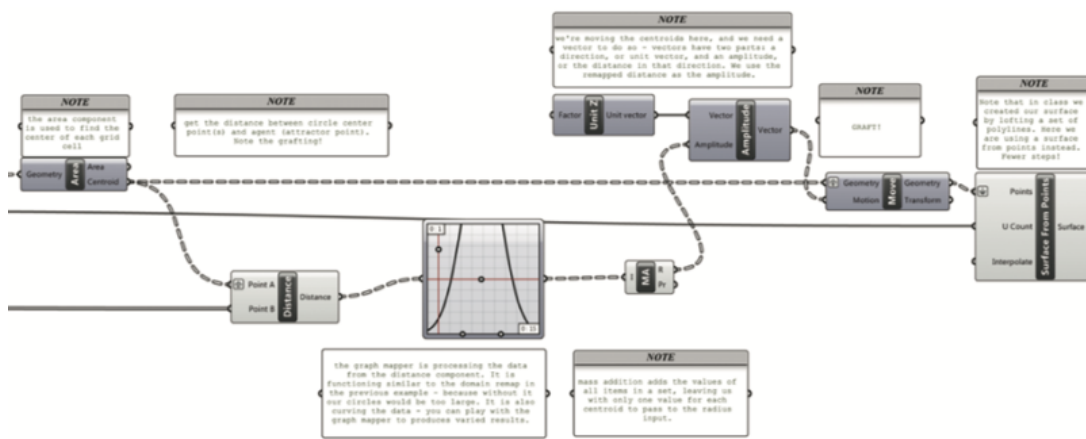
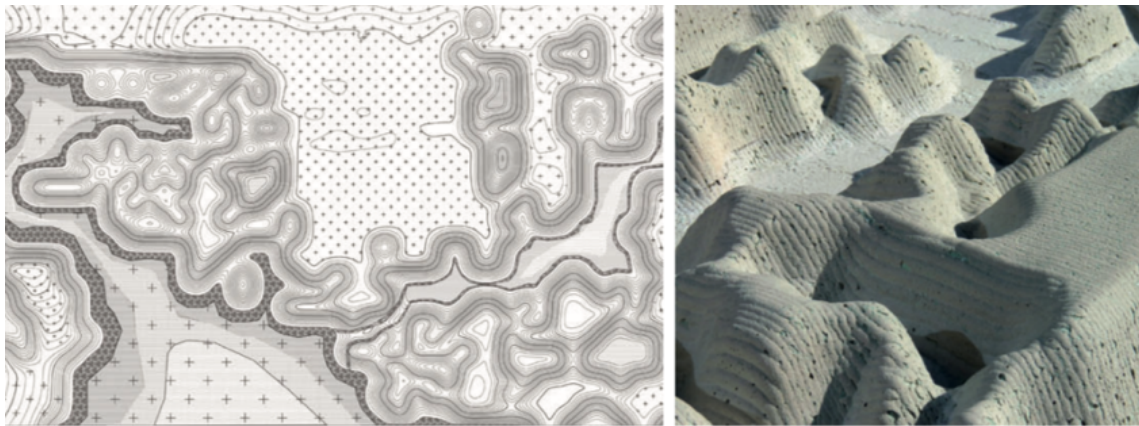


Figure 2.12 Sample of parametric design tool codes (Hauschild & Karzel, 2011)

Today, parametric design is an approach to digital design which allows designers to adjust the correlation among various parameters of the design model, which has given an opportunity of interacting to update or to re-generate a design model (Fig. 2.12.) by changing and modifying parameters by creating algorithms on specific computational programs. (Jabi et al., 2013) Parametrics describes a range of potentialities, replacing the design process steady with varying, singularity with multiplicity.

In the parametric design process, the shape is not what the designer is claimed as the critical output of the process. The parameters and the algorithm that led to the final product are the distinct design element of the progress. (Kolarevic, 2003, p. 17) Parametric design as a form of digital design thinking needs a framework to understand topological logic as a basis for multiplicity design. Starting with the explicit parametric schemata of the design solution, the designer establishes an associative relationship by defining and linking the witch parts to each other and by encouraging the topological variability of the solution family. One of the essential imaginative design elements is the comprehension of tectonic knowledge through

the process of architecture. The comprehension and perception of tectonics must include the mathematical and multi-dimensional system of tectonic patterns. Parametric development requires the ability to mediate tectonic information. (Oxman & Oxman, 2014, p. 138) Tectonics are the critical realms of parametric architecture. Also, parametric architecture has three critical realms: differentiation, informed tectonics and continuities, and continuities from design to digital production. Differentiation is a regional interpretation of a constant tectonic model that may contain local concerns. This is a fundamental mind of parametric tectonics to interfere with the elements/codes/scripts of the parametric design and adapt to the current desired situation. Constant distinction refers to a function of varied, algorithmic practice which enables the variance to emerge over a sustained domain or pattern. As opposed to mere variety, parametrically varied instances within an overall group, curve or field maintain their continuity to other instances before and after them while uniquely responding to local conditions. (Jabi et al., 2013)) Informed tectonics is the use of parametric mutations as an organizational basis for a performance-based design. Continuity from design to manufacturing is the state of affairs where the flow of information works endlessly in both directions, from design to manufacture. (Oxman & Oxman, 2014, pp. 138, 139) The dynamics that underlie the parametric design approach, which coincides with Deleuzian tectonics, can be identified through the relations of the multiplicities with each other. In Deleuze's philosophy, instead of the hierarchical thought adopted by the West, the effect of the fractal's influence on holistic systematics is valuable and equal through every other unit of the system.

2.2.4 Performative architecture

The other type of design approach is developed, using structural performance as a leading design philosophy and implementing a new set of performance-based prime concerns for the design of cities, structures, urban spaces, and infrastructures. (Kolarevic, 2003, p. 39) In this new information-and simulation-driven design framework, the definition of performance-based design can be interpreted very broadly — its scope encompasses multiple spheres, from contextual, communal, and traditional to merely scientific.(Kolarevic & Malkawi, 2005, p. 3)

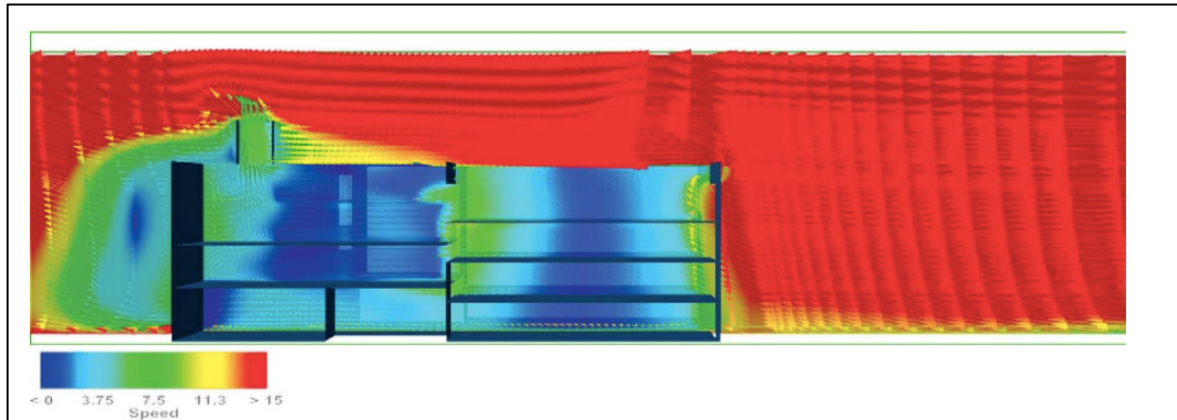


Figure 2.13 Simulation and analysis of a structure (Kolarevic & Malkawi, 2005)

The shift to computer-aided object-based design and the development of processing power capabilities of computers has resulted in a significant increase in the quantity of knowledge embedded in the form and architectural design framework over the past decade. (Grobman & Neuman, 2011) A generation of integrated simulation software for energy and physical calculations is simultaneously evolving in tandem with the increasing complexity of a genuinely mediated architectural design has a potential of a high level of generative variability. An emerging ability to script mediated variety of algorithms that can be systematically examined for performance behaviors such as energy and structural performance allows real-world testing conditions on the model of the product. This is a kind of foresight in a modern age. Simulation is one of performance-based design's foundational principles. In contemporary design practice, simulation involves an instrumental toolset that enhances analytical procedures. (Oxman & Oxman, 2014, pp. 4, 97) With more advanced simulation tools, the differences between the existing systems and their structural models are now more minor than ever. Structural efficiencies have increased accordingly. Although the architects used simulation primarily for visualization at the beginning, with an increase in programmatic complexity while increasing the performance requirements of the architectural process, the use of simulation technology has increased. (Grobman & Neuman, 2011) Further on simulation, environmental design is based on logically valid analysis techniques such as post-occupation assessments that define what the building or the environment does and how it generates effects instead of the simply explanatory substance of what it is and how it is perceived. (Oxman & Oxman, 2014, p. 97) The current interest in building performance as a design paradigm is attributable primarily to the emergence of sustainability as a determining socio-economic issue and new technological and cultural theory developments. It is important to realize that performance-based design should not be

seen as a straightforward way to develop a collection of practical solutions to a set of generally practical problems, i.e., it should not be simplified to some neo-functionalist architectural methodology. (Kolarevic, 2014, p. 105)



Figure 2.14 Form finding process on a performative process (Jabi et al., 2013)

Besides the technical and environmental considerations of performative methods, there are other fields that computational tools are using as a performative algorithm, such as form-finding. It is a significant paradigm that enhances the traditional meaning of performance by incorporating formation and generation processes. Form finding is the use of physical models in the experimental design structures. Through this form-finding process, the designer's tendency is rather than creating the one-particular final product to create a generative project system. This modeling system includes parametric digital morphing of the topological design space of the model. In digital performative design, digital models of the projected design are the basis for analytical processes of evaluation. (Oxman & Oxman, 2014) The new performative mind of the design process demands an instrumental degree and yet to developing and emerging computational design tools that provide a circular process (which feedbacks and non-linear) of formation based on particular performative aspects of design. There is currently an explosion of virtual analytical tools that help designers assist with certain aspects of their projects following the development of an initial design. However, none of them has innovative generative capabilities that could open up new possibilities for conceptual experimentation of architectural design. More importantly, the emergence of performance-based-generative design tools would lead to new intersections between architecture and technical sciences in a cooperating quest to generate extraordinary designed forms that are multi-dimensionally performative. (Kolarevic, 2014, pp. 110, 111) Performative design tools, which strengthen the relationship between reality and virtual production environments through simulation, can offer real insights to many

designers in design. One of the most important benefits of these predictions for the designer is that it forms one of the most important tectonics of the holistic design approach, which is in the spirit of digital design techniques and makes it easier to control design from concept to production.





