TRANSFORMING DELEUZE & GUATTARI'S RHIZOME ANALOGY INTO A PARAMETRIC DESIGN STRATEGY THROUGH ANATOLIAN *YÖRÜK* TENT

ENGİN DEMİROK

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DESIGN DOCTORAL DISSERTATION

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ABSTRACT

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DEMİROK, ENGİN
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Supervisor: Assoc. Prof. Dr. Gülru MUTLU TUNCA
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This study examines Gilles Deleuze's critique of classical Western hierarchies and his alternative *rhizome* metaphor, offering a productive framework for rethinking spatial production beyond traditional architectural paradigms. With this conceptual perspective, the research aims to re-evaluate the foundational roles of the minor yet resilient characteristics of nomadic communities within contemporary architectural discourse by examining their daily lives and spatial practices, whether they are settled in urban contexts as minorities or maintain their existence through topographical settlement. This study, focusing on the *Yörüks* as a case study, examines how minor communities (in a Deleuzian context: *assemblages*) transcend traditional hierarchical and linear modes of spatial production, highlighting the role of horizontal and articulatory relationality in sustaining spatial functionality. In this regard, the study’s methodological approach remains grounded within a Deleuzian framework, translating the rhizome metaphor into contemporary practice. By emphasizing multiplicity and horizontal relationality, this approach integrates open-source parametric design algorithms and scripting techniques, enabling flexible, scalable, and context-sensitive spatial interventions. The findings demonstrate that rhizomatic methodology facilitates a more dynamic understanding of spatial production while enabling adaptable, inclusive, and sustainable design strategies. By integrating computational and open-source frameworks, minor architectures, such as *Yörük* tents and lightweight tectonic systems, function as catalysts for socio-spatial transformation, infiltrating urban and topographically diverse environments to create reconstructive and context-sensitive interventions. These practices not only address immediate functional needs but also contribute to social cohesion, cultural continuity, and ecological sustainability. Framed within global agendas including UNESCO heritage policies and the United Nations' Sustainable Development Goals (SDGs) the study highlights the broader relevance of localized, context-aware approaches in responding to pressing contemporary challenges. Furthermore, by connecting Deleuzian philosophy with the functional axioms of parametric design, it provides a reproducible framework for modeling minor spatial practices and lays the groundwork for future studies that investigate the intersections of design, social theory, and collective agency in large datasets and urban contexts.

Keywords: Deleuzian Philosophy, Design Strategy, Rhizomatic Methodology, Parametric Design, *Yörük*.

ÖZET

DELEUZE & GUATTARI'NİN RİZOM ANALOJİSİNİ ANADOLU YÖRÜK ÇADIRLARI ÜZERİNDEN PARAMETRİK BİR TASARIM STRATEJİSİNE DÖNÜŞTÜRMEK

DEMİROK, ENGİN

TASARIM DOKTORA TEZİ

Danışman: Doç. Dr. Gülru MUTLU TUNCA

Eylül 2025, 308 Sayfa

Bu çalışma, 20. yüzyılın en etkili düşünürlerinden biri olan Gilles Deleuze'ün klasik Batı hiyerarşilerine yönelik eleştirileri ve buna alternatif olarak geliştirdiği *rizom* metaforunu analiz ederek, geleneksel mimari paradigmaların ötesinde mekansal üretimi yeniden düşünmek için verimli bir çerçeve sunmaktadır. Bu kavramsal bakış açısıyla araştırma, göçebe toplulukların günlük yaşamlarını ve mekansal uygulamalarını inceleyerek, ister kentsel bağlamlarda azınlık olarak yerleşmiş olsunlar ister topografik yerleşimlerle varlıklarını sürdürsünler, çağdaş mimari söylem içinde göçebenin minör ancak dirençli özelliklerinin temel rollerini yeniden değerlendirmeyi amaçlamaktadır. Yörükleri bir vaka çalışması olarak ele alan bu çalışma, minör toplulukların (Deleuzeyen bağlamda: asamblajların) geleneksel hiyerarşik ve doğrusal mekan üretim biçimlerini nasıl aştığını inceleyerek, yatay ve artiküle ilişkisel yapının mekansal işlevselliği sürdürmedeki rolünü vurgulamaktadır. Bu bağlamda, çalışmanın metodolojik yaklaşımı Deleuzeyen çerçeve içinde kalarak, rizom metaforunu çağdaş uygulamaya aktarmaktadır. Çoklu ve yatay ilişkiselliği öne çıkaran bu uyarlama, açık kaynak kodlu parametrik tasarım algoritmaları ve betik teknikleriyle eklemlenerek esnek, ölçeklenebilir ve bağlama duyarlı mekansal müdahalelerin üretilmesine olanak sağlamaktadır. Bulgular, rizomatik metodolojinin mekansal üretimi daha dinamik bir biçimde anlamayı kolaylaştırdığını ve aynı zamanda uyarlanabilir, kapsayıcı ve

sürdürülebilir tasarım stratejilerinin geliştirilmesini mümkün kıldığını göstermektedir. Hesaplamalı ve açık kaynaklı çerçevelerin entegrasyonu sayesinde, Yörük çadırları ve hafif tektonik sistemler gibi minör mimariler, sosyo-mekansal dönüşüm için katalizör görevi görerek kentsel ve topoğrafik olarak çeşitli ortamlara nüfuz etmekte ve yeniden kurucu, bağlam duyarlı müdahaleler üretmektedir. Bu uygulamalar yalnızca anlık işlevsel ihtiyaçları karşılamakla kalmayıp, aynı zamanda sosyal uyum, kültürel süreklilik ve ekolojik sürdürülebilirliğe de katkıda bulunmaktadır. UNESCO'nun miras politikaları ve Birleşmiş Milletler'in Sürdürülebilir Kalkınma Hedefleri (SKH'ler) gibi küresel gündemler çerçevesinde ele alındığında, araştırma, acil çağdaş sorunlara yanıt veren yerelleştirilmiş ve bağlam-farkında müdahalelerin önemini vurgulamaktadır. Dahası, Deleuze'cü felsefeyi parametrik tasarımın işlevsel aksiyomlarıyla ilişkilendirerek, minör mekansal uygulamaların modellenmesi için çoğaltılabilir bir çerçeve sunmakta ve gelecekte büyük veri kümeleri ile kentsel bağlamlarda tasarım, sosyal teori ve kolektif eylemlilik arasındaki ilişkileri araştıracak çalışmalara temel sağlamaktadır.

Anahtar Kelimeler: Deleuzeyen Felsefe, Tasarım Stratejisi, Rizomatik Metodoloji, Parametrik Tasarım, Yörük

To my beloved daughter,

Zeynep Duru Demirok

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I want to thank my mom, dad, and sister for their unconditional love. Dear niece, having fun together during these challenging times always made me feel better. Being together is so precious. I save my final words for my beautiful wife and daughter... I am grateful for their patience, love, and the strength they have given me. Also, I eagerly await the day you read this thesis, my beautiful daughter. Without your support, this thesis would not have been possible.

And as it comes to an end… Over the course of approximately seven years, within Deleuze's statement that *'there is no good or bad; there are only useful and harmful encounters,'* I am grateful for all the useful encounters I have had during this thesis process. Each one renewed my faith in goodness and gave me hope again and again.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

CHAPTER I
BEYOND HIERARCHY: TOWARD A DELEUZIAN CHAOSMOS

The motivation behind this chapter emerges from multiple sources, yet perhaps the most significant among them parallels Gilles Deleuze's relentless passion for creativity. For Deleuze, creativity is not a mere act of invention but a continuous process of becoming a movement that produces real difference (Deleuze 1991). This conception resonates deeply with architecture, a discipline long immersed in acts of creative transformation. The intersection between Deleuze's philosophy of creative production and the architectural practice of generating new spatial conditions provides the primary impetus for this chapter. Within this framework, the chapter aims to explore how Deleuze's thought may inform design thinking and conversely, how design processes, especially those engaging with contemporary digital and parametric technologies, may enact what Deleuze calls an assemblage production: a dynamic interplay of concepts, materials, and affects.

Throughout the history of Western thought, spatial production has been largely defined by hierarchical, representational, and anthropocentric models. These models rooted in classical metaphysics and later translated into architectural paradigms have framed space as a static container, a measurable and controllable extension subordinated to order and function. As a result, architecture has often been conceptualized through binaries: form and matter, structure and surface, permanence and mobility. In the age of accelerated globalization and digital mediation, however, these dichotomies increasingly fail to account for the fluid, relational, and non-linear realities that shape contemporary spatial practices (Deleuze 1994).

This thesis begins by questioning these foundational hierarchies. Drawing upon the philosophy of Gilles Deleuze one of the most influential thinkers of the twentieth century it argues for a shift from representational to differential, from hierarchical to rhizomatic modes of spatial thinking. Deleuze's philosophy of difference and his collaborations with Félix Guattari propose a model of thought that resists the tree-like, stratified structures of Western rationality. Instead, they advocate for the rhizome: a horizontal, non-hierarchical assemblage of relations that grows through connection, multiplicity, and transformation. Within this framework, space is not a pre-given object but an ongoing process of becoming a field of forces, movements, and affects.

In the age of the Anthropocene a proposed epoch in which human activity has become a dominant geological and ecological force the relationship between architecture, nature, and technology demands radical reconsideration. This epoch, marked by atmospheric transformation, material excess, and ecological degradation, exposes the fragility of modernity's human-centered paradigms and the limitations of hierarchical spatial thought. Within this planetary condition, Deleuzian philosophy becomes increasingly relevant, as it calls for a shift from representational and static models toward dynamic systems of interaction and becoming. The rhizomatic framework proposed in this research resonates with such a post-Anthropocenic sensibility, positioning architecture as a field of assemblages that continuously negotiate between human, material, and ecological agencies (Saldanha and Stark 2016: 430). In this sense, lightweight and adaptive tectonic systems such as the *Yörük* tents that evolve in dialogue with topography serve not only as cultural artifacts but also as prototypes for sustainable and resilient spatial futures.

Within the context of architectural discourse, this Deleuzian lens allows for a critical rethinking of spatial production beyond traditional paradigms. It opens a line of inquiry into how nomadic and minor practices those often excluded from canonical narratives can inform new tectonic, ecological, and social possibilities. The research particularly investigates the spatial logic of *minor architectures*, emphasizing how communities existing on the margins such as the *Yörüks*, an Anatolian nomadic group articulate adaptive and resilient modes of dwelling that defy dominant architectural codes. By examining the *Yörük* tent as both a material and conceptual model, the study traces how lightweight tectonics, mobility, and topographical sensitivity can contribute to the redefinition of sustainable architectural practice.

Methodologically, the research integrates Deleuzian philosophy with computational design thinking, employing parametric and open-source tools as a means of modeling relational systems. This rhizomatic methodology is not only interpretive but also generative: it constructs a field in which the theoretical and the material, the social and the digital, can converge. Through algorithmic scripting, it seeks to reveal how differential relations rather than fixed hierarchies can generate adaptable, context-aware, and collectively informed spatial formations.

Ultimately, this thesis positions itself as both a theoretical and methodological experiment. It aims to establish a Deleuzian ground for architecture one that privileges flow over form, process over structure, and multiplicity over identity. In doing so, it contributes to ongoing discussions on sustainability, minor architecture, and digital design, proposing that the future of spatial practice may depend less on constructing fixed forms than on cultivating open systems of relation.

In order to deepen this proposition, it becomes necessary to engage with the philosophical frameworks that allow space to be thought beyond form, hierarchy, and representation. Among the thinkers who have most radically redefined the relationship between matter, form, and becoming, Gilles Deleuze stands out as a crucial figure. His philosophy provides not merely a critique of classical Western thought but a generative system through which spatial production can be reimagined as a process of continuous differentiation and assemblage. Thus, the following section turns to Deleuze's theoretical corpus, tracing the evolution of his conceptual architecture and its potential resonance within architectural and design discourses.

Following a Deleuzian literature and creating original content derived from it is a challenging matter. Because Deleuze's density of concepts, his clashing of these concepts on an interdisciplinary/transdisciplinary level, and his adoption of a philosophy of difference that constantly produces, it first requires a detailed analysis of his methodology. However, from another perspective, considering Deleuze's concept production model, which is both original and does not contradict but complements each other, it seems possible to pursue a design thought nourished by these concepts. In this direction, Deleuze's works can be classified into two groups. In the first group, while Deleuze writes commentaries on the thinkers who nourished and inspired him in his early works, he does not spend his energy on philosophers whose world of dreams he opposes. For instance, on the one hand, he prepares monographs (inscriptions on a single philosopher) on Hume, Nietzsche, Kant, Leibniz, Bergson, and, of course, Spinoza; He does not focus much on thinkers who developed subject-centered philosophies, such as Descartes, Husserl, Hegel, and Heidegger. This approach makes it relatively easier to follow their early works. In the second group, Deleuze, along with his close friend Guattari, essentially points to Capitalism and Schizophrenia, where he found his originality (Patton 2010; Direk 2017). Deleuze and Guattari (1983: xvii) describe their collaborative authorship as follows:

"We wrote Anti-Oedipus together. Since each of us was several, there was already quite a crowd. We have been aided, inspired, multiplied. To attribute the book to a particular author would be to miss the point. We are no longer ourselves. Each will know his own. We have become quite schizophrenic."

On the other hand, the productivity of a truly mature Deleuze is evident in his two-volume work, *Anti-Oedipus & A Thousand Plateaus* (1972-80), developed in collaboration with his fellow psychoanalyst Guattari. Here, many of the concepts that inspired this thesis are explored, and the techniques of production and the alternative relationality (rhizome/rhizomatic connection) that emerges from this technology are discussed in the name of a more refined and sustainable social perspective. Those who gave the book its scope and who, under the dominance of capital that still permeates much of the world economy today, have driven it into schizophrenia represent a plane of liberation that implies a positive, not a negative, connection (*desiring-machine* in Deleuzian terms). In line with these themes, the chapter discusses the empiricist connotations that point to Deleuze's way of thinking, the original concepts arising from this empiricist theory and their modes of production, and finally the influence of Deleuzian concepts on design thinking, considering today's radically changing digital possibilities.

At this point of the study, a literature review was conducted on studies linking Deleuze's philosophy (particularly transcendental empiricism) to computational/parametric design. From a broad perspective, the Ph.D. theses written in the last 20 years and the main arguments of the articles derived from these theses have been presented. First and foremost, the work of philosopher and theorist Manuel DeLanda, who has been working on complexity theory since the early 2000s, is particularly insightful. DeLanda teaches architectural theory as a professor of architecture and urban design at Pratt Institute. He is the Gilles Deleuze Chair and Professor of Philosophy at the European Graduate School. In his work "*Deleuze and the Use of the Genetic Algorithm in Architecture*" DeLanda (2002), discusses the potential applications of genetic algorithms in architecture. This study reveals the functional relationship between Deleuze's philosophy and computational approaches. It particularly critiques the linear determinism inherent in the conventional design methodology of the Classical West with a compelling language, while simultaneously suggesting consideration of the potential of simulations based on biological and evolutionary principles in architecture. DeLanda's research on genetics, mathematics, and architecture has significantly inspired this study.

Andrej Radman (2012), in his Ph.D. thesis titled *Gibsonism: The Ecologies of Architecture (TU Delft),* establishes a rather interesting connection between a niche concept such as ecological psychology and Deleuze's empirical philosophy. While the thesis does not directly engage with computational design, it proposes explicitly a reassessment of relational thinking in architecture. This work advocates for a shifting architecture toward an architecture of immanence, focusing on sensory experiences, designing "affordances" rather than fixed forms, and embracing dynamic, process-based ecologies over dualisms.

Philip Belesky (2013), in his work *Processors and Processes: Exploring Computational Design and Landscape Architecture (MLA/PhD level study; Victoria / Wellington area),* discusses the application of parametric design tools on topography. At this point, process-oriented, pattern/syntax-based generative approaches are suggested. The study utilizes concepts such as Deleuzian multiplicity, abstract machine, and nomadism.

Gökhan Ongun (2013), in his Ph.D. thesis, *An Interactive Computational Design Approach for Creating Architectural Topographies* (M. Arch, METU/TU-Delft joint), aims to produce topographic traces that interact with natural processes using computational fluid/dynamic simulations (especially CFD), citing Deleuze's concepts such as virtual/actual, abstract machine, and intensity. Throughout the thesis, he discusses concepts such as morphogenesis, self-organization, and parametric design through Deleuze’s concepts.

Stefan Whit (2014), in his Ph.D. thesis (UCL), *Gilles Deleuze and the Project of Architecture: An Expressionist Design-Research Methodology*, applies Gilles Deleuze's concept of expressionism to design/research methodologies, proposing the development of a non-essentialist design and research methodology. While not directly related to computational design, this thesis has implications for design theory and methods.

Michael Wihart (2015), in his thesis, *The Architecture of Soft Machines,* speculates on the concept of "soft machines" in architecture, deviating from traditional notions of complex/mechanical machines to propose soft, adaptable systems. He invokes Deleuze's concept of the abstract machine and applies it to computer hardware/software models. The thesis discusses incorporating software-based machines into architecture, particularly within the context of computational design. The potential of genetic algorithms is frequently emphasized in this context.

Tal Bar (2018), in his Ph.D. thesis*, Digital Architecture and Difference: A Theory of Ethical Transpositions towards Nomadic Embodiments in Digital Architecture (UCL),* examines how parametric (more specifically, biodigital) methods produce discourses of innovation in architecture. In this regard, by referencing Deleuzian concepts of immanence and difference, he aims to redefine ethical social structures in architecture, particularly through mathematical and biological modes of production. Furthermore, the article *Rethinking the Individual–Collective Divide with Biodigital Architecture (2000)*, derived from this thesis, allows for a direct exploration of Deleuzian concepts and biodigital relationality.

Derek Hales (2019), in his doctoral dissertation titled *Assimilating the Deleuzian Objectile to a Pataphysical Clinamen (RCA),* combines Deleuze's concept of the objectile (Objectile = object + projectile [projected, fluid, variable]) with Alfred Jarry's concept of pataphysical therapies to investigate how to reuse the object (in context: algorithmic design objects/machines of some kind). The study is particularly notable for the functional relationship between Deleuze's creative concept production and algorithmic productivity.

Mohammed Akazaf (2019), in his article titled *The Impact of Philosophy and Mathematics on the Aesthetics of the Digital Architecture based on Parametric Design,* discusses the aesthetic aspect of architecture and the non-standard realization processes of fluid forms, particularly through Deleuze's concept of fold/folding.

Jordan Letkemann (2022), in his thesis, *Elaborate Strategies: Science Fictioning Architectural Pedagogy (ASA),* aims to develop a speculative approach by integrating science fiction axiomatics into architectural education. In particular, he articulates an experimental relational method of thinking in architecture by using Deleuze's empiricism (Transcendental empiricism) that particularly functionalizes the rhizome concept and parametric design in studio experiments (e.g., the "Future Archaeology" workshop). Tools such as Rhino, Grasshopper, robotics, and 3D printing are used in the production chapters of the thesis.

Ömer Karamaz and Çiğdem Polatoğlu Serter (2025), in their article titled *From Dots and Lines to Connections: Re-Evaluation of Relational Thinking in Architecture (YTU),* particularly criticize the production of static forms. Instead, they discuss the potential of a fluid and networked production model through Deleuzian concepts of assemblage, deterritorialization, and becoming. The study is significant for shifting architectural epistemology away from static and form-based paradigms and for developing an interconnected and self-organizing methodology of thought.

A review of the existing literature reveals a limited number of studies exploring the relationship between Deleuze's philosophy and parametric/computational design. While examining these studies, academic studies emphasizing the intersection between parametric design's formal potential and Deleuzian creativity are encountered. However, texts that address the dynamism arising from this relationship and its role in social organization processes under current capitalist conditions are rare. Therefore, one can claim that there is a significant gap in the literature, particularly in how Deleuze's concepts can be related to the utilitarian dimensions of parametric design and how this relationship can be operationalized towards the goal of creating an egalitarian society. To fill this gap, this study aims to reveal the tectonic potential of parametric design as a transformative strategy for current capitalist conditions. In this regard, it discusses a sustainable discourse prioritizing horizontal relationships over all kinds of vertical approaches. By avoiding the deterministic and static approach, the methodology of this thesis offers a holistic perspective that combines Deleuze's conceptual tools with contemporary social realities.

1.1 DELEUZE EMPIRICISM, CREATIVITY AND EVERYDAY LIFE

This subsection establishes a conceptual framework for Deleuze's philosophy. With this desire, writing began from somewhere in the middle, using Deleuze's terminology. All these middles were rearranged repeatedly. As a designer, Deleuze's motivation to achieve the new and original was understood individually.

The content of Deleuze’s philosophy, which rejects all kinds of staticity yet features fluidity, multi-layeredness (*multi-stratal* in Deleuzian terms), and migration, hinders the imprisonment of thoughts in an established conceptual framework (Deleuze and Guattari 1987). However, it is precisely at this point that this study’s motivation creates an opportunity to unveil many possibilities from the dynamic flow of thoughts. Although Deleuze was a thinker in the French academy, he deeply criticized its philosophical approach and became one of the most important thinkers of the twentieth century. Considering the developments in artificial intelligence, which are evolving on a multi-faceted and decentralized model rather than a static one, Michel Foucault's statement, “One day, the twentieth century will be called the Deleuzian century,” seems to have retained its validity.

Deleuze's fundamental objection to traditional Western metaphysics lies in his concern about this model’s oppressive and insufficiently creative closed-system productions. In this respect, his philosophy is closer to empiricism than rationalism. However, at this point, he reinterprets the meaning of the traditional concept of empiricism and creates his own understanding of empiricism. According to him, experimental production must be subjective. Deleuze confesses to the perspective of conventional experimentation that implies only sensations and several established experiences. The approach associated with a kind of *tabula rasa,* associated with a sort of empty plate, and the approach that points to the absence of raw knowledge in the human mind within the framework of this analogy is not strong enough for him. Deleuze criticizes this approach, especially with the influence of David Hume in *Empiricism and Subjectivity.* According to him, the experience, before being experienced, has an area of parallels and/or densities that make the experiment possible and a set of (virtual) spaces that have not yet been sufficiently shaped. Therefore, the acquisition method of knowledge not only volumes with senses or static rational data. There is a fluent situation that Deleuze generalized as *transcendental empiricism* and is defined with a more subjective approach to the theory of relations of exteriority, that the issue itself is a part of the process, and the situation is dynamic. In other words, it is a *becoming* manifestation (Deleuze 1991: 61; Deleuze 1994). Deleuzian empiricism takes a cautious approach to representation-based thought. Unlike thought systems based on the paradigms of identity, similarity, or contradiction in classical Western philosophy, Deleuze seeks to liberate thought from representational imagery by prioritizing difference and multiplicity. In this context, experimentation draws attention to the moments of emergence of absolute possibilities, potentials, and creative differences that emerge on the dynamic production plane. Rather than evoking a static dialectic of subjectivity and objectivity (human-machine, mind-body, organic-inorganic, etc.), these moments of rebirth are closer to a transcendent framework specific to Kant (Deleuze 1994: 132).

In his work *Kant's Critical Philosophy: The Doctrine of Faculties*, Deleuze analyzes how the fields of knowledge, action, and judgment are structured while also investigating the limits of the system. According to him, Kant's philosophy is the cornerstone of Classical Western Philosophy, that is, modern thought, and this threshold is valuable in many respects. However, Deleuze's criticisms of Kant are particularly concerned with the Kantian transcendental idealism system of thought, which praises the common, the universal, and the fixed, and the suppression of the dynamic ontology of the philosophy of difference and becoming. In contrast to Kant's content centered on subjective consciousness and categorical association, Deleuze advocates a much more experimental and creative philosophy (Deleuze 1984).

In Deleuze's philosophy, creativity is at every stratum. In *Difference and Repetition*, the production of difference is directly related to the production of the creative act. According to him, Western philosophy tends to think of difference through opposing or negating two things. This tendency is the product of an approach that centers on identity from Plato to Hegel. However, Deleuze finds a dynamic process that is not based on any identity or representation, that is constantly differentiated within itself, and in which the concept of difference (*différence en soi*) exists within itself, more creative. According to him, the concepts of difference and repetition should be rethought through this method, and an ontology and epistemology focused on pure creativity should emerge (Deleuze 1994).

Within the limits of this ontological approach, Deleuze rethinks Plato's simulacrum (plural: simulacra). In Platonic philosophy, the simulacrum (formerly: *eikon*) holds a negative status, denoting a copy based on the original model. On the other hand, Deleuze seeks to expand the meaning of the simulacrum through the question, *"How does difference differentiate itself?"* as a creative force that is not dependent on the main model and affirms its own distinctiveness. For him, the simulacrum (later: *phantasma*) is a pattern of thought in which difference freely proliferates, and this pattern becomes concrete only through all kinds of creative associations that enable (in context: *affirmative*) new life possibilities such as philosophy, art, and architecture to emerge (Ibid.).

Deleuze's method of producing the new with a way of thinking that affirms life and gives importance to creativity is remarkable. This dialectical perspective of Western science on the old-new or traditional-contemporary gains another dimension with his work, *Difference and Repetition*. He states that repetition can only be achieved through a path created through time, space, and becoming. In this path, the present (*the lived moment*) can only be fragmented by considering pure past and pure future together on a single plane. In this fragmented relationship, repetition constantly produces the new (*the present*), which in turn gives rise to difference. For example, repetition organizes life through past habits (in context: habitus) and sets it into a rhythm. However, this repetition is constantly fragmented, renewed, and prepared for new future experiences by micro-level differences. Human memory behaves similarly. Memories do not proceed as a whole, but as a creative process, reconstructed with each new premise. Thus, each repetition is a fragmented time, where each moment emerges as a new beginning and differentiation, giving birth to pure creativity (Ibid.).

From another perspective, Deleuzian creativity is closely linked to the concept of intensity. For him, intensity refers to qualitative differences rather than quantitative values (distance, number, etc.). In this context, intensity is a dynamic field that challenges established identities or representations, yearning for change and new connections. Art and science, in particular, must grasp these intensities and liberate and/or transform them from specific dogmatic images of thought. For example, in the Deleuzian ontology, art's objective is not to represent the visible but to make invisible forces visible (*intensité in context*). Specifically, within this approach, Francis Bacon's paintings are works that subvert imitation, or more generally, representation, and express pure creativity by expressing chaotic and creative intensities (Deleuze 1981).

A philosophy that creates difference through intensities, freed from representation and established identities, constantly generates new problems. However, its life-affirming philosophy perceives these problems as opportunities and affirms these chaotic *multiplicities* that are continually differentiating. This process, when combined with contemporary life practices, enables a creative way of thinking and living. Specifically, through the concept of *schizoanalysis*, which he co-introduced with Guattari, he affirms the purest state of unconscious fed by desire and creativity flowing freely as a plane of opportunity (Deleuze and Guattari 1987).

According to Ansell-Pearson (1997), classical Western thought is predominantly based on negation. This way of thinking is related to the habits of Western metaphysics, which exalt established values such as essence, unity, and stability while excluding the mutable. In contrast to this structural model, Deleuzian thought, nourished by the energy of the multitude, proposes to creatively transform any chaos or difficulty encountered in daily life, rather than viewing it as a burden. In particular, Spinoza's statement, *"Everything strives to perpetuate itself in its own existence"* (*Ethics, Chapter III, Proposition 6*), revisits the manifestation of the struggle for survival (*conatus*) in Deleuzian thought. In this context, Deleuze takes the energy of affirmation, which Spinoza interprets as a struggle for survival, one step further, viewing the process as an energy of transformation and/or healing. For this reason, he draws attention to the energy of associating daily life practices with some minor forces that are joyful, desirable, and bring freedom (Spinoza, 1677; 1994; Deleuze, 1988).

Thus, the codes of Deleuzian empiricism are essentially deciphered within their interconnected concepts. Rather than representing, these codes determine difference and are no longer tied to the subject but to the *event*. For this solution to be discovered and for space to be incorporated into the conditions of the event in question, its concepts must be sufficiently assimilated by design thought.

1.2 DELEUZIAN KEY CONCEPTS FOR UNDERSTANDING SPACE

This subsection attempts to reveal the productive potential of concepts rather than their representational capacity. For this reason, it is necessary to clarify how the concepts we encounter almost everywhere in the thesis were produced in the primary source. It should then be discussed how these concepts resonate with design thinking in sustainable space.

In Deleuzian thought, space is not only a physical shelter to be lived in, but is also related to an ontology that is fragmented by the possibilities of creative thought, and that makes it possible to rethink with the energy of this fragment. Alongside its innovative concepts, the way space is produced is also constantly evolving, layering, and re-functioning. However, to navigate this process, space designers must internalize its distinct and unique terminology. For the concepts he explores in his philosophy do not function as a backdrop separate from space and everyday life; on the contrary, they are immanent to one another. This immanence implies that their parts manifest as a kind of topography of possibilities. Grasping a central concept in this topography might lack sufficient comprehension, since, for him, each part is relative and articulated with the others; therefore, the designers who desire to demonstrate their strategic originality should draw inspiration from Deleuze's literature and follow his complex mesh of relationships (Figure 1) (Deleuze 1991; Sasso and Villani 2020).

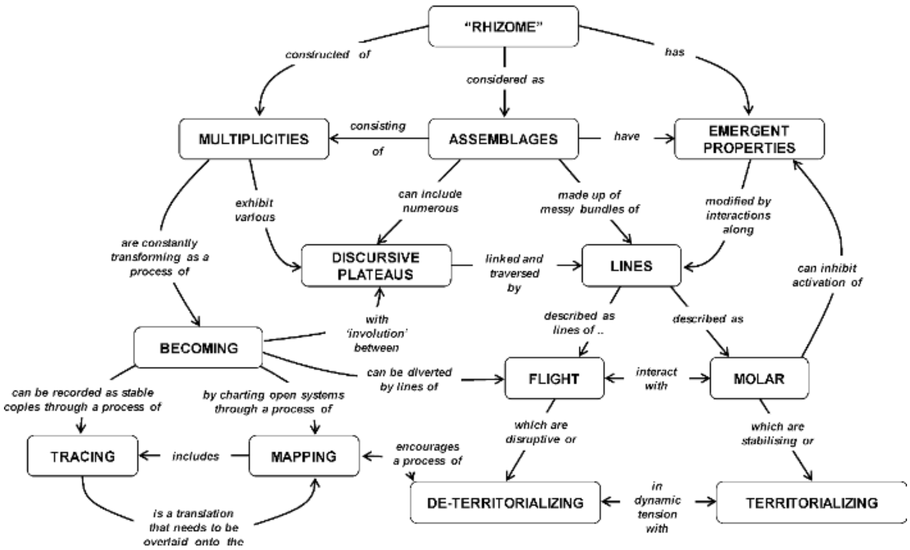


Figure 1: Assembling Deleuzian Terminology Using a Rhizome Grammar (Ian and Karen 2020)

Thanks to the articulated structure of Deleuzian concepts, the acquisition of *differential space* becomes possible. The resonance (*a kind of tension*), arising from articulating his concepts with each other, creates opportunities for acquiring the new. More precisely, the transition from one concept to another, only in a pulsating, additive, and ever-changing topographic relationality, can lead to several gains. This state of rebirth triggers design thinking as a field of intensities in his thought. For example, when the concept of "difference" is associated with "repetition," repetition is no longer associated with identification but with real (*actual*) difference. This transitional state, on the one hand, helps to understand the ontological priority of difference, and on the other hand, it reveals the creative potential of repetition. In a kind of generalization, when the concept X is articulated with X', Y, and its virtual derivatives are the production theme of the difference space. In this productivity, the state of the concept X', strengthening the energy of X and carrying it to a new formation, points to the infinite possibilities of the process. Therefore, trying to make sense of this pattern through the concepts of space production corresponds to reconstructing the space from the same plane (Deleuze 1991; 1994; Massumi 1992).

On the other hand, constructing a conceptual framework that focuses solely on Deleuze's literature is not comprehensive enough to discuss his life-affirming concepts and the achievements that transform the ordinariness of everyday life into a kind of space of opportunity. This approach already contradicts the rhizomatic model of thought proposed by Deleuze. It is much more sustainable to discuss the production of space from a perspective that includes the thinkers, spatial theorists, sociologists, historians, and artists who, for Deleuze, inspire or nourish alternative thinking. By a more obvious implication, external connections not only make Deleuze's conceptual map more readable, but also make it resonate with others and inspire the discovery of the new by proposing an open-ended line of reading.

For example, if Husserl's concept of the lifeworld (*Lebenswelt*), which deals with the daily practices we directly experience in the face of certain scientific realities, were to encounter Deleuzian *becoming*, what kind of content would the object/space produce? In another example, as a cup of coffee in Husserl's world ceases to be a ceramic object and becomes the carrier object of morning rituals, a social and personal moment, how does this activity create added value for the production of sustainable space as an object of difference within Deleuzian desiring-machines? Or, from another perspective, Lefebvre's spatial triad (perceived, conceived, lived space) reveals multiple possibilities within the everyday practices of life. These opportunities in Lefebvre's universe often create production practices focusing on the user/individual. So, how can this perspective be situated within assemblage theory, where the machine, nature, the user, or other utilitarian elements exhibit a kind of equivalence (parity), rather than the user-centered content of Deleuzian production practices? (Deleuze and Guattari 1987; Lefebvre 1991; Moran 2000).

All this productivity is valuable for discussing the layered relationships between them in the name of building a sustainable society and enhancing the readability of the thesis by taking a closer look at Deleuze's concepts and creating a dictionary consistent with the context of this thesis. However, first of all, it is necessary to clarify how these concepts, which will infiltrate the thesis with multiple connotations, are handled in the primary source. To unlock the radical potential of lived space-time through Deleuze, we must first articulate the conceptual tools that will allow us to deconstruct and innovatively rebuild our understanding.

A-Assemblages (Theory):

"*Assemblage*" in Deleuze's literature is a concept that emphasizes the sustainability of heterogeneity, as opposed to the hierarchical thought model developed by Deleuze and Guattari in their work *Mille Plateaux*. Their assemblage adopts an all-encompassing principle of unification. It proposes to think of the social, political, material, or transcendent not as separate and/or situated structures, but in entirely heterogeneous and non-situated relations. In this context, people, animals, objects, concepts, emotions, and machines are all parts of a whole. These parts are only meaningful when they interact, or in his words, when they dissolve into each other (crystallization). Temporality is essential in assemblage because objects, technologies, bodies, places, codes, myths, discourses, and norms need to change. In this context, everything is relative and dynamic. Assemblage theory has the potential to explain and develop sustainable sociality, power relations, and processes of change, urban analysis, and so on (Deleuze and Guattari, 1987).

A- Affect

Influenced by Spinoza's Ethics, Deleuze considers *affect* not as a feeling, but as a plane of intensity that emerges as a result of one body's encounter with another. This moment of encounter is neither a purely subjective one nor merely a closed physical reaction. It implies a kind of combination of frequencies that encompasses the entire process. In A Thousand Plateaus, affect is emphasized as a kind of power or capacity that emerges in the encounters of humans, animals, machines, ideas, or concepts. For example, the state of intensity when encountering a real work of art indicates a kind of influence. While the effect of the work on the individual is a situation that creates oscillations related to the linear forces of the work, the individual's interest in the work is a situation that creates oscillations related to the individual's capacity/emotions (Spinoza 1677; Deleuze 1994).

B- Body without Organs (BwO)

Body without Organs (BwO), first put forward by the French playwright, director, and poet Antonin Artaud in 1947, symbolizes the struggle for existence of a chaotic and free body through art, while in Deleuze and Guattari it comes to the fore as the liberation of desire (see: *desiring*) and the rejection of fixed identities. In other words, while Artaud emphasizes a state of liberation in the context of theatre and the body within a much more individualist model of thought, for Deleuze and Guattari, disorganization is considered as the transformation of society from a much more ontological level and the rejection of all kinds of hierarchy in this context. The concept of *Body without Organs*, the context created for order and function, is of critical importance. In A Thousand Plateaus, the *Body without Organs* is defined as a type of organism that is not structured according to a predefined, established function, but instead comprises a much more organic state driven by the flows of desire. In this context, it highlights the efforts of those in power, particularly in capitalist regimes, to construct the body by dividing it into distinct functions. In the face of this effort, the *Body without Organs* is constantly on the move, infiltrating spaces and resisting the state's energy of fragmentation (Deleuze and Guattari 1987; Artaud 2005).

B- <u>*Becoming*</u>

The concept of "*becoming*", which emerged with Heraclitus in ancient Greece, is used to emphasize that existence is in a constant state of flux, renewal, and change. "Becoming" stands in stark contrast to the classical Western understanding of existence, which originates in Plato and Aristotle. At this point, the state of being, which praises the world of immutable ideas and is based on the idea of substance (*ousia*), sees change (in the context: becoming) as a deficiency, while it glorifies settledness as orderly and complete. On the other hand, with *A Thousand Plateaus (1980),* Deleuzian becoming departs from the classical approach to becoming. In A Thousand Plateaus, becoming is not considered the outcome of a process, but the process itself. More clearly, becoming is subjectless. There is no established identity. There is no direction. There is a multiple and continuous organismic state. More importantly, there is no desire to achieve a goal. This is already axiomatic of the process itself. Deleuze's texts on "becoming" are concerned with what entities give rise to potential, rather than what entities are (Deleuze and Guattari 1987; Bankston 2017).

C- <u>*Chaosmos*</u>

Chaosmos, which Deleuze and Guattari discussed in their work *What is Philosophy?* is considered as a field of *pure difference* and unlimited possibilities. Rather than depicting the chaotic, which traditional Western metaphysics portrays as a lack, the concept acknowledges it and embraces it as a potential. It observes what has yet to emerge. For them, philosophy, art, and science offer a model for generating matter (*form*) from chaos using subjective methods. For example, in this horizontal relationship, philosophy organizes chaos through the concepts and depictions it creates. Art, on the other hand, internalizes these through emotions and perceptions. Science, on the other hand, creates the materials that make all of this functional, that give birth to reality, and make it accessible. Therefore, in their imagination, chaos exists not as a destructive force, but as a creative realm (Deleuze and Guattari 1991).

D- <u>*Desiring*</u>

For Freud and Lacan, desire is generally associated with the absence of a resource or a lost object. For them, humans are incomplete beings and strive to fulfill this lack. *Desire* is always thwarted, repressed, or limited by a law (Lacan 2006). For

Deleuze and Guattari, on the other hand, desire is not seen as a lack. It is not only sexuality or psychic drive, but also social and material production. For them, machines are a kind of production that signifies social orders, relations, and flows. It is not only an individual instinct, but also a collective organization. Deleuze's desire is not immanent to the subject; the machine that produces desire transcends the subject - object distinction (Deleuze and Guattari 1987).

D- Difference and Repetition

Deleuze emphasizes Western metaphysics' fondness for identity. This thought, dominant from Plato to Hegel, always defines difference through identity. Throughout this thought, difference is a kind of derivative, a flaw, an inadequacy. Deleuze does not take the concept of difference only in the sense of things being separate from each other. Difference, in conjunction with the concept of repetition, enables the critique of identity, representation, and hierarchy (Deleuze 1994).

Deleuze wants to conceptualize difference as the thing-in-itself. In this respect, Plato's doctrine of ideas creates an order of representation in which different objects are evaluated only according to their degree of resemblance to the idea. This order suppresses difference and cannot expand the boundaries of representation. Deleuze's radical proposal is the liberation of difference from the limits of representation. For him, difference does not exist solely through negation or opposition; it is a productive and creative flow. In this respect, he draws inspiration from Nietzsche's concept of the *eternal return*. For Nietzsche, repetition is not the return of the same, but the continuity of differentiation. Extending this line, Deleuze argues that repetition is an act that produces difference each time. This understanding proposes to interpret subject and object not as fixed identities, but as constantly differentiating processes. Difference is thus understood not as a dialectical contradiction, but as an endless creative expansion. This is also consistent with the immanent understanding of ontology that Deleuze inherited from Spinoza and Bergson (Deleuze 1994).

F- Fold

The concept of the "fold" is explored in detail in the work of Gilles Deleuze, particularly in *The Fold: Leibniz and the Baroque*. Deleuze uses the fold at both an ontological and epistemological level, offering a radical understanding of immanence and continuity. The fold suggests that objects, ideas, or individuals are not closed, hierarchical structures but are constantly in a process of becoming, folding, unfolding, and creating new spaces of difference (Deleuze 1993).

The concept of the *fold* comes from Leibniz. Deleuze reinterprets Leibniz's concept of the *monad*: Monads possess an internal network of folds rather than an external openness. Each *monad* is a reflection of the universe; therefore, there is an infinite interweaving. This logic, also evident in Baroque aesthetics, demonstrates how the fold creates a field of plurality and continuity in many fields, from architecture to art (Ibid.).

The concept of the fold adds a new dimension to the understanding of the subject. According to Deleuze, the subject does not have a fixed boundary between the inside and the outside; it constantly produces new interiorities through folds. Therefore, the fold expresses the internal differentiation of identities, bodies, and spaces. The idea of the fold, combined with the idea of immanence that Deleuze inherited from Spinoza, offers a dynamic understanding of being that transcends the boundaries of representation and identity (Ibid.).

Consequently, Deleuze's concept of the fold is deeply connected to both Baroque thought and contemporary theories of architecture and art. At a philosophical level, the fold signifies an order of existence that constantly transforms and creates plurality rather than fixed forms. In this context, when considered alongside Deleuze's concepts of *difference*, immanence, and *rhizome*, the *fold* offers a significant contribution to contemporary thought.

L- Line of Flight

Deleuze and Guattari's concept of the "*Line of Flight*" holds a central place in their philosophical system, which explains the processes of deterritorialization and territorialization. This concept functions as a vector of escape from fixed structures, hierarchies, and identities that is, of movement outside established orders (Deleuze and Guattari, 1987). Rather than a simple linear escape or physical movement, *the Line of Flight* signifies an ontological and epistemological rupture, which opens up new possibilities and unleashes creative potential (Smith 2012).