3. CASE STUDIES

Bjarke Ingels is a Danish "star architect" who is a founder of BIG (Bjarke Ingels Group), which is a collaboration of architects, interior designers, designers, builders, landscape designers, and creators. BIG has several bases at several locations and won many competitions, received awards, and has become an influential design group in architectural design. In reality, as part of their design process, the Bjarke Ingels Group has established up a separate technology-driven unique development team that intends to widen the architect's vision from a conventional viewpoint. In this section, the projects of BIG has chosen to be discussed in Chapter 4 will be analyzed objectively in an architectural context. Cases that chosen for this section are: The Adelaide Contemporary

1. Serpentine Pavillion
2. MECA Cultural Center
3. Slussen

3.1. The Adelaide Contemporary

"The Adelaide Contemporary seeks to reconsider the orthodox of Australian art is curated and experienced through the juxtaposition of art produced contemporaneously across geographical and cultural boundaries. We propose to embrace this agenda by incorporating the multiple interests surrounding the site to create an inclusive architecture – a seamless merging between the city and the gardens with a diversity of pragmatic yet exciting spaces for art in east. The Contemporary will enlarge both public realm and the botanic garden as an experience in the ebbs and flows of hard- and soft- scape on its rooftops. To the north, the Adelaide contemporary gently steps down in transition to the gardens and the palm house. On the north terrace, it will establish a respectful yet iconic presence with a plaza and expanded entrance to the botanic garden. The Adelaide Contemporary will be a new breed of architecture and culture bearer across boundaries. "(URL 5)

Table 3.1. General information about The Adelaide Contemporary

Type	Art Center	
Size	15 000 m ²	
Location	Adelaide, South Australia	
Status	concept project for a competition	
Year	2016	
Client	Arts South Australia	

The building's site is located at northeast of Adelaide City, an intersection of the urban fabric and botanical gardens. The Adelaide Contemporary, located at the eastern end of the North Terrace Boulevard, which is one of the important cultural axes of the city, will also play a role as an element that will feed this cultural axis. The building site was previously part of Adelaide Parklands and was included in the master plan of the Botanical Gardens. Therefore, during the concept process, a harmonious transition and intermediate situation between the city and the botanical gardens were desired. Another critical contextual element that was effective in approaching to the site plan was the close relationship with the old ORAH (Old Royal Adelaide Hospital) campus. Due to the transformation process of the ORAH campus into Hi-Tech Hub, an organic relationship has been tried to be established with this building group and programmatic. Throughout so many physical and cultural elements, urban, social, cultural, historical, the conception process of the Adelaide Contemporary had been very complex and multi-faceted.

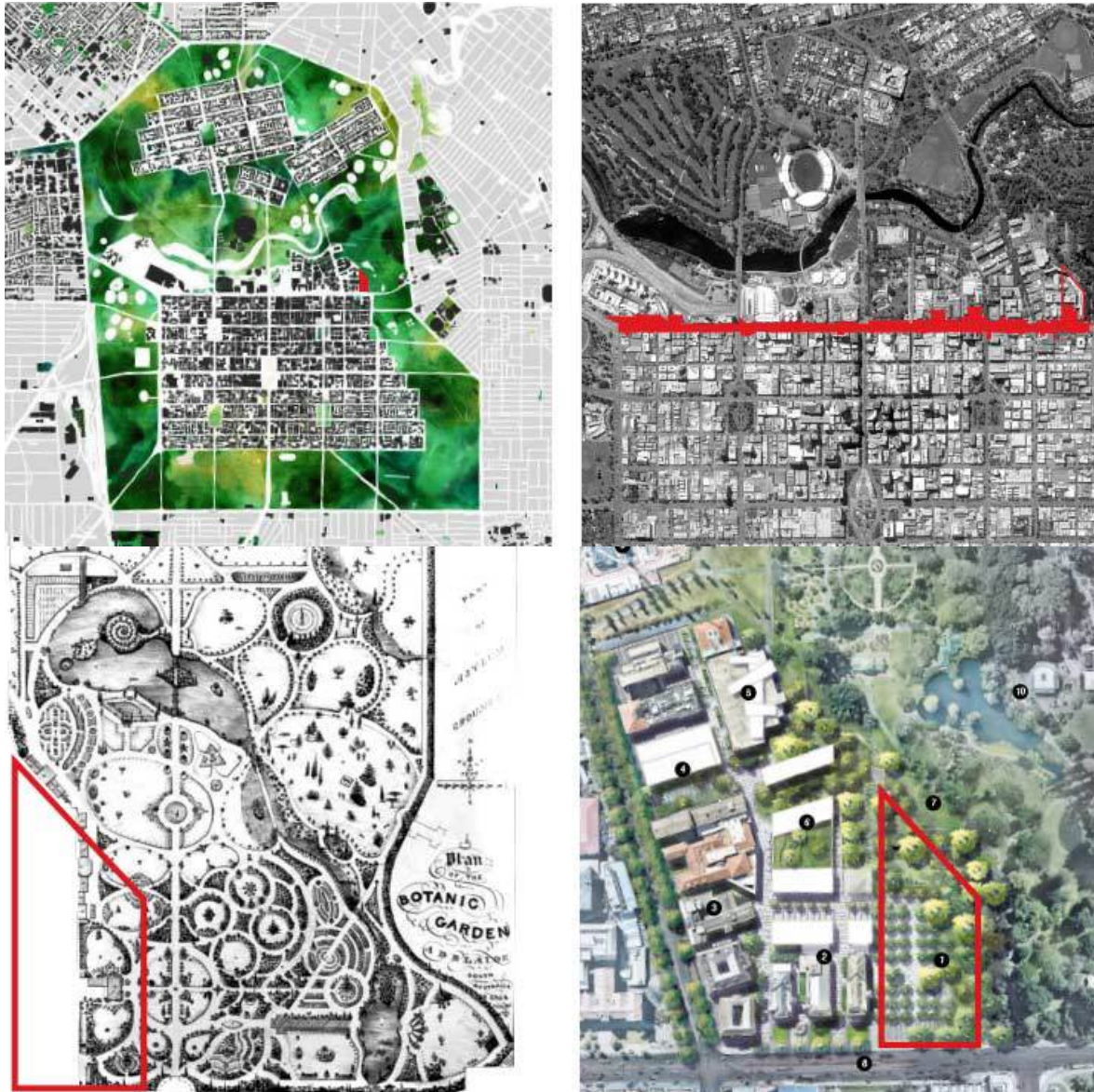


Figure 3.1. Site of the Structure in various scales. (URL 4)

Instead of determining a specific form, orientation, or mass on North Terrace Boulevard, finding an iconic yet minimal form to blend with urban fabric was prioritized through the design process. Instead of determining a solid form, orientation, or mass on North Terrace Boulevard, an iconic but minimal form has been sought. The site plan has been divided into two phases, and that strategy differentiates the program. Due to the relationship established with the ORAH campus, the mass in phase 1 was divided into a series horizontally that allows passage between the city and the gardens was designed. (Figure 3.2.)

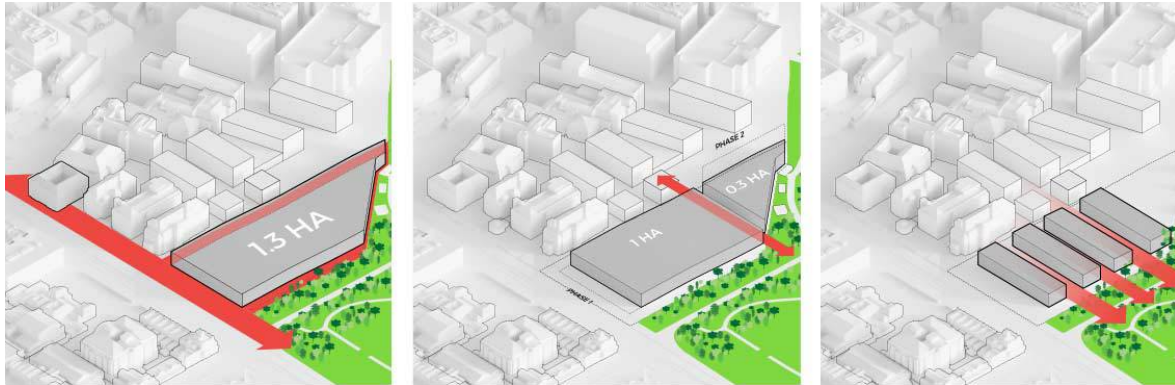


Figure 3.2. Approaching strategies to the site plan (URL4)

With this series of divisions, the urban fabric was extended to the gardens and the gardens to the urban fabric, thus avoiding the building being a rigid wall between the city and the green area. This design decision also softened the orthogonal layout of the city by creating a flow between the two differentiated (urban and green) states of being. The Adelaide Contemporary turns out to be an extension of the city throughout the west and an extension of the greenery through the east. These divisions form a series of topological pavilions that rise above the ground. The pavilions had intersected to create continuous circulation on the building surface, and these continuous surface accents the uninterrupted flow through the urban and the gardens. (Figure 3.3.)

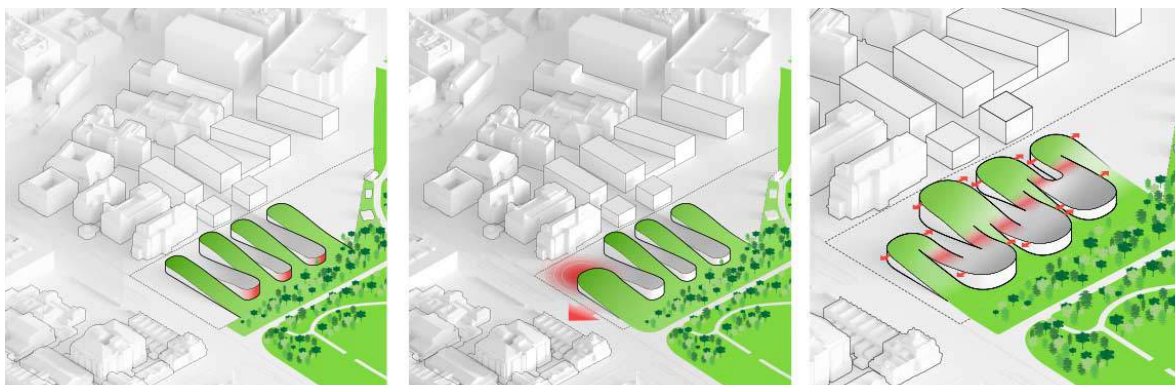


Figure 3.3. Diagrams of form finding process.

While creating the form of the pavilions, the master plan of the botanical gardens was also considered as an input of the design strategy. The green areas on the building were differentiated among themselves, and a programmatic response was given to the botanical garden. (Figure 3.4.)

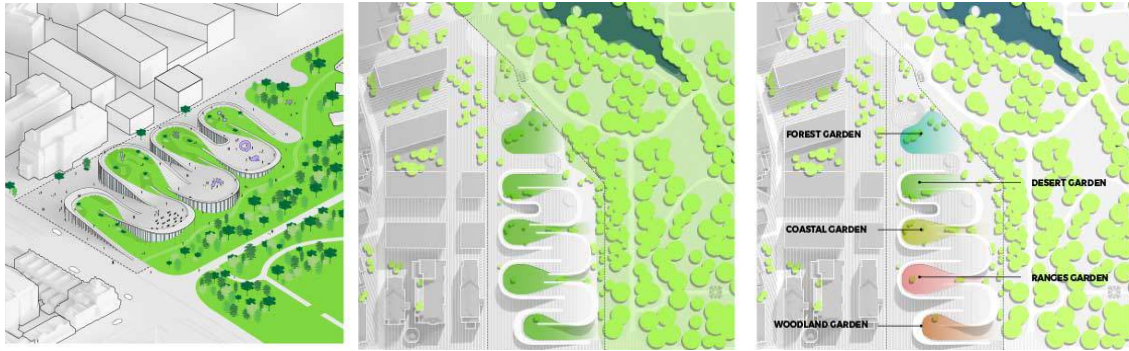


Figure 3.4. Surface gardens of the structure. (URL4)

Vertical circulations of the structure had placed at the north and the south sides of the plan. The general circulation of the gallery allows an uninterrupted flow with these vertical elements.

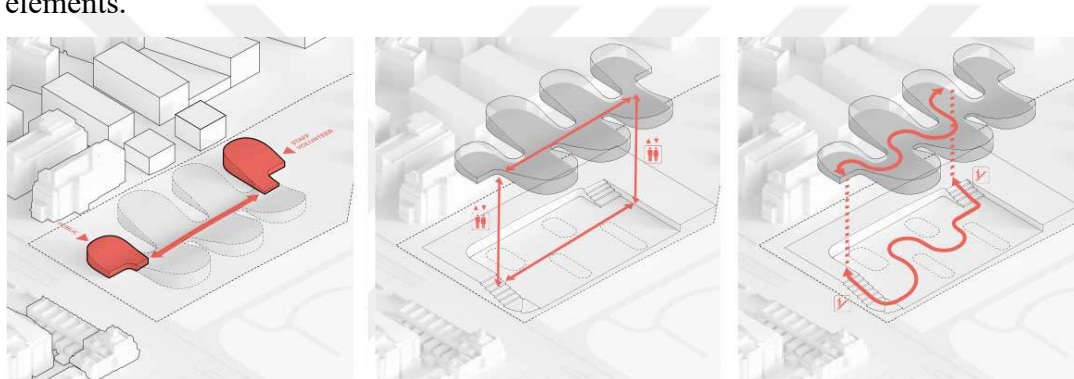


Figure 3.5. Circulation diagrams of the structure. (URL4)

As mentioned before, the building was designed with a more modest and topological mindset for the urban environment. Because of that approach, the program requirements were figured out through a section descending below the ground. In the continuity of the topologies rising from the ground, the internal circulation of the building is constructed transition areas and verticalities. (Figure 3.6.)

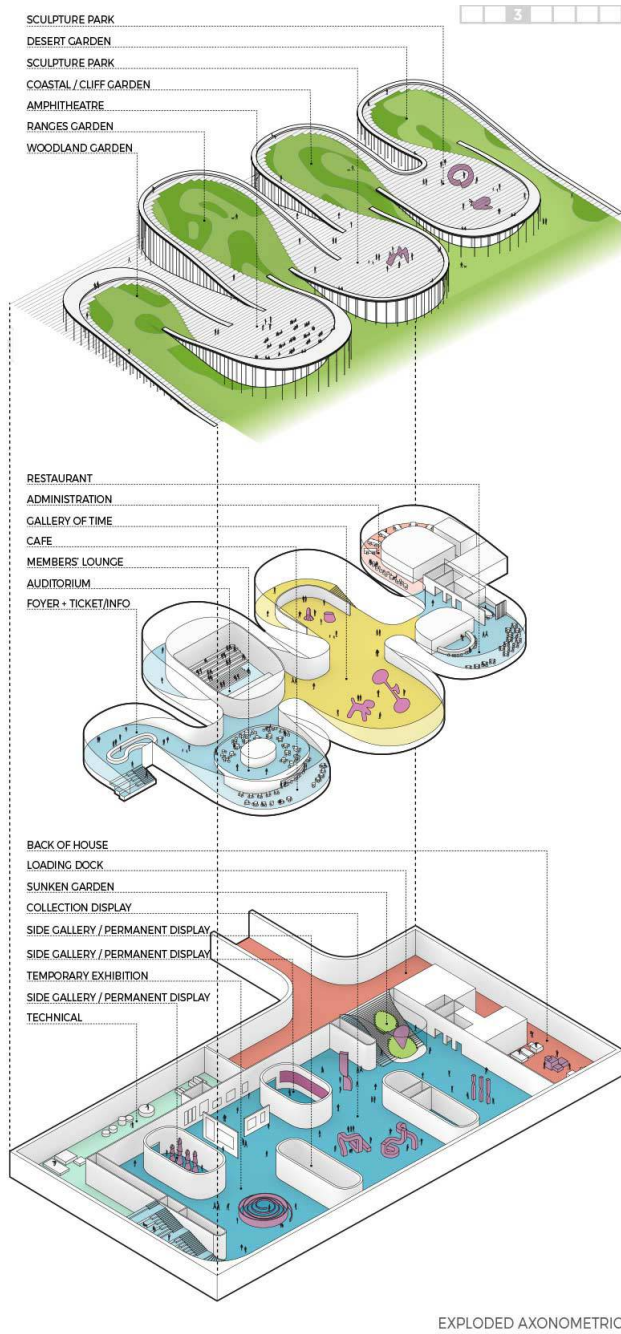


Figure 3.6. Exploded axonometric diagram of the structure. (URL4)

3.2. 2016 Serpentine Pavillion Designed By BIG

Serpentine Gallery (UK) funds a short-term seasonal pavilion by a pioneering designer a year since 2000. In this way, original examples of contemporary architectural practices find the opportunity to be exhibited, just like in an open-air museum. BIG's Serpentine Pavillion was one of the series of pavilions that have built in 2016.

Table 3.2. General information about The Serpentine Pavillion

Type	Pavillion	
Size	300 m ²	
Location	London, UK	
Status	Completed	
Year	2016	
Client	Serpentine Gallery	

While designing the building, two forms, such as being orthogonal and amorphous, were tried to be combined by deforming a single structural element. BIG calls this combining process unzipping, and the pavilion formed by unzipping of a brick wall along different directions.

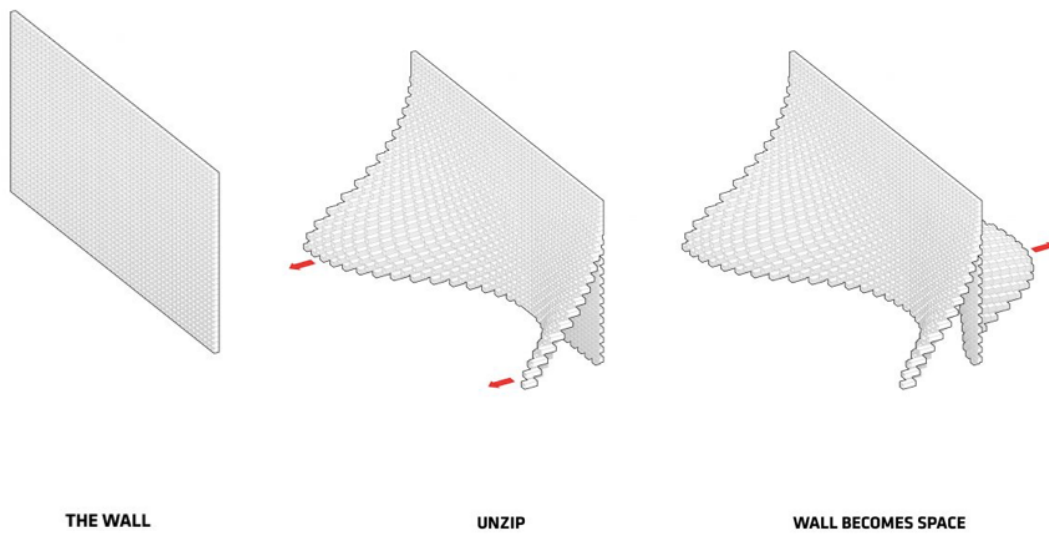


Figure 3.7. Diagram of form finding process. (URL 5)

In addition, the brick, which is the primary material of the brick wall, was transformed into a hollow, three-dimensional, plexiglass material with various dimensions in the z plane. The new brick unit, which turns into a building element that can also be perceived as a three-dimensional frame system, makes the building almost invisible in the north-south direction. (Figure 3.8.)