This concept is in constant tension with the forces of territorialization that seek to reestablish order. Social, political, and subjective formations are constantly produced and transformed through this dual process. Deleuze and Guattari emphasize the inherent ambiguity and ambiguous nature of the *Line of Flight*; This line can lead to both liberation and dissolution, creation and destruction (Massumi 1992). Therefore, while the *Line of Flight* carries the promise of radical change, it also carries the risk of disintegration.

In contemporary theory, the *Line of Flight* is used to analyze resistance to hegemonic powers, innovative artistic practices, and emerging forms of subjectivity. By highlighting the fluidity and multiplicity of identity and reality, the concept questions essentialist and static understandings (Colebrook 2002). Consequently, the *Line of Flight* functions as both a metaphor and a tool for reimagining processes of becoming, revealing the dynamic and open-ended nature of existence.

M- Multiplicity

Deleuze's concept of *multiplicity* holds a fundamental place in his thought. Unlike traditional essences, multiplicities are defined as constantly changing, relational, and heterogeneous structures rather than fixed and holistic identities (Deleuze, 1968). Rather than being the sum of the parts of a whole, *multiplicity* is a network of connections and relations at different levels; that is, it is not a static totality but a dynamic and continuous formation (Deleuze and Guattari 1987). In this context, multiplicities are seen as intertwined, interacting, and organized to varying degrees. Deleuze emphasizes the importance of *multiplicity* as an alternative to modes of thought based on identity and similarity. In traditional logic, beings are either one or they are not; whereas *multiplicity*, by eliminating the discontinuity between identity and difference, treats existence as a process of constant change and transformation. This *multiplicity* represents a layered and heterogeneous structure with blurred boundaries that transcends the hierarchy between singularity and plurality (Smith, 2012). The concept of *multiplicity*, particularly in social, political, and cultural analyses, enables identities, communities, and subjectivities to be viewed not as fixed but as constantly forming and transforming structures. This perspective enables us to grasp a flexible, open, and contextually changing world. Deleuze's understanding of *multiplicity* expands the boundaries of philosophical thought and provides an important theoretical tool for understanding the multilayered and relational nature of existence (Colebrook 2002).

M- Minority

Deleuze's concept of *minority* is central to his and Guattari's political and social theories. *Minority* refers not only to numerical scarcity but also to social positions that are marginalized within power relations, not subject to hegemonic norms, and in a constant state of resistance (Deleuze and Guattari 1987). Rather than being an identity or a fixed group, a *minority* is a dynamic formation that produces difference and transformation against the normative majority. *Minority* represents a potential that breaks the identity patterns determined by the majority and creates new forms of subjectivity. In this context, *minority* groups challenge the hierarchical structure of the social order and open up new ways of existing (Patton 2000). Deleuze and Guattari view the concept of *minority* as a space where differences and pluralism are produced, beyond homogeneous identities; here, the struggles of minorities enable the dissolution and reshaping of hegemonic power relations. *Minority* is not a fixed and closed category, but a constantly moving and transforming process. Therefore, Deleuze's understanding of minority points beyond identity politics to a stage where existence and resistance are constantly produced (Colebrook 2002). It is a way of creating one's own authenticity and power without conforming to the norms of the majority, making it a politically and ethically radical concept. Consequently, Deleuze's concept of *minority* is a critical intellectual tool for the change and transformation of social structures, and it lies at the heart of difference, resistance, and new forms of subjectification.

N-Nomadology (Nomadic Thought)

Deleuze's concept of *nomadology*, or *nomadic thought*, represents a way of thinking that opposes fixed, centralized, and hierarchical knowledge systems. Nomadic thought advocates fluid, dynamic, and pluralistic forms of thinking instead of the essentialist, categorical, and static structures that form the basis of Western philosophy (Deleuze and Guattari 1987). This way of thinking represents a borderless, decentralized, and non-linear way of thinking, unlike established mentalities shaped around the *homeland* or the *center*.

Nomadic thought argues that knowledge cannot be defined within fixed and closed systems, but rather is formed through constant transitions and connections between different fields. This approach encompasses not only a spatial but also an ontological and epistemological understanding; existence itself possesses a nomadic character. For this reason, nomadic thinking does not like any predefined and fixed map routes. It always creates its own formation (*becoming* in Deleuzian terms) (Bonta and Protevi 2004).

Nomadology also functions as a strategy against power structures. Unlike statist thinking and linear, normative, and regulatory approaches, nomadic thinking operates through multiplicity, deviation, and unexpected connections. Deleuze uses this concept to imply not only physical mobility but also intellectual and creative mobility

(Colebrook, 2002). *Nomadic Thought* opens up new intellectual perspectives by moving between fixed identities, disciplines, and narratives.

T- Territory / Deterritorialization

Deleuze and Guattari's concepts of *zone* (territory/area) and *zoning* (displacement, the elimination of spatiality) are intellectual tools that demonstrate how these spaces or identities are not fixed and natural, but rather historically and relationally constructed. *Territory* refers to the space within which a subject, a community, or a system defines itself, draws its boundaries, and establishes order (Deleuze and Guattari 1987). This space is not merely a physical space; it is also a symbolically, emotionally, and culturally constructed plane. *Territory* produces order, rhythm, and repetition; it functions as a form of subjectification.

In contrast, *deterritorialization* signifies the dissolution, displacement, and restructuring of this established order, boundaries, and identities. For Deleuze, *deterritorialization* is not merely a process of disintegration; it is also a process that opens up new formations, unexpected connections, and different forms of subjectivation (Patton 2000). This concept operates in two ways: on the one hand, it creates space for action by dissolving existing structures, and on the other, new territorializations emerge in the wake of this dissolution; in other words, deterritorialization always carries within it the potential for reterritorialization.

Territory and *deterritorialization* offer the possibility of intellectual analysis across a wide range of areas, from the individual to society, from works of art to political structures. Through these concepts, Deleuze develops a way of thinking founded on flux, not fixity, and on the production of difference, not repetition.

P- Plane of Immanence

Deleuze's concept of the *Plane of Immanence* plays a central role in his metaphysics and represents a radical groundwork for thought developed in opposition to the concept of *transcendence*. *The plane of immanence* represents a realm in which existence can be explained through its internal relations and productions of difference, without being grounded in an external principle, God, the subject, or a transcendent order (Deleuze and Guattari 1994). On this plane, beings are defined not by fixed essences, but by *becomings* and relationships within continuity.

The community opposes any form of determinism; that is, it argues that thought or existence operates based on its own internal potentialities, not on an external authority. Therefore, *the plane of immanence* embodies both an ontological and an ethical proposition: beings are valuable where and as they are, not according to the criteria of another place or level (Colebrook 2002).

According to Deleuze, philosophy operates by placing concepts on *this plane of immanence*; concepts are not signs but tools of creation on this *plane of immanence*. In this context, the *plane of immanence* is the ground not for fixed and transcendent meanings, but for the construction of meaning based on *multiplicity*, *difference*, and *becoming*. Thus, the self-enclosed, static, and externally referenced structure of thought is transcended; a constantly dynamic, open, and creative field of thought is established.

R- Rhizome

Deleuze and Guattari's concept of the *rhizome* represents a horizontal, decentered, and multiple structure of thought, developed in opposition to the tree model that is, a hierarchical and centralized structure organized around roots, trunks, and branches that dominates Western thought (Deleuze and Guattari 1987). In a biological sense, the rhizome describes a root system that extends underground, each point connecting to another, and has no center or beginning. In a philosophical context, it proposes a model in which thought, identity, and structure can function in this horizontal and reticular manner (Deleuze and Guattari 1987).

The rhizomatic structure rejects linear relationships such as beginning and end. Instead, it establishes multi-centered, multi-input-output connections. In this context, the rhizome suggests that knowledge production consists not of fixed centers but of interacting nodes. In this system, which can connect from any point to another, thought and meaning are not static, but dynamic, temporary, and plural (Massumi 1992).

The concept of the *rhizome* is not only a theoretical model but also a form of action. In politics, art, science, or cultural production, rhizomatic structures embody the possibility of resistance, flexibility, and unexpected encounters. Thus, Deleuze proposes a new way of thinking and being, both epistemologically and ontologically.

V- Virtual (&Actuel)

Deleuze's concepts of *virtual* and *actual* are central to his ontological thought, transcending the distinction between the possible and the real in classical philosophy in explaining existence. For Deleuze, the *virtual* is a potential level of being that has not yet been realized but possesses a certain reality (Deleuze 1968). The *virtual* should not be considered a pure possibility, but rather a structure in tension with internal differences. This structure becomes *actual* under certain conditions, realized, embodied, and comes into being.

The *actual* is the embodiment of the *virtual*, but it does not exhaust the virtual. The virtual always coexists with more and constantly paves the way for new *becomings*. This distinction rejects the hierarchical relationship between the Platonic idea and appearance. For Deleuze, the *virtual* operates on an immanent, not a transcendent, level. The relationship between the virtual and the actual is not a static transformation, but a continuous process of differentiation (Bergson 2001).

In this context, the *virtual* is the possibility that has not yet been realized but remains impressively present in works of art, intellectual productions, or social structures. This conceptualization by Deleuze seeks existence not only in the realized, but also in potentialities of becoming. Thus, he establishes an ontology based on thought, the openness of *becoming*, and the primacy of creative difference.

1.3 DESIGN THINKING WITHIN DELEUZIAN THINKING

Behind the elaboration of all of these concepts lies our aim to understand and comprehend Deleuze as an inspiration for a new and pragmatic design philosophy. For a long time, classical Western practices have encouraged design thinking to adopt a user-centered, function-oriented, subjectivist, and problem-solving-oriented methodology. However, this subsection attempts to present the framework of an approach that proposes rethinking through horizontal possibilities.

Design thinking, which emerged in the 1960s, encompasses the interactive problem-solving processes of engineering, design, and management disciplines. According to Simon (1969), who first used the concept in his work *Artificial Sciences*, design thinking is a dynamic method that involves the planning of cognitive, strategic, and practical processes as a problem-solving approach. However, when integrated into the discipline of architecture, design thinking deepens to a complex level, incorporating sociological and cultural components. On one side, an iterative analytical process focuses on user and structural decisions within the framework of functional and structural choices, encompassing processes such as empathy, idea generation, and testing. Conversely, a series of decisions addresses social relationships within an environmental and social context.

Although Deleuze's narratives do not directly implicate design thinking, his critiques of Husserlian phenomenology, which emphasizes stasis and subject-centered thinking, his questioning approach to the hierarchical Hegelian dialectic that celebrates thesis-antithesis and synthesis, and his critical perspective on systems models of classical Western science, along with its general principles, are insightful regarding design thinking approaches.

Something in the world forces us to think. This “something” is an object not of recognition, but of a fundamental encounter. Thought is not something that arises spontaneously; it is rather a kind of violence (Deleuze 1994: 15).

For Deleuze, thought is a necessary encounter. He argues that this act is not a passive gathering of information or reactions that emerge from universal common sense during the praxis of daily life, but a creative process of production. Consequently, many activities that people refer to as "thinking" are processes of recognition based on stereotypes and habitual judgments/representations. The method referred to here is a predictable and introverted mental activity. Consequently, the representation of a paradoxical moment is ineffective beyond a superficial imitation of actual thought (Deleuze 1994).

However, for Deleuze, actual thought arises from external conditions. In other words, this process does not begin spontaneously. Something must encourage the individual to think, and even beyond that, to generate parallels. Therefore, the privilege fostered by the concept of desire associates thought with a moment of external compulsion, not as an element born of some deficiency or curiosity (Deleuze 1969; 1994).

Deleuze criticizes the classical Western philosophical model of creating representation through the subject, that is, developing a "thought image." According to him, this model contains ideas such as truth, substance, identity, and so on, which imply a predefined fixity. Consequently, this creates a plane of acceptance and stifles creativity. In contrast, the philosophy of difference he seeks to develop is pragmatic, as it reveals moments of turmoil that provoke the individual (in this context, the designer), push them beyond their comfort zone, and prevent specific acceptances (Ibid.). According to Deleuze (1990: 77), “the event is not what happens to something; it is precisely what that thing becomes with it.”

In *Difference and Repetition*, Deleuze explores the concept of *what is worth thinking*, drawing inspiration from the idea of the event. Here, he emphasizes that the process does not begin with what is planned or precalculated but instead emerges with an event that disrupts or interrupts a planned moment. When an individual does not fully understand what, how, and in what form something does not exist, they can only produce something truly worth thinking (Deleuze 1990). Therefore, the triggering moment of design thinking must exist as a strategic form of thought that transforms such moments of crisis into opportunities.

Deleuze's concepts of affect further this approach to the moment of event in *Francis Bacon: The Logic of Affect*. According to Deleuze, Bacon's paintings are powerful in their resistance to creating a representation in the viewer's mind. A moment of affect occurs in the painting's initial interaction with the viewer. This moment forces the viewer to think truthfully. The deformations, fractures, curves, and distortions in other words, affective parallels that emerge in Bacon's deconstructive narrative imply the theme of design thinking and the viewer's practice of generating thought (Figure 2) (Deleuze 2003).

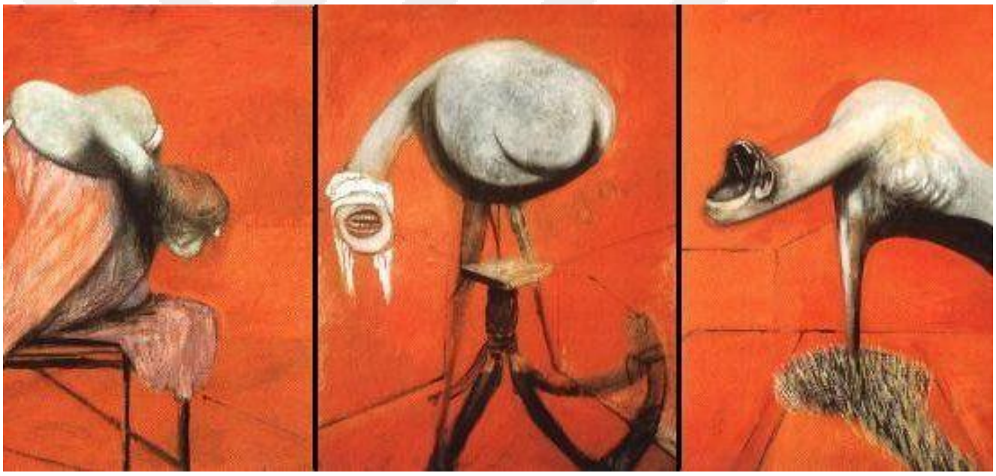


Figure 2: Three Studies for Figures at the Base of a Crucifixion (Bacon 1944)

From another perspective, Deleuze and Foucault's thought practice, developed through the critique of power, has also triggered other expansions for design thinking. For them, power is no longer a despotic element monopolized by power on the intellectual curve, but a melting, multiplying, and fluid potential. The dissolution of this molarity in the monopoly of power is only possible through minor ruptures. In this context, absolute power breaks away from the subject and seeks new contexts. This quest always results in erosion and fragmentation at various threshold levels. The destructive manner enabling the minority to survive the process can be considered an advantageous production method for design-oriented thinking (Foucault 1977; Deleuze and Guattari 1986).

In summary, while the design thinking introduced by Simon and widely adopted by spatial designers is structured around a static system model, involves testable cause-and-effect relationships, and focuses on problem solving, Deleuzian thought encourages the reconstruction of the problem and the exploration of its relative potential (Brown 2009). Furthermore, the layered relationship of a designer, freed from such an established and systematic mode of production and faced with the necessity of accounting for deformations, disruptions, and opportunities, will be established with contemporary digital techniques that play a critical role in discussing the sustainable potential of design thinking.

Rethinking Actuals: Tree-Like vs. Rhizomatic Approaches

In *A Thousand Plateaus*, the second volume of *Capitalism and Schizophrenia*, Deleuze and Guattari propose the rhizome as a metaphor often associated with a dynamic and encompassing structure of social organization that challenges established rules of society and implies innovation and change. Deleuze and Guattari theorize the rhizome as a counterpoint to the static, linear, rigid, and hierarchical structural model of classical Western practices that inculcates thinking within the confines of authoritarian ideology. This problematic ideology, central to their critique, ignores the self-referential and self-connected systems models that constitute society, devoid of creativity or complex relationality (Deleuze and Guattari 1987: 7-8, 21; Styhre and Sundgren, 2003). Rhizomes, conversely, depict a non-linear network-like relationship with self-organizing, nomadic spaces where any point is connected to any other point (Deleuze and Guattari 1987: 8).

In this chapter, Deleuze and Guattari clearly demonstrate a typical analogical stance. According to them, the causal stance of Western metaphysics, dating back to Plato and Aristotle, has adopted a dualist approach based predominantly on binary oppositions (Sutton and Jones, 2013: 21-22). This approach is a production routine that takes vertical and hierarchical relationships for granted. In A Thousand Plateaus, this process is critically examined within a tree-like model, represented by the metaphor of a tree-shaped thought. Underlying this thought is an epistemological approach that encourages a linear and unidirectional progression toward truth and portrays production through integrative principles and a dualistic understanding (Deleuze and Guattari 1987: 18). Just like a closed-circuit system of a tree, which has roots, branches, and leaves, and functions exceptionally well within this whole (Deleuze 2006: 21; Deleuze and Guattari 1987: 12-18).

According to them, roots and rhizomes are entirely different. Roots, which refer to radicle systems, move relative to a main root. Any thought model that praises central authority is damaged if the main root is destroyed. Therefore, the thought model that exalts a central singularity, despite appearing rooted, is fragile. According to Deleuze and Guattari (1987: 5-6), radicle systems can only transform with the emergence of a kind of radicle-chaos universe. In this respect, rhizomes are invasive, derive, and resilient. This conclusion encourages design thinking to reconsider the achievement of sustainability, which is frequently discussed today (Figure 3).

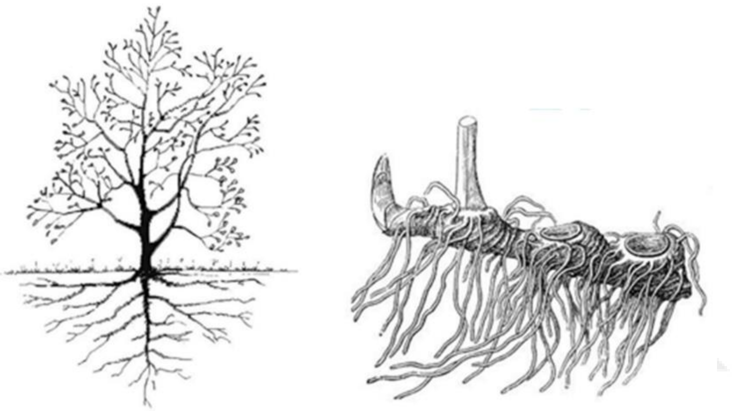


Figure 3: (*Problematic*) Tree-Like Analogy; (*Potential*) Rhizome Analogy (wikimedia 2025)

The level to be developed sensitively here is that rhizomes, with their multiple organizations, are far from being a model that leads to chaos, which the traditional West rejects. In A Thousand Plateaus, Deleuze and Guattari avoid such a language of anarchy. Neither a rigid ideological framework opposing authority nor inferences referring to a chaotic generation are valid for them. The plane of inquiry is an alternative, secondary, and encompassing one that observes social utilitarianism. The mode of production of this language consists of lines, *strata*, the *lines of segmentarity* of these layers, intensity, *assemblages*, and the various spaces of all these (Deleuze and Guattari 1987: 4).

Thus, Deleuze and Guattari's focus is not on authority itself, but on the way of thinking and its consequences. Here, the multitude (a complementary dimension: n+1), governed by norms (in context: n), creates this rigid model that renders the representation of 'n' completely static, unable to intervene adequately in it, and, on the contrary, articulates it (Deleuze and Guattari 1987:6, 105, 265-266). However, with its rhizome, heterogeneity, and connection principles, this alternativeness encourages us to rethink this normative power. Indeed, developing a strategy for the nomadic, decentralized, and non-hierarchical through rhizomes allows us to rethink the socio-structural environment that authoritarian ideology knowingly or unknowingly excludes and to create trans-connections with environmental realities (Deleuze and Guattari 1987:8, 24, 238).

Today, current research practices and technological developments provide a framework for re-examining changing cultural patterns and contemporary social realities through a rhizomatic lens. Unlike Heidegger (1977), known for his causal discourses on the foundations and potential of technology through the concept of Dasein, Deleuze neither sees technology as a savior nor adopts a nihilistic perspective that ignores it (Heidegger 1977; Deleuze and Guattari 1987; Bogard 2009: 15-31). The question that needs to be asked here is: What kind of machinic possibilities can designer practices accustomed to thinking/producing through tree-shaped thinking utilize through rhizomatic thinking to create a participatory and sustainable production model, especially at the height of the digital revolution? According to Andaloro (2024: 117), today's designers must reconsider all traditional machine habits to achieve a higher level of integration into social and sustainable development strategies. Research over the past decade has demonstrated that current internet technologies, horizontal relationality, and algorithm-based design tools create suitable environments providing intelligent solutions to the complex environmental problems of an increasingly global world (Buchanan 2009; Cavanagh 2007). Today, diverse fields such as artificial intelligence algorithms, parametric design, evolutionary design, and generative design play a critical role in creating sustainable development and socio-structural optimization through their emergent, destructive, regenerative, and self-organizing capabilities (Todd 1992; DeLanda 2002; Andaloro 2024).

Therefore, given this rhizomatic relationality, the evolutionary possibilities of parametric software, representing space as a material manifestation from primitive times to the present, offer all the tools to reevaluate form production in architecture. Supporting Deleuze's inferences of distaste for all forms of stasis, space now departs from a Platonic ideal based on Euclidean geometry by embracing morpho-genetic expansions that refer to topological geometries (DeLanda 2002; Sobejano 2011: 58). Specifically, the energy of the mobile and nomadic, rather than the settled, is instrumentalized through these parametric tools as a disruptive threat to orthodox habits. Therefore, designers who achieve the success of formal endeavors through components that can intervene in and/or transform topography through parametric design tools must reassess this transformation in the 21st century. Establishing haptic, rather than metric, relationships between topography and the designer can add new depth to dominant design methods (Deleuze 2003). In this context, the integration of technology with design thinking and the use and deployment of these parametric tools play a critical role in the sustainability of the process. It is crucial to discuss how design processes, data collection, data association, data analysis, and the horizontal integration between all these elements can be interconnected, particularly within the framework of capital opportunities (Ruttico 2024: 116-121).

1.3.1 Rhizomatic Methodology via Open-Source as Planomenon

For them, the tree imposed the verb "to be," while the rhizome sought a horizontal, level plane. While the tree was a metaphor that remained in place and gradually took root, the rhizome longed for articulation with the conjunction "and" (Deleuze and Guattari 1987: 25). The unusual relationship of the conjunction "and" to today's open-source software inspired us to create this section.

Unlike the Kantian concept of the noumenon, which refers to the unknown behind the phenomenon, the planomenon describes not the unknown but the realm of becoming, which cannot be directly experienced but can only be understood through difference. In Deleuzian literature, the Greek terms plano (plane) + menon (appearance, phenomenon) indicate a plane of immanence. Thus, the planomenon implies planes beyond the phenomenal, from which phenomena emerge. It is a realm of dynamic and fluid moments where differences of intensities are most productive (DeLanda 2006; Bryant 2011).

Considering the binary code system, subject to the closed-loop system model approaches of Western metaphysics, from roughly the 1950s to the present, digital electronics and digital communication were primarily thought of in terms of 0-1 mathematics. However, today, the trajectory of digitalization has been radically altered by the possibilities of artificial intelligence. Instead of a static data processor of 0s & 1s, it has evolved into an interactive, decision-making organism that extracts meaning from data, teaches, and learns. In this dynamic process, machine learning tools have moved far from being passive generators (Leibniz 1966).

On the other hand, the connection between Deleuzian paradigms and new digital technologies and algorithm-based software is clear today (Cavanagh 2007: 44, Savat 2009). Given the content of artificial intelligence, which learns from experience and acts by taking action, rhizomes manifest in all these potential niches where there is organically expanding, delocalized, high-entropy, and multiple productivity (Deleuze 1992: 6). Instead of a data relationship with neither artery nor defined axis of coordination, there is a rhizomatic autonomy with only interconnected "lines." Unlike the sequential construction habits of system models guided solely by the designer's instructions, the becoming machine associated with rhizomes organizes itself as it encounters data and/or can transform according to the complex problems it encounters. This creates an adaptable, predictive, and flexible plane (Deleuze and Guattari 1987: 8; Malik 1997).

Rhizomes are open to participation. Their content, open to reconnection at any point where it breaks, easily finds a place in today's open-source culture. Open-source software (OSS) eliminates the need for centralized autonomy by encouraging collective production by dedicated developers. Because code is openly shared, information is decentralized, access is free, and the right to change is possible (BasuMallick, 2024). Unlike closed-source software, which is hierarchical, for-profit, and controlled by an authority, Open-Source Software (OSS) is horizontally distributed, non-profit, and unregulated (Andaloro, 2024). According to Harper, open-source programming has far greater potential than closed-source software because it is developed on a volunteer and community-based basis, without reliance on a central organization (Savat 2009).

This thesis extensively uses open-source software, particularly in sections where creative strategic sequences emerge. Open-source software helps to create a strategic path for other authors conducting the thesis, particularly in participatory social transformation projects. In this context, open-source software such as Blender, Godot Engine, Python, Processing/p5.js, and OpenFrameworks, especially Grasshopper3D (GH), exhibits rhizomatic properties.

It is possible to develop an epistemological framework based on the pluralistic nature of open-source code, prioritizing the circulation of knowledge over its ownership. This framework facilitates tracking the production processes and added value of all these software programs. Given that the content of open-source code is constantly subject to change and lacks directional dependency, these software programs can be abstracted as an isotropic object. Visual code design platforms such as Grasshopper3D are particularly suitable for architectural designers who may struggle to follow written code because they prioritize diagrammatic representations and encourage design thinking. Unlike the rigid structuralism of traditional modeling programs, the open-source code environment provides horizontal connections between multiple nodes, creating a much more flexible and adaptable environment. Each component, performing a single function, also allows various relationships that update the result continuously (Figure 4) (Ambrosini 2023).

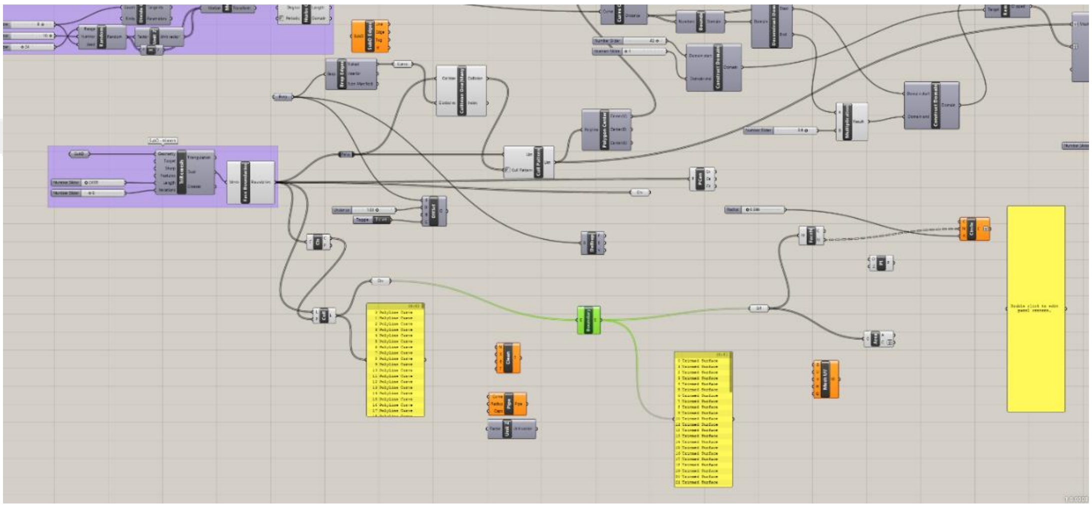


Figure 4: Grasshopper3D Canvas (mcneel.com 2021)

From a Deleuzian perspective, the GH canvas, an example of open-source software representation, functions as a kind of p*lanomenon* (a plane of immanence). This plane allows the target object to cease being a static noun in the design process, particularly because multiple relations allow for surprising movements. Instead, it transforms into a *planomenon* on a much more scenario-oriented plane, parallel to the designer's capabilities. In this planomenon, the designer no longer relates to a simple generator of form, but to a complex organism capable of generating form derivations. Thus, instead of single results, the GH user has the advantage of simultaneously obtaining variations throughout the design process and, more importantly, reconfigurable according to possible conditions that may change later. In this context, open-source software is instrumentalized as a solution area for criteria such as speed, diversity, strategic thinking, especially for the 21st-century designer who is faced with complex, open-ended problems (Figure 5) (Deleuze and Guattari 1987: 35; 266-267; Lorraine 2010: 209).

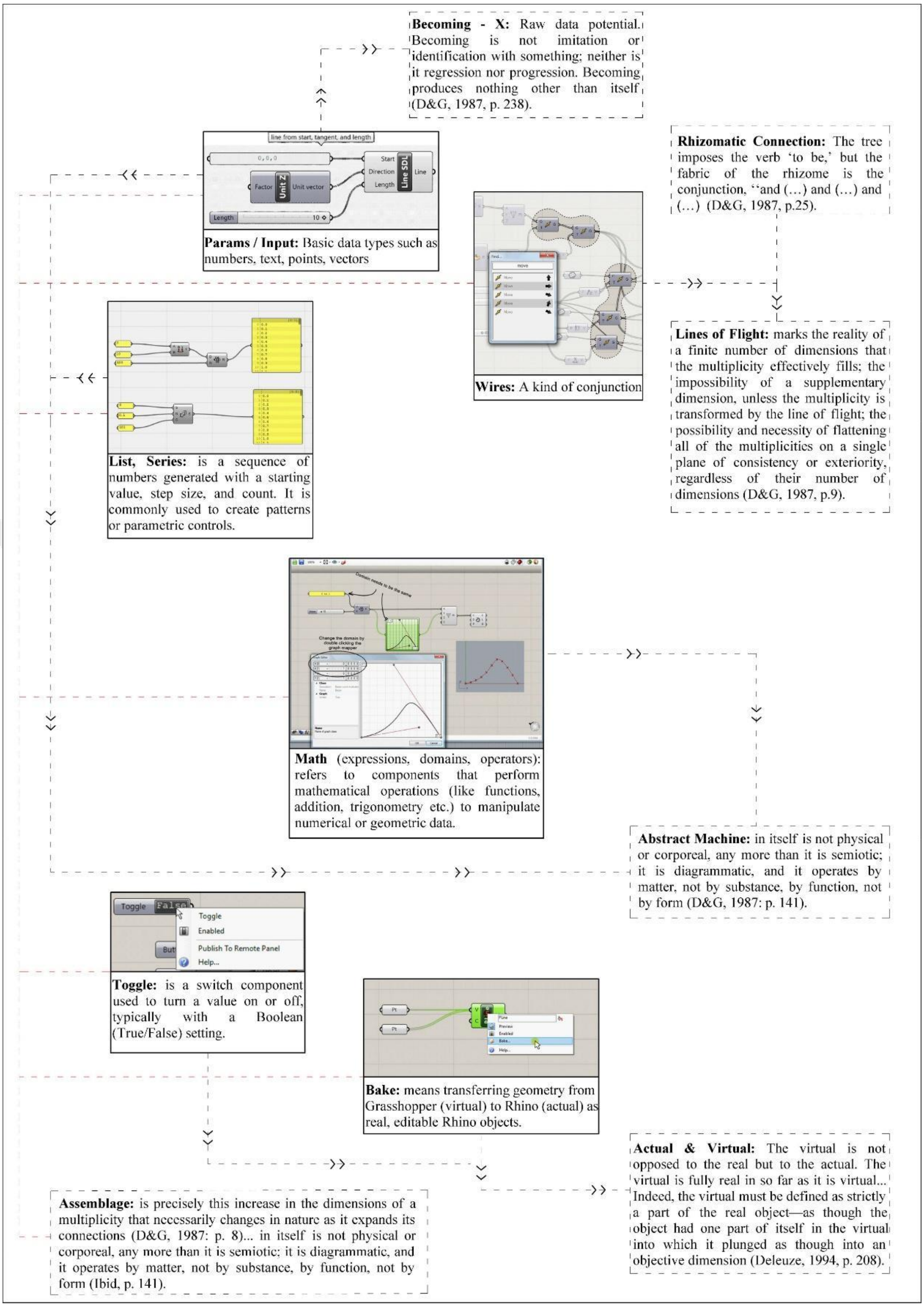


Figure 5: The Operationalization of Grasshopper3d as an Element of Planomenon
(Created by the Author 2025)

Therefore, this thesis's methodological approach, explicitly challenging the linear, closed-loop, static, and hierarchical production models of the Classical West, is based on horizontally related, articulated, pluralistic, and adaptable processes through the rhizome metaphor. In line with this trajectory, the thesis connects the creative act of Deleuzian thought, its empirical principles that acknowledge diversity only in this direction, to the functional relationship between today's open-source software through examples. In other words, it pragmatically operationalizes today's open-source software and digital simulation tools in light of Deleuzian concepts.

1.4 CHAPTER RESULTS

In this chapter, the basic principles and concepts of Deleuzian thought that define the boundaries of the theoretical and methodological approach of the study are defined, and how the study will function through these concepts is also outlined. Deleuze's deep connection with creative action is adopted in this thesis as an ontological approach directly linked to everyday life, beyond being merely an aesthetic stimulus for social transformation and sustainability. In this respect, the original concepts of Deleuzian thought that aim to improve everyday life are defined separately throughout the chapter, as they are frequently used in the following chapters of the thesis. There is no superior concept among these concepts. They can only be expressed in a complementary and articulated way. However, the common feature of all these concepts is that they have indicators that contradict Western classical thought, which Deleuze finds insufficiently creative. Within this thesis's scope, the rhizome becomes a representative element among these concepts with an analogical description. According to Deleuze, in contrast to the root-tree shaped, centralized, and hierarchical production models of Classical Western thought, the rhizome offers an alternative methodology that establishes horizontally related, plural, expansive, and discontinuous connections. The findings presented in this chapter clearly demonstrate a junctional relationship between the Deleuzian rhizome metaphor and today's simulation-based digital tools and parametric design tools. The horizontally interrelated, pluralistic, participatory, and pragmatic axiomatics of these software programs are framed through the concepts of Deleuze. Thus, the technical and conceptual boundaries become permeable, transforming the methodology into a multilayered production plane. While the aforementioned inferences and findings point to the potential and creative function of open-source software in production, they also provide a theoretical and methodological foundation for discussing “the transformation of social space in Deleuze's philosophy,” which will be addressed in the second chapter. The rhizomatic thinking established in this first chapter will be concretized in the third and fourth chapters as a multilayered research practice that transforms qualitative data into a quantitative model using parametric design tools and open-source software. Therefore, this chapter not only describes the methodological innovation of this thesis but also introduces a Deleuzian way of thinking and a production model that permeates the entire study's structure.

CHAPTER II
TRACING DELEUZIAN SPACE: SOCIAL CODES, CAPITAL FLOWS, AND POTENTIALITIES

The conceptual apparatus, methodological generation processes, digital pragmatism, and all these planar densities mentioned in the previous chapter. Collide in this chapter with what is considered physically real. In a Deleuzian definition, all spaces of the virtual encode themselves within a physical universe and experience a kind of crystallization. By tracing all these rhizome-becomings, folds, and nomadic thoughts, and within the challenging dominant system model (the indicators pointing to capitalism), this chapter aims to make sense of it as a new territory. With this enthusiasm, we now explore becoming spaces in Deleuze's texts.

Before discussing Deleuze's implications for the potential production of space, it is necessary to summarize his general approach to space. Drawing on classical empiricism but preferring to relate it to everyday life practices, Deleuze's thought offers a guide for discussing the sustainable production of space. In other words, for Deleuze, the production of thought and action is sufficiently powerful not in laboratory settings but in interaction with everyday life (Deleuze 1991). It is evident that Deleuzian creative literature (striated space, nomadic space, deterritorialization, fold, etc.) reaches its ideal territory (*milieu)* when evaluated outside of a conceptual framework, together with the applications of real life and the creative possibilities of life. Deleuze's approach encourages the designer to rethink existing facts for a sustainable area today. At this point, the truth is that the current social relations of this era point to the capitalist regime model in the political, socio-economic, and cultural conjuncture. Although nation-state capitalism, free market capitalism, mixed economy, and corporatism differ from country to country, it is clear that the majority of the world's population is ruled by a capitalist regime (Hancké 2009). The primary source of this study, *Capitalism and Schizophrenia*, in which Deleuze and his psychoanalyst colleague Guattari critically examine modern society through the lens of capitalism, serves as a guide for this study. In this study, the dilemma caused by the internal dynamics of capitalism is metaphorized by the analogy of schizophrenia. There, from family to state, from workplace to non-governmental organizations, the wide range of social organizations has both valuable and harmful consequences, revealing the presence of capitalism in the background. Capitalism in the model in question shows a behavior as an internal controller that saves desire and constantly controls the concept of desire. In this model, which Deleuze and Guattari call schizoanalysis, the system gives rise to a series of existential and societal conflicts.

In one aspect, desire pushes the individual into a race, subject to economic, cultural, and ideological consumption at regular intervals. At the same time, inevitably, schizophrenia emerges as a metaphor of social alienation and chaos; while, in other aspects of desire within the capital system, it can turn into a driving force seeking liquid and creative connections, rather than being an existing type of deficiency (suppression) that shows a Freudian negative power. For Deleuze and Guattari, these connections are only possible through movement that promotes displacement. In the plane in which states lead to a settled and Oedipal framework, such mobility points to the nomadic thought that tries to disrupt the settled understanding (code-breaking). The motivation of the nomad is to obtain new streams and *agreements* with such thought. Therefore, before moving on to the discovery of potential within the scope of the research, priority should be given to revealing the problematic issues identified within the framework of Deleuzian thought, which proposes a type of articulation-based code-breaking approach. Later, searching for potential in these problems is much more realistic in terms of sustainability based on sociological inferences. In this context, this chapter should be discussed on the axis of the indicators of capitalism today to investigate the possibilities of a sustainable life. Throughout history, it should be shown how architecture has been instrumentalized through political and sociological inferences concerning capital movements (Deleuze and Guattari 1987).

In the context of traditional sociology, social theory is a field of thought that aims to understand the current dynamics of societies by revealing how they came into existence, how they interact, how they have organized themselves over time, and how they have changed. During the historical process, the development of social norms and values, the cause and consequences of social conflicts, and the urge to question existing system models encouraged designers to create alternative social models including different theoretical approaches and analyses such as structuralism, Marxism, Weber sociology, postmodernism, theory of social disintegration, and conflict theory in the literature (Seidman 2016; Boudreaux 2023). However, within the scope of this thesis, the objective of this chapter is to remain within the Deleuzian context and to reveal the conditions of emergence of his theories and notions related to daily life practices, that is, the potential of the actual. In this respect, the current debate is primarily framed through traditional sociology and social theory approaches (mainly Marxism); subsequently, all of these can be interpreted critically through the creative concepts of Deleuzian thought.

Deleuze and Guattari (1980) talk about codes, connections, breaks, flows, reunions, and virtual (virtual) potentials arising from all this dynamism. In this dynamism, it is clear that Deleuzian actual is primarily linked to situations that affect daily life or systemic models. Hence, in the reality of this system model, capitalism serves as a kind of machine. According to Deleuze and Guattari, the capital regime releases the desire to create a free movement for the individual, who sometimes becomes a coder in the field by working more marginally with labor and money. The codes are directed, broken, merging in the footsteps of these streams, but eventually existed as mechanisms (desiring-machine in Deleuzian terms) limited by states. In other words, in this complexity, capitalism produces social schizophrenia as code-solving (*decoding)* and *re-coding* system models (Deleuze and Guattari 1987).

At this point, the *desire machine* triggers the nomadic thought, rejecting all static and real actions in a constantly changing plane and producing its own unique way to become one, as artificial flows and fixed identities have become unreliable and require reestablishment. Monitoring this tension between sedentary and nomadic patterns of social life aligns with the rhizomatic method of the study, tending to develop multiple relationships instead of a strict and linear chronology. In shaping this approach, what is decisive is the Deleuzian perspective inspired by Henri Bergson's concept of *durée*, which points to the subjective and experiential dimension of time concerning space. According to Deleuze, the current time exists in space, and the space adopts the traces of uninterrupted time (Deleuze 2021). This perspective is also supported from another point of view in the Deleuzian literature, conceptualized as fold *(pli),* symbolizing a layered time and space (*espace-temps stratifié)* in which one layer forms the other. In this context, Deleuzian methodology supports the literature reading with multiple connections instead of a linear and homogeneous flow (*Fernand Braudel - Longue Durée Effect*) on behalf of the facts and preferences associated with the absolute time space dilemma on various layers (Akşit 2023).

Following this core thread, the Deleuzian actual, meaning ‘current or present’, also enables the concrete realization of the potentials and transforms them to create new potentials (Deleuze 1969; Deleuze 1994). In the rapidly globalized world of the 21st century, radical developments based on knowledge and technology have led to the blurring of intercontinental borders, changing lifestyles and habits, and thus the emergence of new social facts. Today, more than one conclusion of globalization can be drawn, but the social welfare parameters are clustered around economic, social, and political relations. Especially in the broad spectrum, which extends from the global economy to daily practices, the design of politics to direct social dynamics shows how strong indicators are in the gains of the actuals (Greer 2024).

Deleuze's political understanding is on actualizing the potential (Tampio 2014: 7). Political indicators have a metamorphosis understanding that constantly chases, transforms, instead of representing a fixed ideology (Patton 2000). Furthermore, his political perspective is fed by a praxis that follows the actual, seeking new political possibilities to improve the existing or resist the system. This motivation is nourished by a constantly changing place and deterritorializing practice (Wolin 2004: 9).

With the 18th-century Industrial Revolution, the approach that sought to destroy the boundaries of the feudal economy revealed the necessity of a model of capital accumulation and private property (Weber, 1905). In particular, the liberalization of markets, the increase in the division of labor, and the progression of production processes on a much more rational basis show the early fundamental indicators of the capitalist regime (Marx 1867). According to Adam Smith (1776), the most favorable conditions for the sustainability of the free market and economic prosperity are hidden in the dynamics of the capitalist regime. Deleuze examines the conditions of the emergence of capitalism with the following question: Why did capitalism appear in 18th-century Europe, not in China in the 12th century? This question provides a framework for interrogating forms of state governance. For Deleuze, the concepts of private property and military power, which have been directly linked to forms of state governance throughout history and represent the legal ownership of property by non-governmental entities, are crucial for tracing the rise and spread of capitalism (McConnell 2009). At this point, a spatial analysis (*espace-temps stratifié*) that uses Deleuzian *stratification* to trace the early indicators of capitalism, starting from the 18th century when the Industrial Revolution created a breaking point, also has the potential to explore today's current situation. In this context, when we look at the social forms in the archaic empires or medieval city-states before the 18th century, we see that military power and other parameters that developed depending on it were not strong enough for the concept of private property, which seems to be the prerequisite of the capitalist universe. In other words, the models of Archaic empires and medieval city-states were not as comprehensive as those of today. Therefore, the space required for the emergence and deepening of capitalism in these periods was not yet sufficient (Haas 2019).

The historical course draws attention to the fact that, for the conditions necessary for the emergence of capitalism to reach sufficient maturity, general conditions such as private property and the monopolization of military and economic power must also find the appropriate ground, in addition to specific issues such as the *naked worker* and the *abstraction of wealth*. The concept of the naked worker, which parallels Marx's idea of the wage worker (laborer), describes the worker who must sell his labor power to survive and, in this context, the community that contributes to the labor market for the development of capitalism. Along with the naked worker, commodities disappear, as craft skills or commodity values such as raw materials and land are designed to flow away simply. According to Deleuze, the naked worker components were primarily nourished by the abstraction of wealth within the class-generating, fragmenting structure of the capitalist order. Here, social and political indicators are differentiated, creating a historically productive system model where the government transforms elements such as social status, lifestyle, wealth, etc (Deleuze 1980: 452-453).

Deleuze pointed out that these concepts find their ideal basis in the nation-state structure, accelerating toward the center, particularly strengthening legal and political stability. Here, change (fluex) is a kind of event. While in archaic empires and city-states, the flow in question is static because it is strictly limited and controlled by superiors based on social rules and laws, in nation-states, it becomes subjective and tends to move freely. Therefore, it is possible to state that capitalism in the nation-state model has reached the desired level regarding management styles, unlike the management approach in archaic empires or city-states (Haas 2019).

On the other hand, two main types of models are observed within the nation-state model, which forms the ideal basis for capitalism. In the first model, the state is repressive and authoritarian. By depriving individuals of property and the means of production, such as factories, land, and machinery, the Deleuzian state apparatus creates a form of naked labor in which the state monopolizes all resources. The labor and capital necessary for the deepening and expansion of capitalism are obtained through this method. In the other model, the state apparatus appears to have a more moderate and social perspective. However, while social policies may target individual well-being, they are still designed to foster capitalism. This time, the market indirectly turns individuals into naked workers, dependent on the market itself. In both models, the explicit or implicit aim is to manage labor and capital in the service of capitalism (Deleuze 1980: 453).

According to Vandenberghe (2008: 882), who critically examines traditional Marxism to represent the Frankfurt School, contemporary capitalism exhibits a Deleuzian structure in practice, even if he does not directly address it. This structure is chaotic and ripe for transformation; it interacts easily with one another through the flexible networks of Deleuzian rhizomatic thought. The deepening of rhizomatic relationality in capitalism goes far beyond a plane affecting economic and daily life practices; it is related to life's ever-present, adaptable, and transformative nature. In other words, capitalism has created a dynamic model that expands its reach, particularly through technological advances, and is easily organized through a rhizomatic network. Far beyond social and economic organization, this model has already colonized life through destructive factors such as self-management and the commodification of culture.

The boundaries of contemporary capitalism, which has gained such a natural and radical momentum for free movement and interaction, always tend to expand outward (Deleuze and Guattari 1987: 21). However, this approach also brings with it a kind of threat. Due to the nature of capitalism, the desire for constant growth can become a self-threatening plane. Such uncontrolled expansion can weaken or even destroy state power, as exemplified by the US opposition to NASA funding for space exploration in the 1950s. At the time, US President Eisenhower restricted NASA's budget to prevent the expansion of capital into space in other words, to prevent its indigenization (the dissolution of fixed identities) or decoding, as Deleuze put it. According to Deleuze, restricting NASA's budget is typical behavior in a capitalist regime. This example illustrates how nation-states react when they sense the risk of losing control over capitalism's expansionist policies. They attempt to prevent the 'dislocation' of capitals such as human power, goods, or capital and to re-secure them (Haas 2019).

2.1 DELEUZIAN SPATIAL CONCEPTS IN EVERYDAY PRACTICES

In the second volume of Capitalism and Schizophrenia, A Thousand Plateaus, Deleuze and Guattari use the concepts of *war machine* and capture apparatus to discuss power relations through social and political dynamics. These concepts were put forward to discuss socio-political issues such as social organizational structure, organization, power structures, and nomadism with metaphorical relationality. According to Deleuze and Guattari, capitalism, in addition to being an economic power in which production and consumption decisions are determined through markets, points to a much more comprehensive and complex model that is constantly changing and transforming because it points to social habits and daily life practices (Deleuze 1992: 3-7). Metaphorically, capitalism is likened to a kind of war machine. The fundamental concept of war here is not conflict, but the ability to adapt and/or react quickly to changing conditions. The war machine is prepared to wage war without limits to maintain and expand its existing power. In this process, the dominant power may try various war tactics to eliminate all obstacles (Patton 2000: 110).

Deleuze and Guattari's war machine is twofold. In the first model, the nation-state organizes a future-oriented cooperative model, pushing all currents toward the center and stabilizing them. In this model, the nation-state, to carve out new markets, seeks to control external threats and internal dynamics and deepen its structure. Internal dynamics not only carry economic indicators but also manipulate social, cultural, and psychological desires through media, education, and other captive devices, encouraging consumption and production in its own channels. Thus, the individual moves away from his own desires. He becomes a kind of commodity that gravitates towards what the system encourages (Deleuze and Guattari 1980: 351-356).

On the other hand, Deleuze and Guattari's implications for the functioning of the system model in their study of capitalism trigger another creative model. In this model, the state apparatus is once again structured as a structure that defines boundaries, is orderly, and demands control. This time, the war machine emerges in opposition to the centralized and hierarchical structure of the state apparatus. Here, the war machine acquires an anti-capitalist orientation, capable of operating outside the control of the state apparatus. Therefore, in this model, the state apparatus has become a kind of instrument of conquest. Having deciphered its codes and discovered its social, economic, and cultural flaws in its struggle against capitalism, the war machine aims to transcend its limitations and possess creative motivation. Contrary to the apparatus's desire for fixity, the nomadic war machine seeks to transcend all hierarchical fixities (Ibid.).

Therefore, this plane of intensity between the war machine and the capture apparatus, which Deleuze and Guattari conceptualize to decipher capitalism, does not imply a one-sided gain. Here, neither a system model that entirely celebrates the capitalist regime nor a powerful mechanism surrounded by anti-capitalist elements is associated with the war machine's capabilities. When used correctly, the war machine possesses a revolutionary potential to transcend all system models. However, the capitalist regime's constant threat of drawing it into the system limits the effectiveness of the war machine attempting to operate within this context. All these indicators suggest that the war machine is designed not so much for warfare as for a form of activity that implies the pursuit of territorial gain, productive actions such as social action, social mobilization, and public opinion formation (Deleuze and Guattari 1980).

The operational and productive achievements of movement, another critical representation in Deleuze's thought, evoke the concept of deterritorialization. Deterritorialization is a kind of destruction of context. It describes how an existing organization or authority is mutated and/or destroyed. In this regard, the connection that Deleuze and Guattari establish between Freud's psychoanalysis and capitalism's functioning to reveal the capital regime's transformative power is noteworthy. Through Freud's concepts of libido and polymorphous perversion, it first transforms and deterritorializes the *psyche*. However, through the concept of *Oedipus*, it reterritorializes the psyche, creating a space that reinforces repression. The capitalist regime operates precisely for this purpose, and in this context, given mass action and current conditions, it is the most extreme representation of *deterritorialization*. It is constantly armed (in context: war machine) in a cycle of disrupting established structures and then re-indigenizing them. While this cycle is seemingly creative and liberating, it also remains a controlling and exploitative mechanism (Ibid.).

Change due to deterritorialization under capitalism is multi-layered on a mass scale. Capitalism constantly seeks to make sense of, analyze, and loop the established structural models, codes, and realities it has created. It desires to circulate the emerging entity in the fluid field of movement it defines (*displacement*) and to re-fix it in its deformed state (*re-coding*). Accordingly, under the capital regime, it is normal for information and even labor to move on a global scale. Since crossing borders on a global scale will strengthen the plane of control, all kinds of decoding initiatives and policies to be realized in the international arena are supported. At this scale, old decoded codes are replaced by new codes and their hierarchical connections are redefined (Ibid.). At this point, just as Foucault points out in his critique of modern life, there is a much more radical but pervasive political understanding of the forces of power through body politics (anatopolitics) and population management (biopolitics) rather than legal pressure on individuals' lifestyles (Foucault 2008). The modern capitalist framework instrumentalizes a variety of signifiers in order to de-territorialize. These signifiers grant the individual the right to free market and consumption in a way that respects the dynamics of the age and existing habits.

Deleuze argues that capitalism instrumentalizes architecture in line with its fundamental dynamics and interests (Deleuze and Guattari 1980: 261-263). This instrumentalization can occur in different ways. First of all, the space that is territorialized (coded) by the state apparatus, along with special freedoms, turns into a kind of commodity. Therefore, the space is commercial in nature with lands, buildings, shopping malls, and office-like structures. Particularly after the Industrial Revolution, the efficient use of iron, steel, glass, and concrete, combined with the development of architectural production methods and the creation of environments suitable for contemporary living standards, created a much more flexible and freer field of action for capitalism. Beyond being a place of living and culture, physical space became a profit-driven commodity, an object of circulation for capitalism, bought and sold in exchange for economic value (Gough 2018).

Deleuze explores how state-controlled space in societies dominated by capital transforms into an effective war machine through the concept of the "control society." Drawing inspiration from his friend Foucault's concept of the "disciplinary society," Deleuze points to the power of mechanisms of power and control. Foucault particularly examines the transformation of disciplinary societies, which began in the 18th and 19th centuries and accelerated in the early 20th century, into spaces of enclosure. Within these spaces, the individual moves from one enclosure to another, each subject to autonomous laws. First, the family, then the school ("you're no longer with your family"); then the barracks ("you're no longer in school"); and sometimes the factory, sometimes the hospital. When viewed analogously, these are all prisons with the most oppressive representation of the enclosed space. Therefore, while in Foucault's disciplinary society, the existing power (the state apparatus) hierarchizes and instrumentalizes spaces through factories, schools, and hospitals in order to control individuals, in Deleuze's control society, the power of this power acts in a much deeper and more fluid manner (Deleuze 1992: 3-7; Foucault 2008).

Deleuze emphasizes that in control societies, which are the continuation of disciplined societies, individuals are constantly monitored from school to work, from work to home, and from home to other social spaces. This cyclical space deterritorializes from one heavily coded space to another, ultimately repeating itself. This deterritorialization has been transformed in the 21st-century world. It no longer restricts individual movement within enclosed spaces like schools, hospitals, and prisons, but has instead evolved into a form of surveillance through virtual networks capable of establishing rhizomatic relationships. With this method, the individual can be easily coded and monitored both indoors and outdoors. States design both interior and urban spaces accordingly in order to determine and control all the dynamics of society. While city centers are being transformed primarily into business and commercial areas, residential areas are being shaped according to current market conditions. In this context, capitalism and the state apparatus act together to maintain their dominance (Deleuze 1995: 177-182).

In this current situation that extends from a disciplinary society to a control society, the symbiotic relationship between the indicators of the capital regime and architectural production should be discussed. While on the one hand, a space is created that gives capital freedom of movement through architectural production, on the other hand, there is another space where capital organizes and deforms architecture. These spaces gradually transform into a plane of immanence that moves by triggering one another. In this symbiotic relationship between architectural production and the capital regime, both destructive and restorative arrangements of both sides play a leading role. Capitalism creates the necessary platform for architecture to strengthen its influence in areas such as capital flows, technological advancements, and private property rights. Conversely, architecture provides the physical infrastructure and requirements capitalism demands, materializing capital accumulation and visualizing hierarchical structural patterns. In this way, the ideal environment for the long-term sustainability of capitalist competition is created (Harvey 1989: 66-98).

On the other hand, the mutual harm inherent in this symbiotic relationship is also evident. Capital demands can transform architecture and the production of space into war machines, leading to environmental destruction, the entrenching of labor exploitation, and social injustice. Similarly, the functionalization of architecture under the control of a superordinate system restricts its creative scope. Architectural production deviates from its fundamental role in ensuring the well-being of sustainable social societies, becoming a service tool shaped by market dynamics. Deleuze and Guattari (1987) state that capital's axiomatic codification of space risks transforming architectural production from a potential deterritorializer that creates difference by establishing rhizomatic connections into an effective stabilizer of control societies. Capital's indicators, decision-making mechanisms, and practical tools capable of mutating architectural production in every possible way also raise discussions of applied ethics in architecture. At this point, it is necessary to examine how the content of architecture and spatial production, historically determined by functionality and aesthetics, has transformed into a war machine within capitalism, both active and passive. As Deleuze and Guattari (1980) emphasize in their concept of desire, global capitalism has codified flows of desire, transforming space into an object of control and resource; in this context, architecture has become a commodity that produces content for the needs of deterritorialized capital. Tafuri (1976: 176) describes the historical evolution of architecture as follows:

> *"When architecture functions as the ideological apparatus of capitalism, we cannot grasp either its present form or its future potential without understanding its historical evolution."*

Today, it is possible to discover the Deleuzian potential by examining the dynamics of the architecture of this period, surrounded by signs of capital, and the metamorphoses it has undergone throughout the historical process. At this point, Deleuzian thought reaches the real as a field of escape (*line of flight*) from potentiality in the way of doing philosophy carries the problem to an actual plane. In this sense, although Deleuze's thought produces philosophy at a much more conceptual level than the approaches of Kierkegaard or Sartre, the leading thinkers of existentialism, it is critical due to its practical effects and its politics that desire to establish an absolute connection with everyday life. Therefore, the architectural productivity associated with Deleuzian thought can be considered an approach that neither ignores the contemporary dynamics of the period nor creates utopia or anarchy; on the contrary, it suggests potential gains within the confines of the capitalist regime. In line with this approach, research under this capitalist regime should be designed to target minor gaps (*minor literature* in the Deleuzian context) within the hierarchical structural models associated with primary and established forms of power (Deleuze and Guattari 1986:

16-27). According to Lefebvre (1974), space is not only a reflection of collective habits, but also a tool that reproduces these habits. Therefore, architecture, instrumentalized under the imaginary of capital (*the war machine* in the Deleuzian context), can direct the individual toward a lifestyle that codifies and standardizes. To achieve a sustainable architecture in a space so limited by capital indicators, it is necessary to eliminate principal codes and create a spatial policy that has become an autonomous movement by following the transformation of the physical, economic, social, and ideological habits of architecture from the primitive period to the present day (Deleuze and Guatttari 1980: 239-252).

2.2 SOCIAL CODES OF STRIATED (SEGMENTED) SPACE: HIERARCHY AND SEDENTARY LIFESTYLE

In *Capitalism and Schizophrenia*, Deleuze and Guattari similarly discuss the games of 'chess' and 'Go' to reveal forms of social thought and their structural projections. For them, chess represents a coding, balancing, and constraining plane, exemplary of a hierarchical structure model, based on a grid system consisting of closed vertices. Each action is predefined, and the scope for action is limited and therefore not creative enough. According to Deleuze and Guattari, states aim to codify or fix the individual within a chess-like model. They embrace the concept of a state-controlled, surveillable space where everything is organized in an orderly and symmetrical manner.

On the other hand, for them, the true potential lies in the game of "Go." Unlike the chess analogy the state seeks to establish, "Go" represents a nomadic approach. In this respect, "Go" offers a broad and creative scope. Instead of a grid containing stability and generating boundaries, there is a code-breaking network that is open to variation and prefers to move away from where the state tries to fix it (Figure 6) (Deleuze and Guattari 1987: 352-353).

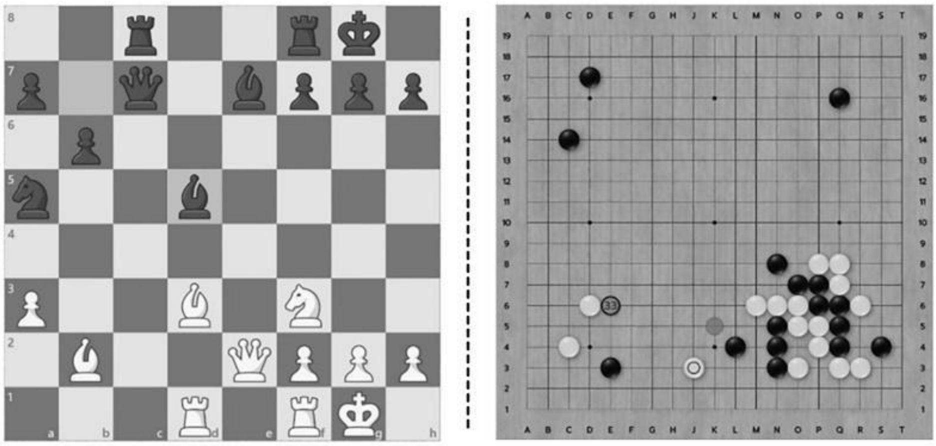


Figure 6: Chessboard (*left*); Go board (*right*) (Bratko 2012; CHEN et al. 2019)

Following this comparative-analogical approach, the production of space is examined in relation to concepts of controlled society. In *A Thousand Plateaus*, the second volume of "Capitalism and Schizophrenia," Deleuze and Guattari introduce two interconnected concepts to discuss the role of space in contemporary life practices. Through their concepts of striped and smooth space, they argue that space directs physical parameters and social dynamics. Striped or smooth spaces, articulated on a single plane, produce tension, rather than defining two dialectically opposed spaces. This tension creates a robust framework for understanding a vast time-space transformation ranging from ancient hierarchical forms to capital architecture. As described in "A Thousand Plateaus," the striped space is characterized by a tendency to flatten all ideas or stifle creativity. The symmetrical columns and identical plots in the Roman forum homogenize differences by coding social demands on a plane where architecture acquires an instrumental quality. The architecture suppresses differences through repetition, rhythm, symmetry, etc. On the other hand, the smooth space that articulates this space dislikes any hierarchy imposed on it, seeks out cracks, and exhibits nomadic behavior. For example, the informal markets or small spontaneous events outside the forums in Rome were essentially smooth spaces (Figure 7) (Deleuze and Guattari 1980: 478-482).

Figure 7: Dynamic Interplay of Nomadic and Striated Spaces (geografija.it 2025)

In *A Thousand Plateaus*, Deleuze and Guattari attempt to define the concept of (striated) space to be processed. First, they try to depict striated space with lines. These lines draw attention to a type of control that defines entry and exit routes, organizes the space, and controls it within a hierarchical system (Robert 2019: 45). The lines designed on this linear basis highlight a form of surveillance. Power monitors, controls, and directs the relationships between individuals, spaces, and objects through the lines they define. Striped space's surveillance and control structure, increasingly apparent under capitalist practices, is essentially rooted in antiquity. The lines designed based on this linearity draw attention to a kind of inspection. The government monitors, controls, and directs individuals, spaces, and objectified individuals per its defined principles. The surveillance and control structure model of striped space, increasingly evident through the capitalist sufficiency, essentially dates back to Antiquity (Deleuze and Guattari, 1980). It is necessary to discuss how society has transformed under the control of architectural management, extending from the early representations of Antiquity to today's skyscrapers, and how architecture has become instrumentalized in this context.

The early traces of striped space are depicted, especially in ‘Difference and Repetition’, as social desires transform into lines of escape and disappear within physical space. Here, attention is drawn to a process in which purely physical actions, desires, and collective forces such as defense, worship, or belonging are intensified and find their counterparts in material forms (Deleuze 1968: 208-221). The construction of the Mycenaean walls in response to an external threat, the intensity of the individual's relationship with the transcendent in the Heraion Temple, or the Parthenon's glorification of the Athenian polis identity. For Deleuze and Guattari, all forms are materialized to stabilize military power, religion, authority, law, and so forth (Deleuze and Guattari 1980: 167-191).

Capitalism has mediated architecture to create a fixer or a coder pattern through all these major representations until it has its own ideal plane. At this point, the historical traces of the grid system, which marks the oldest spatial organization and production technique for standardizing social habits and production patterns, are striking. In this context, the grid system in architecture, rather than being a facilitating design tool that uses horizontal and vertical axes to organize space in a specific order, becomes a Deleuzian war machine representing the striped space of control societies. The equidistant fragmentation of the grid, along with its fundamental design principles, forms the basis of Deleuzian striped space. Here, the organization of cities and spatial organization is at the forefront; sometimes it controls entry and exit routes, sometimes it hierarchizes them, and often it codes and fixes the individual (Deleuze and Guattari 1987: 167-191).

The first recorded use of the grid system dates back to Ancient Egypt and Mesopotamia. These civilizations adopted systematic plans around two principal axes for the functioning of their cities. During this period, a simple settlement pattern was primarily used to organize cities for military and social democracy and to establish a standard structure in colonies. Production techniques based on simple unified models for land subdivision and irrigation canal construction are particularly evident in the temple-centered settlements of Ur and Babylon in the 3rd millennium BC (Morris 1972: 45-47). Furthermore, the dynamic social, political, and cultural structure of Ancient Greece, which emerged towards the end of the Archaic period, provides an essential tool for examining the social and historical indicators of control. The city-state (polis), which directed the behavior of populations through institutions, rules, and practices, represented a crucial structure. Under this structural model, social growth and economic initiatives were controlled. Beyond simply serving as markets (trade centers), agoras served as spaces for political communication, where issues of interest were discussed and where accompanying rulers gathered to observe and analyze public reactions. An early depiction of agoras supporting the political, commercial, and social governance of cities is evident in the description of the grid system, based on a simple orthogonal plan, developed by the urban planner Hippodamus in the 5th century BC. For example, Hippodamus's agora at Miletus suggests a relatively static yet powerful (hippodamic) plan based on parceled-out areas formed by regular intersections of streets. According to Aristotle, in Hippodamus's unified system, profit could be generated by collectivizing land into public, private, and sacred areas; farmers and supervisory authorities distributed land within a collectivized model (Figure 8) (Wycherley 1962: 54 - 58; Body 2025).

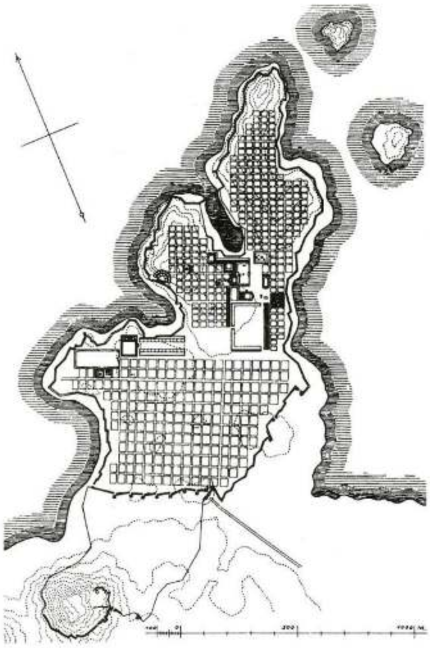


Figure 8: Miletus City Plan, Hippodamos Taraf, a City Planner (Boyd 2025)

On the other hand, the grid system that encodes the individual as a Deleuzian capture device and pushes them toward the center has become more visible in Ancient Greek and Roman civilizations through the concept of taxis. First used by the ancient Roman architectural theorist Vitruvius (80-70 BC - 15 BC), this concept means order, sequence, or organization. In his work De Architectura, Vitruvius explained the fundamental principles of architecture, emphasizing the necessity of proportionately designing structures based on the principles of "order and arrangement. In his teaching, taxis are conceptual, representational, and visual. They define a type of formulation specifically aimed at generating form. In this context, Vitruvius proposes the concept of taxis as an important design tool that ensures the visual unity of a building, defines the relationships between its parts, and determines the overall composition (Vitruvius [1st century BC], 1960). Considered one of the most important architectural figures of ancient Greece, the Parthenon was not merely a house of worship and political and cultural center unique to Athens; considering its architectural indicators, it symbolizes a linear conception of space (in context: a means of understanding) bearing the most ancient indicators. This significance is largely associated with taxis, a hierarchical model established in the context of the period, with perfect proportions and order. The Parthenon is a crystallized (concrete) representation of the identity and transcendent quest of the Athenian polis, which expressed the administrative and social structure of the 5th century BC (Deleuze and Guattari 1980: 209-231). As Vitruvius notes in "De Architectura," the Parthenon's architects, Iktinos and Callicrates, designed the temple according to a system of ideal proportions (the golden ratio, √2, phi" (Φ)). The number, size, and spacing of the columns within the temple, the dimensions of the interior, and the sculptural decorations were determined according to a perfect system of proportion. A similar ideal proportion system is evident in the numerical equivalents of the walls surrounding the sacred precinct and the side measurements of the upper story upon which the temple rises. With its thick columns, flat friezes, and Doric ornamentation, the building, symbolizing Athenian democracy, emphasizes how aesthetic power translates into political value. Therefore, the characteristic of Deleuzian striped space, which seeks hierarchy and order to demonstrate political discourse and power, can be clearly traced in the Parthenon through the ancient idea of taxis and perfect proportions (Beard 2003; Barletta 2005: 67).

With the rise of the Roman Empire toward the end of antiquity, social dynamics and architectural cues shifted. Vitruvius's principles once again played a dominant role in Roman design thought architecture employed compositions based on axial arrangements, hierarchy, and symmetry. The taxi-based scheme became visible in public spaces such as monuments, forums, basilicas, baths, amphitheaters, and temples. These spaces, organized around a central axis, were designed to provide visual order and a supervisory function that the state could control. Thus, the grid system became an ideological design tool, simultaneously encompassing aesthetics and function, managing the entire social dynamics of the city. Toward the end of the ancient era, social dynamics and the rise of the Roman Empire also changed direction. The principles of Vitruvius played a dominant role in the design practice in the Roman era. In architecture, it has been used with other forms of composition based on hierarchy and symmetry. These sites are seen in public areas, such as images, forums, basilicas, baths, amphitheaters, and temples. It was designed to include both a visual order and a functionality controlled by the state, so the grid system was transformed into an ideological design tool containing the aesthetic and function of all social dynamics in a simultaneous time; For example, the grid layout of the Roman Forum and the rising columns that are part of this layout, on the one hand, point to the balancing power of a significant order (pax Romana); on the other hand, they are effective in transforming desire into a kind of hierarchy by suppressing the effect of the individual who seeks the small formations behind the individual's daily life practices such as freedom, mobility and autonomy (Deleuze and Guattari 1980: 209-231).

Following the collapse of the Western Roman Empire, this hierarchical ideology-based geometric depiction largely disappeared from the early Middle Ages onwards, giving way to the Romanesque style, characterized by thick walls and round arches, which served religious, military, or civil purposes, and/or the Gothic style, characterized by pointed arches, ribbed vaults, and flying buttresses. While a belief-centered understanding of social life is seen here, social functions are now concentrated more around feudal structures and cathedrals. For example, Notre-Dame (1163-1345) was produced as a transcendental space in which the religious, political, and cultural desires of the Middle Ages were encoded in stone (in the context of architecture), far beyond being an example of the transcendental relationship established between God and the individual, as defined by Deleuze. In other words, during the Middle Ages' dark period, the Deleuzian capture apparatus transformed in response to society's contemporary political, social, and economic indicators, giving rise to dystopian space through the grandeur of control and surveillance structures. (Deleuze 1994: 135-145; Frankl 2000).

According to Lefebvre (1974), the production of space is both a tool and a consequence of everyday life practices. Therefore, the architectural signs of the Gothic style, which emerged in 12th-century France, functioned beyond their aesthetic value as a representation of social control mechanisms. In this respect, the Gothic style strongly influences the problematic space identified by Foucault, both in the disciplinary society of the West and in Deleuze's control society (Deleuze 1992: 3-7; Foucault 2008). From Deleuze's perspective, medieval architecture, with its magnificent structures that emerged after the fall of the Western Roman Empire, carries a toolkit that points to the transcendent; however, when considered in today's contemporary context, the discursive power of these structures demonstrates that, rather than representing a representation of truth, they represent a kind of difference and becoming. Especially in this period, the existence of structures such as Notre-Dame, on the one hand, caused the crystallization of social desires. On the other hand, it revealed the stabilizing power of the state apparatus that transcended the ages (Deleuze 1968: 208-221).

The Middle Ages transitioned from a rigid, hierarchical, class-based system shaped by religious dogmas and influenced by the political, economic, and cultural influences of feudalism to the Renaissance (rebirth), a period of discovery in which intellect and creativity, particularly in Ancient Greece and Rome, came to the fore. The Renaissance heralded a new understanding, moving away from the sacredness of the Middle Ages and evolving into a secular understanding in which individuals were granted certain freedoms under political regulations (Wölfflin, Panofsky, and Warburg 2016). This period bears early traces of Deleuzian spatiality and capitalist axiomatics, particularly in its architectural manifestations (Tafuri 1976). According to Harvey (1989), the characteristic design habits of the Renaissance, such as perspective, symmetry, and order, actually bear the traces of proto-capitalist economic relations, such as the change in the understanding of trade and the rise of the bourgeoisie with the discovery of the codes of solution to the feudal system.

The architectural understanding of this period can be framed by human-centered, nature-influenced, rational, and innovative indicators. With the Renaissance, the weakening of feudalism in Europe, the acceleration and strengthening of central authority, and the rise of the city-state, the grid system transformed into a war machine that redefined the urban landscape. Thus, the ideal environment was created to produce Deleuzian striped space. The oligarchy-based state mentality, particularly through city-states, led wealthy merchants with political power, such as the Medjidie family in Florence and the Fugger family in Germany, to demand a hierarchical urban model based on striated space and to instrumentalize architecture accordingly. The grid concept of organizing public space with orthogonal thinking, as evident in Brunelleschi's Florence Cathedral (Santa Maria del Fiore, 1420–1436) and the surrounding street layout of the Piazza del Duomo, created a representation of striated space that survived to this period (Figure 9) (Goldthwaite 1980: 98-112). Conversely, similar indicators can be observed not only in societies adopting an oligarchic form of government but also in the resulting practices of social life in societies dominated by a monarchy, in the production of striped spaces. As monarchies began to exert significant dominance by increasing their absolute power, as is evident in the examples of Charles IV in France and Tudor England, architectural production maintained its reliance on authority. Architectural construction, often through castles (Chambord Château, 1519–1547) and/or monumental figures, represents another social hierarchy, far removed from the model of feudalism, but redefined by the bourgeoisie and the guild system (Burckhardt 1860: 121-135).

Figure 9: Traces of Striped Area from the Renaissance Period to the Present Day: Florence Cathedral (Santa Maria Del Fiore) (*Left*); Chambord Castle (Château De Chambord) (*Right*) (Copyright: Accademiaastdioitania; Château de Chambord 2025)

On the other hand, the Renaissance's principle of "rebirth" provoked artists and architects of this period to recapture the perfect proportions and order of ancient structures. As a result of this provocation, the ancient Greek emphasis on classical elements such as symmetry, proportion, and order re-permeated design thinking through the concept of the grid system as a tool for both aesthetic and social control. Design principles such as symmetry, proportion, and order, inherited from ancient Greece and Rome, especially from Vitruvius and Hippodamos, were reinterpreted with the humanist ideals of the Renaissance, and spatial organization through the grid system became increasingly territorialized. (Deleuze and Guattari 1980: 478-482; Tavernor 1991). Renaissance architect Andrea Palladio (1508-1580) was in an essential position in classical Western architecture, with the innovative Palladian style of the period, inspired by classical Roman and Greek architecture, especially that of Vitruvius. Palladio's "The Four Books of Architecture" revealed that architectural design is not just an aesthetic effort but also needs a solid theoretical infrastructure for the safety and functionality of structures. Villa Capra, one of Palladio's most well-known structures, has clear indicators of the Manierist architecture that prevailed until the end of the Renaissance (Bauer 2017).

The structure stands out with its rigid commitment to mathematical proportions and grid order. It is designed in line with the principle of symmetry. Instead of a prominent and flashy input design referring to a specific input, a grid mechanism has been proposed to proportion to all facades and internal volumes in the co-quantity. There are also entrances on the four facades of the structure, and each facade is designed with a symmetrical arrangement resembling a temple's portico. This mechanism, which provides entry from each villa facade, contains uninterrupted communication with the environment, especially the landscape. Therefore, this spouse symmetry turns into a design idea that unites nature and structure, not only an aesthetic choice. The dominance of symmetrical orthogonal thought is observed in the interior separators as well as the exterior of the structure. Thus, Palladio has maintained the tradition that produces symmetrical facades through the gridal order and simultaneously revealed a perspective that affects the internal use of the structure as a major (Palladio 1997). Palladio's Villa Capra is one of the most prominent examples of the striated space of the Renaissance and Neoclassical Period. In line with all these indicators, the structure can be considered a proto-form of Capitalism's fixing axiomatics. In particular, the symmetrical order and nature of humanist ideals of land ownership and the Renaissance are functional as an ideological architectural tool that justifies the lifestyle and control order of the period (Figure 10) (Tafuri 1976; Deleuze and Guattari 1980: 478-482).

Palazzo Thiene Bonin Longare was also designed by Palladio but completed by another well-known Italian architect, Vincenzo Scamozzi (1548-1616), and has the obvious indicators of the 16th century’s striated space. After Palladio, Scamozzi adopted Palladio's architectural production form. Still, especially with his work “L'Idea Della Architettura Universale,” he reflected his originality for the Renaissance period by reopening the theory of architecture to discussion. When it is examined in the plans and façade drawings of the building, which is also included in the UNESCO World Heritage List, it is possible to see the importance of symmetry, axial order, and grid system in Palladio's architectural approach (Marino 2023). In the structure, the grid system is used as a regulatory element in the interior and facades of the structure. This grid reflects Palladio's commitment to mathematical proportions and geometric harmony. The plan of the building is placed on a grid of horizontal and vertical lines drawn at equal intervals.

Palazzo Thiene's prominent design principle is modularity, which uses this grid. The elements that make up the building were built on a recurrent disintegration. The main hall forms the focal point of the space, and the other spaces around this focus are articulated in a modular principle. The size, location, corridor widths, and complementary circulatory lines of the rooms with balanced dimensions are designed. Similarly, the principle of modularity on the front is applied in horizontal and vertical planes. Especially in the façade design, a modular distribution is observed at the proportions between columns, windows, and friezes. The gaps of the columns, the dimensions of the windows, and the height of the layers have consistent mathematical proportions with each other, similar to different design decisions. The modularity has made construction processes easier, and consistency (unity) has been achieved in the whole building. In line with these indicators, Palazzo Thiene is an example of the proto-industrial quest that points to the foundation of the transition to modern industrial life on a social scale with the understanding of optimization based on economic rationality, especially in the construction process (Figure 10) (Eilouti 2008).

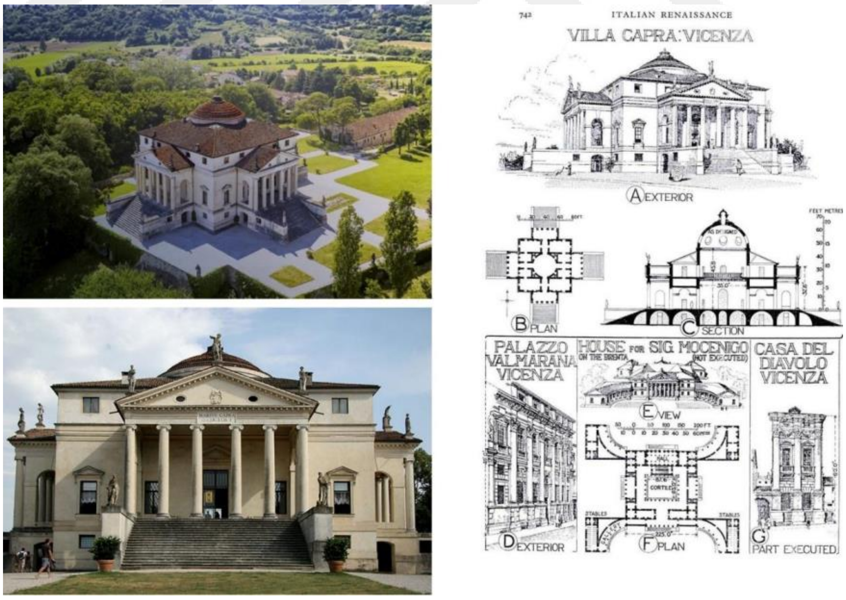


Figure 10: Palladio's Gridal-Based Villas (Villa Rotonda, 1566-1570; Palazzo Thiene Bonin Longare, 1548-1616) (wikipedia.org 2025)

Following the Renaissance period, in the baroque and early modern periods dating from the end of the 16th century to the end of the 18th century, a new plane where these indicators were not far from the understanding of architecture, order and symmetry, but these indicators mainly were interpreted with a vertical and centralist understanding This process created an urban pattern dominated by vertical architecture and spatial production indicators, which are the axioms of tree-like thinking that Deleuze and Guattari found insufficiently creative in classical Western thought. Consequently, a theatrical understanding of architecture emerged that emulated verticality rather than horizontality, associating power and functionality with the vertical, which could be problematic for Deleuzian thought from this perspective. In this direction, as can be followed in the examples of the Versailles Palace (1661-1710) or Gian Lorenzo Bernini's St. Petrus Square (1656-1667), the city squares were designed with dramatic scale and rational symmetry (Figure 11). The Renaissance's rationalist approach, which emphasized order and symmetry through concepts such as the golden ratio √2 and phi (Φ), distanced itself from the human scale. This situation led to the emergence of structures symbolizing totalitarian power and turned architecture into a vehicle for political imagery. In particular, the Palace of Versailles (1661-1710) is designed with the influence of the Renaissance. Still, it indicates the power of the absolute monarchy (Louis XIV) with the landscape and grid system of the theatrical scales. Soil and human relations for the structure in question are shaped on the axis of the political power of the royal authority (Mumford 1961).

Figure 11: Aziz Petrus Square (pexels.com 2025)

The unity of the theatral magnificence, which emulates the Renaissance's humanist individualism and the Baroque's verticalism, prepares the ground for the production of architecture of the early modern era. During this period, while the output of social hierarchy was reshaped by the influence of secular communities such as monarchs and trader elites, the traces of the striped space in architecture became a quality coding of both physical and social order by fixing the desires of these authorities. On the other hand, with the dissolution of the feudal order, the nature of the nation-state and the power of the bourgeoisie become increasingly evident. There, the initial indicators of hierarchical architecture, which pointed to the codes of capitalist axiomatics, are revealed in both production models and social relations. Capital indicators are perhaps observed by early industrial urbanization in its brightest form. In particular, the Georgian Houses in the UK and the construction based on colonial grid plan examples in the United States indicate a new architectural template to create a land speculation and commercial expansion plan (Mumford 1961: 376-382). This construction is located in the factories (Derwent Valley Mills Case) created by the capital system as a reflex move against the increasing population on the one hand. At the same time, the bourgeoisie gained space with economic initiatives. According to Deleuze (1990), this period covers the first process of transition from disciplinary society to control society. Unlike a settled and solid hierarchical model, the architecture has taken on a much more flexible character to support a fluid economic and social order (Deleuze 1992: 3-7).

On the other hand, architecture, which is instrumentalized in the monopoly of major politics, the residential problems of the working class, and the escape lines, such as occasional peasant resistance, experiences nomadic ruptures. Therefore, in the rising axiomatics of capitalism, the production of early modern era architecture is functional as a control mechanism that organizes national identity and industrial output. In contrast, nomadic identity maintains its presence in the background (Deleuze and Guattari 1980).

The late modern era, which pointed to the stage after the early modern period and extends from the middle of the 19th century to the beginning of the 20th century, was marked by the Industrial Revolution to prepare the ground for the capitalist regime. During this period, mainly thanks to technology-based developments, capitalism gained the axioms of production and consumption. In the architecture, the active use of building materials such as iron, steel, and glass has strengthened the movement area of the striated space. In metropolises such as London and Paris, train stations, factories, and trade buildings have fulfilled social desires like mass production through new habits (Deleuze and Guattari 1980: 454-460). In addition, the participation of railroads in mass production led to the formation of suburbs, which expanded with a systematic grid plan and gradually moved away from the city center. As seen in Haussmann's renovation of Paris between 1853 and 1870 and the Vienna Ringstraße examples, the working class, fixed in the suburbs in question, aims to increase the prestige of the bourgeoisie separated by spatial codes. At the same time, the business class and the working class are fixed to increase the prestige of the bourgeoisie, separated from them with spatial codes (Harvey 2003).