Figure 3.8. Elevation of south facade. (URL 5)

The units on the unzipped surfaces are transformed into sitting and bench elements, and that strategy has achieved a multi-purpose use. The building has been placed as a transitional area due to its location, a square due to its form, a gathering area, and a topological element due to its surfaces. (Figure 3.9.) As a result, The Pavilion becomes a catalyst and multifunctional event area on the site.

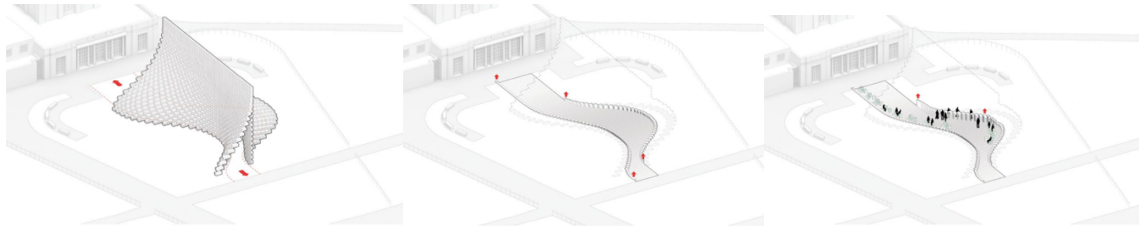


Figure 3.9. Diagram of versatility of the Pavillion (URL 5)

3.3. MECA Cultural Center

The MECA Cultural Center (Figure 4.6.), whose construction had completed in 2019, was built with design sense with more origami-like fold understanding, unlike the previous two examples. The building programmatically aims to create an urban space by creating a public space of contemporary art, film and performance arts. Architects define this public space as urban room.

Table 3.3. General information about MECA Cultural Center

Type	Cultural Center	
Size	18 000 m ²	
Location	Bordeaux, France	
Status	Completed	
Year	2019	
Client	Region Nouvelle-Aquitaine	

The building is located on the riverbank and is 500 meters from the Saint-Jean train station. The circulation and public areas of the building are designed following the

horizontal and vertical axes. The circulation takes the horizontal axis coming from the city and transports it to the riverbank. (Figure 3.10)

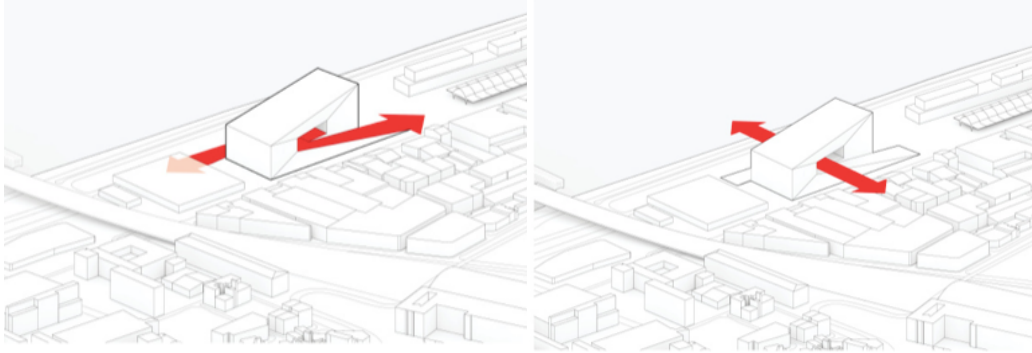


Figure 3.10. Axes that effected the form of the building. (URL 5)

The design of the form obtained by creating 4 different programs in a frame like section is shaped around a main open space called the public box. These 4 programs are; FRAC (Fonds régional d'art contemporain) for contemporary art, ALCA (Agence Livre Cinema & Audiovisuel), OARA (L'Office Artistique de la région Nouvelle-Aquitaine) and the public space. (Figure 3.11)

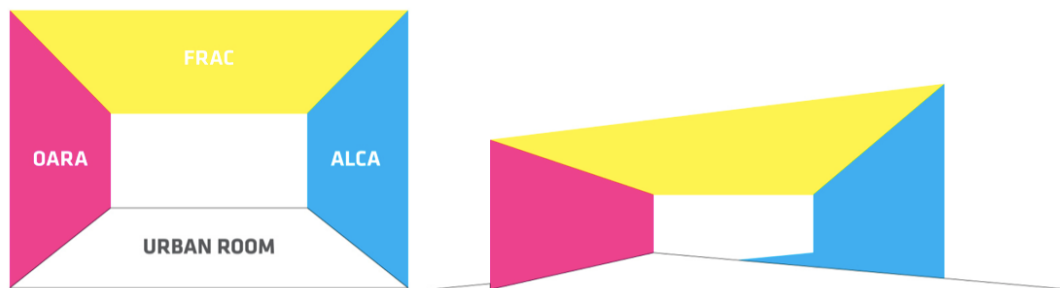


Figure 3.11. Programmatic of the building. (URL 5)

The outdoor urban room is an attraction point for the artistic and cultural events of the city of Bordeaux. The sidewalks that connect the building to the urban plane, on the other hand, turn into ramps and sitting areas to bringing the city dwellers into urban rooms. The urban room also acts as a stage, gallery for artistic and cultural events. (Figure 3.12.)

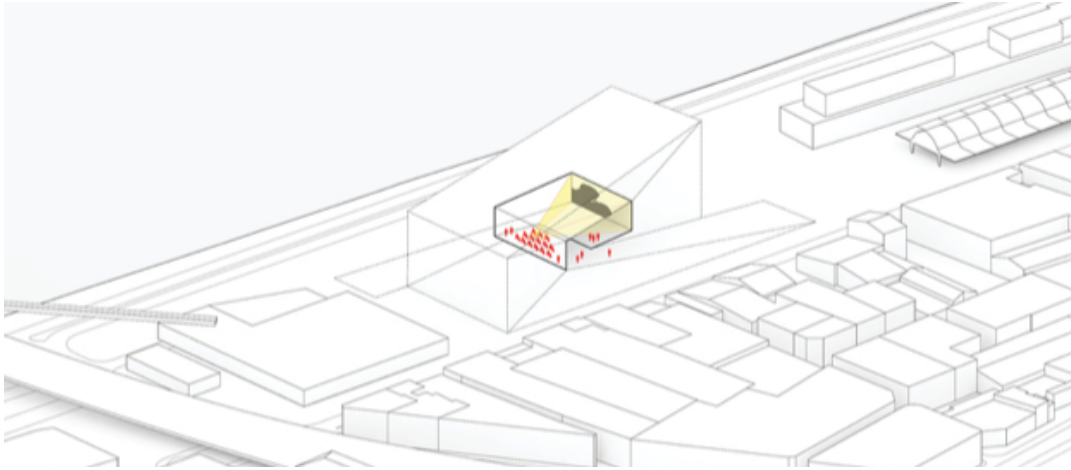


Figure 3.12. Events in Public Room (URL 5)

3.4. Slussen

Slussen is an urban node designed at the junction of urban transport axes and historical axes of Stockholm. As an urban intervention to the intersection of heavy traffic, the project aimed to assume a more dominant role for pedestrians and cyclists. In this way, the waterfront, which is suppressed by the traffic, will be available to the local people again.

Table 3.4. General information about The Slussen

Type	Urban Node	
Size	70 000 m ²	
Location	Stockholm, Sweden	
Status	Idea Project	
Year	2007	
Client	Stockholm Municipality	

By analyzing all the axes in the site, it was aimed to create a more sustainable urban area for pedestrians. For this purpose, BIG Architects, first considering the area as an empty plane, developed a new urban approach by combining this empty plane with urban axes. (Figure 3.13)

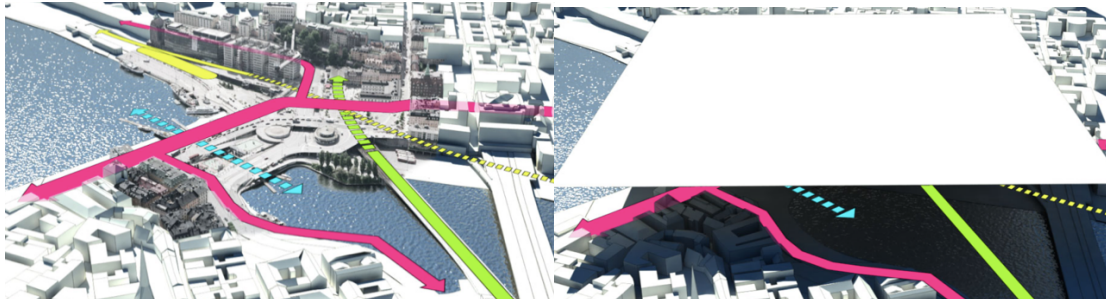


Figure 3.13. Axes and the empty plane over the site. (URL 5)

After determining the axes, the potentiality of the urban space was tried to be increased by using topological forms that would increase the use of public space and relieve the pedestrian circulation instead of orthogonal forms. Under these topological structures, places with cultural and artistic functions that can be accessed by the citizens of the city have been created. (Figure 3.14.)