In the early 20th century, Modernism, particularly the rational and functional design philosophy of Le Corbusier (1887-1965), played a significant role in the intersection of capitalism and architecture. Le Corbusier, one of the most influential architects of the 20th century, addressed the characteristics of Deleuzian striped space, shaped by boundaries, measurable values, and control mechanisms, by creating machine-like applications based on the needs of industrial society. He considered buildings not only as shelters, but also as machines that enhanced the individual's quality of life and spurred social change. His architectural style was characterized by elevating buildings above the ground, creating more flexible use areas on the lower floors (pilotis); maintaining a fluid yet functional interior layout (free plan); designing facades detached from the structural system (free façade); and incorporating horizontal strip windows and roof gardens to allow natural light into interior spaces better. While Le Corbusier valued his personal experiences and freedoms, he also desired that architecture play a significant role in these details (Özsavaş Uluçay 2020: 5-13). Considered the prototype of the modern villa, Villa Savoye (1929-31) is a tangible example of Le Corbusier's *Five Points Towards a New Architecture* manifesto, and the fundamental principles of his design are readily apparent among the structures he embodies. The continuous connection between spaces, the access to natural light and air, long ramps, and the flexible use of interior furnishings are among the prominent features of diversity. The term "circulation," routinely employed in Le Corbusier's early work, evoked the concept of Promenade Architecturale and became even more significant at Villa Savoye. The gridded base, in question, not only allows for movement within the physical construction but also questions the psychological and experiential environment of the architecture's user. In this context, at Villa Savoye, the unified system, the rational relationality of basic geometric elements, became a design tool influencing individual experiences (Corbusier 1986; Sbriglio 1999). Villa Savoye, which points to Le Corbusier's modernist indicators based on machine functionality, has remained generally faithful to the restrictive system based on grid habits, but has produced a Deleuzian striped space on a more flexible plane, especially with its subjectivity based on the free plan concept.

On the other hand, since the second half of the 20th century, modern architecture has been developed by states to address economic and social demand through the so-called social housing project. Behind this initiative lies the demand for reconstruction due to the destruction caused by the war after the Second World War and the strategic initiatives of the states to meet the need for shelter as a reflex. Governments have created housing projects as an organized part of economic growth to create employment and maintain social stability. During this period, states developed building models based on fast and flexible construction technologies for producing affordable housing, with minor variations but serving the same purpose in the final product. In this context, the principles of control and surveillance implied by the Deleuzian striped space have always existed in the background of social housing projects (Deleuze and Guattari 1987; Ronald 2008).

Unité d'Habitation, based on Le Corbusier's concept of a shared living unit, is a social housing project that represents one of the iconic structures of modern architecture. Completed in 1952, the Marseille Residences were designed to offer modern and functional amenities despite the dramatic scars of war. The residential designs are complemented by ancillary services such as social spaces, schools, and shopping areas to meet daily needs. The structure demonstrates the competence and limitations of modern architecture and is significant in discussing the spatial implications of autonomous (private) housing in a controlled society. As part of his liberal planning approach, Le Corbusier designed eight different options and 23 distinct living spaces for the structure, catering to the needs of approximately 1,500 people. More than just a living space, the building can accommodate various needs, from a nursery to a pharmacy, from food and beverage areas to a library. Le Corbusier's statement that "a house is a machine for living in" further reflects the building's design principles (Le Corbusier 1986: 95; Le Corbusier 2010: 124). With all these indicators, the Marseille residences create a truly modernist framework. This is significant for the building's representation of modern architecture and for demonstrating the social and cultural differentiation during the transition to settled life.

Compared to Foucault's *Panopticon*, a symbol of power and control in a disciplined society, *Unité d'Habitation* occupies a much more flexible space in terms of its impact on the production of space and everyday practices. However, given its Deleuzian nomadic potential and philosophy of difference, it can be subjected to critical evaluation when the building is criticized as a representative product of modern architecture through Deleuze's theory of control society; its sociological and spatial indicators function as a kind of statist capture device (*dispositif de capture*). Unlike other public housing projects, Unité d'Habitation was designed according to free planning principles, but a sort of standardization prevails due to the homogeneous language used in all apartments. This homogenization, a typical feature of the control society, has been planned in a way that does not leave the initiative to the individual; in other words, it sees Deleuzian difference as a threat. Le Corbusier's approach to standardization, which he primarily used to increase efficiency and harmony in building design, also determines individuals' social lifestyles. This approach encodes the individual's actions and produces functionality subject to the rules of coexistence, but it is designed to be restrictive. Where, when, and how an individual moves is predefined. Services (facilities) such as heating, cooling, and ventilation are designed to be controlled by a central system, thus interfering with the individual's daily life practices. There, a controlling and supervisory understanding is essential, where the entire life capacity is shaped under the monopoly of a central administration. Although the freedom provided does not directly intervene, it is designed and modularized to direct simple life practices (Figure 12) (Ronald 2008).

Figure 12: Le Corbusier's Unité d'Habitation, Marseille (1947-1952) (Copyright: wikipedia.org 2025)

In line with all these indicators, social housing projects have emerged as a representative of the social state approach, especially in the 20th century, due to reasons such as post-war development plans, industrialization, population growth, and their impact on city migration. Also, these structures have been transformed by the radical acceleration of globalization in the 21st century. State policies that transform technology into a kind of desire machine through a predetermined (*encoded*) area have led to the emergence of project types that target the daily practices of the individual. Although there has been a shift toward sustainability, energy efficiency, smart buildings, and social participation in launch projects in the 21st century, Deleuzian-style control society indicators are clearly observable in these projects. According to Kemeç (2023), projects that propose urban construction from scratch, ignoring all historical indicators of the city, may start with utopian promises, but dystopian implications are inevitable. Social housing projects, smart buildings, or technologically sustainable dwellings—whatever the name, the instrumentalization of architecture, which lacks a sufficiently deep historical and social analysis and is not equipped to encompass all stakeholders in society, directly impacts the daily lives of individuals. As a result, space is increasingly transformed into a monopolized political power and control instrument, a tool for usurpation (*in the context* of Deleuzian *capture device*). The Deleuzian capture apparatus easily infiltrates these structures with cameras, sensors, artificial intelligence systems, the internet of things (IoT), and other technological tools for codifying and controlling the individual. These Deleuzian abstract machines impose strict rules on housing projects to prevent individual differentiation, and social relations gradually become homogeneous. Thus, the individual is placed in a position of moving within a defined space determined by power and collecting data through objects (*datafication*). This mechanism is surrounded by a design approach that protects against potential threats to the striped space and leaves as little room for creativity as possible (Deleuze and Guattari 1987).

Another significant disruption to the sedentary lifestyle based on the technological structure of the 21st century occurred with the COVID-19 pandemic, which began in 2020 and spread widely across a vast geography. Pandemics have posed significant threats to societies throughout history. The Spanish Flu of 1918, followed by the Asian Flu of 1958, are among the most effective pandemics of the previous century. However, the most significant distinction that distinguishes the COVID-19 pandemic, which emerged in a comprehensive era, from its predecessors is that it appeared during a period of rapid digitalization driven by technological advancements, radically and profoundly impacting society's perception of space and our daily life practices (Tufi 2022). Policies implemented throughout the pandemic have been expanded to continue, while simultaneously restricting digital access. New tools and programs have been developed to ensure state hardware, control, and oversight. Quarantine practices, digital tracking devices, and all manner of contact tracing systems point to the materialization of a technology-based order that has transformed existing system models into war machines during the pandemic. Throughout this process, the state apparatus has evolved into a superior mechanism that monitors and/or transforms all individual activities, from social interactions and healthcare services to education and shopping, through these devices. The mechanisms of states that attempt to stabilize individuals through all manner of technologies, particularly through virtual networks associated with Deleuzian rhizomatic relations, have become a kind of watchtower. In this context, the 21st-century control society of governance has been compressed into virtual networks. Within the system model encoded by the state through virtual networks, the physical form of public and private spaces that shape individuals' daily lives is also increasingly diversifying. Instead of being fixed in a space surrounded by physical boundaries, an individual can be easily controlled in a virtual space through data monitoring, algorithmic management, and various digital tools. The metamorphosis of both public and personal spaces under the scrutiny of this control mechanism has led to the emergence of hybrid spaces that encompass the individual's range of movement through online platforms, thus exhibiting a form of virtual nomadism (Askonas 2025).

With the increase in time spent at home due to the pandemic, the social structure that has increasingly acquired sedentary lifestyle habits has reached a dimension that penetrates the psychological world of the individual beyond daily life practices. This restriction experienced with the pandemic led to another plane related to Deleuze’s concept of the *dividuel* individual, affecting their pre-cognitive processes and producing a kind of *affect*. The individual's routine, which is coded as leaving home in the morning and going to work, has turned into a sort of consumption object associated with screen time statistics on the online platform. With the pandemic, the body of the individual, which is naturally prone to movement, has turned into a fragmentable (*dividuel*) object that moves quickly with the digital network but slowly physically, moving away from action (Figure 13) (Deleuze 1990).

Figure 13: Hybrid Space After the Pandemic (Copyright: tintmimarlik.com 2024)

From a Deleuzian perspective, the current development process of the hybrid space that emerged after the pandemic, especially with radical developments based on artificial intelligence, has increasingly strengthened the threat of the 'control society' under capitalist indicators that Deleuze pointed out in 1991. However, the Deleuzian approach of becoming, and its articulation through the plane of immanence, provides a guiding framework for the readability of the issue in the subsequent sections of the study. The immanent content of Deleuze and Guattari's thought, which proposes seeking the potential in the face of the problematic within the lines of flight and their minor gaps on the same plane, serves in the following sections to motivate the designer in discovering what is potential and sustainable in contrast to striated space. Just as in the historical trajectory, with the nomadic mobilities formed along the trade routes of the early modern period and the peasant revolts that occasionally emerged, the aim here should be to seek the reflex that pursues a minor fertility capable of giving rise to Deleuzian lines of flight, and in this way to disrupt the hierarchical order (Deleuze 1992: 3-7).

2.3 SOCIAL CODES OF SMOOTH (NOMADIC) SPACE: RHIZOMATIC AND SELF-ORGANIZED LIFESTYLE

In the 12th chapter (*Nomadology*) of their work A Thousand Plateaus, Deleuze and Guattari initiate a discussion criticizing settled life and the hierarchical models that have developed around it, while arguing that potential is related to nomadic movement. In *What is Philosophy* and *A Thousand Plateaus*, Deleuze first correlates nomadism with *noumena*, a concept that also extends to Kantian philosophy. Kant's idea of noumenon, meaning 'things in themselves' (*ding an sich*) that cannot be fully grasped by the senses but can only be grasped by the mind, is interpreted more dynamically and creatively in Deleuzian thought. In Deleuze's philosophy, Kant's inaccessible and static "things in themselves" are conceptualized as pure potential and a creative force. In this context, noumenon is not a substance seeking reality and stability, but a constantly changing, adapting, and transforming source of existence, and it creates a *difference* through this method (Deleuze 1963; Deleuze and Guattari 1980).

On this basis, it is possible to say that the concept of nomadism, which is frequently mentioned especially in A Thousand Plateaus, does not correspond only to a geographical term but also represents a way of thinking to define a culture of life. Essentially, nomadic thought dislikes boundaries. For it, system models, state apparatuses, codes, and norms are mechanisms that obstruct Deleuzian lines of flight. While the state perpetuates nomadism, nomadic thought constantly strives to escape this fixity. Unlike any hierarchical relationship, there is a flexible and polycentric network model in which minor and rhizomatic entities relate (Deleuze and Guattari 1987).

Table 1: Migration, Time - Space, and the Evolution of Borders through Deleuzian Nomadology (Compiled by the Author 2025)

	temporal	**spatial**	**indicators**
Primitive and Early Period	Primitive Nomadism	Hunter-Gatherer Habitat	Pure Nomadism
			Traces, stains, and Pure Spatiality
			Haptic and Tactile Space
Settled Period	Encoding the Space	The Transition to Agriculture and Settled Life	The Emergence of Fences and Borders
			The First Forms of the State: The State Domain
Transition Period	Empires and Modern Nation States	Dominance of the Striped Space	The War Against Nomads and the Mongol Movement as a Rhizomatic Threat
			Mapping and the Spatial Power of Bureaucracy
			The Sharpening of Boundaries
Capitalism, Late Modernity, and the Near Future Capitalism and the Late Modern Era	Capitalism and the Late Modern Period	The Return of Nomadic Currents	Nomadic Elements of Capitalism
			Technological Nomadism
			Mega Cities and Hyper-Spatiality
	The Future of Space	Post-Capitalist Nomadism and Possible Scenarios	New Forms of Nomadism
			Networked Nomadism
			New *Smooth* Spaces

Engaging with Deleuze and Guattari's nomadic thought, its spatial projections, and the everyday practices that emerge as a combination within a historical trajectory, offers a robust framework for tracking the transformation of potential nomadic forms of the future from the primitive period to the present, and even through the signs of the present. In this context, the boundary constitutes an essential theoretical framework for tracing the transformation of Deleuzian nomadic space based on the datable social, cultural, and economic indicators in Table 1. Throughout this chapter, the metamorphosis of nomadic dispersion, starting from the representational traces of the primitive, settled period, the transition period, and capitalist flows and their actual results, is discussed and combined under four titles. Table 1, shaped by Deleuze and Guattari's articulated *striated* and *smooth* spaces, shows the ontological and physical transformation of Deleuze's concept of border, which is revealed together with everyday life practices.

Deleuze's *nomadology* raises, above all, a discussion of boundaries. His nomadic thought rejects any demarcation based on binary oppositions; distinctions such as black and white, inside and outside, center and periphery are seen as rigid boundaries that constrain the fluid nature of his immanent philosophy (Deleuze 1994: 152, 181). This approach serves as a guide for distinguishing the nomad's space. For Deleuze, potential space cannot be reduced to categories such as inside and outside - productive, coding, fixed, and oppositional - for space is not a unification but a rhizomatically expanding, multiple, and constantly transforming plane of form. This plane, which Deleuzian thought calls the Planomenon, proposes to consider space not merely as a physical space but as a field of relationality woven with flows, densities, and potentials. In this context, the nomad's space is multiple and heterogeneous, rather than homogenized through the dialectics of internal and external orthogonal thought (Deleuze and Guattari 1980: 35).

Pure nomadism represents the most primitive form of nomadism and refers to the most mobile lifestyle. Pre-state colonies were attuned to the inherent rhythms of nature, so they disliked fixed settlements and did not demarcate territory with formal boundaries. The spatial motivation of these societies, which can be characterized as hunter-gatherers, is based on movement and connections rather than a feature based on the subject-object distinction that creates stasis. For example, the space of these communities' functions as an adaptation area that changes depending on environmental conditions such as hunting trails, seasonal cycles, and natural resources, rather than a closed area surrounded by fixed boundaries. In Deleuzian thought, this field points to a creative field with evolutionary indicators that constantly differentiate and seek new formations, rather than a search for balance that aims to develop adaptation to a region. In other words, the pure nomad does not pursue motivations that would eventually lead to a sedentary life. Instead of a nomadic understanding of agriculture or pastoralism, their everyday motivations are directed towards accessing water and basic food resources, and reproductive instincts that respond to the primitive axiomatics of the nomad (Deleuze 1968: 182; Deleuze and Guattari 1987).

Deleuzian thought deepens the concept of pure space, an achievement of smooth space, particularly by linking it to Aloïs Riegl and Henri Bergson's concept of haptic. Through this concept, Deleuze proposes an integrated approach to sensory perception and the production of space. Deleuze emphasizes that in Bacon's paintings, the boundaries between vision and touch blur, transforming into another plane of perception. The intensity of the paintings is so intense that the viewer comes into physical contact with the painting through the density of the paint strokes, texture, and color. Thus, the haptic space becomes a plane that absorbs all the intensities and forces of the viewer. This relates to a sensory, sensation, *and directional* acquisition rather than an optical representation (Deleuze 1981: 98-104).

The relationship between hunter-gatherer communities, which represent the pure nomadism of Deleuzian thought, and "space" (in the context of smooth space) is, by its very nature, "directional," given its rejection of staticity and its sensory-based content. Instead of a central spatiality that creates boundaries and perspectives through the sense of sight, an experiential model that produces interactive spaces with surfaces and activates this aspect through touch is essential. According to Deleuze and Guattari, intimacy in this area is defined by an intensity in which sight and touch are inseparable (Deleuze and Guattari 1980: 493). For hunter-gatherers, this intensity is a structure that moves, touches, and creates difference within, as opposed to a visual mappingFor example, a forager tracking its prey not only uses its eyes but also physical and tactile cues such as wind direction, the sound of water, the texture of the soil, the smell of the air, and the movement of plants. Thus, as a representation of primitive hunter-gatherer societies, the life indicators of pure nomadism are imbued with a tactile quality that indicates physical involvement (Ibid.; Deleuze 2003: 34). Instead of a central spatiality that creates boundaries and perspectives through the sense of sight, an experiential model that produces interactive spaces with surfaces, and in which this aspect is activated through touch, is essential. According to Deleuze and Guattari, intimacy in this area is defined by an intensity in which sight and touch are inseparable (Deleuze and Guattari 1980: 493). For hunter-gatherers, this intensity is a structure that moves, touches, and creates difference within, unlike a visual mapping. For example, a forager tracking its prey uses its eyes and physical and tactile cues such as wind direction, the sound of water, the texture of the soil, the smell of the air, and the movement of plants. Thus, as a representation of primitive hunter-gatherer societies, the life indicators of pure nomadism are imbued with a tactile quality that indicates physical involvement (Ibid.; Deleuze 2003: 34).

On the other hand, the transition from the nomadic primitive era to agriculture, which bears the first signs of settled life, coincides with the period in human history known as the Neolithic Revolution. During this period, a complex social structure gradually emerged based on indicators such as population growth, social differentiation, climate change, and animal domestication. To meet the increasing food and animal needs, primarily due to the growing population, nomadic culture paved the way for the transition to settled life and the change of social economy and daily life practices in this direction (Bellwood, 2022). The transition to an agrarian society, from a Deleuzian perspective, marks the emergence of a spatial coding that dissolves lines of flight. While the hunter-gatherer era grounded mobility in a sensory and relational (haptic) existence, agricultural society is founded on a central understanding and sedentarization that stabilizes the land. During this period, agriculture requires the time (process) and energy of sedentarization to increase soil fertility. Consequently, the inherent nature of pure nomadism, which rejects fixity, transforms in this period.

Deleuze's thought depicts the transition from hunter-gatherer to agricultural society as "a field of land-sharing and property-based organization" (Deleuze and Guattari 1987: 440). During this period, fences and boundaries represent the earliest concrete indicators of delimited space. Fences become the boundary lines that define the property area of the land. Hierarchy becomes increasingly entrenched, and the power and prestige differential between landowners and the working class widens. Permanent villages, which emerged with the spread of agriculture, deepened the concept of property and hierarchical classification based on the social division of labor. Thus, the early forms of the state, the hierarchical space that emerged from the striped state structure, were obtained. According to Deleuze and Guattari (1980: 441), the state first divides the land with fences and then concretizes its superiority by coding this division. In this process, the ontological nature of space has ceased to be a field of formation and has become a fixed object of control and identity. With the emergence of borders, tactile indicators were replaced by optical displays. Space now refers to a visible, measurable, controllable plane (Deleuze and Guattari 1980; Deleuze 2003: 99).

Thus, the striped space became a plane where production relations operated; the state apparatus under empires and modern nation-state models developed new policies to legitimise this plane. During this period, colonial movements, which heralded the first forms of nomadism, ushered in a new era dominated by system models such as Ancient Mesopotamia, Egypt, and the Roman Empire. During this period, which can be described as the pre-capitalist transition, the state apparatus shapes the axiomatic social policies subject to land ownership and tax systems (Sahlins, 1972: 1-39). All forms of colonial movements, which marked the earliest forms of nomadism in this period and were characterized as "investments of abundance," were perceived as threats. Nomads, in turn, were associated with "barbarians." These threats were either suppressed or simulated by states. In addition, sections such as the Scythians, Huns, and Avars continued to organize as rhizomatic war machines against the state apparatus and functioned as machines that resisted the central orthodoxy (Deleuze and Guattari 1987: 351-360).

In the Middle Ages, the relationship between dispersed and seamless becomes quite complex. Land is divided by lords and the church, while serfs are encoded within a specific space within the context of speech. Nomads, on the other hand, constantly disturb the world around them by moving throughout a country. The Mongol movement, in particular, represents an important historical figure because it grew widely across the continent in a nomadic order, unlike traditional state structures. The Mongol movement began in the early 13th century under the leadership of Genghis Khan, carried characteristics reflecting all the small but resilient manifestations of nomadism, and over time became one of the most critical land empires in history. The Empire of Genghis Khan is significant not only for its military successes but also for its flexible governance, its dominance of trade routes, particularly through its control of the Silk Road, and its multicultural character. According to Deleuze and Guattari (1987), this deep-rooted, self-organized nomadic enterprise of the Mongols represents one of the clearest examples of how a minor movement can transform into a global power. Unlike the bounded territory of the state, the Mongol invasion transformed itself into a war machine, creating a *smooth* space (Akşit 2023).

The Renaissance and early modern period, as well as the rise of capitalism, directly impacted nomadic practices. While the emergence of early forms of capitalism, the drawing of boundaries based on cartography, reinforced striated space, the recent history of modern state structures that viewed nomadism as an element of invasion led to the gradual transformation of smooth space into a bureaucratic threat. The discovery of well-organized areas inhabited by indigenous peoples during intercontinental voyages by European sailors led European states to reorganize their accumulation and profit policies regarding the striped areas. This unilateral commensal ecology, which Deleuze and Guattari define as “axiomatization” and which is directed toward the localization of the state, has led to states seeking to control the unlimited expansion of regular space (Deleuze and Guattari 1980: 453-454).

During this period, the suppression and control of nomadism led to the marginalization of groups such as the Roma, itinerant traders, and pastoral communities by settled societies, causing social division, particularly in Europe. As a result, the relatively free nomadic axioms of the Middle Ages transformed during this period due to enclosure movements and colonial expansion in Europe; nomadic communities were either assimilated or subjected to social marginalization (Lindner 2000). According to Braudel (1979: 401-432), whose texts on history greatly influenced Deleuze, capitalism sees nomadism as a threat. He defines nomadism as a kind of "externality" that resists the processes of commercial activity and capital accumulation in limited space.

The early modern period corresponds to when port cities such as Amsterdam, Venice, and Lisbon spread through trade channels and the first indicators of the megacity concept emerged. In this context, the concepts of mega- or hyper-city, associated with transit areas such as airports or shopping malls today, found their counterparts in Renaissance and early modern Venice as seamless spaces where nomads, travelers, artists, and even pirates interacted through market and port trade. These areas function as hyper-spatial nodes where capital flows circulate within striated spaces. According to Lefebvre (1974: 68-85), these cities are early examples of capitalist space, and the form of nomadism constantly renews these spaces. French anthropologist Augé (1992: 75-78) associates these spaces, such as port cities and market areas, with the concept of *non-places* (Figure 14) (Augé, 1992; Deleuze and Guattari, 1980).

Figure 14: Veduta of Venice Engraving (Jacopo de' Barbari 1500)

When Deleuze and Guattari's concepts of nomadism are considered together, it is possible to characterize nomadism in this period as, on the one hand, an opportunity to discover the defective aspects of the capital regime, and, on the other hand, a period of loss from a sociological perspective (Deleuze and Guattari 1987). During this period, the minor axioms of nomadism exhibited instances of rhizomatic resistance to capitalist domination through a series of piracy forms that pointed to Roma, Mapuche, and other alternative nomadic communities (Linebaugh and Rediker 2000: 162-173). During the Renaissance, nomads living in coastal cities where market and port trade were intense sought space in stations under the influence of the Industrial Revolution. However, over time, they struggled to survive under the influence of the modernist grid plan. In the 20th century, mega-city plans such as New York, Chicago, and Tokyo faded with the increasing momentum of the nomadic nature of the divided space within the capitalist interior (Deleuze and Guattari 1980: 453-454). Gridal organization, as can be clearly traced through Le Corbusier's ideal of the radiant city (Ville Radieuse), dislikes the nomad in motion. In this context, nomads who seek a place for themselves among highways, shopping and commercial centers, and skyscrapers either live as street gangs in the suburbs of the city or hide in the deformed gaps of the striped space, as in the example of Grand Central Terminal in New York (Davis 1990: 221-263; Augé 1992: 94-103).

Trends of the 21st century have taken nomadism to a whole new dimension. Megacities such as Tokyo, Shanghai, and Dubai are the cities where globalization and digital technologies are most intensely experienced. Digital networks and financial flows continue to exist as new nomadic identities within striped spaces. (Deleuze and Guattari 1980: 474). Considering the technological change in the first period of the 21st century, the traditional nomad, who had an ontological relationship with the rural Bedouin, has created a digital nomad, completely distant from this relationality, and does not need physical mobility. Here, the flow is no longer hierarchical but occurs through communication tools connected to each other by horizontal and rhizomatic networks. Deleuze and Guattari (1980: 12-21) state that network-based nomadism contradicts capitalism. For example, the digital nomad escapes the hierarchical discipline of the corporate office while simultaneously becoming part of a much larger global workflow. This movement, which moves the time-space of capitalism to another plane, brings forward a different lifestyle for the near future (Harvey 1989: 284-307).

On the other hand, today it is becoming difficult for traditional nomads to maintain their existence in the striped space, and thus the striped space creates its own nomadic representation. These communities have difficulty carrying out their daily practices due to global threats such as drought and pasture loss, capitalist policies based on the nation-state structure, and their inability to adapt to developing technology. For example, while the Tuareg community in the Sahara maintains its presence via camel caravans along trade routes, this practice is ineffective in modern logistics. The reindeer-herding Sami people of Northern Europe and Siberia are increasingly assimilated due to factors related to global climate change (Bellwood 2022).

Nomadic shepherds, who are the most effective representatives of traditional nomadism today and live a life based on animal husbandry, continue their existence effectively in the plateaus, mountains, hills, and forest areas, despite the threat of severe winter conditions (dzud) to their lives. Today, approximately 800,000 Mongolians live as nomads, making up approximately 25% of the population (Humphrey and Sneath 1999: 45-67; National Statistics Office of Mongolia 2023). Throughout history, Mongolian nomads have maintained their identity as a war machine and remained in a difficult position by creating escape routes against the changing dynamics of the age and the state apparatus.

2.3.1 Nomadic Echoes: Tents, Territories, and Assemblages

Throughout history, nomads' spatial shelter, survival, and life practices have been shaped primarily by environmental, cultural, and economic conditions. A pure nomad's homeland can be any place he has developed adaptations. This harmony, from an Aristotelian perspective, is the pursuit of the good life (*eudaimonia*) by a political animal; from a Spinozist perspective, it is the struggle for survival (*conatus*); or, from a more contemporary perspective, it is Foucault's alternative positioning between power and resistance relations and the creation of one's own heterotopias (Foucault, 1975; Şerif, 2014; LeBuffe, 2016). On the other hand, Deleuze's literature deals with the mobility and fluidity born in the nomad's survival process and the creative axiomatics that emerge with natural conditions to act outside hierarchical systems and norms. From this perspective, the metamorphosis of nomadic space under harsh conditions throughout history constitutes an essential framework for questioning the transformation of spaces today or the recent period.

Table 2: A Historical Overview of Nomads' Survival and Shelter Strategies (Compiled by the Author 2025)

Period	Time	Spatial Housing Form / Survival Strategies	Deleuzian Inference
Palaeolithic era	2.5 million BC - 10,000 BC	Natural shelters (caves, rock outcrops), hunting and gathering (climatic adaptation, wild animals). Example: Lascaux Caves (France). Location: hills, plains.	No static, no center; there is a trace (pure nomad).
Mesolithic era	10,000 BC–5,000 BC	Light shelters (skins or branches), use of primitive tools. Hunting, fishing, gathering. Example: Coastal nomads in Northern Europe. Location: river/sea coasts, sea coasts.	
Neolithic era	5000 BC–3000 BC	Temporary shelters (animal skins, branches), semi-nomadic herding (the beginning of domestication), gathering, the first attempts at agriculture. Location: highlands and plains.	Nomadic formations, transition to animal husbandry in flat areas. Example: Proto-nomads in Central Asia.
Bronze age	3000 BC–1200 BC	Portable tents (felt, leather), nomadic animal husbandry (sheep, goats, horses), the beginning of trade. Location: steppes and pastures.	Steppe plants develop, tents become portable. Example: Yamnaya culture
Iron era	3000 BC–500 BC	Felt tents (yurt-like structures), nomadic herding, warfare, early trade networks. Location: plains, highlands.	Horse-riding nomadic cultures grow stronger. Example: Scythians

Table 2 Cont.

Ancient Period	500 BC - 500 A.D.	Developed tents (yurt, ger), animal husbandry, plundering. Location: steppes, deserts, seashores.	Interaction with states increases. Examples: Huns (Central Asia), Bedouins (Arabian Peninsula).
Middle Ages	A.D. 500– A.D. 1500	Felt and fabric tents (ger, black tent), pastoral animal husbandry, trade (caravan routes), conquest (war machine). Location: highlands, steppes.	Nomadic empires rise. Examples: Mongols (Genghis Khan), Turkmen (Anatolia).
Early Modern Period	A.D. 1500 A.D. 1800	Portable tents (black tents, yurts), animal husbandry, trade, semi-sedentary agriculture. Location: highlands, plains.	States control nomads. Example: Yörük tribes (Anatolia), Roma people (Europe).
Modern Era (industrial)	A.D. 1800- A.D. 1950	Traditional tents (declining use), animal husbandry, temporary jobs, integration with tourism. Location: temporary camps.	Urbanization accumulates nomadic life. Example: Mongolian herders, Maasai (Africa).
Twenty-First Century	A.D. 1950– present	Traditional tents (ger, yurt), caravans, boats, temporary spaces for digital nomads. Animal husbandry, fishing, digital work (network-based nomadism), tourism.	Traditional and modern nomads merge. Examples: Mongols (steppe), Bajau (Asia), digital nomads (global).

The spatial shelter form of the nomad shows a wide range of evolution, from primitive prehistoric shelters to tents, and from tents to hybrid spaces. Table 2 presents indicators that reveal the spatial shelter and daily life practices of nomads throughout history from a Deleuzian perspective. In creating the table, French historian Braudel's *longue durée theory* and Bergson's concepts of duration (*dureé) were employed, which provide the general framework for* Deleuze's ideas on history. In this context, Braudel's historical readings, which consider political indicators and the defining characteristics of geography, and Bergson's model-method, which proposes thinking about the past, present, and future in an articulated manner, have been decisive in the fragmentation of the table. In this context, the inferences obtained in the table should be interpreted as representing Deleuzian virtual spaces for exploring potential, not the static history pattern represented by numbers. For example, Neolithic *middens* are not just archaeological findings; they point to an actuality that has potential and is open to transformation in the future. Traces are ready for creative connections as representations of becoming (Figure 15).

Figure 15: Aboriginal midden, northwest Tasmania (copyright: Department of Natural Resources and Environment Tasmania) (*left*), Illustration created by artificial intelligence with the words rhizomatic, space, path, and natural (*right*) (rerendererai 2025)

On the other hand, in the prehistoric period, when nomadic mobility outweighed settled life, agriculture had not yet developed, and the struggle for survival, based on hunter-gatherer characteristics, was limited to natural shelters such as caves and rock outcrops, the most primitive form of physical space. The nomad's space represents a kind of resource map rather than a fixed geography. Nomadic constantly updates this area and aims to adapt to environmental conditions with this update. The migration routes of game animals, climatic conditions, and the presence of water resources determine the production route of that place. In this period, humans can survive wherever they can create ideal conditions in a symbiotic relationship with nature. There is no settled construction here; caves or tree holes serve as natural shelters. According to recorded evidence from archaeologists and historians, sites such as Lascaux and Altamira in Europe, the Rift Valley in Africa, and the Siberian steppe in Asia indicate early spatial traces of nomadic communities adapting to climatic conditions. When viewed through today's digital techniques, these traces hold potential. Instead of architectural indicators pointing to a fixed or centralized order, there are living modules (hubs) represented by the coming together of stains to form a kind of structure (Figure 16) (Faegre 1979).

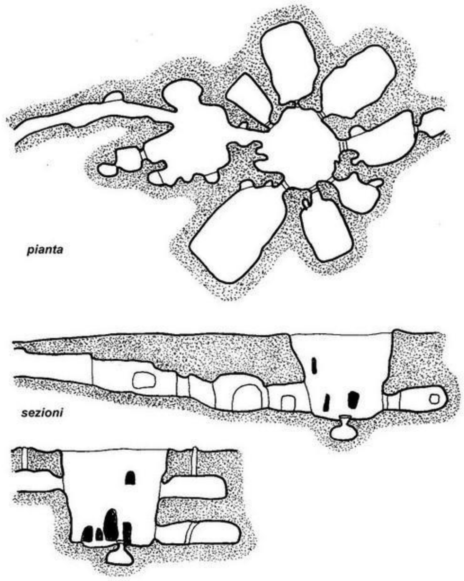


Figure 16: Matmata, Located Between the East Coast and the Desert Region of Southern Tunisia (Pangea Project 2025)

As a habit inherited from the Paleolithic Age, nomadic hunter-gatherers in the Mesolithic Age continued to use natural caves and rock ledges as shelters. However, with the retreat of the glaciers during this period, access to water resources led nomads who wanted to benefit from fishing and aquaculture to establish settlements close to water sources. Thus, nomads who turned to hunting and fishing produced light shelters made of leather or branches on these coasts, along with the first examples of simple tools. Today's best-preserved indicators include Star Carr in England, Mount Sandel in Northern Ireland, Lepenski Vir on the banks of the Danube, and the coastal settlement of Vedbæk in Denmark (Tremmel 2023).

With the transition to settled life in the Neolithic Age, nomadism moved away from the lifestyle of the Paleolithic period. The concept of semi-nomadic (*proto-nomadic*) emerged with the emergence of settled lifestyles and the beginning of agriculture, especially in regions that constitute the most crucial settlement areas in human history, such as Mesopotamia (*Fertile Crescent*) and Çatalhöyük in Anatolia. In this context, those who exhibit semi-nomadic characteristics in fertile plains, valleys, and areas suitable for agriculture act as representatives of early escape routes expressing striped areas from a Deleuzian perspective (Hatton 1970).

Along with the Bronze and Iron Ages, nomadism corresponds to a period in which social and technological evolution was observed more sharply than in earlier periods. During this period, the invention of technological tools such as bronze, iron, weapons, wheels, and horse domestication changed the entire dynamics of nomadic life. As a result, the field of movement of nomadic space expanded, and nomadic axiomatics sought a place for itself in a creative identity that produces and transforms, moving away from the destructive traces of the early period. The nomads' space initially meant the pastures and plateaus where herds determined their routes. Still, it expanded beyond the steppe to other settled civilizations' trade routes and borders. Therefore, nomadism sought its existence in forms shaped by both social relations and climatic conditions (Faegre 1979).

Nomads who practiced pastoral daily life in the Bronze and Iron Ages developed portable shelters. Although reaching the original remains of pre-ancient tents made of skin, bone, and branches is impossible due to their organic matter content, allowing their decay and disintegration, ethnographic examples and archaeological findings provide insight into ancient nomadic tents. These shelters, which do not have complex indicators, are particularly remarkable regarding their installation tectonics. Although it is difficult to obtain definitive information about the oldest type of tent used in history, apart from the 40,000-year-old tent found within the borders of present-day Moldova, teepee tents used by some Native American communities (*Lakota*, *Cheyenne*) in North America are the most common example of tents from that period. The tent frame is usually made by combining long and sturdy branches obtained from pine or cedar trees in a conical geometry. This conical structure is generally covered with bison or deer skins, and stones or bones anchor the tent to the ground. Simple, easily removable connections, suited to the nomadic lifestyle, are noteworthy. A fire is lit in the center for heating and cooking, while a smoke hole is left at the top to serve as a chimney (Figure 17) (Laubin 1968).

Figure 17: Teepee Sketch Drawing (*left*); A Shoshoni (American Indian) Around a Teepee (*right*) (Ocran 2017; loc.gov 2025)

The tipis are compared to the Yarangas in Siberia because they have tectonically similar indicators. However, yarangas have a more complex and layered structure. Yarangas are a traditional type of tent used by nomadic communities in northeastern Siberia. Dating back to prehistoric times, this structure stands out for its practicality and durability despite the harsh Arctic conditions. It typically consists of a conical frame of long, flexible wood or brushwood. Poles are attached to this framework, creating a solid foundation. The surface is mainly covered with reindeer hide and branches. Yarangas have two layers: an outer layer to block wind and snow, and an inner layer called a polog, used primarily for sleeping and warmth. Like tipi tents, the area has a central fireplace, or often an oil lamp. Smoke is vented through an opening at the top. The polog inside the shelter can withstand Arctic temperatures as low as -50 degrees Celsius (Figure 18) (Collis 1990).

Figure 18: Traditional Siberian Yarangas (artsection.org 2025)

Yarangas are noteworthy for questioning the border resonance of the "striped space" and "nomadic space" that Deleuze and Guattari point out in A Thousand Plateaus as a representation of a minor formation. Although the striped space monopolizes all kinds of pure potential and power, it is insufficient to demonstrate adaptation and/or adjustment to the climate conditions. In particular, stability and control, which can be considered prerequisites for development, conflict with the harsh conditions of natural life. In these regions, the environment forces individuals to be constantly on the move; therefore, linear models of stability and control cannot develop a response to this order. In this context, these regions become the border points of a demarcated area. Therefore, in today's world, where global climate crises have become so severe, the fact that nomadic communities like the Yakut, Chukchi, and Koryak still live in these regions points to one of the most concrete examples of how nomadism, rather than sedentarism, can respond to all kinds of inherent parallels in nature (Figure 19) (Collis 1990; Deleuze and Guattari1980).

Figure 19: Installation Process and Life Cycle of 'Yaranga' (worldhistory.biz 2025)

In ancient times, tents, popularly called *yurts*, were used by the Scythians, Huns, and other proto-Turkic/Mongol nomads, especially in Central Asia. Although the name *yurt* has different names depending on the period and society, it can be evaluated in the same category due to its archetypal features. For example, while Greek sources mention "felt houses" for this type of tent, Chinese sources refer to the Huns' "circular felt shelters" and/or "Ordo" for those for military purposes, a similar type of tent. "Ger" in Mongolian, "Kibitka" and "Akhoy" for the Kyrgyz and Kazakhs, "Öy" and "Otagh" for the Gokturks and other proto-Turkic communities, "Kher" for the nomadic communities living in Siberia, "Topak House" for the Kyrgyz and some Yörüks living in Anatolia, all have similar tectonics. On the other hand, some Western historians, such as Herodotus, generalized it using the term "Felt Tent" (Figure 20) (King 2002).

Figure 20: Traditional Mongolian Yurt (*Ger*) (discovermongolia.mn 2025)

With improved indicators, the modern version of this tent type is still used in a vast geography extending to regions such as Kazakhstan, Mongolia, Turkmenistan, and Kyrgyzstan (Zhong, 2024). A circular form was chosen to increase wind resistance and ensure even interior space distribution. The skeletal system, particularly in Mongolian (Ger) examples, consists of birch and willow rods, providing flexibility and portability. A central ring (tonoo), known by various names depending on cultural significance, connects the skeleton. Depending on the period and geographical conditions, the outer covering may be felt, leather, or, rarely, woven fabric. Felt, in particular, is preferred for its waterproofing and insulating properties. Because the roof has a sloping geometry, snow sheds easily. An opening, known by different names in different cultures, is left in the roof's center to allow smoke exhaust and natural light (Figure 21) (Prvanov 2019).

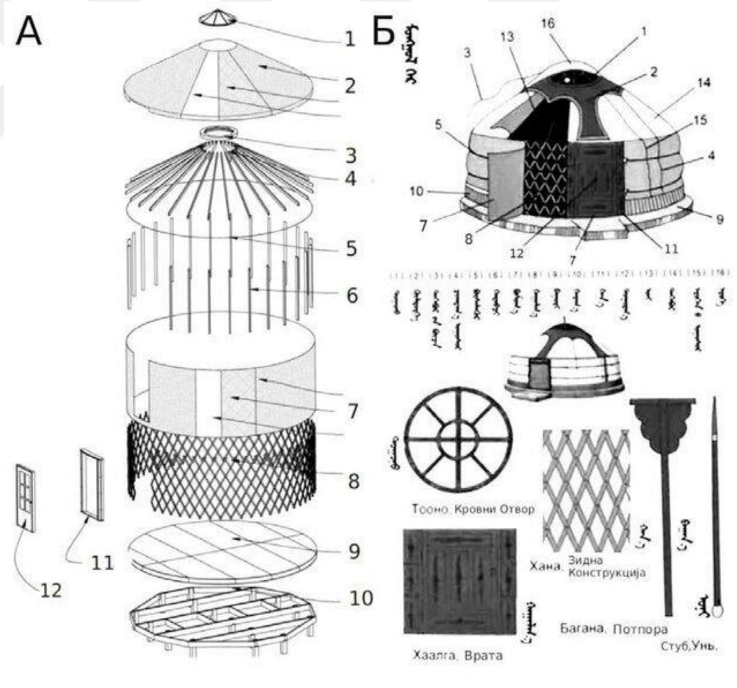


Figure 21: The Basic Components of a Traditional Mongolian Yurt (Siniša Prvanov 2017)

The Mongolian tent points to perhaps the most complex tectonics of nomadic space. From a Deleuzian perspective, the Mongolian tent's 2,500-year existence suggests that, rather than being a fixed entity or object (être), it exhibits a constant state of becoming (devenir-becoming). Although the tectonics of the striped space have changed throughout the ages, the fact that the Mongolian tent still maintains its typology can be attributed to the care and durability in design thinking. The fact that Genghis Khan's decentralized, adaptive, and radical military movements were met with nomadic life practices that constitute 25-30% of Mongolia's population of approximately 3.5 million today can be considered a clear indication of the self-sufficiency feature of smooth space (Deleuze and Guattari 1980; NSO 2020; World Bank 2025).