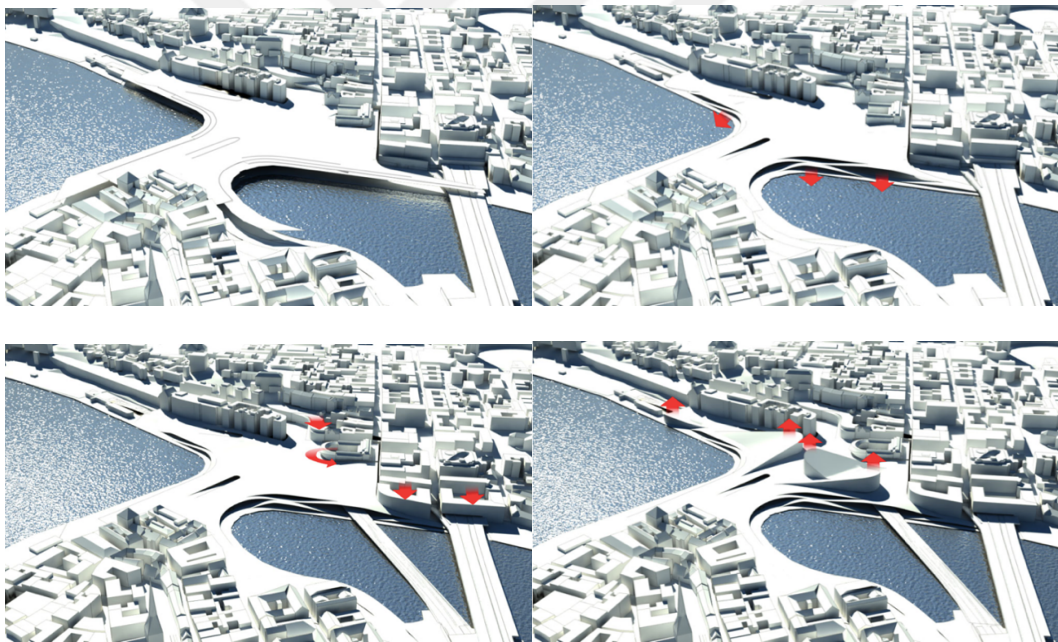


Figure 3.14. Topological design process of new urban space. (URL 5)

With the topological elements articulated to the city, many axes that pedestrians can use have been obtained. In this urban node, where traffic is the most dominant situation, it was the primary design goal to reduce this situation and increase the use and circulation of public space by pedestrians. When looking at the final design, this goal reaches a certain consistency within the concept. (Figure 3.15.)

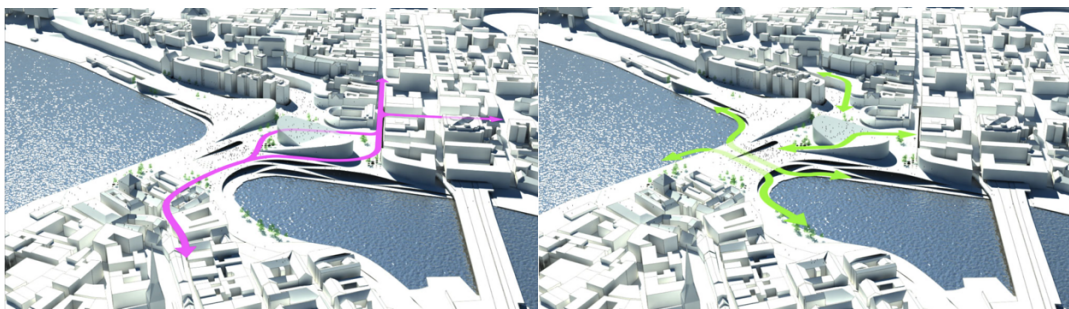


Figure. 3.15. New pedestrian axes in public site. (URL 5)



4. EVALUATION

As mentioned in the literature review, the theoretical base of digital-based 21st -century architecture in the 90s has been extensively influenced by Deleuze's philosophy. The change in this thinking system in the 90s was called the transition from Derrida-based post-modernism to Deleuze-based Digitalism. When examined superficially, the architectural productions of the period were generalized under the concept of Folding. However, when the concept of folding is undermined, the rhizome, multiplicity, body without organs, and many concepts explained in the second chapter reveal themselves. In this context, instead of being a classical Fold expansion, the analyzes in this section will be a Deleuze analysis centered on the fold but with a broad frame with the concepts as mentioned earlier.

In this section of the thesis, designs of the Big Architects have been chosen to discuss through the Deleuzian concepts. Although, designers of the BIG are never implying and Deleuzian approaches in their projects. However, since the design principles of the 21st century are influenced by the Deleuzian folding concept, it is considered necessary, even if indirectly, to find and make sense of the Deleuzian traces and create awareness for the architects of the 21st century.

The Adelaide Contemporary

Looking at the first diagram (Figure 4.1.) in Big's portfolio, it is observed that there is an attempt to establish a rhizomatic relationship. The instinct behind is that rhizomatic states become an intermediate state, an intersection, a connection to form new actions, new concepts, or bodies, draws attention first. Although this primitive section can be the same for any project that can be done for this area, it is a rhizomatic diagram in terms of its diagrammatic representation and explaining the relationship that wanted to be established. Rhizomatic states are a representation of coexistence and this diagram manifests that idea.



Figure 4.1. Diagram of program and context. (URL 5)

Although Figure 4.2 is an important visual revealing the potentiality of even a primitive diagram, in Figure 4.2, rhizomatic relationships can be seen in a more layered state. A rhizome establishes continuous connections between procreative axes, along with situations in interaction to the art, fields of science, architecture, politics, culture, and public aims. A stratification effort is also seen in the section in the multiplicity line at Table 4.1. This situation has the potential to create a multiplicity in Deleuzian literature. Rhizomatic states form multiplicities due to their internal tectonics. Two different (urban and green) situations fold over each other, creating layers in horizontal and vertical. The unity of the one as a multiplicity can eliminate the two opposing states such as this intersected two inputs from the context. The multiplicity is inevitably established through context, with no external allegory or source to consistent space in which it could be stratified. "Unity" will also allude to the internal or external nature of things. It is crucial to differentiate between the various types of multiplicities rather than the distinction between interior and exterior (a relative and reversible situation). Their coexistence, interconnecting, involvement, and relocation by each other provide lines and intensities of their own. In Figure 4.2, it can be seen that the distinction between inside and outside is blurred and overlaps each other.



Figure 4.2. Section of East-West direction. (URL 5)

Turning back to the multiplicity section at Table 4.1., it can be seen that the folded curves referring to the form of the structure refer to a parabola since it is known within the framework of mathematical rules that the arms of the parabola point down when $a < 0$ among the values given in the function $f(x) = ax^2 + bx + c$ for $R > R$ (Figure 4.3.). Thus, although the decisions regarding the form seem quite spontaneous within the framework of the potentials provided by digital design tools, their mathematical foundations are based on Rene Thom's catastrophe theory, Leibnizian mathematics and Deleuze's fold.

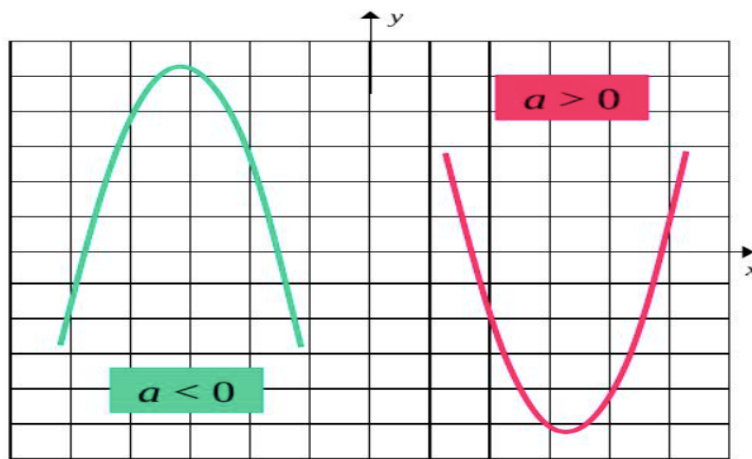
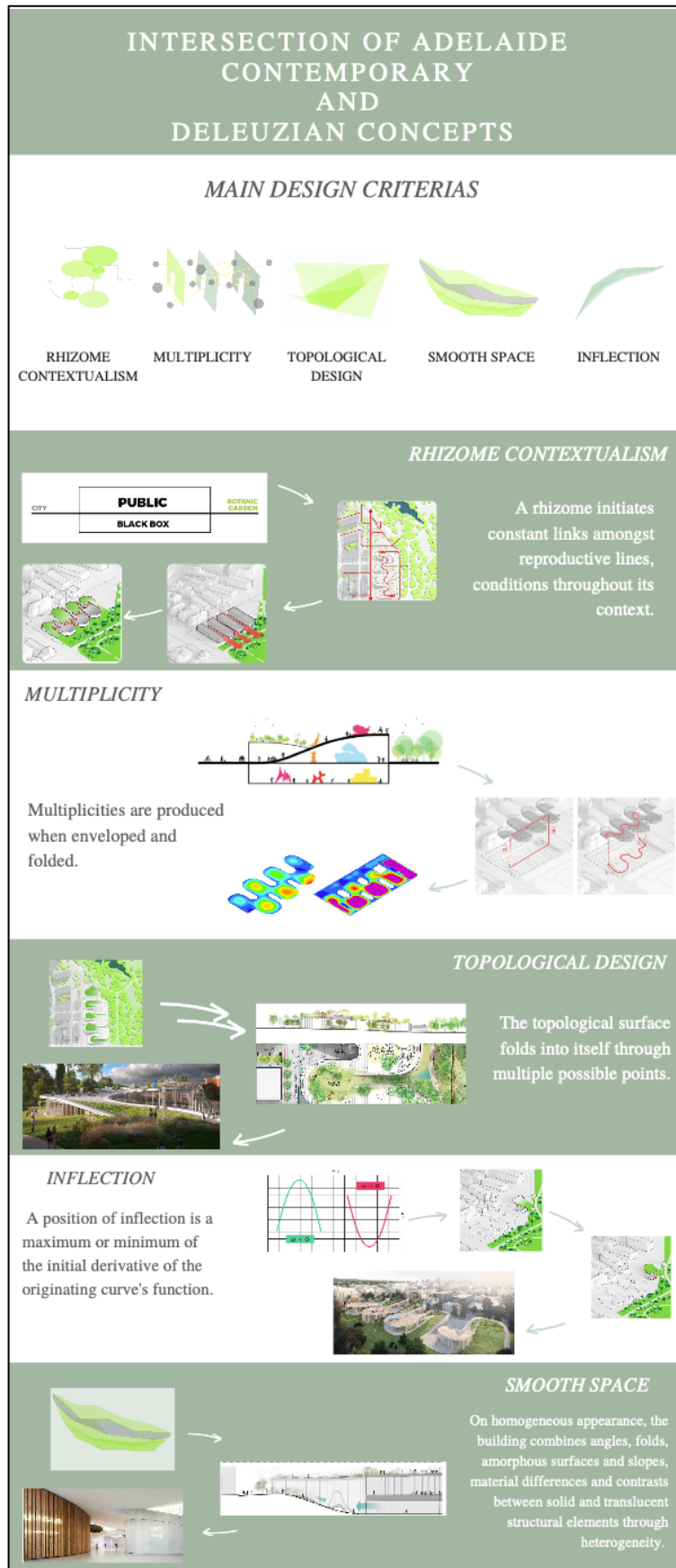