Another important shelter typology related to nomadic life is the *black tent*, which belongs to the Turkish and Central Asian steppe culture and whose history dates back to the Huns, Gokturks, then the Seljuks and Ottomans. Characterized by a black cloth woven from goat hair and simple wooden poles, traditional black tents are ideal for the Turkmen, some nomadic communities of Central Asia, and the *Yörüks* of Anatolia, who adapted to the steppe and plateau regions. Its tectonic design, based on minimal materials and rapid construction, is simple and functional, meeting the practical needs of nomadic life. Nomadic Bedouins also use this tectonic tent design in the Middle East and North Africa. This type of tent, which resembles the *Yörük* tent in shape, has fewer wings (Figure 22) (Hatton 1970).

Figure 22: Black Goat Hair Tent Belonging to the Sachikara Turkmen Tribe, Kahramanmaraş, Türkiye, 1980s. (*right*) Bedouin Tent (*left*) (theblacktentproject.com 2025)

Throughout history, the diversity of nomadic tents, characterized by socio-cultural customs, environmental adaptation, functionality, and portability, has been transformed by capitalism from being merely a place for nomads to a type of commodity by the striped space. In particular, the Industrial Revolution transformed tent production, which was previously handmade and based on local materials, into industrial and standardized commercial products. Inspired by nomadic tents based on wooden frames, flexible and durable metal frame tents began to be produced. The tectonics of tents built on metal skeletons made mass production possible, especially during the American Civil War. In later periods, capitalist tents produced from lightweight synthetic materials became a marketing object that could be used for camping, outdoor activities, and tourism (Hogue 2023).

The internal dynamics of capitalism and cyclical crises that occur occasionally have triggered the emergence of spatial inequalities and, therefore, temporary settlements. For example, during the Great Depression, which devastated industrialized countries in the 1930s, tent cities called *Hooverville* in the USA served as places of solution in times of crisis. These tent cities are concrete indicators of the social exclusion caused by the economic collapse. On the other hand, the economic and social inequality created by global capitalism persists today through refugee camp structures, of which Hooverville is a contemporary example. From a Deleuzian perspective, Hooverville, or refugee camps in their current marginalized form, is linked to the capitalist regime's desire to protect the individual from all dangers. System models create such temporary and reflective spaces to prevent potential cracks. Consequently, capitalist spaces, accustomed to striped spaces predominantly made of reinforced concrete, do not hesitate to take advantage of the possibilities of smooth spaces in times of crisis (Figure 23) (Chandler 1970; Deleuze and Guattari 1980).

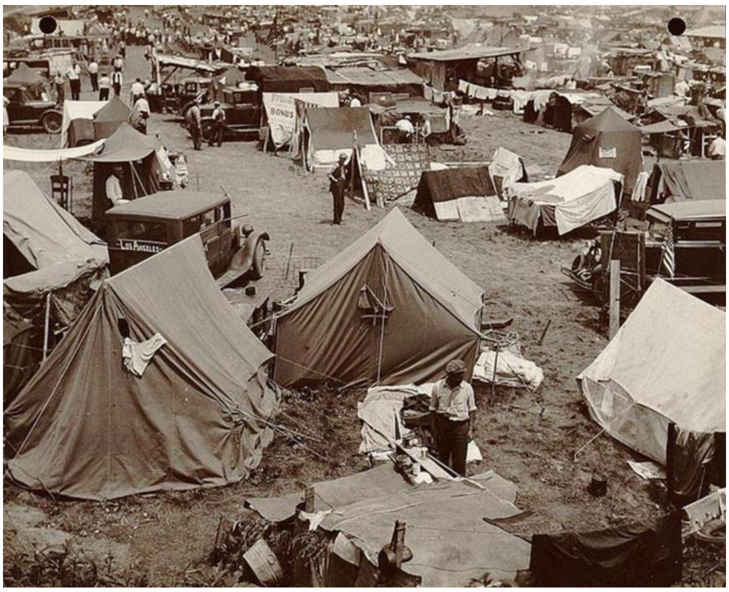


Figure 23: Depression Era - Tent Camps, ABD, 1930s. (mtfca.com 2025)

Meanwhile, with the recent influence of capitalism, tents have evolved beyond quick-setup tents into a standard, practical consumer product, appearing only in times of emergency or crisis. Thanks to advancements in construction and materials, tents have become a luxury market item, made from a variety of highly durable materials suitable for all seasons, particularly in glamping tourism. Safari tents, geodesic dome tents, yurts, bell tents, and similar complex tent types are often associated with traditional tents because of their physical similarities. Still, they differ significantly in their sociological, cultural, and historical context. Considering Deleuze's political approach, which reveals the minor cracks in capitalism and proposes affirming capitalism through these cracks, glamping tents can be seen as an attempt to reproduce the nomadism of capitalism. By redesigning the striped space with the technological possibilities of the tents in question, capitalism has transformed the minimal habits of traditional nomadic life into a kind of consumer commodity (Figure 24) (Deleuze and Guattari 1980; Colbert 2024).

Figure 24: A Glamping Site in Shanghai's Changing Island Countryside Park. (chinadaily.com 2024)

According to Lefebvre (1974), capitalism aims to reproduce space by considering the changing daily life practices on a social scale. According to him, while space within the capitalist regime tends to constantly change due to external factors, capitalist traditions, on the other hand, reshape space according to their own desires and continuously strive to homogenize it. The changing lifestyles, office and travel habits following the COVID-19 pandemic, along with the increasing popularity of caravans, tiny houses, and similar mobile homes, are all indicators of this quest for homogenization. The development of technology aims to transform the static, tectonically based, linear habits of capital space with temporary, dynamic, and functional tools. At this point, this transformation, which imitates the indicators of nomadic life, operates in a way that is different from the internal dynamics of pure nomadism. Considering the purely nomadic lifestyles of the gers in Mongolia, the Yörüks in Anatolia, or the communities in the north-east of Siberia who still live as representatives of small formations today, the parameters of this mobile life can be positioned as a simulation rather than as a space of nomadic representation. Individuals living in mobile vehicles continue their lives within the established habits of the striped space where infrastructure services such as electricity, water, and internet are provided under state control. In this context, the lifestyle that emerges in such mobile machines within the striped space is not merely a reflection of nomadism, but instead functions as a kind of comfort-seeking desire machine that imitates the nomad's abilities, such as freedom, mobility, and exploration (Lefebvre 1974: 68-85; Deleuze and Guattari 1980).

2.4 CHAPTER RESULTS

Deleuze's attempt to reveal the "virtual" potentials behind the "actual" was presented as a theoretical background in the previous chapter; this chapter revisits the production of space and the internal dynamics of capitalism. Accordingly, this chapter primarily examines problematic spaces and the production of potential spaces within the context of social organizations and social transformations, within the framework of Gilles Deleuze's intellectual theme.

The impact of capitalism on the production of space is evaluated through the processes of coding and decoding conceptualized by Deleuze. For Deleuze, capitalism is neither absolutely destructive nor entirely constructive; on the contrary, as a "schizophrenic machine," it is a system that both regulates and tends to disintegrate. In this context, the production of space is shaped through dynamic processes, including codes, connections, ruptures, flows, and reconstructions.

Throughout the chapter, situations or events are examined within Deleuze's approach to historical analysis. Influenced by Fernand Braudel, Deleuze approaches history through geography and spatial organization rather than a linear or solely event-centered understanding. Therefore, the conditions for the emergence of capitalism and its relationship to space production are evaluated within a historical and topographical context.

At this point, the following indicators are clear: the development of capitalism, the institutionalization of private property, the monopolization of military and economic power, and the dominance of the nation-state model have given rise to two distinct types of state models. One of these is repressive and authoritarian, where the state's representational space shapes the production of space and social organization. In this context, the processes of deterritorialization and recoding are evaluated alongside the concepts of the state "apparatus's war machine" and "apparatus of capture."

On the other hand, capitalism's inherent desire for constant expansion and growth can, over time, evolve into a level that threatens its own functioning. Deleuze argues that architecture is instrumentalized and commodified in various ways within the capitalist system. In this process, architecture becomes a tool for creating a “control society” with functions such as control, surveillance, fixation, and the passivation of the individual. This mechanism, operating through virtual networks, reinforces invisible forms of pressure on individuals, establishing a symbiotic collaboration between the state apparatus and capital. The two-way harm caused by this relationship has been demonstrated through environmental destruction, labor exploitation, and social injustice.

However, Deleuze argues that capitalism is not a one-way machine of destruction but also harbors alternative potentials. He argues that for these potentials to be unleashed, principal codes must be deciphered and replaced by a spatial policy capable of autonomous, local, and rhizomatic action. In this context, the historical transformation of economic, cultural, and topographical habits is examined, primarily revealing the spatial implications of hierarchy and sedentary living.

Within this framework, capitalist spatial production has reproduced itself, stretching from ancient Greece to today, particularly through closed and hierarchical models such as the "gridal system." Deleuze conceptualizes this structure as "striated space" and interprets it in terms of social codes. As detailed through the historical indicators and examples in this chapter, this structure is stabilizing and centralizing.

In contrast, potential transformation is in a "nomadic" movement. The nomadic subject exhibits a mode of existence that resists capitalist coding and enables new formations through lines of flight. Daily life practices and spatial production are shaped along these lines of flight. In this regard, the sustainable possibilities of nomadic life are revealed, particularly through Deleuze's concept of smooth (nomadic) space. The indicators clearly show that nomadism functions like a rhizomatic and self-organizing sustainable organism in every way. Within Deleuze's assemblage approach, nomadism's contribution to space production has been analyzed in multiple ways. In this direction, the sustainable production potentials of space have been explored through the use of tent covers, portable shelters, and nomadic movements, forming the basis of the tectonic discussion detailed in the following chapters. Thus, the resistance of temporary shelters such as tents to the capitalist flow and how they are transformed within this flow have been questioned.

CHAPTER III
A NEW PARADIGM: PARAMETRIC RHIZOME SPACES

The topographic traces vibrate with the horizontal desire of the waters flowing through the body of the mountains, and the nomadic space grows and grows in the multiplicity of these fluid lines, without holding on to a fixed essence. As Deleuze says, "A space is defined by the combination of intensities. As the waters shape the mountains, a becoming is created that has neither beginning nor end, only the rhythm of becoming. Sometimes the waters calm down, the mountains calm down, but the 'nomadic space' continues to metamorphose somewhere.

<u>The Problematic Framework: Why We Need a Design Strategy?</u>

Why was a design strategy needed? Whatever the name of a strategy, a method, or a route, the main motivation was to create a pragmatic and sustainable roadmap for other designers on a different plane from mainstream ideas or traditional habits. In Deleuzian terms, it was to produce an assemblage that represents difference.

Deleuze was neither a social theorist nor a strategist. He was purely a philosopher. He was unusually creative in his rereading of the history of philosophy, especially in his ability to create concepts. His collaboration with Guattari, Capitalism and Schizophrenia, is a study of bureaucratic strategies and the nomadic tactics that destabilize them. However, Deleuze and Guattari did not have sufficient time to develop a comprehensive social theory. Social theory was perhaps too tied to the dominant social order. What about strategy? From this perspective, the path taken by Deleuze and Guattari is important for creating or rethinking a social organization (Munro and Thanem, 2018: 69).

In the preface to the first book Deleuze and Guattari wrote together, Michel Foucault summarizes one of their fundamental principles as 'not to fall in love with power' (Foucault, Deleuze and Guattari, 1984: xvi). Mainstream habits aim to gain power and constantly sharpen this power. A Deleuzian approach, on the other hand, aims at a kind of minority politics. In Deleuzo-Guattarian terms, the desire to move away from power's insistence on codification ("*territorial*" in context) and the desire to de-territorialize points to the fundamental motivation of the minority (Deleuze et al., 1983: 13).

The politics of states, tied to mainstream habits over striated space, become problematic when considered against the actual statistical realities of today. By adopting a major policy in place of a minor one, these mainstream habits have allowed the flows of capital whose influence extends across all geographies to lay the ground for global catastrophes.

Table 3: Post-2020 Global Crises and Spatial Effects with Deleuzian Inference (Compiled by the Author 2025)

Event	Time	Crisis Zone & Spatial Effects	Rhizomatic Connection	Statistical Data	References
Hottest Year	2020-2025	Climate change, drought, water scarcity in cities, increased energy consumption, local ecological systems disruption, migration	Community-based energy solutions	Global temperature rose 1.1°C in 2023; Delhi's energy uses up 25%	NOAA (2023). State of the climate 2023
Sea Level Rise	2020-2025	Sea level rise, economic collapse, displacement, climate migration, loss of coastal cities	Water-adapted architecture, new settlement models	0.43-0.84 m rise projected by 2100; Miami flood damage $500M in 2019	IPCC (2019). Special report on the ocean and cryosphere. https://www.ipcc.ch/srocc/
Flood	2020-2025	Flood cycles, infrastructure damage, settlement destruction, social disruption	Resilient infrastructure, community-based risk management	Global flood damage $82B in 2021; Germany flood damage $5B	Munich Re (2022). Natural disaster review 2021. https://www.munichre.com/natcat-2021

Table 3 Cont.

Drought	2020-2025	Drought, food crisis, agricultural loss, rural abandonment, water stress, climate migration	Agro-ecological farming, local water sharing systems	180+ deaths (Munich Re 2022); Anatolia wheat production down 20%; California $3B loss	TUIK (2021); CDFA (nd)
Storms	2020-2025	Storms and hurricanes, building destruction, economic burden, energy collapse	Renewable energy, adaptive rebuilding	Hurricane damage $165B in the US	NOAA (2023). Hurricane season summary. https://www.noaa.gov/hurricanes
Inequalities	2020-2025	Income and education inequality, ghettoization, crime increase, poverty mobility loss	Community solidarity, alternative education models	65M slum population in India; 258M children out of school	UN-Habitat (2021); UNESCO (2023)
Migration	2020-2025	Displacement due to climate crisis and war, multicultural infrastructure collapse, cultural conflict	Culturally resilient urban planning	108M forcibly displaced in 2023; 1M Rohingya in Bangladesh	UNHCR (2023). Global trends 2023. https://www.unhcr.org/global-trends

Table 3 Cont.

Economic Problems		Unemployment, income inequality, poverty cycles, economic migration, social unrest	Local economy sharing models, societal resilience	Global unemployment 6.5% in 2020; Detroit population down 40%	ILO (2022); U.S. Census (2020)
Health Issues		Health access inequality, pandemic risks, disease, premature death	Universal health systems, community -based care	4.5B without health services; 10,000 cholera deaths in Haiti	WHO (2023); UNICEF (2021)

These global disasters include social, economic, and societal disasters as well as natural disasters. Deleuze avoids creating a chronological table or hierarchical system of relationships in his works. In his philosophy, time and dates are related as cyclical and virtual dimensions (or spaces) of events, as opposed to a linear chronological sequence. In this context, Table 3 was designed to obtain an inference based on the current situation, focusing on the significant crises of the post-2020 period and the Deleuzian intensities, breaking points, and relational transformations of these crises. This approach is based on his philosophy of rhizomatics and becoming.

Today, global warming is causing an increase in the 'heat island effect', especially in large cities. According to the Potsdam Institute for Climate Research, temperature increases not only increase air pollution and energy demand, but also overload infrastructure systems. This indirectly causes the depletion of water resources (Levermann et al. 2018). Statistical data show that 2024 will be the hottest year ever recorded. It is stated that the world's average surface temperature is approximately 1.4-1.5 °C higher than it was during the pre-industrial revolution period. Above-average temperatures were experienced periodically in the summer of 2024. This situation continues to accelerate in the first quarter of 2025, when this thesis was produced (climate.nasa.gov 2025). One of the main goals of the Paris Agreement, a global agreement to combat climate change supported by 191 countries, is to keep global surface temperatures within low limits. Accordingly, the goal is to keep the global average surface temperature well below 2°C, and preferably within 1.5°C. Exceeding the 1.5°C limit not only increases the severity and frequency of weather events but also accelerates biodiversity loss and causes millions of people to experience climate migration. In order to reduce the global average surface temperature to ideal levels, global greenhouse gas emissions must first be gradually reduced by approximately 45% by 2030 and then completely eliminated around 2050 (World Bank 2018).

According to IPPCE reports, while thermal expansion and glacial melting are the main drivers, the flow of terrestrial waters into the oceans and the dynamics of land glaciers point to dramatic increases in sea level by 2050 (IPCC Special Report on the Ocean and Cryosphere 2019). As a result of these threats, tragic consequences such as coastal erosion, floods, and threats to agricultural lands can be observed. Meanwhile, attention is being drawn to the risk of destroying the habitable areas of Jakarta and many island states due to ecosystem loss. According to the IPCC (Intergovernmental Panel on Climate Change), sea levels will rise approximately 23-24 cm compared to pre-industrial levels by the end of 2024. The main reason for this situation is the rapid melting of glaciers, especially in Greenland and Antarctica (Nature Communications 2021).

Another dramatic picture of the global climate crisis continues with floods and inundations (hurricanes, etc.). According to Munich RE (2022), flood disasters have shaken the world economy, causing devastating economic losses on a global scale. Global flood losses in 2021 amount to approximately $82 billion. As in Bangladesh, settlements with low economic income distribution have become uninhabitable. The 2020 Bangladesh hurricane affected 4.7 million people. Additionally, the 2017 Houston tornado caused $125 billion in damage, and the 2021 Germany tornado caused $40 billion in damage (Munich RE 2022; NOAA 2024).

According to 2023 reports, approximately 28% of the world's land areas were affected by drought due to the global climate crisis. This rate is around 30-35 percent in 2024. This rapid increase in drought in a single year points to widespread and dramatic long-term consequences (U.S. Drought Monitor 2024; Global Drought Information System 2024). According to the FAO statistical system, droughts over the last 30 years have caused an estimated 123 billion tonnes of losses in managed production. Droughts in the US state of California between 2011 and 2017 were found to have caused 3 billion tonnes of agricultural losses (California Dept. of Food and

Agriculture, [CDFA] 2025). In addition, this situation caused wheat production in Türkiye to decrease by 20% as of 2021, according to TÜİK (2022) data.

On the other hand, while the statistical data in question focuses on large-scale disasters, small-scale disasters are generally not reported. For example, according to the 'The Invisible Cost of Disasters (2023)' report, 99.7% of disasters that occurred between 1990 and 2013 were small-scale, most of which went unreported (UNDRR 2023). The frequency of heat waves, droughts, forest fires, and floods in the post-2023 period continues to increase. Heatwaves, droughts, the frequency of wildfires, and floods continue to accelerate in the period after 2023. Europe experienced an unprecedented number of floods in 2024. While monsoon rains were experienced in South Asia and forest fires in North America in the same year, drought increased in Southern Europe, South Africa, and North America in the first quarter of 2025.

The economic disasters that occur in parallel with the global climate crisis deeply affect the dynamics of social life. Considering the critical turning points of recent years, it is possible to create an assessment framework based on statistical data on the consequences of the 2008-2012 financial crisis, the 2020 COVID-19 pandemic, and the 2021-2023 energy crisis and inflation. The problematic framework of the current situation can be followed in Table 3.

The 2008 financial crisis, also known as the Great Recession, caused a sudden decline in real estate markets in the United States, leading to an increase in personal bankruptcies. From a Deleuzian perspective, the process in question emerges as a reflection of the internal dynamics and rhizomatic structure of the capital system rather than a mere financial collapse. This process, due to the nature of capital flows, initially experienced a period of stagnation, then led to the collapse of banks through a domino effect, and as a result, governments significantly increased their debts to save the economy (Deleuze and Guattari 1987; World Economic Outlook 2020).

The COVID-19 pandemic crisis experienced in 2020, following the crisis experienced between 2008 and 2012, is related to the fragile structure of capital economies. When evaluated from today's conjuncture, it is seen that the global economic crisis has triggered basic vital parameters such as unemployment and insecurity, increasing poverty and food insecurity on a social scale. According to the ILO (2022), more than 10 million unemployment claims were filed in the United States in 2020, with extreme poverty pushing an additional 88–115 million people into poverty for the second consecutive year in 2020. Meanwhile, according to the UN

World Food Programme (2022), the number of people experiencing acute food insecurity doubled from 2019 to 2022, reaching 250 million. Deleuze and Guattari (1987: 239) state the following: Capital decodes flows, only to reterritorialize them in its own image.

From a Deleuzian perspective, globally interconnected crises triggered in succession point to the tensions experienced in the process of capital's desire (machines) first moving beyond space (deterritorialization) and then re-entering space (reterritorialization). In this process, the striped spaces produced by capitalism through the coding of desire are first shaken by crises (Deleuze and Guattari 1987). For example, the emptying of offices and the emergence of seamless virtual spaces (remote working, nomadic work models) after the 2020 pandemic recession demonstrate the dissolution of desire. However, the space of capital comes into play again and manages to recode the individual through online programs such as Zoom and Teams. Alternatively, by expanding its logistics networks, such as Amazon and eBay, it penetrates lifestyles such as shopping and communication, thus regaining its hierarchical power (Gillen 2023).

Deleuze (1969) suggests the following: "Crises are not the collapse of a certain order, but the potential for new becomings. " For Deleuze, such crises offer society the opportunity to recognize its current conditions and respond more resiliently. These crises are not, in fact, the collapse of the existing order, but the potential for new developments. Because they enable rapid responses to errors that have long been accepted and static, the concept of the *pure event*, which they discuss particularly in *Logic of Sense* and *Difference and Repetition* to reveal the underlying pattern of crises, is a pragmatic one. The pure event concerns the characteristics of entities or objects that require transformation, rather than their static properties. Events, like crises, can recur with a certain rhythm and pattern. For example, the 2008 economic crisis and the 2020 pandemic crisis are interconnected in a pattern, as previously demonstrated by statistical data. However, the lessons learned from the previous crisis have been resolved, creating differences in the next crisis. The transformation of offices from physical to virtual spaces is one such transformation. Therefore, in every area experiencing a crisis, solutions create a definitive difference and innovation (Deleuze 1990; 1994).

The concept of recovery from global crises is also related to Deleuze's notion of chaos. *Chaosmos* refers to the fusion of chaos and the cosmos. While crises create chaotic disruptions, it is also possible for new formations to emerge from these disruptions. In other words, since the modern capitalist system is a traffic of decoding and recoding, global crises, on the one hand, repair the failing aspects of the system and, on the other hand, produce creative Deleuzian *Lines of Flight* (Figure 25). A Deleuzian perspective adopts micropolitics that target these lines of flight. This perspective aims to propose a more radical yet resilient approach to dealing with crises than traditional solutions, particularly in a post-neoliberal world. These lines of flight can be multilayered. For example, the digital economy that emerged after the 2008 financial crisis replaced centralized finance with a horizontal and radical network model. For another example, a sharp gap in overcoming a global threat like the climate crisis serves as a warning to all humanity. In this regard, the fact that governments (from 191 countries) came together to implement the Paris Agreement on land use indicates such a reaction (Deleuze and Guattari 1994).

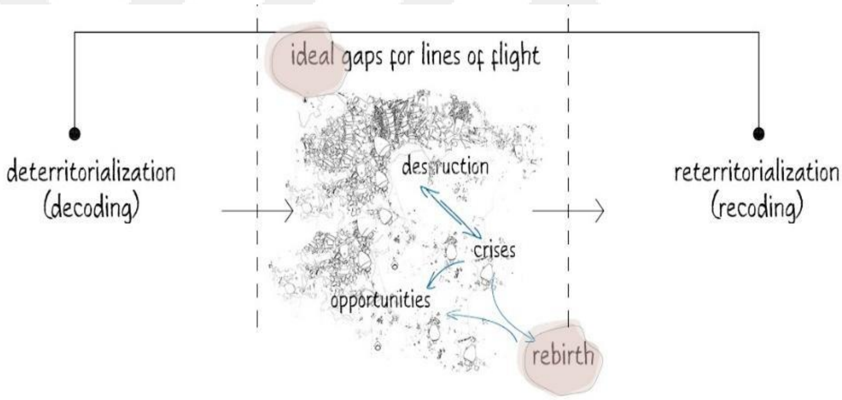


Figure 25: Opportunities Emerging and Deleuzian Line of Flight in the Flow of Decoding and Recoding of the Capital System (Created by the Author 2025)

Therefore, Deleuze's thought, which adopts deconstructive-critical approaches and the philosophy of becoming, suggests focusing on the realities of capitalism in order to analyze today's reality. The reality of the tired world, which is estimated to be approximately 4.54 billion years old today, is vulnerable to all kinds of global crises. From Deleuze's rhizomatic methods and policies, which suggest turning crises into opportunities, a strategic conclusion can be drawn regarding sustainable space production. In this context, there is a need for alternative policies and economic and spatial formations to the existing system models. Thus, instead of policies that focus only on the devastating consequences of global crises, sustainable beginnings can be created that focus on their new formation and transformation (Deleuzian *becoming* in the context).

3.1 FROM ROOTS TO RHIZOMES: THE CHAOSMOS OF DESIGN STRATEGY

The solution to the problematic framework lies in the problem itself. A kind of capitalism that creates schizophrenia, according to Deleuze's definition. As we searched for a path to strategy design, we realized that the issue was mainly about the dynamics of capital flows. Amidst the delusions and blurring of boundaries, capitalism was there as both a chaotic and creative force. This is neither a simple criticism nor a compliment to it. On the contrary, it is the beginning of discovering gaps and seeking creative improvements.

In the search for a sustainable design strategy that is guided by *Capitalism and Schizophrenia* and nourished by Deleuzian terminology, the determinant of the entire framework is 'capitalism'. In other words, the hidden subject of this study is capitalism. A thorough analysis of its flow codes points to the beginning of the matter.

Deleuze and Guattari draw attention to the schizophrenic nature of capitalism, describing it as both the creator and product of a chaotic and cosmic universe. According to this component, *chaosmos* is neither pure chaos nor a fixed cosmic order. Rather, it is seen as a dynamic field in which differences, flows, and creative formations are in constant interaction. Therefore, the concepts of difference, rhizome, deterritorialization, and deterritorialization can be used as a kind of dynamic generator that produces benefits beyond analyzing the schizophrenic nature of capitalism (Deleuze and Guattari 1987: 239-240).

In order for this generator to become a functional tool (an *abstract machine* in the context) against the dynamics of capital flows, the encompassing parameters of the universe set to which Deleuze and Guattari refer regarding the union of chaos and cosmos (*chaosmos* in this context) must be well-defined. In a scenario where capitalism is considered the hidden subject, the methodology and how other objects, concepts, sounds, etc., relate to each other need to be clearly defined. Only under such an inclusive model can it be possible to talk about the content of Deleuzian thought that praises participation and liberation (Ibid.).

In this context, the influence of traditional habits of thought of the Classical West (closed-loop system models (0-1); causality; tree-like diagrams) on design thinking will be discussed in the following sections of the study. However, before talking about the definition or method of a design strategy, it should be clarified that completely abandoning traditional thought patterns while creating a rhizomatic paradigm does not mean a sufficiently participatory and flexible approach. The motivation here concerns the reality in Deleuze’s thought of drawing nourishment from what sustains it, while avoiding what blocks its creativity as harmful (Yücefer 2021). For example, it seems possible to make numerous classifications regarding the ways in which designer thinking is triggered through classical Western thought. These can be classified by sensory relations, culture- and context-based research, limitations and participations of all kinds, international engineering methods, metaphorical or analogical thinking, empathy and user experience, and speculative thinking (utopian and dystopian theories) (Kelley and Kelley 2013). Therefore, given the multilayered nature of the capitalist regime and the inherent utilitarianism of pure nature, design thinking can be triggered by almost anything. Creating a design strategy subject to some form of conditioning here contradicts the methodology of design strategy and, from this perspective, seems illogical.

On the other hand, this design strategy, which focuses on the schizophrenic dynamics of capitalism, avoids leading to a kind of anarchy. The aim is not chaos, but to reveal the achievements of Deleuzian *Chaosmos*. In the construction of social organization, utilitarian approaches that point to participatory and minor policies are adopted. Here, the codes of capitalism are decoded, and a flexible structure is created that feeds on traditional habits, sees crises as opportunities, targets cracks, and thus constantly transforms and multiplies while diminishing. With the spatial production obtained through this channel, it proposes improvements that will benefit cities without disrupting the orthogonal habits of capital, and at the same time, offers a design practice integrated with topographic arrangements that capital somehow refuses to see.

Becoming-Structure: The Articulation of n-1

Creating a design strategy that would not contradict the hierarchy-rejecting nature of Deleuze's philosophy was both an easy and challenging endeavor. The habits of the classical West, which forced designers to think vertically and linearly, stuck with me for a while. The conservative habits have forced my mind to use a sequential model of relationships, such as n, n+1, n+2…, while creating the design strategy in question. However, Deleuze's thought pointed to a kind of solution of becoming and difference, far from this kind of mathematics. This method of thought served as a guide in overcoming this contradiction and framing this strategy.

Another crucial point was to proceed with the correct terminology for the design approach to be developed, as discussing a Deleuzian expansion, definitions like system, mechanism, model, or any other structural associations would lead us back to the closed-loop system models of the Classical West. Therefore, in order to be more creative and freer, we found it more accurate to speak of chaosmos, path, method, or strategy. Deleuze and Guattari (1980: 3) express it as follows:

> *''The rhizome is reducible neither to the One nor the multiple. It is not the One that becomes Two or even directly three, four, five, etc. It is not a multiple derived from the One, or to which One is added (n + 1). It is composed not of units but of dimensions, or rather directions in motion. It has neither beginning nor end, but always a middle (milieu) from which it grows and which it overspills. It constitutes linear multiplicities with n dimensions having neither subject nor object, which can be laid out on a plane of consistency, and from which the One is always subtracted (n - 1).''*

Deleuze and Guattari also discuss the rhizome metaphor together with the concept of 'n-1' in their work A Thousand Plateaus. It proposes a fluid, relational, and inclusive path, avoiding sequential, regular, and linear models that are added to each other. Here, first of all, 'n' represents a potential whole (in context: becoming) that is mobile in every situation. This whole is already resilient enough. It has a structure that constantly transforms and multiplies with inferences (*addition by subtraction*). At this point, if the Deleuzian strategic model is being targeted, each stage must be clearly articulated and creatively productive. This immanence must be open to all kinds of creative formations and Deleuzian lines of flight. In such a rhizomatic relational structure, 'n-1' can be adapted in many different ways (Deleuze and Guattari 1987: 21-22).

Deleuze's empiricism proposes to deal with the possibilities of actual (daily) life. For him, life is as much an ontological practice as it is a psychological healing. Instead of approaches that prioritize the welfare or happiness of the individual as the ultimate goal, approaches that propose revealing the multiple possibilities of life and the diversity arising from these possibilities are essential. This theme is expanded in Capitalism and Schizophrenia within the framework of the possibilities of the capitalist regime (in context: lines of flight leading to schizophrenia). Especially in the context of Capitalism and the production of space, capitalism itself is a powerful enough generator in Deleuze's thought (what emerges in Chapter 2 strongly supports this). Therefore, when such a design strategy is targeted, the capital regime itself represents a set of ‘n’ universes and each gain produced during the episode represents ‘n-1’ (Ibid).

The question of how such gains (in the sense of n–1) are to be achieved finds its depth through the articulated terminology of Deleuzian thought. On the plane where the capitalist regime constructs its ‘n’ universe, the wars, defeats, devastations, tensions, fragmentations, compressions, or ruptures that occur are regarded in his philosophy as opportunities as potential lines of flight.

3.1.1 A Rhizomatic Way: Thinking Difference via Analogy, Diagram, and Traces

Increasing and decreasing seem like a difficult equation, right? This brings to mind what Western science calls negative correlation. So how should the " lines of flight" of n-1 be constructed? There, just as the path guided by "difference and repetition" guides us, we must create new representations of "becoming" while achieving what is different, without falling into repetition; we must generate possibilities. Furthermore, while doing this, we must also remain current.

It is possible to argue that Deleuze's thought does not encourage analogical thinking, but rather critiques it by drawing conclusions from works like *What is Philosophy, Difference and Repetition*, and *The Logic of Sense.* Analogical thought can be generalized as a method of reasoning based on similarities between objects or ideas, especially in the Aristotelian habits of the classical West (Aristoteles 1995: 134). Deleuze's concern here is that trying to establish a similarity between two things is an obsession with unnecessary energy. Given his approach, which rejects Hegelian dialectics, there is a concern that concepts may fall into specific patterns by accepting any fixity as a reference point. Deleuze does not like to ignore the uniqueness of beings or events by squeezing everything into the framework of *samenes*s (Deleuze 1990: 40; 1994: 28-69).

The three thoughts intersect and interlink, but without synthesis or identification. With its concepts, philosophy brings forth events. Art raises percepts to the impalpable. Science invents the limits and possibilities that it pushes ever further. They are not united in a whole but connected in a heterogeneous assemblage (Deleuze and Guattari 1994: 199).

On the other hand, Deleuze does not deny the creative and transformative potential of visual, diagrammatic, or analogical expressions. He encourages us to consider analogy not for the purpose of making comparative inferences based on fundamental similarities, but for the purpose of producing *differences in itself*. At this point, he draws conclusions about analogical thinking, particularly when examining the relationship between art, philosophy, and science. He emphasizes that all these fields have their own functions (such as concepts, metaphors, sensations, and functions), but that an extremely free understanding must be adopted in order to establish creative relationships between these fields. For example, in his work *What is Philosophy? (1991),* he creates a framework to deepen human consciousness (self) through concepts such as time and space. In this process, a diagram is created that shows universal concepts, moving schemes, and internal relationships between interior and exterior spaces. This diagram helps the reader create a map or scheme in their mind by reducing abstract concepts into concrete form. Thus, the density of the text can be made much more understandable by visually depicting the relationship between the "internal form of time" and the "external form of space." Therefore, Deleuze's literature is open to relationships through a kind of *heterogeneous assemblage* based on infiltrations, oppositions, and convergences, especially on a plane where abstract relations gain depth (Figure 26).

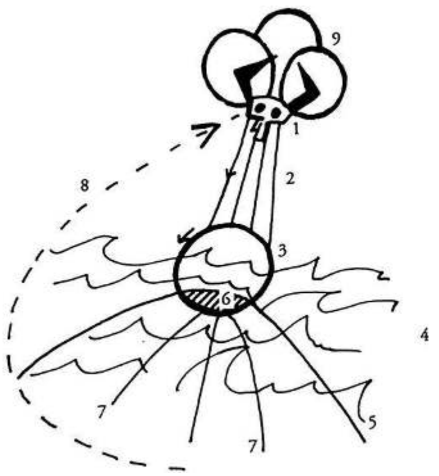


Figure 26: From Deleuze and Guattari's 'What is Philosophy?': A Machinic Portrait of Kant (1994: 56)

The work of the artist Ngui is exactly this kind of production. Ngui produced a series of illustrations as a way of understanding the creative but implicit concepts in Deleuze and Guattari's A Thousand Plateaus. Each drawing is labeled by chapter and paragraph. The resulting diagrams were further enriched by Brian Massumi, the English translator of A Thousand Plateaus (Figure 27) (Bumblenut Pictures 2013).

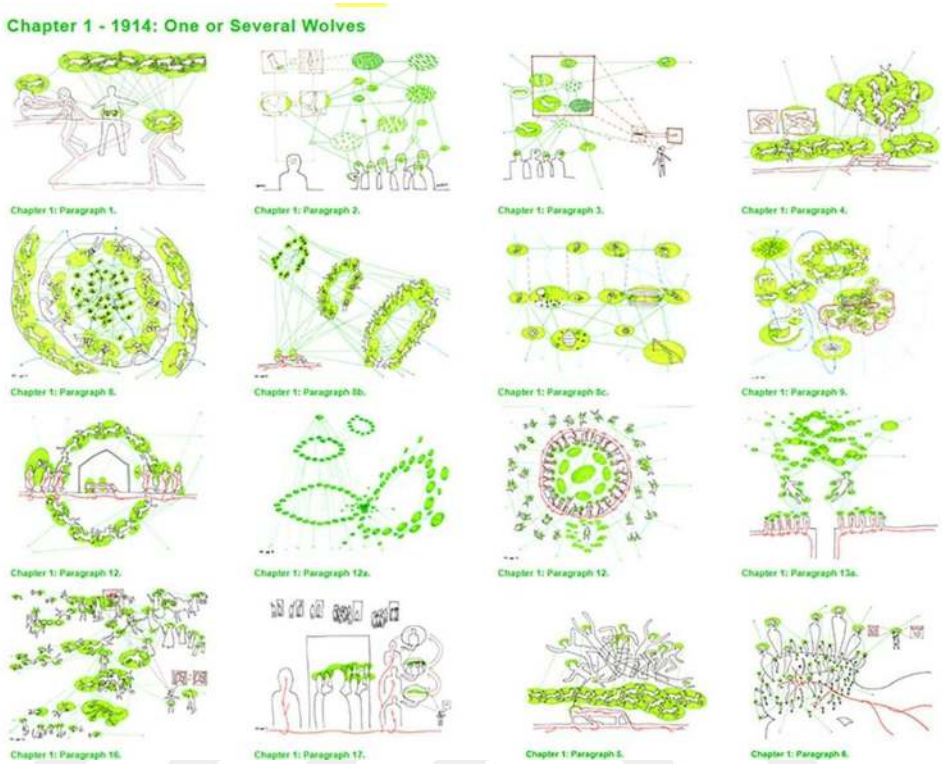


Figure 27: Bumblenut Pictures by Marc Ngui, Art Illustration, Thousand Plateaus (Ngui: 2006)

Ngui's diagrams present the fluid and multi-layered structure of the text with a subjective drawing style. Rhizomatic connections and mechanical mechanisms became clearly visible in his drawings. As may be remembered, Bacon's paintings offer a different narrative power by intertwining the acts of seeing and touching, and this approach creates the opportunity for the reader to question the tactile possibilities in the production of nomadic space. Similarly, Ngui's drawings, rather than being optical representations, imply a sensory and manipulative contemplation. Thus, a plane of immanence is created that defines the dynamic intensities and powers of the concepts (Deleuze 1981: 98-104).

In the following chapters of the study, the diagrams in question, their analogies, and such associations were not avoided in producing design strategies for the realization of sustainable spaces. On the contrary, it is used as a fundamental tool within today's digital techniques to understand, analyze, and support the participation of other researchers in the process.

Rhizomatic Traces: Mapping Digital Decalcomania

A machinic assemblage is an emergence that brings into play heterogeneous components: bodies, actions, passions, statements, and regimes of signs… What matters is the way they are composed and the effects they produce (Deleuze and Guattari 1987: 34).

According to Deleuze and Guattari (1987), the theory of assemblage aims to achieve a much more complex result than a simple technical assemblage (in context: a gathering of forces). The unity here encompasses technology, humans, and nature. Therefore, the discussion encompasses both the existing possibilities of technology and the immanence of nature. De Landa (2016) reinterprets this idea of conjunction, arguing that conjunction is a temporary and dynamic coming together of different components (people, places, objects, concepts, or capital flows of any kind, etc.). This is an extremely dense and heterogeneous assemblage. While the components retain their individual characteristics, they can also transform and acquire different abilities and properties within the composite. Therefore, the emergence of social benefits is desired. Productivity in this chapter refers to precisely such a collection of machines. It involves a kind of combination that seeks the utilitarian axiomatics of the individual, technology, concepts, and all other areas of capital in the construction of a sustainable and social organization. Therefore, it is necessary to explain what the parts of the design strategy that make up the assembly are and how they come together (Figure 28).

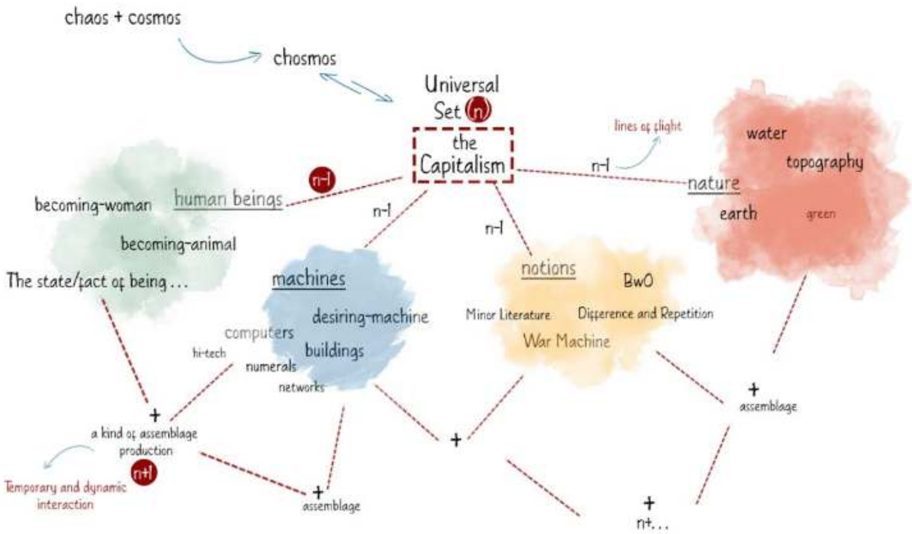


Figure 28: Network of Interaction Through Deleuze and Guattari's Theory of Assemblage Encompassing Technology, Human, and Nature: (‘n’: Capitalism [Universal Set]; ‘n-1’: Lines of Flight; ‘n+…’: Temporary and Dynamic Assemblages) (Created by the Author 2025)

Considering the theoretical approach of the Deleuzian ‘n’ flow dynamics, which includes potential multiplicities and infinite possibilities, put forward in the previous section (Ibid.: 21-22), capitalism carries the representation of an (n) generator. Here, "n" represents not a fixed set but a series of dynamic potentials. Considered as a kind of conjunction, "n" feeds off everything, coexists with everything, and transforms with everything. The flows of desire (*Flux de Désir*), the flows of capital (*Flux de Capital*), the smooth and striated spaces (*Espace Lisse et Strié*), the war machines and, conversely, the state apparatus (*Machine de Guerre et Appareil d’État*), and the gaps, ruptures, etc. that emerge between all of these, point to a truly heterogeneous organism. Both the ways in which these assemblages emerge (in context: n+1) and the cracks that emerge become lines of flight in his philosophy (in context: n-1) (Deleuze and Guattari 1987).

The role of the designer as a dynamic input into assemblages should also be discussed. The relationship between designer and machines is critical for achieving a sustainable and dynamic assemblage. This implication pushes the designer to search for what is current and, therefore, leads to a technological questioning. Technology is a nodal point where all kinds of heterogeneous elements, organic, social, and theoretical, come together to form new processes (Deleuze 1992: 3-7). As we move towards the end of the first quarter of the 21st century, digital techniques have become a critical tool in determining the speed, direction, and spread of capital flows. These digital infrastructures, which enable the fluidity of striated space by transcending the fixed boundaries of capital space, create a dynamism that enables both production and participation. Thus, the design process can cease to be a purely aesthetic effort and become a strategic action that directly intervenes in the internal movements of the capitalist system. Given the horizontal relational data models of our age, these actions can be easily organized through artificial intelligence, algorithms, data networks, automation systems, blockchain, cloud computing, and other data visualization techniques. Such software acts as a catalyst (in context: n-1s) that brings together and activates other components (designer cognition, intrinsic and extrinsic, etc.). Therefore, it is possible to talk about a symbiotic interaction that goes far beyond a hierarchical relationship in which the designer is merely a subject (Deleuze and Guattari 1987).

Another question that needs to be asked here is how such machinic possibilities can be used to create sustainable spaces, especially in this period when the digital revolution is at its peak. Andaloro (2024: 117) argues that today's designers need to re-evaluate all kinds of traditional habits to achieve a higher level of integration into societal and sustainable development strategies. Research over the last decade has shown that algorithmic design tools associated with existing internet network technologies or the rhizomatic analogy are suitable environments for developing intelligent solutions to the complex environmental problems of an increasingly globalized world (Buchanan 2009; Cavanagh 2007). In this context, as highlighted in the first part of the thesis, open-source software such as Grasshopper3D, Blender, Processing, Python, user communities, and horizontal possibilities, including code-sharing platforms, are important Deleuzian war machines.

The interaction between the qualitative gains of digital techniques and the designer's subjective abilities can turn into a multi-layered human-machine combination. The content of human origin naturally leads this process to a subjective gain. Here, instead of a fixed map and the template consumption objects produced from the traces of this map, a new layer of formation can be invented through the continuous manipulation of lines. While the hierarchical and predictable boundaries of capital space (striated space in the context) are dissolved by digital cartography, the fluid and heterogeneous potential of smooth space is revealed. Here, the lines behave like an infinite flight line or (n-1)'s rather than representing a starting or ending point. Lines are processed, folded, twisted, and reconnected through algorithms, data streams, and open-source tools. In this process, maps no longer record what exists. On the contrary, they produce what is not yet present but possible (in context: axiomatics of the virtual). Digital manipulation transforms cartography from an art of representation into a generator that produces difference. Through open-source codes, the tracking, access, manipulation, and sharing of digital lines become possible, whereby the fixed codes of striated space turn into nomadic axiomatics. Thus, cartography is no longer just a measured static spatial object, but becomes a concrete manifestation of a machine reinvented by human hands (Deleuze 1994).

In a strategic production based on design skills and digital achievements, the fluidity of digital data, unpredictable relationships, and multi-component connection models also lead to an ontological questioning. Digital techniques have the potential to transcend the two-dimensional plane through the manipulation of lines, to reveal the three-dimensional spaces of textures, and even to reveal the fourth dimension of time through (kinetic physics engines) tools. Lines do not simply slide across a surface, seeking variety; rather, they create height by producing layers of pattern composed of pixels with peaks and valleys. Such volumetric contemporary possibilities of digitalization make it possible to access Deleuzian haptic space in context. There, time is no longer an object that can be measured, but becomes a field of experience in which difference and multiplicity are inherent. Thus, design becomes a machine that constructs not only what is seen, but also what is felt and what has not yet been thought of (Figure 29) (Deleuze and Guattari 1987).

Figure 29: Capturing All the Spatial Dimensions of the Line Through Digital Techniques (pinterest.com 2025)

On the other hand, this flexibility in manipulating lines brings with it another liberation. Instead of a gridal understanding conditioned to drawing straight lines, relating plans and views, and orthogonal thinking, the option of utilizing all the possibilities of cartography has emerged. When lines are reduced to two-dimensional axes by flattening or UV mapping techniques, this no longer creates a loss but a kind of intensification. This is the folding of the rhizome onto itself and the instantaneous crystallization of the lines into a single layer. In other words, such an approach implies an act of re-creation rather than a representational trace. Thus, in Deleuze and Guattari's production of smooth space, lines are never limited by a fixed boundary; they contain spaces where horizontal expansions of multiple possibilities are concealed (Figure 30) (Deleuze and Guattari 1987).

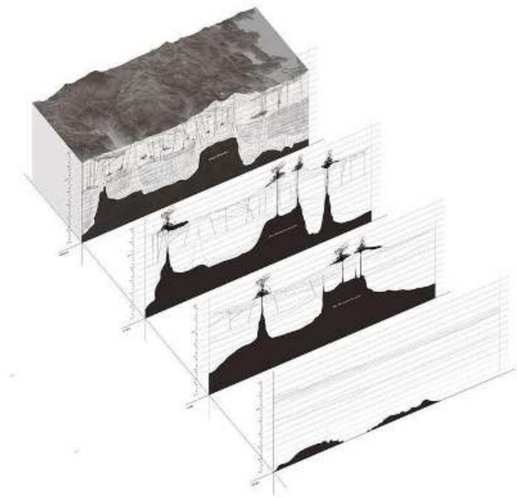


Figure 30: Transforming Densified Cartography into 2-Dimensional Representations with Digital Techniques (pinterest.com 2025)

Therefore, the instrumentalization of digitalization as a design generator for architecture can enable the creation of a kind of rhizomatic paradigm that questions the traditional. When evaluated in the context of traditional presentation and production practices that have been accepted throughout the ages, the new role of digital technology is like a Deleuzian abstract machine. The sharing environment created by these achievements, especially those obtained through open-source codes, makes it possible to discuss alternative contents to the gridal design habits of states trapped in system models.

3.2 RETHINK THE BORDER: URBAN VOIDS, TOPOGRAPHIC TRACES & SHELTER

Up to this point, we have discussed how a design thinking that adopts Deleuzian implications can become a generator of thought, and the weaknesses and strengths of capitalism. In doing so, we sought to understand the topographical gains in all forms of digitization. Its (the abstract machine in the context) contribution to the rhizomatic assemblages of production has drawn us toward a creative and participatory productivity. Now we feel like we need a canvas. A kind of plane of immanence where we want to experience this whole practice. For this purpose, we based our analysis on the gridal (border) habits of the capital and the topographic traces extending to it.

The coding habits developed by the majority of capital to control and monitor societies lead to the production of a planar, flattening architecture. The controlled loss of curvature in maps and the creation of boundaries has led to an orthogonal spatial approach based on gridal syntax, as seen in previous examples. When this habit, which corresponds to Deleuze's concept of striated space, is addressed within a design strategy, the issue itself, namely "boundary," becomes the key concept. In this context, the problematic and potential aspects of accepting the concept of the border as a spatial generator need to be discussed.

For Deleuze, the limit, as emphasized in the examples in Chapter 2, is a problem that is admired by statist system models and that hinders the creativity of individuals or societies. Borders are used by states not only to demarcate geographical and physical separation but also as a tool of control, regulation, and value production. On the other hand, based on a series of internal and external functions, it plays a central role in the construction of concepts such as rights, security, and belonging for states. Those who remain inside produce the codified, while those who are excluded produce the nomadic (Deleuze and Guattari 1987). All these emphases, while seemingly problematic, imply data that aid Deleuze's calls for improvements in the struggle against capitalism. In addition to the ontologically based political reality of the issue, Deleuze, especially in her work Difference and Repetition (1994: 10-11), considers the concepts of border and surface as a dynamic and productive tool. According to him, these densities are not a static crowd of lines where one thing ends and another begins, but a dynamic intersection where heterogeneity encounters and new flows are created.

The border, as a physical generator, is potential because it paves the way for new encounters, surprising connections, and formations (becoming in the context). Such a generator can establish a relationship similar to phase transitions in physical systems. For example, in the boundary region of the same substance with two different qualities, molecular relationships are restructured, and a new state emerges. Deleuze addresses these boundaries within an ontology that functions as a productive, transformative interface rather than a fixed divider (Deleuze and Guattari 1987). In this context, boundaries carry a potential that allows the production of new forms and densities in physical reality.

A similar relationality is also observed in Deleuze's surface production. Especially in *The Logic of Sense*, unlike the two-dimensional productivity of the concept of limit, the surface is treated as a creative interface between depth and/or height. In this context, the functional connotations of physical processes are generalized to a metaphysical plane through the concept of surface. In this respect, it is a dynamic area where differences collide and new formations are produced. In this area, the tension between order and disorder allows for chaos and the production of new forms over time (Deleuze and Guattari 1987). For example, in thermodynamic systems, chaos in boundary regions leads to the formation of self-organizing organisms (e.g., Bénard cells – a type of *Voronoi*). From Deleuze's perspective, such processes are a reflection of the productive potential of boundaries and surfaces (Deleuze 1994).

As part of the machine assembly, the designer's identity had to merge into a single plane with all the other open-ended machine parts. In other words, this was the realm of action, production, or application (in context: Deleuzian *praxis*) of matter. Therefore, all strategic initiatives that encompass every segment of society and may require a redefinition of the concept of "nomadism" in this context should be compiled here with the aim of creating a sustainable development plan. To this end, it is first targeted those who remained within the border and those who were driven beyond the border as potential generators. Although everything is a story of becoming, fortunately, the capitalism model, which creates a kind of dialectical boundary, has enough data to follow what is happening inside and outside. Thus, it is proposed rethinking the borders with those who remained inside and exploring the possibilities of topography with those who were dragged outside (Figure 31).

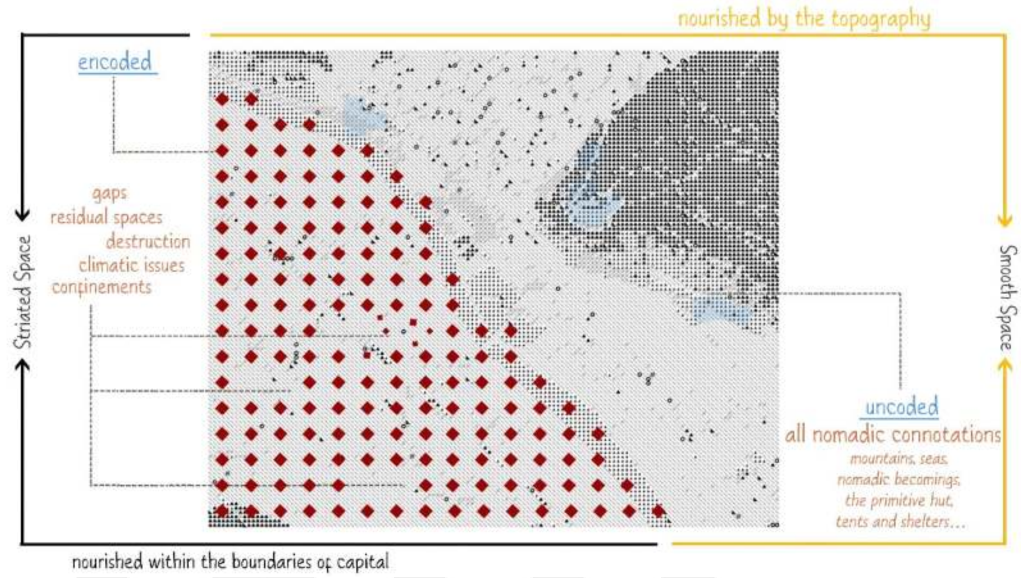


Figure 31: A Deleuzian Environment of Praxis (Plane of Imminence)
(Created by the Author 2025)

In diagramming the design strategy in question, the articulated spaces of smooth and striated space define the general framework of Deleuzian practice. Here, praxis refers to practice, or from a more ontological point of view, the Deleuzian plane of immanence. There is a dynamic grid mechanism that produces the acceptances, differences, flows, and intensities created by capitalism. In Figure 31, while the space on the left side of the virtual boundary is already taken over by the objects of capitalist machines that hierarchize the individual and permeate nearly every corner of striated space, the gaps within the system should be regarded as creative targets for the designer. On the other hand, the other extension of the border evokes the traces of the topography, which are subject to all kinds of nomadic connotations that have covered these traces throughout history, including caves, tents, and primitive shelters. As a strategic goal for a sustainable social transformation, digitally transforming these shelters is of critical importance.

To achieve Deleuzian difference space, the production of a strategic initiative must first be considered within the framework of capitalism's internal dynamics. The nature of capitalism, traditionally as an economic mechanism for resource allocation and wealth accumulation, is constrained by spatial, social, and structural limitations. These boundaries, shaped by historical and institutional frameworks, often prioritize efficiency and profit over inclusivity and social welfare (Piketty 2013). Capital operates only within a spatial framework determined by the limitations it sets. As Henri Lefebvre (1991) argues, space is not a neutral ground but a socially produced commodity that reflects power relations and economic priorities. The spatial boundaries of capital, manifested in urban planning, resource distribution, and infrastructure, often reinforce inequalities by prioritizing certain groups while excluding others. Similarly, Pierre Bourdieu's (1986) concept of cultural and social capital highlights how capital codifies individuals through access to networks, knowledge, and status, and systematically excludes those who lack such resources. These borders cause social destruction not only by accelerating physical or economic destruction, but also by accelerating social exclusion.

In this context, the capital limit can be redefined through participatory and transformative projects that challenge the limits of capital, the coding of individuals, and exclusionary tendencies, as well as through approaches inspired by Deleuze's thought that internalize the realities of capitalism and propose transforming them into a potential generator. Especially in today's capitalism, where technology is a radical whole thanks to digital gains, analyses that produce critical perspectives on social theory and the limits of capital are of critical importance. In this way, the projects encourage rethinking the boundaries of capital and creating spaces for egalitarian and collective participation.

In this context, digital techniques are not solely instrumentalized as technical equipment for the production of space; they become a crucial lens for restructuring the boundaries of capital through strategic initiatives, including all segments of society. Jeremy Habermas (1789) is interested in the added value of projects that adopt minor policies that will generate social benefits, approaches that propose the optimization of resources in economic decision-making processes. In this respect, social participation projects are sufficiently fed by parametric curves and multi-objective optimization algorithms, thus enabling the design of systems that increase efficiency (Arrow 1951). For example, it is recommended to create optimization projects that reach every point of the city in terms of infrastructure, education, or health services, considering all segments of society (in context: resource allocation models), such as increasing efficiency, reducing inequalities, ensuring sustainability, or maximizing social welfare.

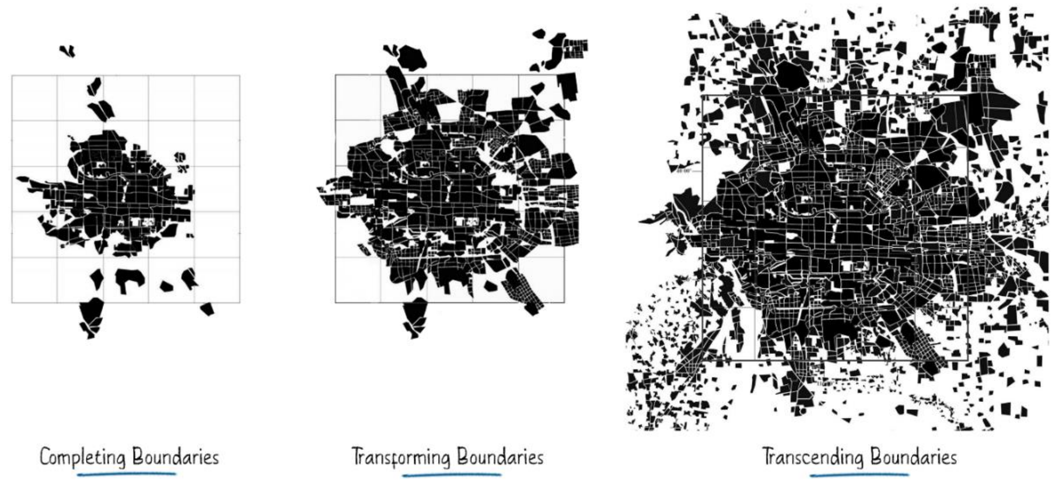


Figure 32: Production of Design Strategies Through the Absolute Boundary of the Capital Regime (Completing Boundaries; Transforming Boundaries; Transcending Boundaries) (Compiled by the Author 2025)

In this context, in summary, participatory transformations are critical to overcoming the exclusionary policies of capital. As social theorist Jürgen Habermas (1984) emphasized, sustainable and rational communication between people should be shaped by a sense of reciprocity that considers the interests of both parties, rather than being unilaterally focused on mutual benefit. In modern society, this partnership has weakened, but the trend has shifted to a model that excludes certain groups. In this regard, urban development should be supported by initiatives that take into account all segments of society, targeting public spaces that have been weakened by capitalism and the media, and by projects that embody cooperative economic models (Figure 32). The strategic quest of the research suggests rethinking all kinds of absolute limits created by capital in the name of reorganizing a sustainable modern society. In this direction, it mechanizes capital under the triple gridal model, taking into account its digital utilitarianism. In the primary grid, the existing structures and limits of the capitalist system are accepted as is. The goal is to produce value, increase efficiency, and support social welfare within this framework while adhering to the rules of the system (*completing the spaces-gaps*). The secondary grid encompasses design strategies that question the current limits of capitalism and seek to stretch those limits. The aim is to identify gaps within the system and target policies that seek to transform those gaps *(converting spaces-gaps).* The tertiary grid is much more speculative. Capitalism, which loves to flatten geometry, relegates the possibilities of topography to the background. The aim is to create a long-term symbiotic partnership between capital's existing possibilities and topography to expand and transform the boundaries of capital flows. The ultimate aim of all these strategic initiatives is to create a manifesto that redraws the standardizing boundaries of the capital regime.

3.2.1 Completing Boundaries: Encoding Capital and Mapping Nomadic Potentials

The motivation of the capital system to encode almost everything (individuals, objects, spaces) as a database is suggested as a potential for the designer at this point of the design strategy. Capital's habits of coding absolute boundaries (territorialization) are perpetuated from this very point of acceptance, creating nomadic lines of flight that transform its inherent dynamics into pattern maps. Instead of being disturbed by the existence of absolute limits, a motivation that takes action within this absolute and desires to fill its gaps dominates.

Every gap is an opportunity; every crack is a beginning…

While boundaries in Deleuze's thought may initially appear restrictive, they are actually a paradoxical way of acknowledging fixities by addressing this problematic point and revealing the cracks and lines of flight within this fixity. The existing reality of the capital system, such as topographic traces, skyscrapers, and roads, is considered as a database encoded with digital techniques. Therefore, at this stage, rather than feeling uncomfortable with capitalist habits, the goal is to reveal the best by making these habits sustainable and associating them with minimal and layered relationships.

In his work Design for the Real World: Human Ecology and Social Change, theorist and architect Victor Papanek (1971), renowned for his socially responsible and utilitarian approach to design, critiques the dynamics of the capital system, emphasizing the critical role of designers in all its seemingly harmful habits. While Papanek notes that capitalist production processes are generally consumer-oriented and environmentally destructive, he argues that designers can achieve social benefits by consciously directing these dynamics. Supporting this approach, German industrial designer Rams (1980), whose pioneering work on consumer products, particularly those that generate content for capital, advocated a utilitarian and user-centered approach based on the principle of "good design." From another perspective, artist Günseli Kato, with her statement that "pressure stimulates creativity," draws attention to the limiting nature of capital while simultaneously emphasizing how these boundaries are a motivating factor in stimulating the designer's thinking.

Therefore, accepting the existence of capital should not be a form of surrender, but rather a strategic positioning. As a strategic initiative, improvement efforts aimed at all kinds of *"defects"* produced by the capitalist regime (environmental destruction, social injustice, monopolization, etc.) or the marginalization that arises due to these defects (exclusion of minorities or the poor) are critical for managing social participation policies.

3.2.1.1 Discontinue: ½ Housing

Preface: When we started all of this, we envisioned a union of forces. While dismantling the fixed structures of capital space, we limited the capabilities of the state, or, from a more comprehensive perspective, the system. We planned that complementarity would be possible through social cognition. This time, this was precisely the motivation for the potential strategy. To leave something incomplete… Perhaps this was a much better decision than the increasingly territorialization of a problematic whole.

This design strategy was developed based on the potential for accepting what is lacking (in context: sufficient), rather than constructing a problematic whole in other words, entrenching a flawed or dysfunctional system. It is clear that the dynamics of capital flow are fueled by the energy of completing and controlling everything (Piketty 2013). This can lead to ignoring errors, reproducing flaws, and, in the long run, a waste of resources, social injustice, and social divisions, especially within what we call closed-loop system models.

On the other hand, although leaving a thought or action incomplete is generally seen as failing to achieve the ideal of completion, this approach also carries significant potential. From a Deleuzian perspective, such incompleteness points to a capacity that has yet to be realized. A flexible and articulatory space is created to preserve potential and multiplicity. By allowing different processes and connections to emerge, instead of presenting a static and perhaps flawed final product, space is created for future reevaluation, adaptation, or expansion. In this context, the act of leaving something unfinished can be considered not as a form of failure but as a strategic approach. At this point, the form of relationality regarding what was left unfinished plays a crucial role in repairing it. The characteristic of the rhizome is that it has open ends that are open to change and development, rather than a fixed closure. These ends, i.e., apical meristem regions, are characterized by continuous growth, the formation of unexpected connections, or bypass relationships (Taiz et al. 2015). Therefore, leaving such a relationship lacking is not an obstacle to the creative process but rather a fertile ground for innovative approaches.

So, when should abandonment be the moment of renunciation or surrender to another perspective? The pluralistic approach of the Deleuzian perspective, which dislikes all forms of fixity and celebrates articulation, associates the moment of abandonment (in context: devenir) with the moment when difference arises. At that point, a breaking point occurs where potential (*virtual*) transforms into actual. Therefore, in the construction of a gridal syntax, abandonment should not be associated with a moment of surrender, but with the attainment of satiety with what is sufficient. The moment of renunciation for states within the capital flow, or for design thinking in architecture in particular, should be associated with the moment when conditions or an internal tension push the structure/person to cross a threshold, rather than a voluntary decision (Deleuze 1994).

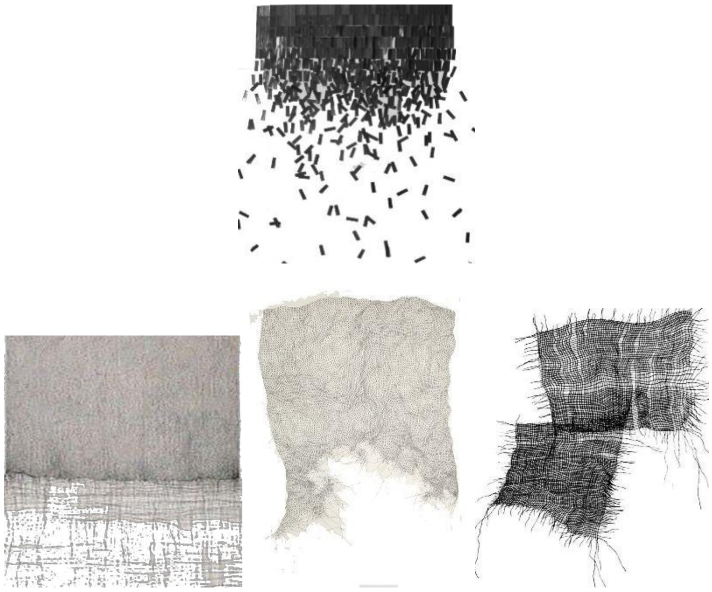


Figure 33: Variable Grid-Like Relational Potentials of Incompleteness
(Compiled by the Author 2025)

From another Deleuzian perspective, considering his *plane of immanence*, the potential for such a gridal approach lies not in the thing itself that is given up, but in the void that giving up opens. Therefore, how to pick up where you left off is equally important as the threshold of the moment of giving up. At this point, the acceptance that the issue is not a failure but rather a direction a beginning (in context: *milieu*) is critical. A moment of abandonment can tear you away from a fixed plan and move you to a more fluid, creative plane. When your circumstances cease to be productive, when repetition ceases to make a difference, or when you feel imprisoned by the existing structure, the rhythmic conditions of the grid plane must be reassessed. These conditions can be economic, sociological, or much more specific (Figure 33) (Deleuze and Guattari 1987).

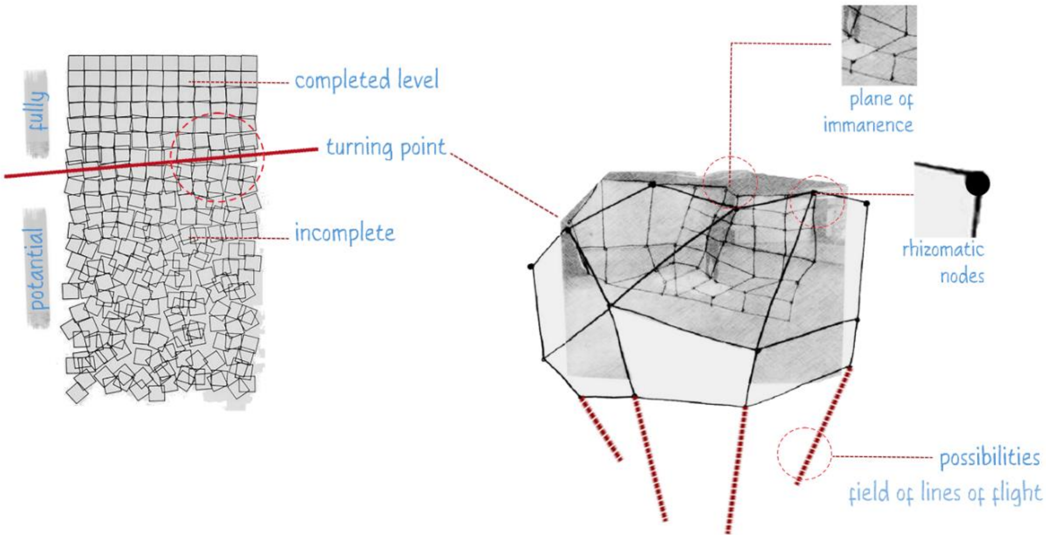


Figure 34: Moment of Tension and the Gains Derived from It (Created by the Author 2025)

Therefore, the field of acceptance is a qualification. Rather than a subjective stability, there is a tense plane of rupture. The discovery of the minimal and sufficient can be associated with the moment of transformation, when a repetitive cycle is interrupted in a way that makes a difference. The moment of transformation can sometimes manifest as a moment of renunciation, sometimes as a moment of fulfillment, or sometimes as a moment of crisis. At this point, transformation, especially for renunciation strained by sufficient stress, emerges as a kind of event and cannot be calculated; however, it imposes itself when the time comes. The gain is that the rhizome tips sprout again from the ground, constantly creating unexpected lines of flight that will lead the system of interruptions, or its interlocutors, out of the structure to which they have been attached (Figure 34) (Deleuze and Guattari 1987).

At this point, transformation, especially for renunciation strained by sufficient stress, emerges as a kind of event and cannot be calculated; however, it imposes itself when the time comes. The gain is that the rhizome tips sprout again from the ground, constantly creating unexpected lines of flight that will lead the system of interruptions, or its interlocutors, out of the structure to which they have been attached. On the other hand, the problem of accommodating 100 families in an area of approximately 5000 square meters was solved with a low-rise but well-connected horizontal layout plan that controls density, thus preserving the neighborhood identity and preventing possible overcrowding. The design philosophy of the project, completed in 2004, is to search for solutions to social problems in architecture through a minimal, rapid, and, most importantly, participatory approach. The project's prominent creative discourse is based on the idea of 'half-house'. In this model, it is determined that the architectural program envisioned by the state cannot be implemented within a limited budget that aligns with user needs and the framework created for the population. Along with the half-house ideal, the building frame, roof, kitchen, and bathroom infrastructure costs (relatively difficult tasks) are covered by the budget allocated by the state and the professionals they assign. The remaining half is left vacant for families to complete over time, according to their own needs and financial capabilities. This approach not only reduces costs but also allows users to personalize their homes, thereby creating a sustainable architectural model (Figure 35) (salomoncalderon.com 2025).

Figure 35: Incremental Housing Project - Alejandro Aravena (salomoncalderon.com 2025)

Throughout the design process, the architectural group prioritizes involving local communities. For example, at the outset of the project, families are frequently interviewed to identify major needs. In this context, the need for a dedicated bathroom space, rather than relatively additional expenses like a water heater, fences, and exterior paint, emerged from the feedback of the participants. This move not only facilitates the discovery of a minimal process but also contributes to the houses' greater user acceptance (in context: place attachment), personalization, and long-term sustainability. (Figure 36) (archleague.com 2025).

Figure 36: A Before and After View of the Incremental Housing Project (archleague.com 2025)

Examining the tectonic integrity of the houses, their surprisingly flexible growth potential is also striking. At Quinta Monroy, the houses were initially delivered to users with approximately 36-40 square meters of space, but over time, families were able almost to double this space. This flexibility increases the potential for social housing to become middle-class housing and contributes to reducing urban poverty on a macro scale (salomoncalderon.com 2025).

However, in a region like Chile, where earthquake risk is high and resources are limited, design decisions must consider both durability and economy. Aravena and his architectural team, making the most of available subsidies, designed all structures based on engineering principles that would safely withstand seismic loads without hindering families' initiative. The right of intervention of homeowners (in context: omitted) has been primarily associated with completing aesthetic or functional elements. This can be linked to the state's major approach to housing policy, which aims to transform a planned and sustainable (in context: minimal) intervention into an investment rather than an expense (archleague.com; salomoncalderon.com 2025).

Aravena's approach is a clear example of how architecture can be socially instrumentalized to achieve minimalism. Considering social and urban integration, Aravena's project is compatible with the urban fabric because it does not ignore topographical components, but rather simply creates a refuge for individuals. Another participatory role of the project is that it aims to disseminate solutions to the global housing crisis to other countries, aiming to make maximum use of limited resources, as the project is shared as open source. Recently, the same model has been applied in Mexico, as well as in Chile, in southern North America (salomoncalderon.com 2025).

In line with today's digitalization techniques, it seems possible to create a terminology that is intentionally incomplete, open-ended, flexible, and open to the involvement of other designers. This could be achieved through an interdisciplinary approach, fostering a relationship between mathematical sequences, combinatorial design principles, computational design, and parametric modeling tools. From this perspective, leaving the object incomplete during the initial construction or transformation of a space and subsequently achieving a subjective architectural gain through an applicable strategy.

Table 4: A Computational Method Proposal Based on Open-Source Codes – 1 (Created by the Author)

(1st LEVEL)*

Theoretically
Deriving an **Incomplete Design** *formula through Combinatorial Design Logic*

1. **Starting Point**

Combinatorial Design = *The combination of parts in different ways*

Incomplete Design = *Some components are undefined or left open.*

2. **Strategic Confluence**

Definition*: It covers the customization of a parametric model by the user (designer).*

3. **Output Target**

Theoretically: *The aim is to leave the final form of the design to the user or context. Thus, it is desired to enable a subjective design production that generates Deleuzian difference.*

Practically: *In the first stage, to obtain a series of formulas that can be embedded into Grasshopper3D.*

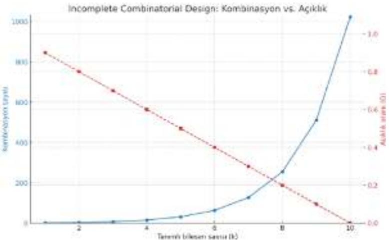
Design Area
$D=\{C_1,C_2,...,C_n\}$

Number of defined components
$k<n \Rightarrow D_{\text{incomplete}}=\{C_1,...,C_k\}\cup\{\emptyset_{k+1},...,\emptyset_n\}$

Possible combinations
(Incomplete Combinatorics):
$K(n,r)=\binom{r}{n}$
However, when some components are missing in an incomplete system:"
$K_{\text{incomplete}} = \sum_{r=1}^{k} \binom{k}{r}$
This only gives the combinations that can be made with the defined components.

Openness Coefficient:
In order to determine how open this combinatorial system is, a ratio can be defined.
(O = openness ratio; k = number of defined components; n = total system components)
Result
$D = \sum_{r=1}^{k} \binom{k}{r}, \text{where } O = 1 - \frac{k}{n}$
Example
There is a system of 10 units (n = 10); however, only 6 of them are defined (k = 6).
$O=1-\frac{6}{10}=0.4$; Therefore, this system is 40% incomplete and open-ended

Table 4. Cont.

Computational Cosmos	Diagrammatic (*Graphically*)
Incomplete Combinatorics, Set Theory, Subset (k-subset), Permutation, Combination, Cardinality, Combinatorial Explosion, Sparse Matrix, Probabilistic Space, Graph Theory	 Blue line: As the number of identified components (k) increases Red dashed line: Simultaneous openness, i.e., the rate of incompleteness

In mathematics, a pool can be created by deliberately leaving a sequence incomplete *(incomplete sequence)* as a strategic search for a result. At this point, it is possible to take the process to a more experimental level with pattern recognition, masking/obfuscation, obtaining the whole from partial information, and artificial intelligence. (Bishop 2006). At this point, under the ‘combinatorial design’ approaches that point to the combination of parts in different ways, the production of Deleuzian difference is framed in line with a kind of machine + designer assemblage, by making some components consciously undefined sequences dynamic.

Table 4. describes the first stage. In this stage, a strategic formula is generated by deliberately leaving out elements from a set of *n*s (in context: line of flight (n-1)). The table also provides a graphical summary of the relationship between openness and combinatorial potential as the number of components increases during the design process. At this point, under the ‘combinatorial design’ approaches that point to the combination of parts in different ways, some components are deliberately left undefined, and the production of Deleuzean difference is framed in the direction of a kind of machine + designer assembly by making the sequences dynamic. Then, using the formula presented, a system model with 10 units was exemplified in which only 6 were defined, and in this case, a 40% open-ended (incomplete) set sequence was given.

Table 5: A Computational Method Proposal Based on Open-Source Codes – 2 (Created by the Author)

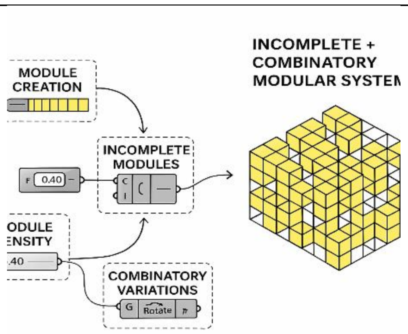
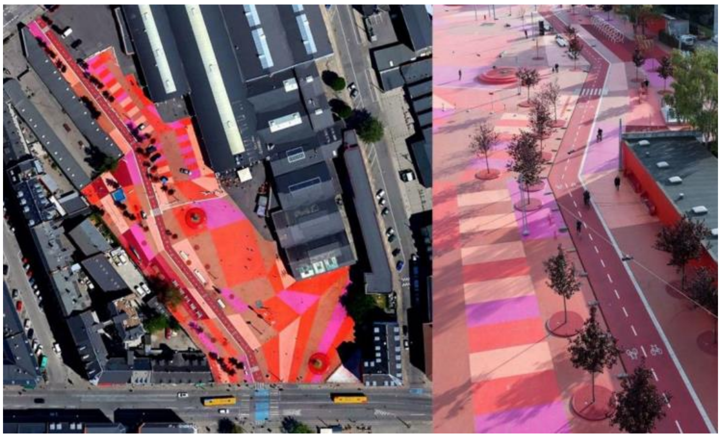
A strategic roadmap for GH	**Practice***: GH algorithm sequence*
<u>(2nd LEVEL) *</u> **Theoretically** *Deriving a **GH formula** through Combinatorial Design Logic* 1. **Starting Motivation** *To create a three-dimensional parametric modular system based on the 'incomplete + combinatory' integration through GH.* 2. **Strategic Confluence** ***Definition**: The system encompasses an open structure in which defined parametric modules are combined in various ways, while some modules are deliberately left incomplete.* 3. **Output Target** ***Theoretically**: While n represents the fixed elements of the established space, the resulting sequence of formulas and visuals corresponds to Deleuzian 'n-1' escape lines.* ***Practically:** 1. Embed the sequence of formulas obtained in this stage into Grasshopper3D to generate variable and computational voids within a three-dimensional grid.* 4. **Extra** ***With Slider:*** • Module count (n) • Ratio of active modules (k/n) • Combination style (rotation, symmetry, etc.)" ***Using toggle/boolean components:*** • Random incompleteness or manual? • Leave specific areas open?	***Praxis*** *Modules* *Geometric components (e.g., boxes, panels, cells).* *Each module has an ID and defines an active/inactive state. -Missing (null) fields are determined randomly or by user input.* **1. Module production:** *Create module IDs with Series or Range.* *In this regard, unit modules are produced with Box or Custom Geometry.* **2. Module placement (grid):** *Create a 2D or 3D grid with Construct Point.* *Move modules to their positions with Move.* **3. Incomplete module production:** *Some modules are disabled using Random Reduce, Dispatch, or Cull Pattern.* *The openness ratio is controlled with a slider.* *E.g. For 40% openness, 40% of the area is excluded using Cull Pattern.* **4. Combinatory process:** *Layout and form variations are created using operations such as List Item, Dispatch, Rotate, Scale, and Flip Matrix.* **5. Visual process (Diagrammatic):** *Modular grid (e.g., 10x10 boxes) → total area = n* *Unfilled boxes (gaps) → incomplete portion* *Active modules (placed geometries) = k*
Computational Cosmos	**Diagrammatic**
Data Tree, Boolean Masking, Subset Selection, Parameter Mapping, Rule-Based Assembly, Modular Aggregation, Sparse Geometry, Conditional Instancing, Iterative Loops, Partial Generation	

Table 5. describes the second stage. It is articulated with the formula sequence obtained in Table 4. In this stage, the formula obtained in the first stage is simply embedded in the open-source Grasshopper3D. The modular grid depicted in the image, instantiated by a 10x10 matrix, generates the total area, denoted by 'n'. The intentionally omitted cells in this grid represent gaps that constitute the missing aspect of the system. Conversely, actively populated modules characterized by integrated geometries are quantified as 'k'. The resulting combinations arise from the internal variations and interrelationships among these modules. Specifically, these combinations are open to user interaction, designer creativity, or external influences. Furthermore, although load-bearing modules exist, their precise placement and angular connections remain unspecified and are subject to finalization by the designer. As a result, the system exhibits dynamic reconfigurability, allowing it to adapt and reconfigure itself in response to evolving user needs.

3.2.1.2 Junctions: From Grid to In-Between Space

Preface: Targeting the abandoned spaces of the city, dismantling the fixed structures of capital space… This time, that was the motivation for the potential strategy: an abandoned building, under a bridge, or an unused plot of land. Neither fully public nor fully private spaces. Just in between, abandoned intersections. Can these intersections turn into functional shelters that provide social benefits in the face of the homogenizing structure of capital space? Perhaps a creative space where cultural and artistic events can be held, or perhaps a nomadic shelter that quickly adapts to the changing needs of the city.



Superkilen, in the Nørrebro district of Copenhagen, Denmark

According to Lefebvre (1968), city squares are the planes that the capitalist system aims to homogenize. However, his philosophy encompasses approaches that suggest that these areas of the city should not be controlled solely by market forces. With the concept of the right to space (Le Droit à la Ville), he emphasizes that urban spaces are not merely commodities to be monitored, but rather are actively organized and reproduced by the city's inhabitants, namely, citizens. This can be possible primarily through projects that will mobilize the collective consciousness of the city's actual owners.

In this context, the transformation of In-between spaces means that city residents embrace these spaces and redesign them according to their own needs. For example, transforming an unused plot of land in a neighborhood into a children's playground can only be possible if the residents of that neighborhood become aware of this area and take collective action. According to Lefebvre (1968), this kind of consciousness is possible only if the city is shaped not by elites or planners alone, but by the people who have reached collective awareness.

Another French historian and thinker known for his studies on modern culture and daily life practices, Michel de Certeau (1984), draws attention with his inference on tactics and strategies regarding the reconstructive function of intermediate spaces. Tactics are minor and temporary actions that can be changed within existing system models to protect one's own interests or create comfort planes. Strategies, on the other hand, are organized, long-term plans implemented by forces with power within the system on a much broader scale. Within such a model, individuals seek minor-becomings (tactics) in the face of official urban plans (strategies) imposed by the state apparatus. In-between spaces, or otherwise known as parasite spaces, are ideal areas where these tactics can be put into practice because they exist outside the realm of official control. However, according to de Certeau, for these tactics to emerge, individuals or groups must first recognize these spaces and integrate them into their daily lives (Figure 37).