Figure 4.3. Parabola of $f=ax^2+bx+c$ (URL 6)

It was mentioned in the previous chapters that the minimum and maximum points of the function are inflection points, which are the curve of the point-fold. In this project, the geometry of inflection encouraged the designer to form the pliable (foldable) sequence of multiplicities as intersecting layers of never-ending patterns. After the parabolic inflection on the y-axis, the topological form between the two densities begins to form with the folding of the amorphous vectors in the z-axis and topological surfaces formed at the intersection of the parabola on the X-Y axis with the Z-axis blur the boundaries between architectural elements. The wall turns into flooring, the flooring turns into the earth, and the earth fuses into the urban fabric.

This topological situation is formed by the catastrophe theory and folds that create heterogeneous but smooth spaces even if it appears as a homogeneous form. Smoothness is "continuous variation" and "constant production of form." Smooth space is a kind of multiplicity that cannot be measured, non-centralized and rhizomous. It shows a tendency to extend in all directions. The continuity and tendency of extending of the smooth space, which is formed through the intensive line between the urban texture and the green area.

Table 4.1 General evaluation of Deleuzian concepts.



2016 Serpentine Pavillion Designed By BIG

According to the statement on BIG's website, the Serpentine Pavilion had been designed with a multi-layered thought process. With the convergence of the oppositions in the same design process, the tectonics of the structure has been tried to be formed; solid yet amorphous, modular yet sculptural, orthogonal yet topological. This state may be familiar from Deleuzian literature. As in Deleuzian literature, folding - enfolding, contraction – dilation, enveloping – developing are not supposed to be opposite. These are continuous notions of design through folding. As Deleuze stated, there are two kinds of the fold, folds in soul and folds of matter. (Deleuze, 1993, p. 3) When the explanation of BIG is approached through the Deleuzian perspective, it can be understood that there is a fold in thought/soul even at the beginning of the concept process. This kind of fold is vital as the folds of the matter. It is because the tectonics and possibilities through the fold in the soul are endless. These folds have the power of creating rhizomes, multiplicities, machines, and other folds in the matter. In this case, the architectural product establishes rhizomatic relationships between the context and the user. That is a consequence of the relationship established through the multi-layered thought process in form and context. The pavilion, which approaches its surroundings versatily, acts as a social and circulatory catalyst.

The form of the building emerged through the folding, distorting of the brick wall, which is one of the fundamental structural elements, first folded in thought, then folded in the material space, and transformed to a hybrid element. In Figure 3.7., it can be seen that the wall enfolds throughout its surface. The brick wall, an almost two-dimensional and solid structural element of the architecture, enfolds to become a topological surface. Topology implies oscillations through other contexts, alternative spaces. At this point, the foundations of digital design can be observed through the mathematics of the fold. Spatial potentialities had discovered by distorting the Cartesian grid in the z-axis. Cartesian distortions, along with their process of versatile topological form-producing strategies, open up possibilities for the geometric morphological transitions of unique architectural varieties. In this case, the wall becomes a valley, passage, surface, shelter, and gathering space. (Figure 3.9.)

The building's tectonics, the way of thinking that BIG mentions as solid but amorphous form, also refers to a mathematical situation through the inflection adopted by digital design tools and explained by Deleuze in the 90s through Leibniz and Rene Thom. As in Figure 4.5. the

opposition of orthogonality and the amorphous surface of the building can be read through $f(y)=x=ay^2+by+c$ function's parabola. This kind of function's parabola positions through x-axis. (Figure 4.4.) As reference from $f(y)=x=ay^2+by+c$ function's parabola, the inflection points are not vertical but horizontal. There are two kinds of parabolas on the surface of the solid wall. (Figure 4.5) One of them is when $a<0$ parabola's graphic and the other one is $a>0$ parabola's graphic. These mathematical functions allow the designer to be topologic, rhizomous and multi-functional. Structure's form integrates with the context through inflection points on the ground.

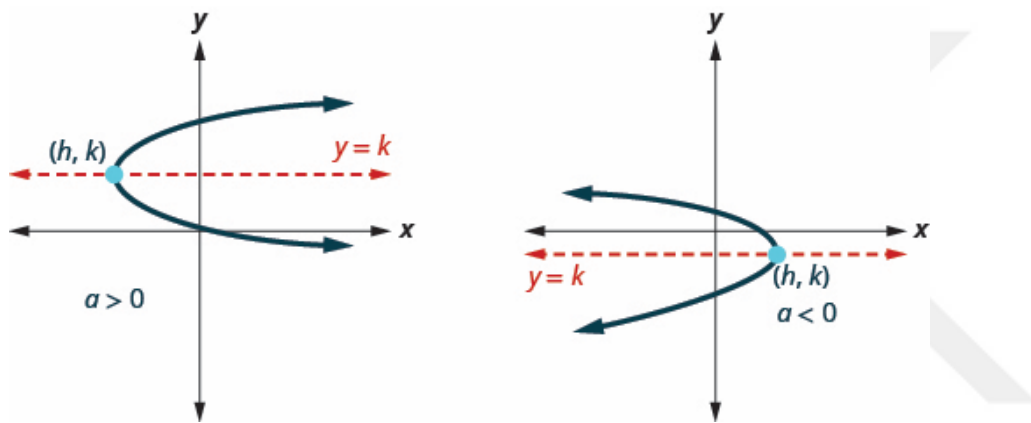


Figure 4.4. $f(y)=x=ay^2+by+c$ parabola graphics. (URL 7)

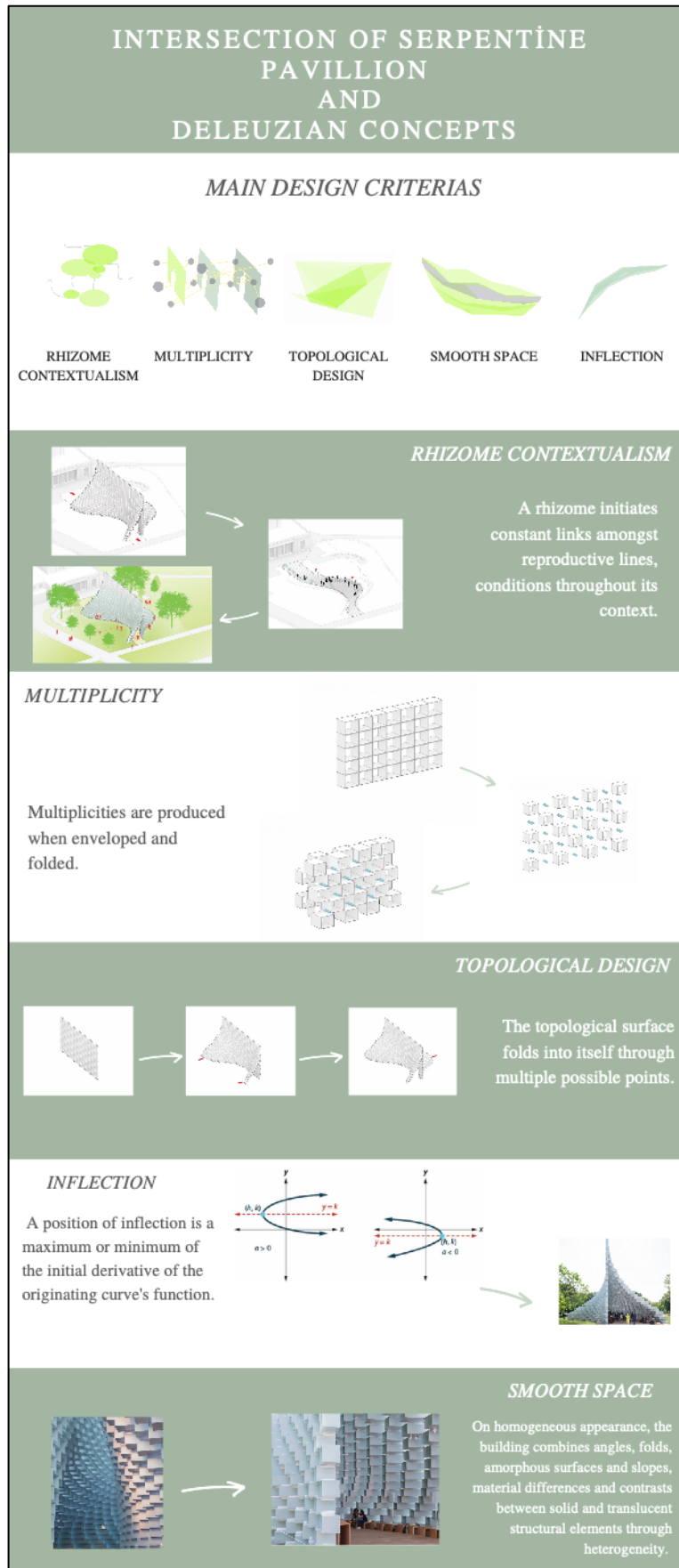


Figure 4.5. Entrance of Pavillon from the museum side. (URL 5)