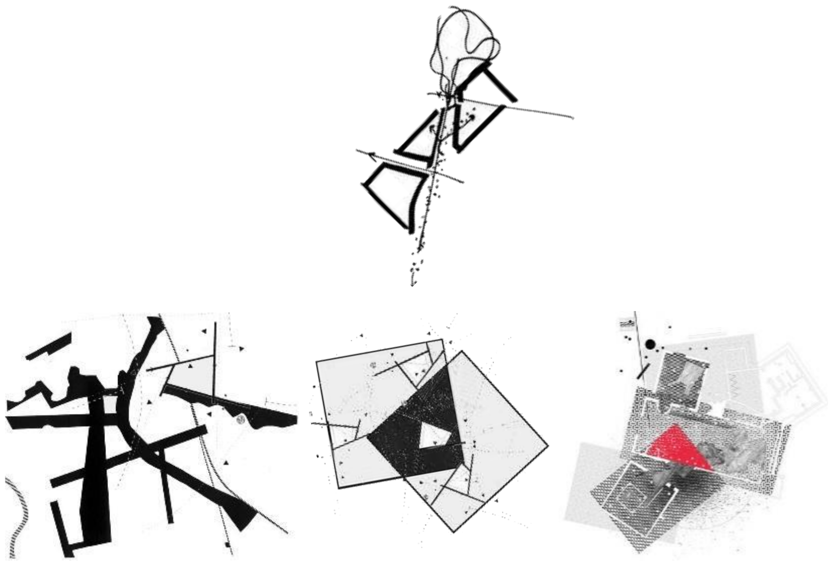


Figure 37: Junctions: Metamorphosis Diagrams of In-Between Spaces as a Representation of Nomadic Becoming (Compiled by the Author 2025)

According to de Certeau, individuals can shape these spaces not only as places they pass through, but also as areas that enrich or transform their daily practices, only by producing their own action plans. Therefore, turning to a new coordinate outside the fixed coordinates of the city or re-meaning the fixed coordinates can only be possible with a collective meta-cognition that acts towards a similar goal. For example, a group of people who regularly gather on a street corner may transform a space that previously held only Cartesian meanings into a meeting place over time. However, this transformation only occurs if the group makes a conscious decision to utilize the space repeatedly. De Certeau emphasizes that this type of activism enables individuals to transform from passive consumers of the city into active producers (De Certeau 1984).

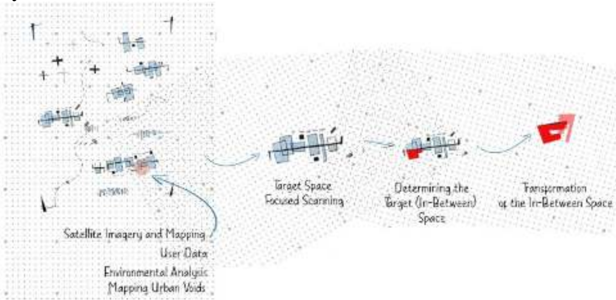
David Harvey, on the other hand, examines space within the context of capitalist relations of production. He argues that interstitial (in-between) or parasitic spaces often emerge as remnants of planning carried out in concert with capital flows. For example, unused spaces may emerge following an infrastructure project, a highway project, or a recreational project. It is precisely at this point that these spaces must be transformed into target areas. In his work, Rebellious Cities, Harvey points out that urban residents can transform such spaces into spaces of resistance. For example, the Occupy movement in Zuccotti Park near Wall Street in New York in 2011 and the protests in Gezi Park in Istanbul in May 2013 encompass these movements. Through these platforms, individuals have created a collective metacognition and transformed these spaces into sites of political struggle. According to Harvey, the awakening of social consciousness enables these spaces to be stripped of their identities, which are codified by capital flows, and reclaimed as intermediary spaces for social justice and solidarity. Using these intermediate spaces in this way creates a more democratic structure for the production of social pluralism (Harvey, 2012).

Examples of in-between spaces continue to be produced around the world, from metropolises to suburbs. In the UK, particularly in London, the Meanwhile Space project targets temporarily vacant, neglected commercial or industrial spaces. These spaces are ideal for creatives looking to launch social enterprises and develop projects that benefit the community. The Meanwhile Space project creates affordable and easily accessible spaces to support such initiatives. It focuses on stimulating community cohesion, placemaking, arts and cultural activities, and entrepreneurial packages. From a Deleuzian perspective, space is non-static, transformational, and utilitarian (in context: event space) (Figure 38) (meanwhilespace 2025).

Figure 38: London Meanwhile Space Project (meanwhilespace 2025)

Examples related to in-between areas can be diversified. As a large-scale awareness project, the *Tempelhofer Feld*, a former airport in Berlin, was transformed into a massive public park after the grounding of flights. Designed as a temporary intermediate space, this space is now actively used by local residents for picnic areas, bike paths, and various community activities. Following the demolition of Tokyo’s iconic Nakagin Capsule Tower in 2022, excess space is being used as temporary exhibition spaces by artists and local initiatives. The Heidelberg Project in Detroit is reclaiming abandoned homes and land, the LX factory complex in Lisbon is using surplus space to build galleries, cafes, and design studio centers, and the Renew Australia Project in Melbourne is targeting vacant stores and temporarily opening them to artists, entrepreneurs, and small businesses. These are all examples of in-between spaces (iconichouses.org; heidelberg.org; julianbreinersdorfer.com; renewaustralia.org 2025).

Furthermore, given the possibilities offered by today's technologies, the layered relationship between open-source software, GIS (Geographic Information Systems) technologies, and artificial intelligence (AI) techniques plays a critical role in initiatives aimed at the production or reuse of in-between spaces in the city. These technologies enable the transformation of physical, social, and ecological parameters through a multilayered process that extends from the identification of in-between spaces and unused (idle) areas to environmental data analysis and the generation of urban space proposals from user data. From a Deleuzian perspective, the existence of relational models beyond the hierarchical structural model accelerates processes of social transformation, especially given the open-source and self-organizing nature of AI (Table 6).

Table 6: Detection of Idle Areas with AI: Reclaiming In-Between Spaces (Created by the Author 2025)	
A Strategic Roadmap with AI	**Practice:** 596 Acres
Satellite Imagery and Mapping: By analyzing satellite imagery and geographic information systems (GIS) data, AI can quickly detect unused vacant lots, abandoned structures, or under bridges in the city (Esri 2020). **User Data:** Social media data or movement data collected from mobile devices can identify which areas are heavily used or ignored. With this method, a buffer zone in an area where people often pass but do not stop can be detected by AI, and this area can be turned into a gathering area. **Environmental Analysis:** By analyzing the environmental conditions of these spaces (sunlight, wind flow, noise levels, etc.), AI can determine which areas are ideal for specific functions. For example, it can predict whether an in-between space would function better as a garden or a seating area.	  Ref: GrowNYC / Green Spaces (2025). *Keap Fourth Community Garden*. https://www.grownyc.org/openspace/gardens/bk/keap-fourth-community-garden **Diagramatic:** Detection of in-between space with AI (Created by the Author 2025)  **Computational Cosmos:** Change detection, satellite imagery, image segmentation, multispectral imaging, ortofoto, remote sensing, image processing, change detection, urban decay, object detection.

The 596-acre project, launched in New York City in 2011, represents one such achievement. It uses data analytics to map vacant lots across the city and transform them into *community gardens*, while leveraging the pragmatic possibilities of artificial intelligence. To identify unused, abandoned, or vacant lots in the city, these are often overlooked spaces between residential, commercial, and infrastructure developments. The project uses open data sources (*e.g., the NYC OpenData portal*) and data analytics to map these vacant lots. These are often forgotten, fenced-off, and unused spaces within the densely built urban fabric. Therefore, the areas targeted by the *596 Acres project* and its AI fusion are typical examples of in-between spaces. A specific example of transforming in-between space into a community garden, directly supported by the 596 Acres project, is the Keap Fourth Community Garden in Brooklyn. This site identified a previously unused, publicly owned vacant lot. 596 Acres then used artificial intelligence techniques to map the space and accelerate its transformation into a *community garden* that would bring residents together. The project then transformed the empty space into its final form by clearing it of fences through the residents' collective metacognition. *The Keap Fourth Community Garden* represents a social and environmental gain through the transformation of an in-between space that had been overlooked or forgotten within the dense reinforced concrete pattern of the Deleuzian striated space (Figure 39) (Ibid.).

Figure 39: Construction Photos of Green Spaces (keapfourthgarden 2025)

Therefore, the city's neglected, abandoned, or transitional spaces (such as under bridges and abandoned buildings) can be considered not as idle spaces, but as potential spaces for a new kind of social productivity. These interconnected spaces can be transformed through appropriate design strategies, transforming them into flexible shelters for nomadic lifestyles or creative platforms for cultural and artistic events. The aim here is not only to repurpose physical space but also to establish a fluid relationship between the temporary and the permanent, the marginal and the public, injecting new meaning into the urban fabric. This transformation demonstrates the possibility of a design approach that is both sustainable and focused on social benefit.

3.2.1.3 Porous: Occupying the Voids in the Urban Grid

Preface: While dissolving the fixed structures of capital space, intervening as little as possible in linear habits, yet creating pores that allow the city to breathe and develop. That was precisely the motivation behind the possible strategy this time around. To this end, we focused on curved expansions designed to disrupt the homogeneous lines of the capital field. To achieve this, we created pores (*rhizome-becomings*) connected to each other by the principle of "and... and... and...".

The Black Square, Superkilen Park, Nørrebro, Copenhagen, Denmark (Shaull 2022)

In Deleuzian striated space (the space of capital), the geometric counterpart of ordered, controllable, and hierarchical habits imply a kind of linearity. This space is metric and measurable. Linearity provides order, continuity, and predictability in spatial organization. State apparatuses, bureaucracies, and capitalist systems divide spaces in this way and codify the individual through this geometric achievement. Modern city plans, transportation networks, and capital production processes possess a structuralism that creates standardization through this metric relationship. However, the characteristic nature of striated space also harbors creative rhizomatic edges of surprise-becomings that transcend linear boundaries (Deleuze and Guattari 1987). In this sense, while linear structure tends to inhibit creativity by codifying the individual, overflows, nodes, pores, and similar small occurrences represent the geometries of creative action. These overflows not only propel themselves onto a plane of becoming but can also reshape and/or transform the striated space itself.

From a Deleuzian perspective, the emergence of nodes (or pores) in linear lines is a clear representation of the rhizome metaphor. Similarly, this similarity is evident in the rhizome of a plant like the ginger root. Although it appears as a straight line, it branches in multiple directions, forming nodes. Within the habits of this striated space, a representation of thought, a nomadic space, and a story of resistance can emerge. Nodes in linear lines challenge the boundaries of irregular space and, in this context, have the potential to reimagine flat space. For Deleuze and Guattari, these nodes are creative interruptions that disrupt the order imposed by the state or capitalism. These are potentials that want to flow but are crushed under the weight of stress and eventually explode under the weight of that stress. Unexpected excesses, interruptions, then overflows… All of these are creative implications for the construction of an alternative social structure (Figure 40) (Deleuze and Guattari 1987).

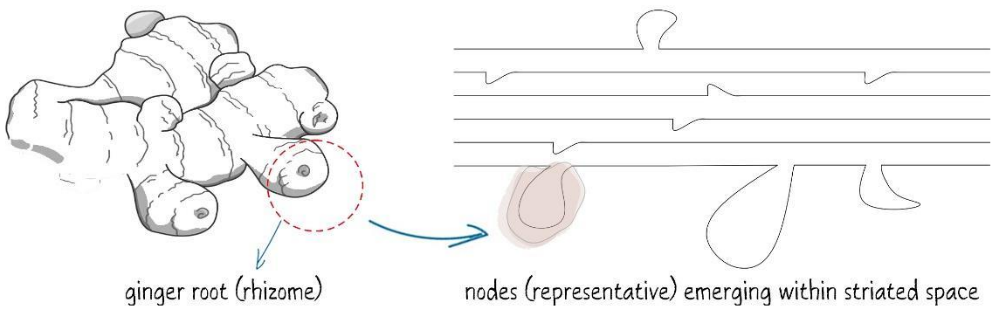


Figure 40: The Analogy of the Ginger Root (Rhizome) and the Emergence of Pores (Created by the Author 2025)

The unexpected articulation of a linear path expresses the evolution of a continuous flow into sudden ruptures, bends, and new potential states. In this context, a node is not a rupture that interrupts continuity, but rather an intensification or production of difference within the continuity itself. Considering Deleuze's "philosophy of difference," each node disrupts the monotonous flow of a linear route, creating a moment of emergence in which difference manifests. Every line, with its inherent potential for multiplicity and escape, is open to articulation and transformation. This transformation is not a rupture, but an immanent modification of the linear flow; it is the line's acquisition of a new form of existence (a kind of metamorphosis) through its own immanent (Figure 41) (Deleuze 1994).

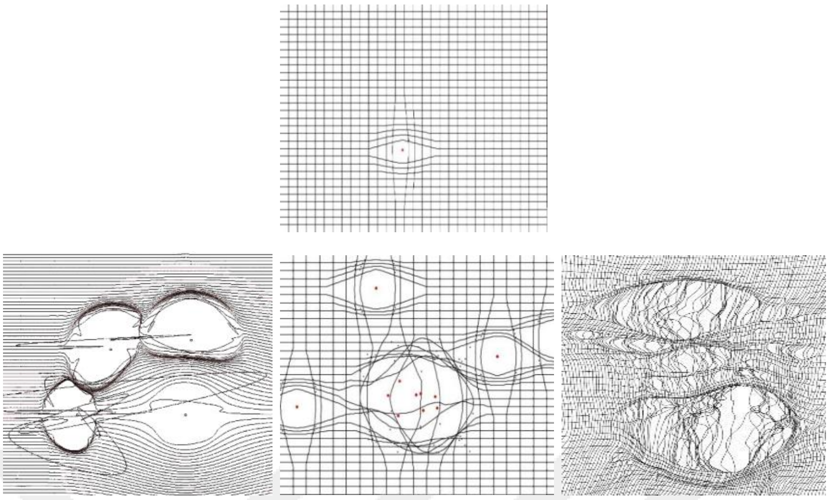


Figure 41: Gridal to Porous Transformations (Compiled by the Author, 2025)

Expanding along linear axes, conservatives (in context: orthogonal competencies) shatter the perception of a fixed and code space, creating a permeable and heterogeneous structure. While nothing in the universe moves linearly or in a fixed line with constant acceleration, the entire system can be overturned with minimal intervention against the pressure of the will of capital to fix it with superior stability through the syntax of the grid. As suggested by the Deleuzian concepts of event (événement) and becoming (devenir), such overflow can grow and metamorphose. These nodes demonstrate that creative ideas can be organically linked in a way that is not updated or socially sustained. However, the rhizome uses a language that is both open and established in this process. Instead of a fixed and boring end, a constantly generated alternative is created. In this way, they demonstrate that they are not merely a surface or completely open, but rather open to flows (energy, information, and material flows, in the context).

In Deleuze's thought, the sudden emergence of nodes (*nœud*) in linear lines is also crucial for questioning social transformation. The ballooning of lines with such deviation points to a profound desire for social transformation (the desiring machine in the context). The resulting pores can be thought of as spaces of constant change and interaction between orthogonal structures. A park extending from the greenery bounded by the topography, or a water channel extending from seas and rivers, or a children's playground growing from the machine packaging of the striated space.

These nodes prepare the ground for individuals and communities to question traditional orders, generate creative tensions, and establish different networks of relationships. They enable straight lines (linear flow) to expand at certain points, creating nomadic spaces (Figure 42) (Deleuze and Guattari 1987).

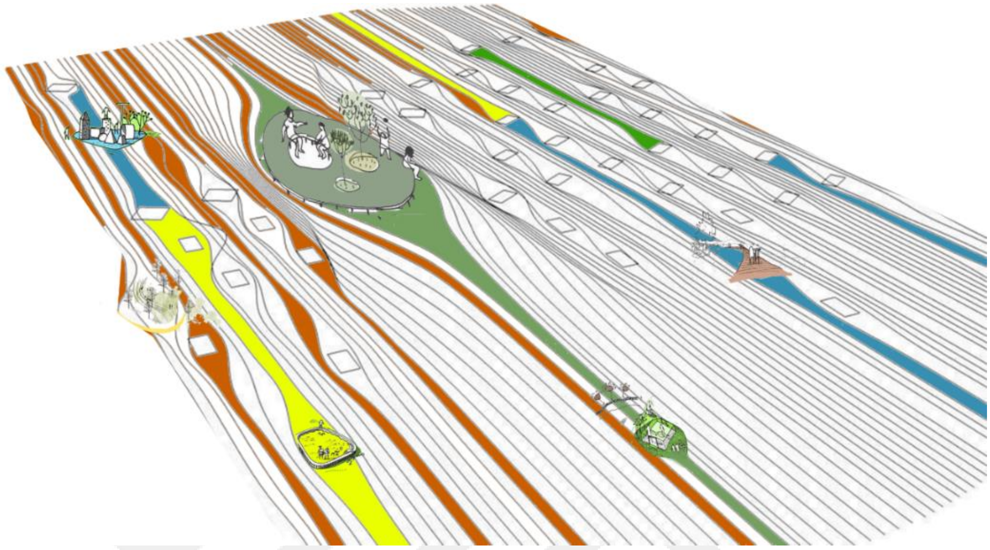


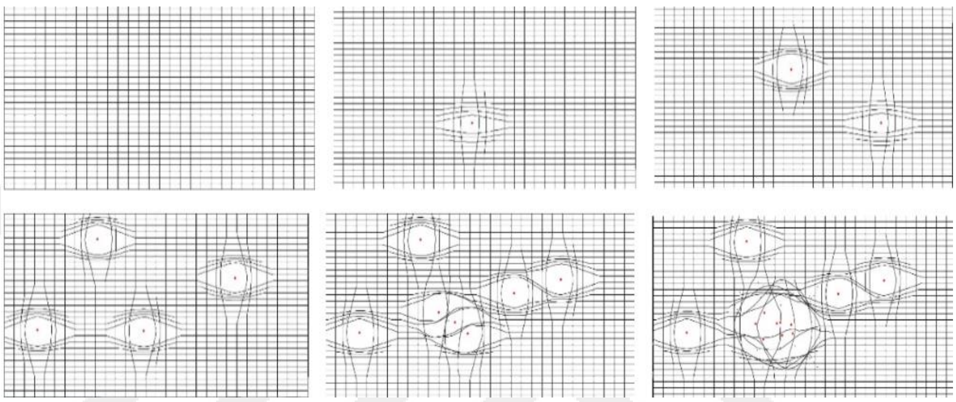
Figure 42: Expansion of Linear Flow at Certain Points, Creating Migratory Areas (Created by the Author 2025)

Superkilen is a public park project located in the Nørrebro district of Copenhagen, Denmark, that embodies the idea of nodal structures within a rough space. The project was developed jointly by BIG (*Bjarke Ingels Group*), Topotek 1 (*a German landscape architecture firm*), and Superflex (*a Danish art collective*). Initiated in 2008 and completed in 2012, the project was designed to celebrate community inclusion and cultural diversity in an ethnically diverse and socially challenged neighborhood. The nodal patterns in *the Black Square* area are functionalized with fountains, seating areas, and sculptural play areas. In Nørrebro, a district with more than 60 different nationalities and a history of social tensions and even occasional vandalism, Superkilen's primary objective is to use this diversity as a unifying element to revitalize the neighborhood and transform it into a safe and inclusive public space (Figure 43) (big.dk 2025; topotek1.net 2025).

Figure 43: Superkilen, Denmark. (Topotek 1 + BIG Architects + Superflex) (archdaily 2025)

Another notable aspect of Superkilen is its design process, which prioritizes intensive public participation. Unlike traditional urban planning methods, the project was shaped by the active participation of neighborhood residents. As part of Superflex, comprehensive suggestions were collected from local residents via the internet, radio, newspaper, and on-site surveys, and these were carefully selected by the local board. This process aimed to strengthen the public's sense of belonging to the area by ensuring that the design was determined not only by experts but also by the users. This approach contributes to the democratization of urban spaces as a practical application of participatory design theory (Ibid.).

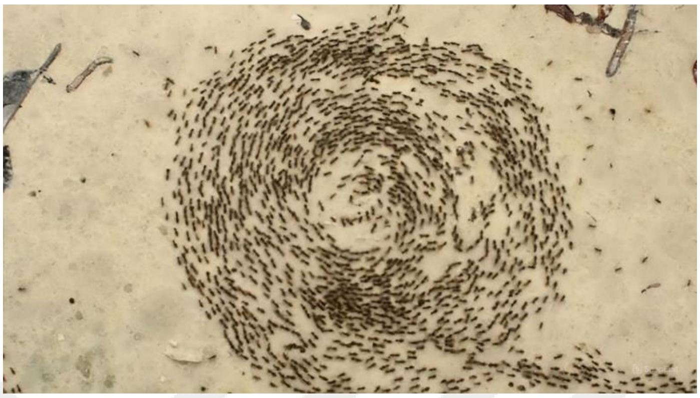
It seems entirely possible to embody the idea of interrupting linear lines with unexpected nodes with digital tools, as in the Superkilen project, and to instrumentalize architecture in this way. This is precisely what is possible by starting with the traditional grid habits of the striated space and then exploring the transformations that emerge.

Table 7: A Computational Method Proposal Based on Open-Source Codes (Processing Sample) (Created by the Author 2025)	
A Strategic Roadmap with Processing	**Practise:** *Processing Codes Flows*
Extra: Processing → Grasshopper 3D *In Processing, you save point coordinates, direction information or parameters as .csv or .txt.* *In Grasshopper, you read this data with components such as Read File + Text Split + Construct Point and convert it into 3D geometry.*	
Visual Codes	*These codes & visuals were generated by Karatas and Demirok 2025*
	

Therefore, a linear-based grid representation of the capital space provides an ideal framework for visualizing intersections and nodes that emerge in the digital environment. It is possible to transcend limited relationships in the digital environment and perform creative manipulations in many ways. Today's open-source software programs, such as GH, Blender, or Processing, all contribute to how the idea of a pore, subject to the rhizomatic analogy, can be reflected in the digital environment. For example, in Table 7, a traditional grid base and node patches (codes) derived from this base were created using Processing software (Karatas and Demirok 2025). These codes can be transferred from Software A to Software B, subject to the rhizomatic (in this context: horizontal and multiple) interrelationships of the open-source codes. Thus, patches that generate infinite variations can be used to achieve desired results through simulation analyses.

3.2.1.4 Colonization: Bug Dome

Preface: We imagined a form of colonization. We imagined another version of capital's hierarchical habits. Hierarchical but decentralized. We observed the pheromone trails of ants, the division of labor of termites, and the organizational behaviors of many other insects. That was precisely the motivation behind the possible strategy this time around. We desired the practice of coexistence to fill the gaps of capital.



In *A Thousand Plateaus: Capitalism and Schizophrenia,* Deleuze and Guattari introduce the concept of becoming-animal *(becoming-animal [in a broader perspective: becoming-intensive, becoming-imperceptible]),* which denotes a process of transformation that transcends the subject-object distinction and fixed identities. This state of becoming does not involve transforming into or imitating an animal in the traditional sense; rather, it describes a transition to a non-anthropocentric realm of existence. In other words, this process (*becoming-animal*) rejects hierarchical structures, categorical boundaries, and taxonomy. For example, in *A Thousand Plateaus*, through the relationship between a wasp and an orchid, they propose to imagine a symbiotic relationship in which both entities are united by each other's process of becoming. The key here is to draw attention to the awareness of a constant state of change and re-formation through differences and interactions, and to liberate individuals from the classifications and identities that determine the essence of events through the state of becoming-animal. Existence can and must therefore be adapted not only as a biological evolutionary matter, but also as a political, aesthetic, and ontological matter (Figure 44). Deleuze and Guattari (1987: 9) express it as follows:

> *‘‘A rhizome may break off, fragment at a certain point, but it will start again in one of its old lines or in new lines. You cannot get rid of ants because they form an animal rhizome that can regenerate itself even when most of them are destroyed.’’*

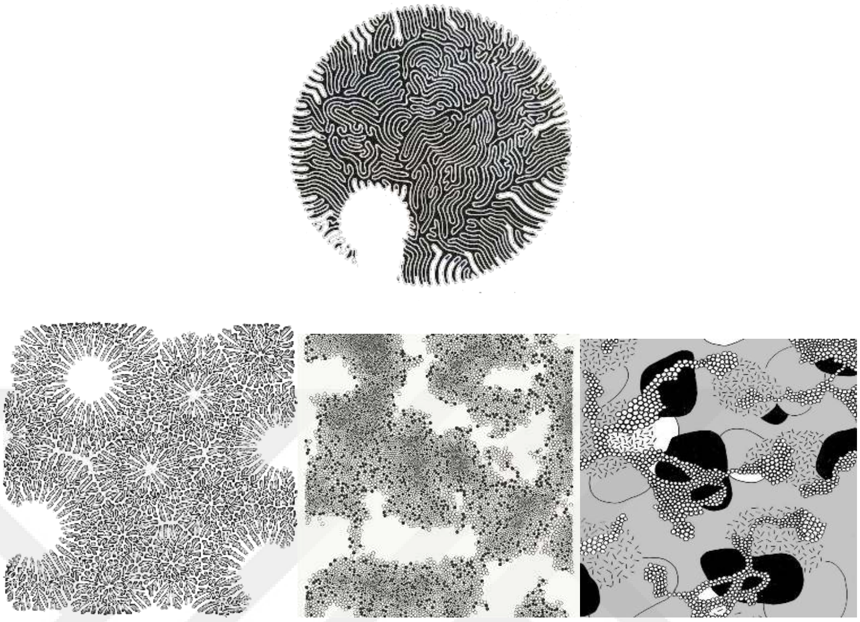


Figure 44: Morphologies of Colonization (Compiled by the author 2025)

Deleuze and Guattari point to ants as a clear example of the process of becoming-animal, highlighting their ability to constantly reorganize themselves without being tied to a central authority. Deleuze and Guattari associate this behavior of the ants with the a-signifying rupture characteristic of the rhizome. Here, a rupture disconnection never leads to a loss of connection. On the contrary, it leads to colonization. The paths or reticulated structures created by ants do not occupy a space; instead, they continually regenerate it. Ant trails or some reticulated structures do not occupy a space but rather continually reproduce it. Instead of maps that delineate the boundaries of a space, spatial formalism creates density maps or temporal assembly diagrams of ant trails (Deleuze and Guattari 1987: 9).

Colonization, on the other hand, generalized by Classical Western practices and desired by capital, is a strategic move taken by states to create a politically and economically dependent (in context: dependent) settlement space outside their borders. However, from a Deleuzian perspective, while colonization aims for "territorialization" (the fixation of space), this aim can be transformed into "deterritorialization" (the disruption or fragmentation of the fixed) through the actions of local populations. According to the Palestinian-American political activist and scholar Edward Said (1978), who focused his work on colonialism, colonization is essentially the practice of reconstructing space in relation to the other. Therefore, there is a clear state of becoming, readjustment, or transformation. At this point, approaches that prioritize minority policies through the Deleuzian concept of minority (minor literature) are transformative in the name of social benefit. Any place can be colonized, but with the undeniable resistance of minor powers, any place can also become a line of flight.

The temporal gains of colonization, rather than confining space to a fixed property area, transform it into a network that constantly reproduces it. Architect and theorist Bernard Tschumi's idea of "event-space" questions such achievements. According to Tschumi, space is not a fixed structure with an invasive character. It is defined by the movements and *disjunctions* that occur within it (Tschumi 1996:162). The rupture in the rhizome, this time, means the colonization of space by events. Relationships do not disappear there; they are simply reshaped by a new line of density and a new order of connection that emerges from this new line. Colonization thus moves away from hierarchical domination and leads to the formation of multiple and temporary assemblies (in context: *ephemeral* assemblies).

Within a city, marginalized segments of society, minorities, and nomads can create a kind of colonization or a kind of "x-becoming" based on Deleuze and Guattari's principle of the "disconnection" and "reconnection" of rhizomes. This activism can be used as a potential force. Here, the production of space must primarily adopt a discursive policy rather than a tectonic intensity. Minorities must erode the urban order (Striated Space in the context) through cultural practices such as street festivals, languages, and community spaces. Lefebvre's (1991: 38) discourse on the social transformation of space emphasizes how those acting outside of central authority both produce and transform the spatial order of cities. The power and energy of erosion may diminish over time in the face of larger influences, but these practices should not be lost one way or another.

Bug Dome, produced within the scope of the *Shenzhen and Hong Kong Bi-City Biennale of Urbanism/Architecture* held in Shenzhen, China, as a minor representation in the recreation of urban memory, is this kind of organism. The temporary structure produced by *WEAK! Architects* was designed to question the traditional vertical controls of cities and to provide a remote connection between people and nature for minority groups in society. BUG Dome is built on a 3,000 m² site, with approximately

120 m² of floor space, between Shenzhen City Hall and the industrial technology camp, where production facilities are housed. The structure was designed in three days, incorporating traditional bamboo construction methods inspired by the local Guanxi excursion and migrant construction methods. This structure, which continues to exist with a contradictory language within the city's tectonics, represents a temporary, nature-integrated approach rather than Shenzhen's powerful steel and reinforced concrete engineering. Instead of Shenzhen's powerful steel and reinforced concrete engineering, it exists in the city in a contrasting language, representing a temporary, nature-integrated approach through tectonic (Figure 45) (architizer 2025).

Figure 45: Bug Dome, Serving as a Counterpoint to the High-Tech Skyline of Shenzhen (architizer 2025)

The design of the BUG Dome was developed based on Italian architect and theorist Vittorio Gregotti's concept of weak thinking and is closer to the concept of weak architecture, which emphasizes flexibility, transience, and adaptability to context rather than precise lines and rigid forms in architecture. This approach offers an alternative to rote tectonics by offering flexible and improvisational displays. It encourages inspiration from historical or environmental parameters to adapt to environmental conditions. In this respect, the Bug Dome resembles primitive nomadic yurts, with the cover form of cocoons, termite ventilation mounds, and the idea of a centrally located fire (Figure 46) (archdaily 2025).

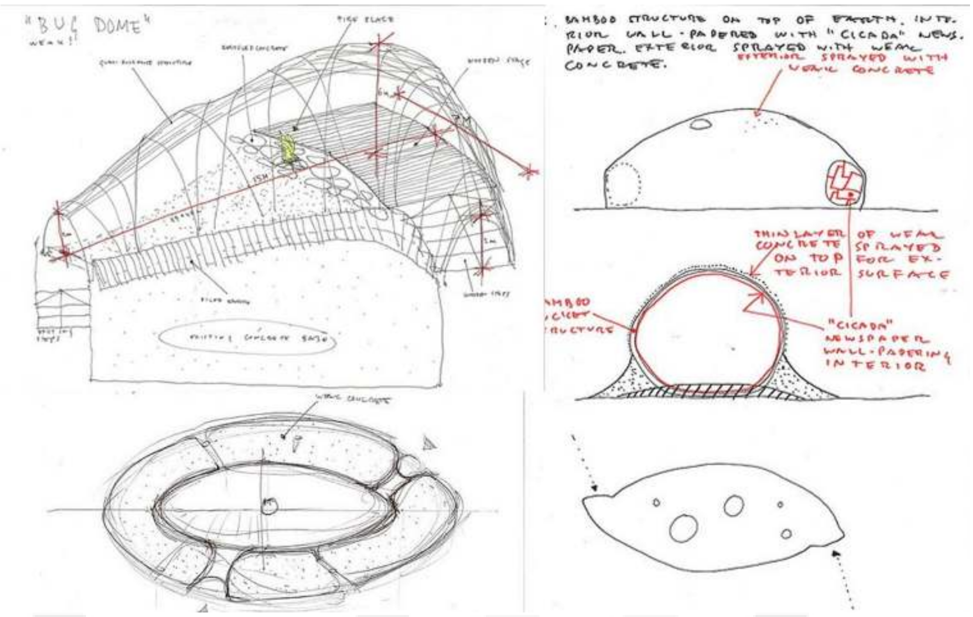


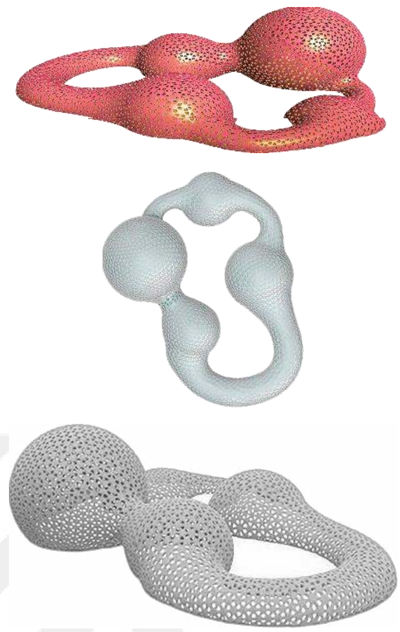
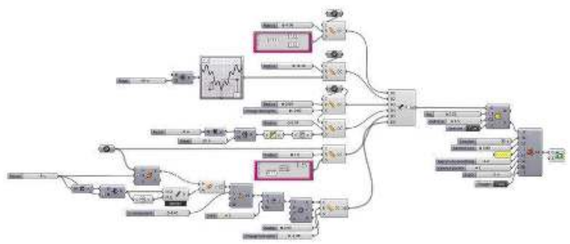
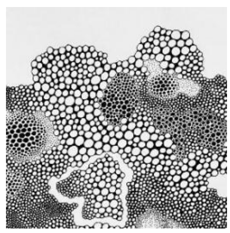
Figure 46: Architectural Diagrams of the Bug Dome (archdaily 2025)

The BUG Dome, therefore, represents a colonization far removed from Foucault's panoptic model of the spatial expansion of power (Discipline and Punish 2001). While traditional colonization has a negative connotation, symbolizing any activism that glorifies the fixity of spaces and stifles creativity, natural habitats like the BUG Dome, which signify rhizomatic colonization, facilitate infiltration, rupture, and reconnection within the city. The BUG Dome's role in hosting cultural events during the biennial and its subsequent service as an informal meeting place for workers from rural China, coupled with Tschumi's argument that "space exists through actions" (The Manhattan Transcripts), further demonstrates the creative potential of rhizomatic colonization and rupture. The divisions subject to traditional colonization are no longer solidified or ingrained; on the contrary, minorities return as a spatial proliferation and enrichment (Figure 47) (Ibid.).

Figure 47: Events and Interior of the Bug Dome (archdaily 2025)

The combination of the *Weaverbird* and *Cocoon* plugins in Grasshopper3D is ideal for creating complex mesh-based shapes, particularly those that create colonization. The Cocoon plugin, in particular, allows for creative exploration of BUG Dome tectonics, topological transformations, mesh manipulations, and organic forms. It is possible to create isocontour surfaces from points and lines, design organic surfaces from point clouds, and create highly detailed and speculative models (Table 8) (food4rhino.com 2025).

Table 8: A Computational Method Proposal Based on Open-Source Codes - Weaverbird + Cocoon (Created by the Author 2025)

A strategic roadmap for GH	**Practice:** *Weaverbird + Cocoon*
The Cocoon plug-in is ideal for creating organic mesh-based forms using points and charges. An example scenario would be to start with the basic components in 'Cocoon' and then use Weaverbird's Catmull-Clark Subdivision or Laplacian Smoothing tools to create a basic framework for creating biomimetic structures or colonization. *A mesh surface created with Cocoon can be further enhanced with Weaverbird's tools. For example, with the Stellite component, star-like protrusions can be created on mesh surfaces.* *Weaverbird provides a set of operators to change the mesh topology. On a base mesh created with Cocoon, it can be created hexagonal patterns with Dual Graph or star patterns on triangular surfaces with Inner Polygons Subdivision. Such transformations are useful for complex surface textures or structural analysis.*	  *https://parametrichouse.com/cocoon/* https://www.youtube.com/watch?v=0v8er0xXmXo https://www.youtube.com/watch?v=-_RmGJGm9P4
Computational Cosmos	**Diagrammatic**
Cocoon, Weaverbird, Metaball, Isosurface, Charge Field, Adaptive Meshing, Marching Cubes, Stellate, Laplacian Smoothing, Catmull-Clark, Marching Cubes, Meshlab	

On the other hand, for projects like Bug Dome, which require physical implementation within three days, choosing the right software is crucial for process management to produce content so quickly in the drafting phase. The *Cocoon* plugin, based explicitly on the *Marching Cubes* component, provides specific functionality and added value within Grasshopper3D, providing sufficient functionality for the production of such forms. Alternatively, *MeshLab*, an open-source software alternative, can be used for mesh generation and surface rendering from point clouds, yielding results similar to those of the *Cocoon* plugin. Because the software focuses specifically on mesh processing, it is lightweight and optimized for complex modeling techniques (food4rhino.com; meshlab.net 2025).

3.2.2 Transforming Boundaries: Rethinking Capital's Limits through Creative Deviations

In the spatial organization of capital, the predominantly outward-oriented, centralist, and mono-functional character precisely determines the mode of production of the section in question from the very point that appears problematic. Defining those who cannot find a place within capital, rethinking those who are excluded, and targeting the multiple and minor instead of the single and major.

This design strategy aims to transform the existing parameters of capitalism and create a framework within which concepts related to nomadism, production, consumption, and even capital can be redefined. It aims to intervene not only in physical space but also in ways of thinking. By disrupting hierarchical, centrist, and majoritarian perspectives, it encourages localized and contextualized modes of thought. In such a strategic endeavor, design does not localize in pursuit of a static ideology; it creates achievements related to multiplicity, differentiation, and temporality. In other words, the goal is not to fill the gaps of the system, but to achieve creative and strategic deviations by reinterpreting these gaps.

To give form to the multiples and minors instead of monos and majors.

Social participation that meets the needs of every individual in society is only possible through strategic interventions that stretch the rigid structuralism within the capitalist order and make it much more permeable. Proposing spatial transformation projects through minor but resilient policies should become a fundamental preoccupation for designers in this era. To this end, even established concepts like "nomad" must be rethought. Thus, the nomad, in its traditional sense of being historically implicated and constantly on the move, becomes a kind of space creator, able to penetrate the fixed structures within the system and continually reconstruct its own space. Thus, concepts cease to be fixed representations and become tools shaped by moments and situations. Such transformative pursuits are especially possible when considering digital pragmatism.

Capital's habits that give rise to the major are often reflected in vertically scaled, ostentatious, and dominant forms. Far from being mere tectonic commodities, these major structures transform perception, passively constraining the user and limiting movement. However, small interventions can transform into simple yet effective Deleuzian war machines within this established order. These actions, which appear small-scale, temporary, or daily, are actually strategic deviations directed against the normative structure. For example, instead of a collective micro-economy and large, profit-driven structures, small, collaborative components disrupt and, over time, even transform capital flows. Thus, the minor can act as a kind of catalyst, defining not only the scale but also the method.

On the other hand, the current limits of capitalism are based on profit-driven production and consumption habits and individual interests. These design strategies encourage us to question this rigid equation. For example, instead of commodifying space as a consumption object in a production model that fosters a dialectic between producer and consumer, egalitarian spaces should be created that support sharing economies or community-focused organizations where everyone has equal access, representation, and participation. In this context, collaborative models can be created that prioritize the participation of low-income communities, people with disabilities, minorities, and immigrants, thus fostering collective consciousness.

Ultimately, this strategic alignment aims not to achieve a settled outcome but to achieve sustainable content through the gains created by transience and transformation. In doing so, it not only critiques the limits of capital but also bends, folds, and reconstructs them, aiming to create new spatial possibilities encompassing all segments of society. Thus, both established concepts and forms cease to be fixed, and transformation in design becomes a tool for rethinking.

3.2.2.1 Bifurcations: Multi-Path Gains

Preface: Hundreds of bifurcations… We considered the potential of the moment of emergence of countless rhizomes from a Deleuzian perspective… It is about a moment of becoming where all kinds of fixity dissolve and temporality and relationality emerge on the same layer. We imagined lightning flashing in the sky, and a river on Earth forking many times in different directions as it reached the sea. Like these traces, no identity is absolute; they are all sequential and temporary.

Kevin Skow (NOAA Photo Library 2025)

When Deleuze and Guattari talk about a branching that is non-hierarchical and can spread in all directions within the framework they created on rhizomes in A Thousand Plateaus, the type of image they are most likely pointing to the reader is the successes of bifurcation. Bifurcation corresponds to moments when a small idea or the actions that are concrete counterparts of these ideas are transformed, stripped of identity, and give birth to new multiplicities. This moment of bifurcation carries the potential for both destruction and creation. It is akin to what Kierkegaard called a *leap of faith*. When these bifurcations are on the verge of creativity, the object breaks free from stasis and recreates itself. With these bifurcations at the creative threshold, the object breaks away from stasis and recreates itself. While preventing existence from being trapped in monotony, this aspect also allows for a heterogeneous gain in the production of space. Creative action is triggered because each bifurcation requires a dynamic, not a static, intervention. As Deleuze notes in Difference and Repetition, the production of bifurcated difference carries the ever-transforming traces of both the past and the future. With such a metamorphosis, not a state of existence but a chain of becoming (devenir) is created (Figure 48) (Kierkegaard 1985; Deleuze and Guattari 1987; Deleuze 1994).