The abandonment of Cartesian space made the space smooth at one point. It was mentioned in Chapter 2 that being smooth should not be confused with being homogeneous. In the context of this structure, the smoothness comes from three sub-tectonics:

1. A heterogeneous but smooth structural setup was created by interpreting the brick, which is the basic building unit of the brick wall, into a material that diversifies in itself and designing the construction through this transformed material on a parabolic function.
2. It has been mentioned that the intellectual background of the building, its form, and its relationship with the context are rhizomatic. A catalyst, extended through all directions, has smooth tectonics, the rhizomous structure that distorts the Euclidean space. Smooth space is not a spatiality within fixed points and layers; it is a space of interaction, variation, and constant development of relations.

Table 4.2 General evaluation of Deleuzian concepts.



MECA Cultural Center

The MECA Cultural Center (Figure 4.6.), whose construction was completed in 2019, was built with design sense with more origami-like fold understanding, unlike the previous two examples. The building programmatically aims to create an urban space by creating a public space of contemporary art, film, and performance arts. Architects define this public space as the urban room.

The structure acts as a circulating and visual catalyst between the city and the seashore, and it responds to important vertical and horizontal axes from the city. As shown in Figure 4.6, a box had manipulated by axes, folded and distorted to inwards of itself. However, this folding through inwards to itself of the form creates an outer, public space. Folding of the surfaces to create inherent spaces that offer a subjective state. Thought and life emerge from the outerness of the fold.

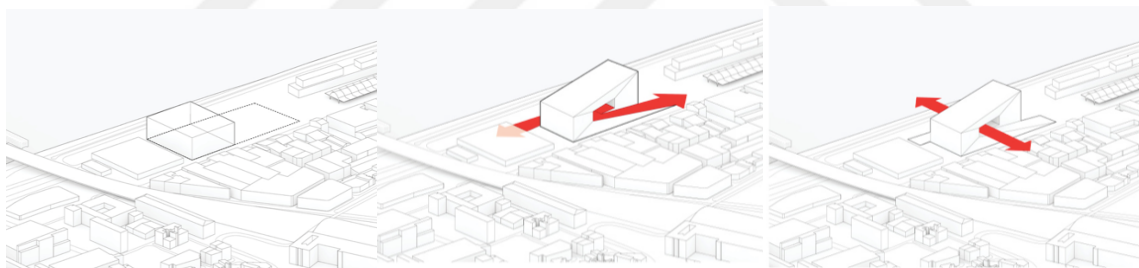


Figure 4.6. Axes from urban fabric that influenced the folds. (URL 5)

As mentioned in the literature review, pliancy allows architects to design complex situations with more flexibility. In this example, architects have created a smooth yet heterogeneous design by folding urban and programmatic multiplicities in many ways, like a single deformed loop. It has become a space of interactions, of simple haptic or connection motivations. Smooth space is a concept with no entities or platforms. A diverse, smooth space is closely tied to a unique form of multiplicity: non - metric, uncentered, rhizomatic multiplicities that inhabit space. (Deleuze, 1993, p. 371) When viewed programmatically, the effects of 4 programs on 4 main folds can be seen (Figure .4.8.) which are FRAC (Fonds régional d'art contemporain) for contemporary art, ALCA (Agence Livre Cinema & Audiovisuel), OARA (L'Office Artistique de la région Nouvelle-Aquitaine) and the public

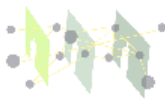
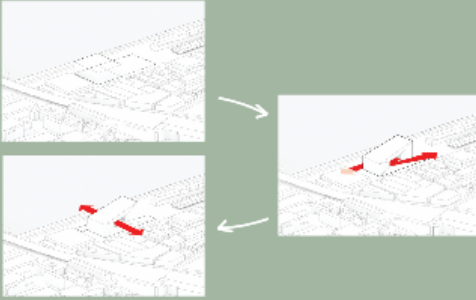
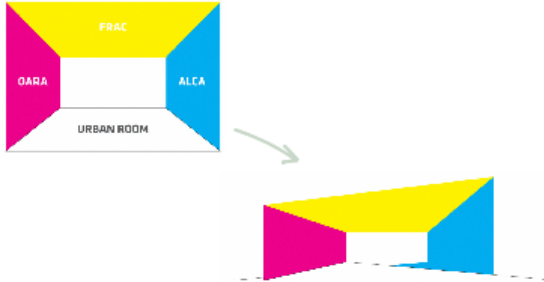
space. Space has been folded first in thought and then within itself. A fold is always folded within a fold. These folds once again overflowed into the urban plane as folds.

At this point, fold blurred the boundaries, drawing urban elements to the building scale, making the distinction between interior and exterior questionable. Integrating with a rhizomatic approach to the pavement, which is an urban element, the building has begun to establish its connection with the city through the fold by joining the pavement with a series of ramps and stairs. A rhizome initiates constant links amongst reproductive lines; in this case, rhizome initiates social and cultural lines. (Figure 4.7.) The rhizome that emerges from folding and multiplicity creates an intermediate state between the city and the building. This intermediate state supports the multi-layered relationship between the user and the building while at the same time strengthening the circulation and activities in the urban plane.



Figure 4.7. The relation of the pavement and the MECA. (URL 5)

Table 4.3. General evaluation of Deleuzian concepts.

INTERSECTION OF MECA CULTURAL CENTER AND DELEUZIAN CONCEPTS				
MAIN DESIGN CRITERIAS				
				
RHIZOME CONTEXTUALISM	MULTIPLICITY	TOPOLOGICAL DESIGN	SMOOTH SPACE	INFLECTION
 <i>RHIZOME CONTEXTUALISM</i> A rhizome initiates constant links amongst reproductive lines, conditions throughout its context.				
<i>MULTIPLICITY</i> Multiplicities are produced when enveloped and folded. 				
<i>TOPOLOGICAL DESIGN</i> N/A				
<i>INFLECTION</i> N/A				
 <i>SMOOTH SPACE</i> On homogeneous appearance, the building combines angles, folds, amorphous surfaces and slopes, material differences and contrasts between solid and translucent structural elements through heterogeneity.				

The concept started by determining the axes in the urban plane; it aimed to rearrange the spatial tectonics and create a user-oriented urban environment by creating topological statuses. Then, the empty, manipulable plane overlapped on the urban site. This empty plane is a contextual approach that will push the urban axis and elements to work together. It has rhizomatic potentials. As mentioned earlier, multiplicities do not need to be made up of many layers. Multiplicities are also formed by folding a single element in multiple directions.

In the first phase, the empty plane, which is overlapped with the urban fabric, begins to create new relationships by folding, opening cuts, and articulating to the city in the second phase. (Table 4.4., Inflection/Catastrophe line) The cuts made in the plane have created certain parabolic extreme points. By extending the Y and Z axes horizontally and vertically, these extreme points of the parabola have created topological circulation paths, gathering areas, and enclosures. Here, folds are a post-structuralist conception of space “made up of platforms, fissures, folds, infills, surfaces, and depths that interpreted the tectonics of the urban fabric. As shown in Figure 3.14., the effort to establish rhizomatic relations with the city is very clearly understood. It can be perceived that the plane is manipulated, and the building groups arising from the plane are in an effort to connect the existing urban fabric. A rhizomatic relationship has been established at an urban scale rather than a single building scale. It was mentioned that the rhizome is an intersection of multiple states; here, too, the urban node can be seen as a catalyst at the intersection of many elements. Node undergoes deformation at many points within itself, creating different topologies and generating multi-layered tectonics.

In this case, it is understood that there is an effort to create a more smooth and flexible space than the urban grid and the Cartesian space. (Figure 4.8.) The space of contact, a tendency from Euclidean states to organic forms and multiplicities, can frankly be seen. Gridal stability cannot correspond to the layered state of the multiplicities. At this point, the topological approach emerges as a spatial representation of the multiplicity of potential coexistence events at any level, enabling many activities within the city to pass into a rhizomatic relationship with this smooth surface. It is known that rhizomes consist of multiplicities. In this case, the multitudes make it possible to move out of a rigid gridal system and to integrate with other multiplicities, topologies. Every element, living or non-

living that communicates with the surface continues to exist in the urban plane as a part of the rhizome.



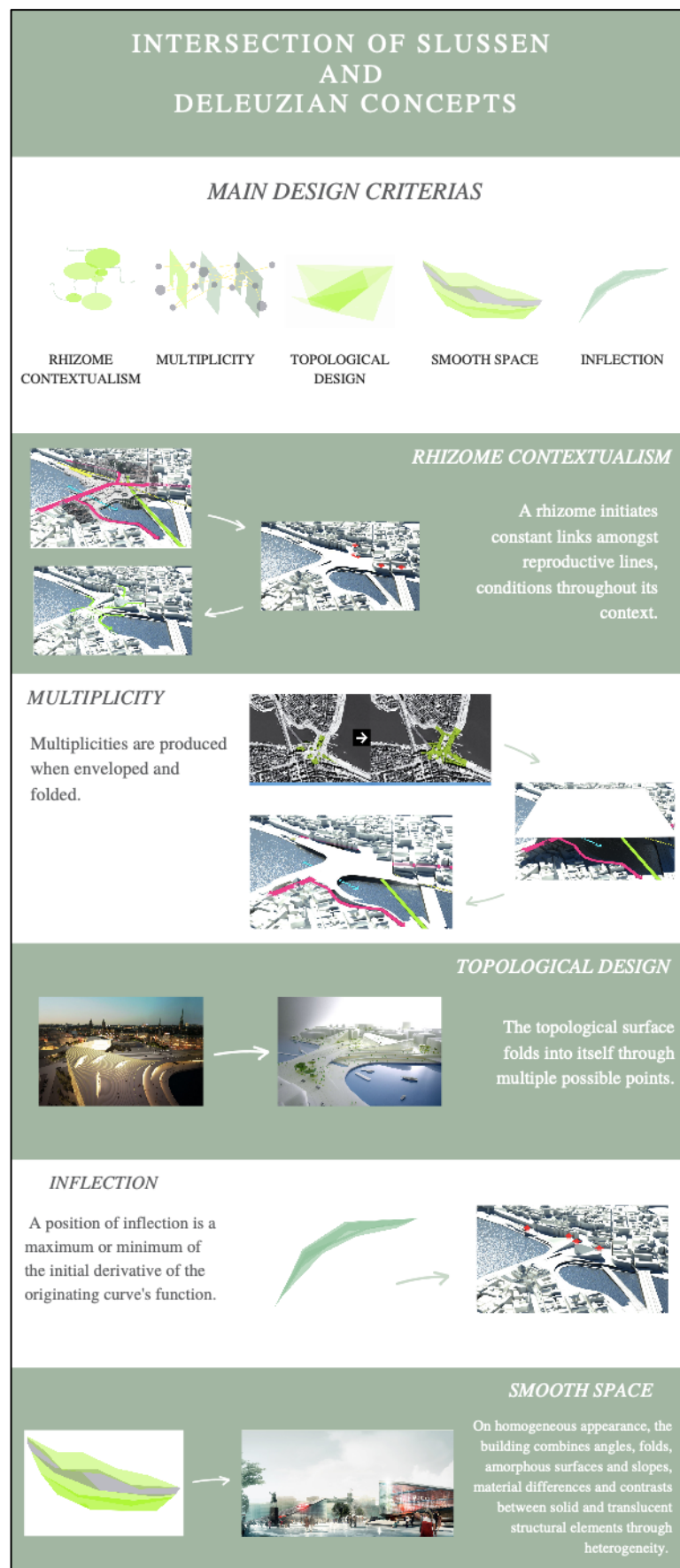
4.8. Urban Node and the gridal system of the city. (URL 5)

In the literature review, the similarity of folds with marble veins was mentioned. The fold can be the external state surrounding the vein of a marble, as well as it can be the vein of this marble itself. In this project, the power shift between these two situations is remarkable. At the starting point, pedestrians were the vein, and the traffic was the surrounding. After the fold throughout the urban fabric, the traffic has become a vein and the pedestrians/local people become the main actor in the urban node. (Figure 4.9)



Figure 4.9. Pedestrians and the traffic at Slu. (URL 5)

Table 4. 4. General evaluation of Deleuzian concepts.



5. DISCUSSIONS AND CONCLUSIONS

The architecture of the 21st century is multi-layered in many aspects and open to many interpretations. Even though it is impossible to talk about any particular style, hybrid situations that emerged due to the interaction of digital architecture technologies with modernism and postmodernism stand out. Because the discipline of architecture is highly intertwined with culture, art, philosophy, sciences, and technology, important developments in these disciplines have also led to turning points in the history of architecture. The tectonic shift in the transition from postmodernism to digital architecture was examined in the literature review in the context of the transition from Derridean to Deleuzian mindset. It is inevitable to make cross-links in the fundamentals of digital design theory and Deleuze in this context. While the effects of this transition can be seen quite clearly in the 90s, the references of the Deleuzian theory since the 2000s cannot be seen except the theory of architecture. It can be explained by the rapid development of the digital age, but the Deleuzian Fold concept has derived many concepts towards the end of the '90s. Parametric design, performative architecture, and non-standard architecture are the best known of these. As these new concepts and ways of thinking became more common than folding, the contemporary architecture of the 2000s has begun to see the concept of folding as a ghost of the past.

This situation in the contemporary architectural environment has also been a trigger while creating the research question in this thesis. "Does the effect of the Deleuzian tectonics continue in contemporary architecture?". In order to find possible answers to this question, many first and 2nd degree Deleuze sources were researched. In the light of the information obtained from these sources, architectural productions made after the 2000s were examined, and Deleuzian traces were sought. Since the most famous concept that Deleuze's philosophy has been related to architecture is folding, the sub-systematics, mathematics, and intellectual tectonics of the concept of folding have been analyzed in detail, and a solid theoretical basis has been established in order to prevent an arbitrary evaluation. The concepts of rhizome, multiplicity, smoothness, and inflection, which are among the sub-tectonics of Folding, have affected this thesis from being research focused solely on folding and making it possible to approach architectural productions from many angles. Based on the concepts explained by Deleuze; One of the most significant difficulties encountered in establishing connections

through Deleuzian concepts while case studies analyzed, that every comment and every word to be spoken at the philosophy-architecture intersection carries the risk of being arbitrary. To avoid this arbitrariness, in the literature review, every point that refers to relational situations in terms of form and architecture is examined in detail and nothing more is included than the potentials and traces of these concepts in cases. With this approach, as seen from the tables in Chapter 4, Deleuze effects were encountered on the cases examined. Although BIG Architects, the designer of the cases, did not make a Deleuze statement on the cases, it is not surprising that these traces are found. Tectonics of the architecture of the 90s, which constitute the theoretical base of the 2000s, naturally affect the new generation of contemporary architecture. Another reason for this is that digital design tools systematically work on mathematical calculations and functions. As mentioned in the literature review, these mathematical calculations have also found a response in the Deleuzian philosophy, and it initiated a new generation of productions in the 90s. For these reasons, many of the Deleuzian effects can be encountered in cases.

After the answer to the research question, it is also necessary to discuss the hypothesis. Based on the research question, the hypothesis was also created within this framework: "The Deleuzian philosophy can offer a range of potentials to the new generation architects at the building scale and at the city scale.". In the previous chapters, the implicit readings of Deleuze made over BIG'S buildings, and the versatility and multiplicity that Deleuze's concepts add to a project have been revealed in the tables and discussion section. The continuity and circulation opportunities facilitated by the fold concept also offer many physical possibilities in terms of the transformation of architectural elements within itself. In addition, the concept of rhizome provides multi-layered tectonics in the context of the relationships established with the living and non-living environment, inside and outside the structure. It is seen from the examples that if the relations between the program and the context of the building are established through the rhizome, a multi-layered situation can arise and the relation of the urban and user can be re-invented on these multi-layered stratas. However, it has been stated in the literature review that each fold is a rhizome. These rhizomatic folds left in the urban context can provide catalytic situations in the city by providing material and abstract flows within the multiplicities. Deleuzian productions, which are catalysts in the provision of multi-layered urban space, can also be rearranged in the urban environment. As a result, it was seen with the case analysis in Chapter 4 that instead

of the rigid relationality of gridal orders, more flow-through relationships are established, and topological states can be produced.

The biggest challenge in this process is that Deleuze's philosophy has a complex structure. Deleuze's philosophical concepts are not based on architecture or materials; It is based on making sense of existence and relationship tectonics. Therefore, it was not easy to produce an explicit systematic in this process. In fact, since producing systematic evaluation criteria would mean contradicting Deleuze's philosophy, it has turned into a situation that was rejected within the scope of this thesis. Instead, Deleuze's philosophy was divided into sub-concepts for a holistic approach, and the structures were evaluated over these concepts. Five sub-concepts, rhizome, multiplicities, topological design, inflection, and smoothness, make a different Deleuzian meaning for each project. This situation arises from the tectonics of Deleuze's philosophy because Deleuze stated that these concepts might have equivalents on the material plane, as well as on the spiritual/abstract plane. At the same time, since these concepts cannot be separated from each other with clear boundaries, each concept has turned into an interlocking evaluation criterion. Another difficulty encountered during the dissertation process was that case studies could not be seen in place due to the covid-19 pandemic. In addition, all materials accessed for the cases were obtained from BIG Architects' website and no contact has been made with BIG Architects. For future researchers, on-site observations of the structures or the ability to contact BIG architects and the possibility to access various materials can lead to different research results. With an interview with BIG Architects, another perspective can be added to the literature review by asking what the concepts used to analyze cases mean in the design process for designers. Or, if the visuals, plans, schemes, codes, or intermediate design outcomes produced by the designers during the design process can be accessed, it may be possible to make different analyzes on the case study analyses.

The main concept in this research is the concept of folding. Along with the fold concept, Deleuze's other concepts are handled as auxiliary concepts. The reason for choosing BIG as a case study is that among contemporary architects, using digital design tools, architectural style and graphic expressions give many references to Deleuze's fold tectonics. In any of the concept descriptions in the selected case studies, BIG Architects did not and does not have to give references to the Deleuze or fold. As a result of the analysis, the Deleuzian approaches reached in BIG Architects' building should be considered a reflection of the

digital architecture culture. Apart from BIG, all contemporary designers who produce and think with new generation production tools can be examined and worked on in this context. Researchers who will work in the digital design theory and Deleuze intersection in the future can research the architecture of the digital age through many concepts (Rhizome, Multiplicities, Difference-Repetition, Virtuality, Body without Organs) other than folding. Also, this research can be carried out on digital design tools as well as architectural productions. Suppose the digital and parametric design tools are examined with a different perspective. In that case, it can be clearly observed that the tectonics of the new generation architecture are also shaped by these tools.



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