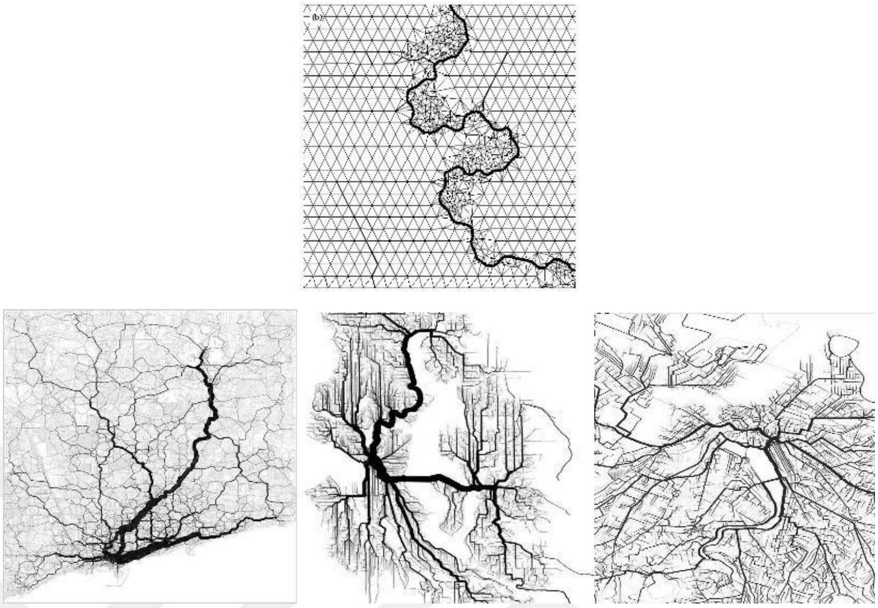


Figure 48: Variations of Rhizomatic Bifurcations (Compiled by the Author)

As a design strategy, the spatial benefits of bifurcation, unlike the monopolization of main arteries, should be discussed. Bifurcation enables transformation and access. The desire to produce template architecture subject to verticalist habits within the homogeneous network of capital renders backstreets inaccessible, thus concealing and isolating these spaces. Bifurcations created within such a network create accessibility opportunities by seeping through potential gaps; in other words, they generate potential difference (in context: spatial awareness). Shantytowns, unplanned housing, and unauthorized makeshift structures become visible. Consequently, these areas become in need of a transformation related to the socio-cultural and aesthetic concerns of capital desire. This bifurcation may not only represent a direct physical access or gain for the individual in the name of social transformation. At the same time, the gains of bifurcation lie behind the modularity-praising approaches of Deleuzian machine assemblages. In this context, bifurcation provides flexibility in the production process, enabling access to difficult-to-reach points. It produces *bypass* spaces that are not directly related, that are traversed but not reached. The bifurcation of virtual networks to create blockchains is one such gain (Figure 49) (Deleuze and Guattari 1987).

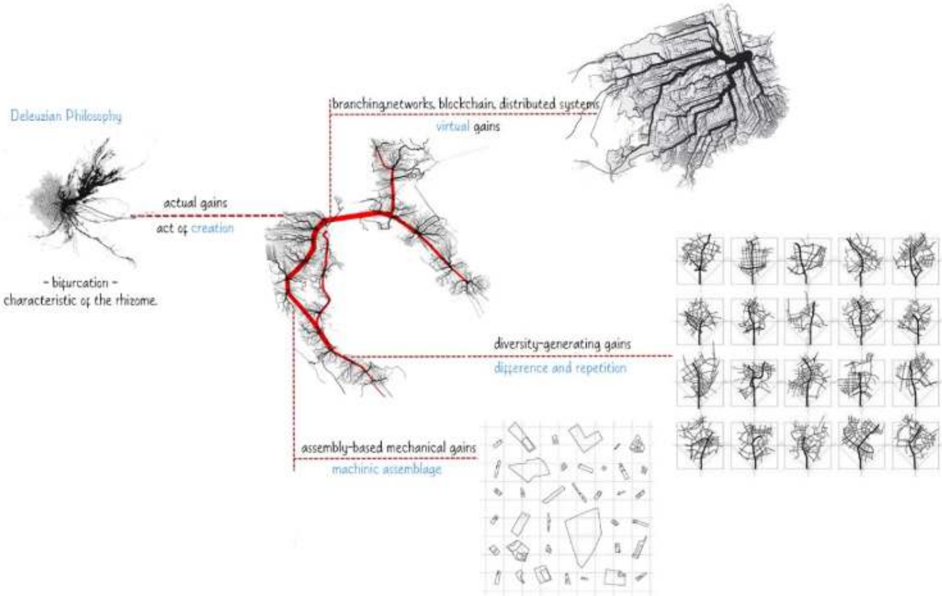


Figure 49: Rhizomatic Gains from Bifurcation (Created by the Author 2025)

In many parts of the world today, informal (in context: non-codable) settlements are areas that need to be recognized, yet they may be disappearing, yet they hold potential. Many of these, such as the favela in Brazil, the shantytown in South Africa, the slum in India, and the squatter settlements in the Philippines, are non-codable areas outside government control. A concrete example of the potential of the Deleuzian distinction to recognize, prepare, and develop these spaces is the Comuna 13 transformation project in Medellín, Colombia. This project involves a cutting intervention that allows the reintegration of informal settlements (in context: barrio), which are areas hidden behind the facades of intensive uses of urban capital capacities, into the city through forking paths. The region, which is particularly associated with violence and poverty, has been transformed through improvements in infrastructure, public transportation, and social areas through this idea of bifurcation within the scope of *Integrated Urban Projects* (Proyectos Urbanos Integrales - PUI), (Cunniff 2000).

On closer inspection, the Comuna 13 district was originally a shanty town spread across steep slopes, disconnected from the city's main network. The concept of bifurcation was conceived as a social strategy that extends beyond creating a physical diagram. First of all, access to the target area was made much easier by separating it from the main transportation line of the region with the cable car system called Metrocable. This model functioned as a branching that transcended the vertical policies of the city. Later, access was improved by connecting narrow, uneven side streets with *electric escalators* along the steep slopes of what could be considered a Deleuzian minority area. These infrastructure branches reintegrated residents into the city's economic and social network. At the same time, as part of the project, cultural activity areas such as street art and community centers were created in the region, achieving not only a physical but also a social transformation (Figure 50) (Deleuze and Guattari 1987; Töre and Çağlayan 2018).

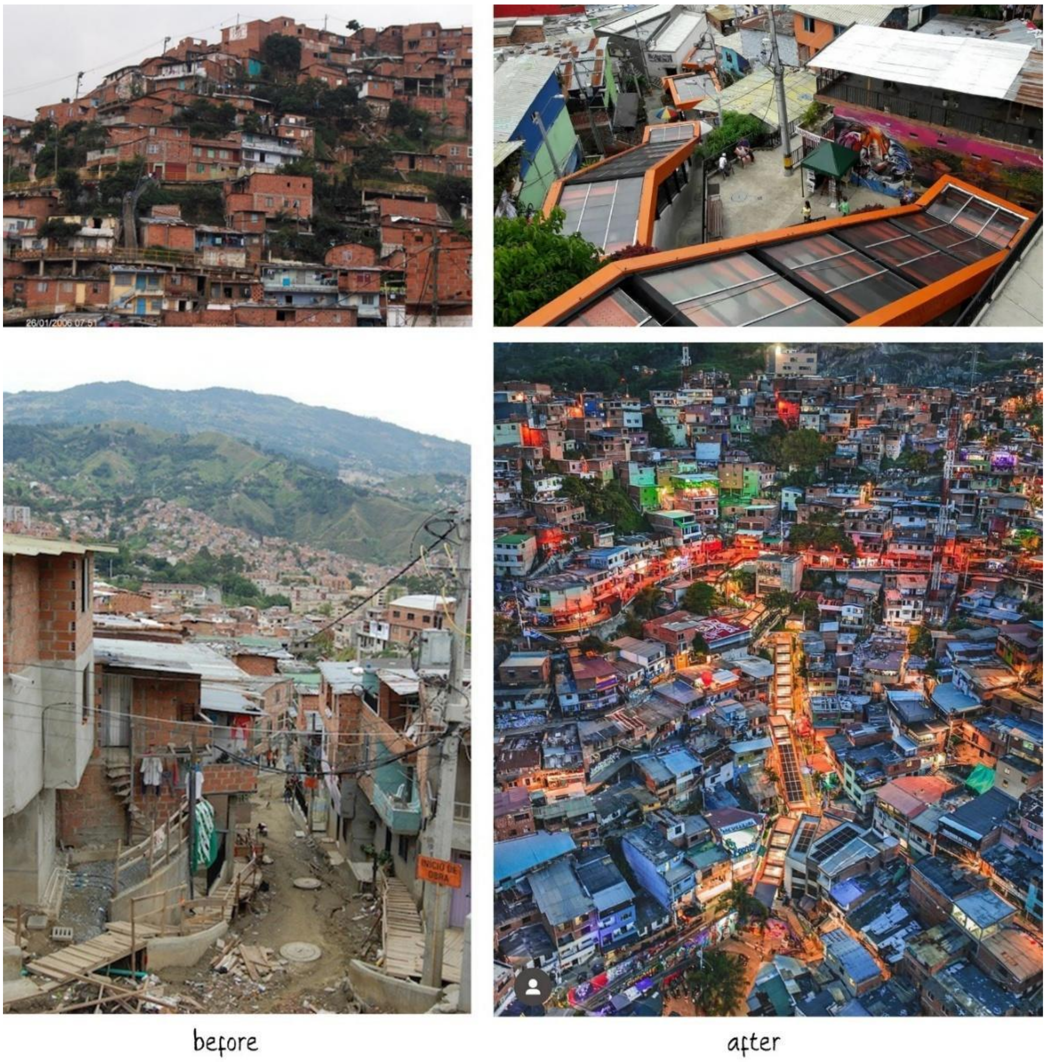


Figure 50: The Comuna 13 Transformation Project in Medellín, Colombia, and Bifurcated Gains (medellindaytrips.com; masteremergencyarchitecture.com 2025)

From a Deleuzian perspective, strategic creations in urban transformation projects such as Comuna 13 can break the isolation of the city's lost nomads (slums, makeshift spaces). In this way, the areas in question can be included within the city without losing the gridal plane of capital. While subway cables or stairways offer alternative transportation options, public spaces such as parks and libraries can become flexible spaces that communities can shape to suit their own needs. In line with Deleuze's idea of a rhizomatic network, such projects can enable growth and diversity to occur organically within the existing topographical pattern, rather than imposing a fixed master plan. To support these approaches, escalators, which were installed within the scope of the Comuna 13 project in 2011 and connect a 350-meter distance into 6 segments, increased the daily mobility of area residents by 30% and stimulated local commerce (Cunniff 2000).

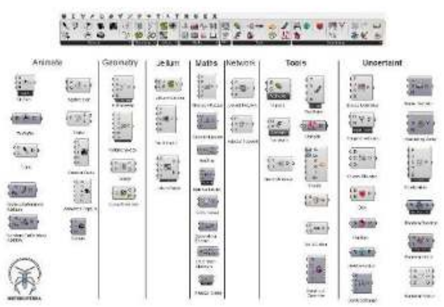
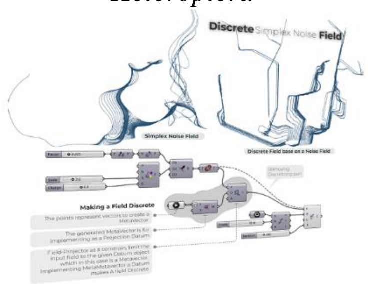
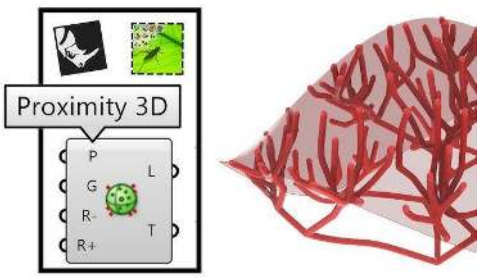
<table>
<tr><td colspan="2">Table 9: A Computational Method Proposal Based on Open-Source Codes Heteroptera + Dendro (Created by the Author)</td></tr>
<tr><td>A strategic roadmap for GH</td><td>Practice: Heteroptera + Dendro</td></tr>
<tr><td rowspan="2">The current ideal Grasshopper3d combination seems to be Heteroptera + Dendro. With this combination a wide variety of bifurcation networks can be created. In this direction, thanks to Heteroptera, mobile systems, branching and growth algorithms and parametric skeletons can be obtained. Randomness is commonplace. Dendro can thicken these skeletons on a voxel-by-voxel basis and transform them into organic surfaces. It also provides flexible connection points. It can be actively used in space design as it provides smooth transitions.
</td><td>Heteroptera

https://www.youtube.com/watch?v=g_WLo3sZjGg
https://www.youtube.com/shorts/00oBswFhwz0</td></tr>
<tr><td>Dendro

https://www.youtube.com/watch?v=i_RffnkR_xg</td></tr>
</table>

Table 9 Cont.

Computational Cosmos	Diagrammatic
Heteroptera, Dendro, parametric field, spanning tree, discrete simplex noise field, voxel, volumetric design, fractal growth, smooth volumetric mesh voxel resampling, adaptive mesh	 https://www.grasshopper3d.com/

Thanks to today's digital techniques and open-source software, it is possible to create rhizome-like, branching, and multi-connected paths. For example, the *Neuron* software is ideal for simulating biophysically detailed neuron models and networks. It has a rhizomatic functioning infrastructure, such as dendritic cells and synaptic connections, and since it works integrated with Python, it can work integrated with open-source architectural programs. Similarly, *Nest* software is a tool developed for neural network simulations. It can generate branching relationships based on random and biological data by modeling brain functionality. The *Virtual Brain* (TVB) and BMTK (*Brain Modeling Toolkit*) mimic the chaotic, non-technological, and branching nature of brain networks, again in automatic ways. With Grasshopper3d, it is possible to create parametric forms and changes based on the portability of the resulting branching. Therefore, the Heteroptera + Dendro combination seems ideal for such pursuits (Table 9). Apart from this, similar inferences can be obtained thanks to custom algorithms produced by designers on *Fracture Hopper*, *Wasp* plugins, or *Python* scripts (food4rhino.com, parametrichouse, paracourse, github.com, thevirtualbrain.org, braininitiative.org 2025).

3.2.2.2 Centrifugal: Highly Centralized

Preface: Operating in relation to a single center limited our creative capacity. Now, we were inspired by the energy in vortexes, tornadoes, hurricanes, dust clouds, or the swing of a Ferris wheel. Instead of being confined to a single center, we desired to create multiple centers. We questioned the possibilities of centrifugal effects. We broke free from static spaces and explored spaces of varying intensity. As a design strategy, we considered the advantages of polycentricity, which transforms, disappears, and reappears through centrifugal effects.

When Deleuze and Guattari discuss another characteristic of rhizomes in A Thousand Plateaus, they emphasize their multi-centered gains rather than a single, centralized understanding. In his support of Deleuze and Guattari, Latour's liberatory relations with actor-networks, Foucault's praising of micro-powers in the current situation, Haraway's politics supporting the deterioration of subjectivity, or DeLanda's organic society model through assemblages. These all encompass theories developed on the creative potentials of being polycentric rather than having a single authority. These theories also help to understand the features of closed-loop systems, adaptations, and evolution (Foucault 1975; Deleuze and Guattari 1987; Haraway 2003; Latour 2005; DeLanda 2006).

In order to examine the multi-centered plan scheme as a design strategy, it is necessary to discuss what kind of gains the centrifugal effect can provide. In this context, *Bifurcation Theory* serves as a guide in questioning the centrifugal effect. In summary, this theory suggests that potential systems can diverge into multiple possible pathways at a critical threshold. This theory, which finds its roots in physical theories and laws, is also clearly related to chaos theory, as it gives rise to complex and unpredictable traces. The theory in question has a mathematical framework in which the behavior of any dynamic system undergoes a sudden and qualitative transformation. Thus, it is possible to obtain pointwise variations on possible design strategies using *saddle-knot*, *pitchfork,* and *Hopf* bifurcations. Each behavioral model can create a different scenario for how the plan diagram will be formatted. For example, in a *saddle-node bifurcation*, two equilibrium points first converge and then disappear, while in a *supercritical pitchfork bifurcation*, the population starts from a stable, accelerating equilibrium point, but when the parameter (in context: *resource abundance*) crosses a critical threshold, this single equilibrium point becomes unstable and two new stable equilibrium points emerge. In *Hopf bifurcation,* a fixed-point change over time into a periodic oscillation, creating new points (Figure 51) (Wiggins 1990) (Strogatz 2000).

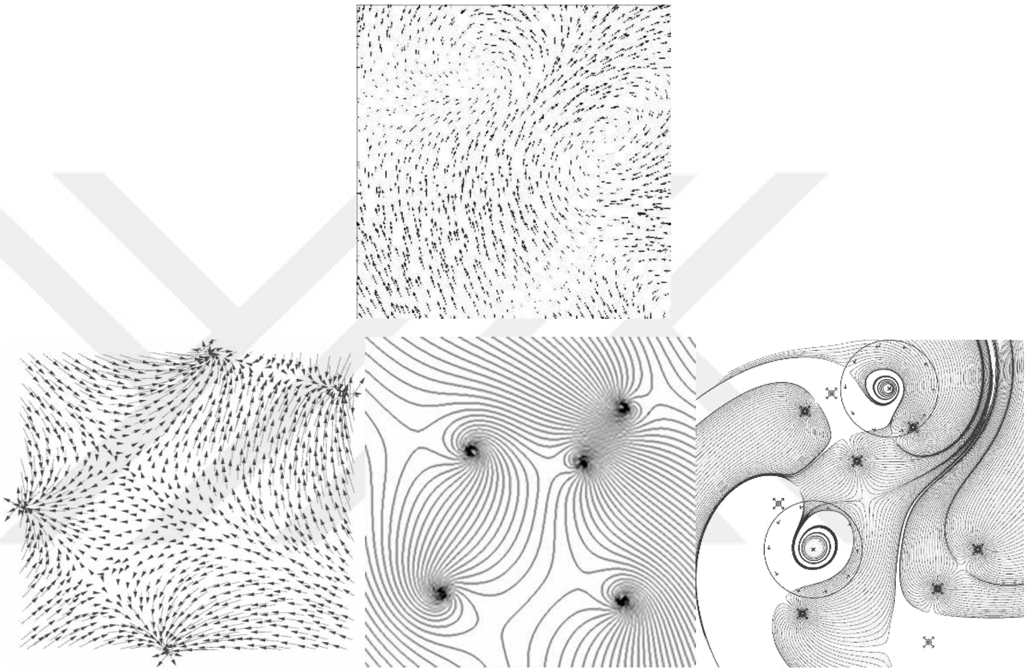


Figure 51: Trace Variations Derived from Bifurcation Theory (Saddle-Node, Pitchfork, Hopf) (Compiled by the Author 2025)

When considered layered with Deleuze and Guattari's rhizomes, bifurcation theory can be derived from dynamic interactions that utilize polycentric diagrams. These gains can be diversified as nodes, line densities, gaps arising from the areas left by the lines, and the final gain where the boundaries gradually turn towards new center points. Each node carries the potential for metamorphosis (in the context: becoming) by being subject to centrifugal effect. These nodes can be used as a new central point to define new facilities. The line spacings extending from each node can result in large, variable areas that are not symmetrical. Therefore, a complex diagram that is unpredictable, flexible, and adaptable is possible. If the diagram in question is imagined on a city plan, a dynamic syntax is obtained where nomadic distributions are optimized instead of Orthodox centralization, and where coastlines and inaccessible planes create their own centers (Figure 52).

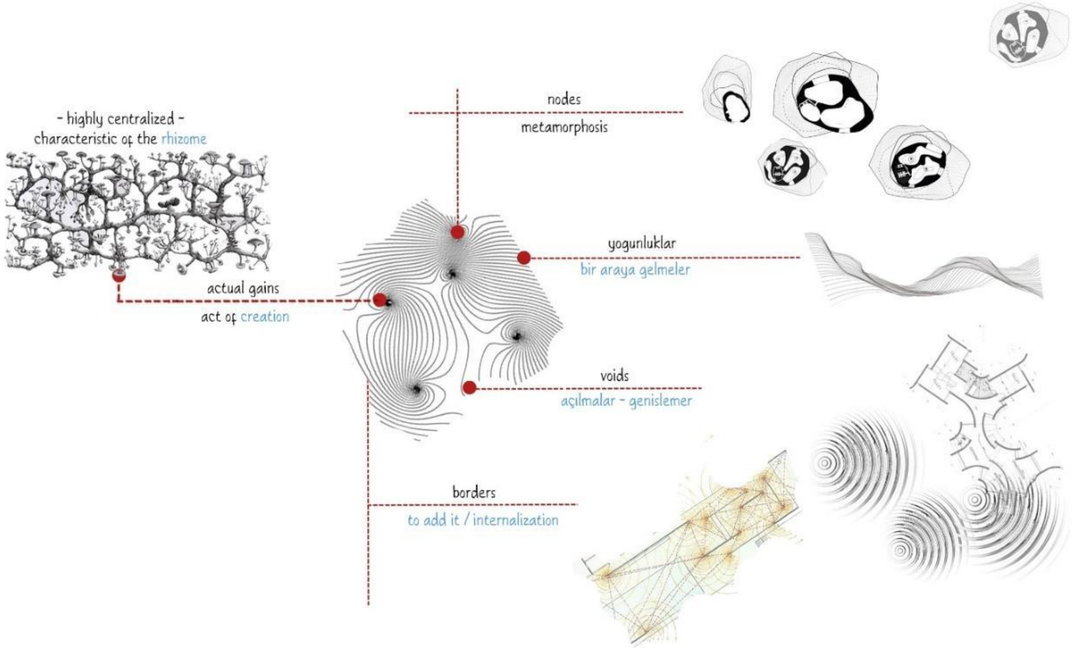


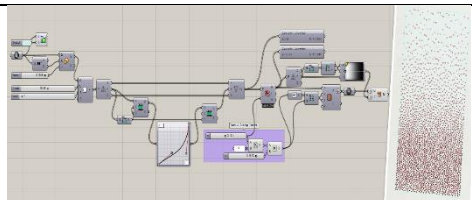
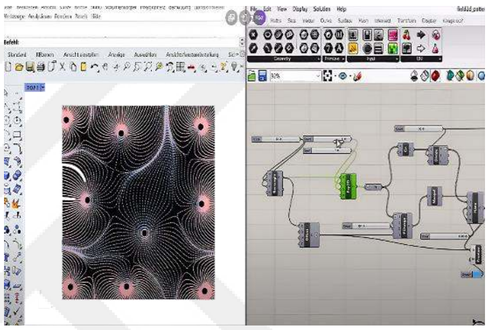
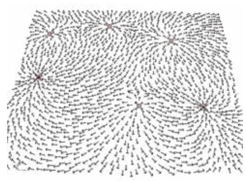
Figure 52: Dynamic Gains Subject to Centrifugal Effect (Created by the Author 2025)

When creating an inclusive design strategy, in addition to the physical benefits resulting from the centrifugal effect, the sociological benefits that affect daily life practices must also be addressed. This effect, defined as an imaginary force in physics, can be transformed into a strategic approach in ethics and political philosophy to expand moral circles and thereby build a sustainable society. In line with this approach, the ethical philosophical implications of thinkers such as Edmund Burke, Peter Singer, and W.E.H. Lecky are particularly pragmatic. Burke (1790) advises caution against sudden and radical change. He argues that moral concern should expand under the influence of centrifugal force, starting from traditional and local loyalties, and not lose its commitment to the central point. Singer (1979), whose approach to morality and ethics can be considered far more participatory and provocative than Burke's, argues from a functional perspective that the moral cycle can progress through evolutionary expansion. According to him, the moral validity of an action is related to its utilitarian consequences. In his view, actions that bring happiness to the majority are morally right; accordingly, utilitarian actions should be maintained, while non-utilitarian ones should be abandoned. Lecky (1869), taking a perspective similar to Singer, argued that moral values are not fixed but can change over time. For him, social norms are constantly renewed in response to shifts in societies' experience and thought systems and are therefore polycentric.

Figure 53: Uganda LGBT Youth Asylum Center (Chinellato and Donato 2016)

The project, selected as the winner in the competition organized by Bee Breeders under the name Uganda LGBT Youth Shelter Center, draws attention to its success. Enrico Chinellato and Jacopo Donato's first project aims to create a safe, supportive, and integrated space for LGBT youth, thus creating a community center that promotes social integration rather than isolation. In this context, a spiral-shaped and centrifugal multi-center plan was created within the scope of the project in response to the social exclusion and oppression experienced by LGBT individuals in Uganda. This centrifugal effect both encourages open circulation paths and aims to create a sense of sheltered refuge in the interior spaces (Figure 53) (Competitions Arch 2024).

Table 10: A Computational Method Proposal Based on Open-Source Codes - Populate 2D + Field (Created by the Author 2025)

A strategic roadmap for GH	**Practice:** *Populate 2D + Field*
In a ***first*** *step, if we want to develop this approach through a gridal syntax, a point cloud (base) with Populate 2D is ideal to create that gridal syntax (rectangular area). This area is delimited by Bounds. The* ***second*** *step involves the moves necessary to create multiple centered points with off-center force effect. Accordingly, a Perlin Noise or Simplex Noise field can be created using the Field component. Combine the Noise command with Field to make the points rise on the Z axis. Hence, it simulates possible future topographic fluctuations. The intensity and scale of the waves can be controlled by adjusting the Amplitude and Frequency parameters. The next steps can realize surface creation, topographic roofing or vortex effect (Bifurcation Simulations).*	 *Populate 2D* https://www.youtube.com/watch?v=56VnbOlQlm8  *Fields* https://www.youtube.com/watch?v=LepWVIptZcM
Computational Cosmos	**Diagrammatic**
Fields, NoiseField, saddle-node, pitchfork, Hopf, Bifurcation theory, vortex, Perlin noise, populate 2D, Amplitude, Frequency, Vortex Force, Radical Force, VOPs, Bounds, ArrayPolar, FlowAlongSrf.	

Given today's digital techniques and open-source software, it is possible to create rhizome-like, centrifugal, multi-connected paths. For example, the *Houdini* software allows the manipulation of particles with points radiating outward from a center. In particular, centrifugal effects can be simulated by applying *Vortex Force* or *Radical Force*. With VOPs (Visual Operators) or VEX codes, polycentric points can be customized, and fork-like branches can be added. With Grasshopper3d, it is possible to produce optimizations and parametric shapes based on the gains resulting from the centrifugal effect. Therefore, the Populate 2D + Field combination is ideal for this type of production. Additionally, this can be enriched with custom algorithms that designers create using Weaverbird, LunchBox plugins, or Python scripts (Table 10) (food4rhino.com, parametrichouse, paracourse 2025).

3.2.2.3 Fracturing: Multi-Axis Returns

Preface: While dissolving the fixed structures of capital space, not rejecting its Cartesian habits. Accepting primitive forms, right angles, and axes derived from these angles. However, as a strategic initiative, while preserving the nature of these habits, it aims to achieve a much more adaptable Cartesian with minimal interventions to its segmentation values. This was precisely the motivation for this potential strategy: to break them, to reassemble them where they were broken, to create new, successive cells…

The historical indicators presented throughout the thesis revealed that the structural habits of capitalist space that resisted change were united within the axiomatic framework of Euclidean geometry. Today, the structuralist understanding we call traditional has adopted the habits of this kind of geometry. Perhaps the entire expansion was related to Euclidean geometry's appeal to the idea of a flat universe. Between these flattenings and these flatnesses, the grid syntax, which defines points, lines, angles, and surfaces with specific axioms, created a dependency. With

Descartes' digitization of this system with coordinates and the principle of fixing everything on the x, y, and z axes, the ideal framework of the capital universe was created. Space was transformed into plots defined by coordinates, and social relations into hierarchical structural models (employer-worker-producer-consumer). Everything was now confined within a perfectly flat, predictable, and measurable grid. Then, is it possible to break this system model without abandoning Euclidean habits? Hasn't history already attempted this extensively through Euclid's fifth axiomatic (the axiom of parallel lines)? Did the search for hyperbolic or non-Euclidean geometry not arise from this?

At this stage, the motivation is to remain within Euclid's Cartesian boundaries. It is to consider the habits of thought related to the gridal syntax of capital space, also through Deleuze's machine assemblage. In this assemblage, the components are accepted as they are. Neither their use is abandoned, nor is any major, modifying intervention that would alter them preferred. However, the creative strategic move is related to the way the parts in question come together (the form of the assemblage). The nature of the parts is the same, but their segmentation values and forms differ. The intervention occurs by breaking them, cellularizing them, and creating new and multiple axiomatic structures from them. The aim is to provide a mobile base for a tectonic that has not yet fully broken away from the Deleuzian identical, but instead generates difference. Proposing new and multiple coordinates (in context: fractal chaos) instead of the traditional orthogonal obsession (in context: thought, space production, or social relations) can create a deconstructive gain that leads to diversity instead of the ideal of a single truth or parallelism (Figure 54).

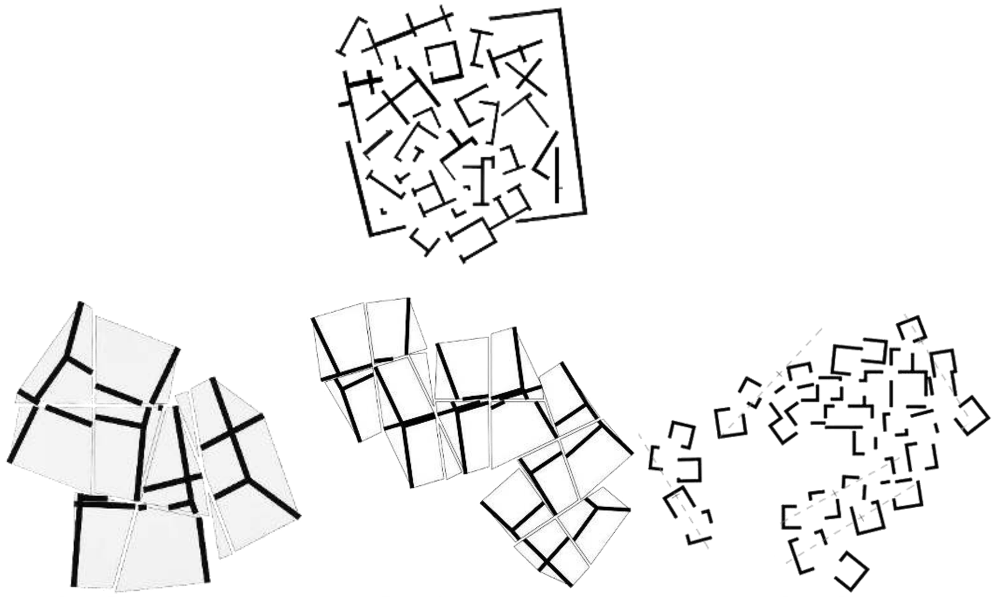


Figure 54: Controlled Syntax Fracturing: New Axiomatics within Capital's Orthogonal Order (Compiled by the Author 2025)

This kind of gain is similar to the success of paradoxical spaces that disrupt the internal consistency of a system. However, the adequacy and control of the rupture are critical at this point. Fractal fragmentation, and especially Voronoi diagrams, can become a threat when proliferated uncontrollably. At this point, it is possible to transform the threat in question into a creative energy by ensuring that these structures are channeled into the functional production process, as the concepts of machine assemblage and desire in Deleuzian thought point out the potential of such threats. In other words, instead of rejecting chaos, the way multiple axiomatics function should be altered. Thus, the well-intentioned strategic initiative sought will avoid turning into cancer cells monopolized by lined space, and instead, by being functionalized under the control of minor axiomatics, it will allow for the achievement of infinite becoming.

Founded in 1999 in Berlin, Germany, as an experimental architecture and urban design collective, Raumlaborberlin aims for such achievements. The characteristic tectonics of its projects are based on temporary spaces that do not completely abandon the conventional linear and primitive geometries of capital, yet depart sufficiently from the static notion of space it generates. Another key characteristic distinguishing the group from traditional architectural firms is its relationship with a highly dynamic and fluid structure model, encompassing stakeholders including architects, urban planners, anthropologists, social scientists, and artists. The framework for this architectural collective's projects defines an active production model in which local people are encouraged to be both producers and users of these projects. This way, every stage of the design gains depth in collaboration with the local community (raumlabor.net 2025).

Floating University Berlin, a temporary campus located in a disused rainwater basin near the former Tempelhof Airport in Kreuzberg, Berlin, is one of the public space achievements of Raumlaborberlin. The project is an interface for a multi-voiced community of local communities from all segments of society, including students, academics, scientists, artists, designers, and musicians. In this context, it is hoped that these communities will come together to develop innovative urban solutions to near-future challenges, particularly climate change, resource scarcity, and urban diversity (Figure 55) (Ibid).

Figure 55: General View of Floating University Berlin (Raumlabor.net 2025)

The project, which won the Golden Lion award at the 2021 Venice Architecture Biennale for its collective and regenerative approach, features a temporary and articulated tectonic structure comprised of wooden structures, scaffolding, and inflatable roofs. Following the material design decisions, a lightweight and permeable aesthetic unity, reminiscent of birdwatching towers or greenhouses, prevails, harmonizing with the basin's natural ecosystem. Elements such as workshops, an auditorium, a kitchen, a bar, and experimental water filtration systems were built jointly by students and professionals. (Figure 56) (Ibid.).

Figure 56: Temporary Tectonics Designed by Students (Raumlabor.net 2025)

Floating University Berlin, both in its production and subsequent use, represents the kind of assemblage DeLanda suggests. There is a sustainable overflow extending towards the city basin where nature, technology, and humans are consecutively related to each other, and in this respect, a heterogeneous unity is created. In order to make the spaces flexible, the connection details are designed to be temporary, modular, and portable. Each module, each machine from a Deleuzian perspective, is in a rhizomatic-analogical relationship with each other as part of an assemblage (Figure 57) (Ibid.).

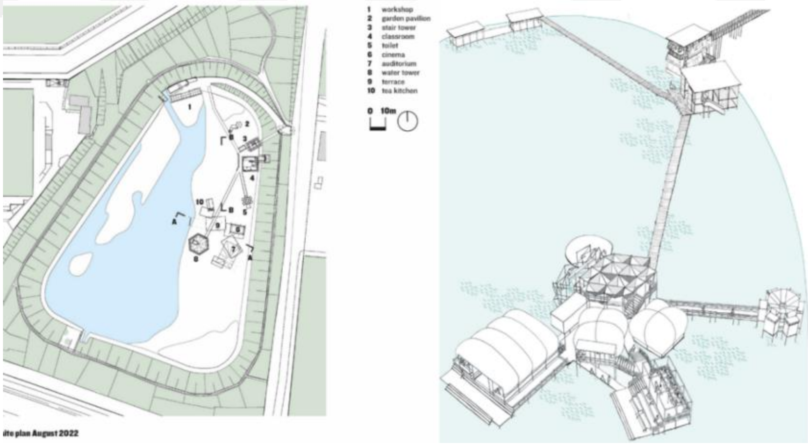
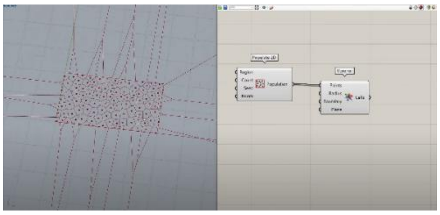
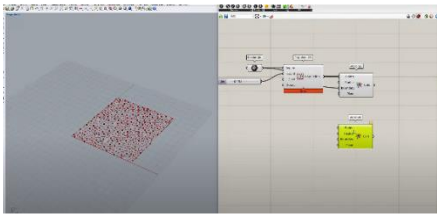
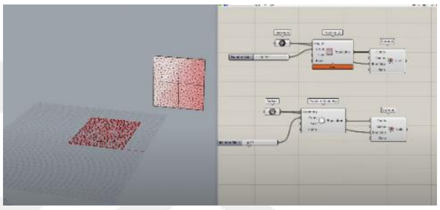
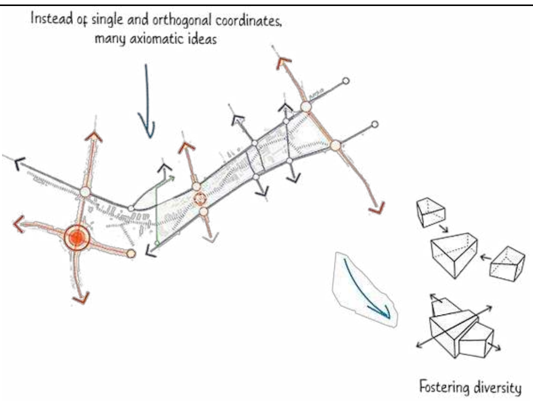


Figure 57: Floating University Berlin as a Heterogeneous Assemblage (Raumlabor.net 2025)

This kind of achievement is similar to the success of paradoxical spaces that disrupt the internal consistency of a system. It is shaped by the data-driven precision of computational design, particularly where a more intuitive organization of spatial relationships is desired. However, the adequacy and control of rupture are critical at this point. Fractal fragmentation, and especially Voronoi diagrams, can become a threat when proliferated uncontrollably (Table 11).

Table 11: A Computational Method Proposal Based on Open-Source Codes – Voronoi (Created by the Author)

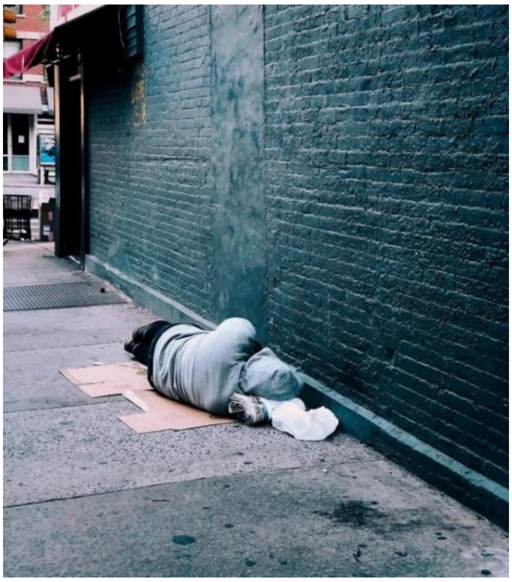
<table>
<tr><th>A strategic roadmap for GH:</th><th>Practice: Voronoi</th></tr>
<tr><td>
Constructing Voronoi Diagrams
Creating Voronoi diagrams in Grasshopper is a common and simple operation in parametric design. A Voronoi diagram is a geometric construct that divides space into cells based on a set of points and can be ideal for creating multiple axes.
First, you need to define the points that will form the basis of the Voronoi cells. To do this, you can generate random points from a cluster or rectangle with the Populate 2D or Populate 3D components.
Next, the ideal environment is prepared for using the Voronoi component. The previously prepared points are connected to 2D Voronoi diagrams at this stage (Voronoi 3D is used for 3D). If the output of cells (C) is evaluated, it will give the Voronoi cells as closed curves.
</td><td>



https://www.youtube.com/watch?v=T4HRsC_YWvM
</td></tr>
<tr><th>Computational Cosmos:</th><th>Diagrammatic:</th></tr>
<tr><td>
Voronoi, fractal, segmentation, tessellation, recursion, populate 2D, convex hull, centroidal voronoi tessellation, dirichlet tessellation
</td><td>


</td></tr>
</table>

On the other hand, just as Deleuzian concepts of machine assemblage and desire point to the potential of such threats, it is possible to channel these structures into a functional production process, thereby transforming the threat into creative energy. In other words, instead of rejecting chaos, the way multiple axiomatics function should be altered. Thus, the well-intentioned strategic initiative sought will avoid transforming into cancer cells monopolized by striated space, and by being functionalized under the control of minor axiomatics, will allow for the achievement of infinite becoming.

3.2.2.4 The Uncodifiables: Non-Places

Preface: The uncodable, neither fully present nor absent. Those who belong nowhere, those without identities, those without a homeland. Those lost among airport terminals, parking lots, paving stones, parks, and gardens… The route of a possible design strategy is this time about transforming those who lose their identity in these spaces that do not belong anywhere… To this end, we focused on the potential of nomadic existences (displacements) within the gridal syntax of capital space that first codes and then decodes.



National Prevention Science Coalition, 2016

In the context of modern structuralism, shaped by the motivation of capital space to code the individual, the city is divided into functional blocks, serving the cycles of production and consumption. Within this cycle, system owners desire to classify individuals according to specific functions and consumption habits (Deleuze and Guattari 1987). This situation, on the one hand, expands the wealth of the wealthy, while on the other, it leads to the gradual impoverishment and even disappearance (invisibility) of the lower classes within the system. Inevitably, this order gives birth to those the system cannot codify in one way or another: the homeless, the deterritorialized, and the nomads. This confines the nomads to temporary spaces, terminals, under bridges, and underpasses. Searching for potential within such structural exclusion means entering the gaps of the capitalist network with creative interventions.

Marc Augé's concept of non-place is a concept introduced to describe temporary spaces in modern societies that cannot be associated with any 'context', perhaps with a more comprehensive implication of identity and history. Specifically, in the world created by the capital network based on speed, consumption, and transience, it refers to places where people lack a sense of rooting and belonging. Spaces such as airports, highways, parking garages, supermarkets, and waiting rooms represent typical examples of "non-places." People do not use these spaces constantly; they exist as travelers and consumers. Consequently, they do not feel a deep sense of belonging to these spaces. Functionality points to the most important design principle of these spaces (Augé 1992).

Uncodable spaces are potential at the intersection of Mark Augé's concept of non-place and the capital space that Deleuze implies generates a kind of schizophrenia. In contrast to the Deleuzian perspective, which comments on how fixity or being coded in context blocks creativity, such non-places function as a (field of) becoming. Instead of anchoring the individual in a molar identity, they push them toward a molecular dispersion. Temporality, in particular, is a map of intensities beyond mere existence (in context: the rooting of belonging) in such spaces. On a fluid and non-linear plane, it forces the individual to move along a new line of flight constantly. On a fluid, non-linear plane, it forces the individual to move along a new line of flight constantly. Amidst the hierarchical blocks of the striated space, the nomad's steps increase and decrease with an intensity similar to rhizomatic-minor formations; their voices rise, fall, or are replaced by another's. In other words, identity dissolves in these spaces. (Deleuze and Guattari 1987).

The idea that one gap closes as another opens in the production of temporary spaces, in other words, a strategic intervention targeting the potential for displacement, appears quite plausible. The stabilizing habits of capital spaces, which first encode, then decode, and finally reach their ultimate goal by recoding (in context: deterritorialization), are inspiring from a design perspective. The gaps that emerge in this coding traffic, where each pixel dictates the circulation of capital, give rise to absolute potential. This potential can manifest in several ways. Sometimes, spaces abandoned by those who concentrate while engaging with one another, sometimes gain meaning resulting from displacement, and even, perhaps, remain uncoded within all this traffic. (Figure 58) (Deleuze and Guattari 1987).

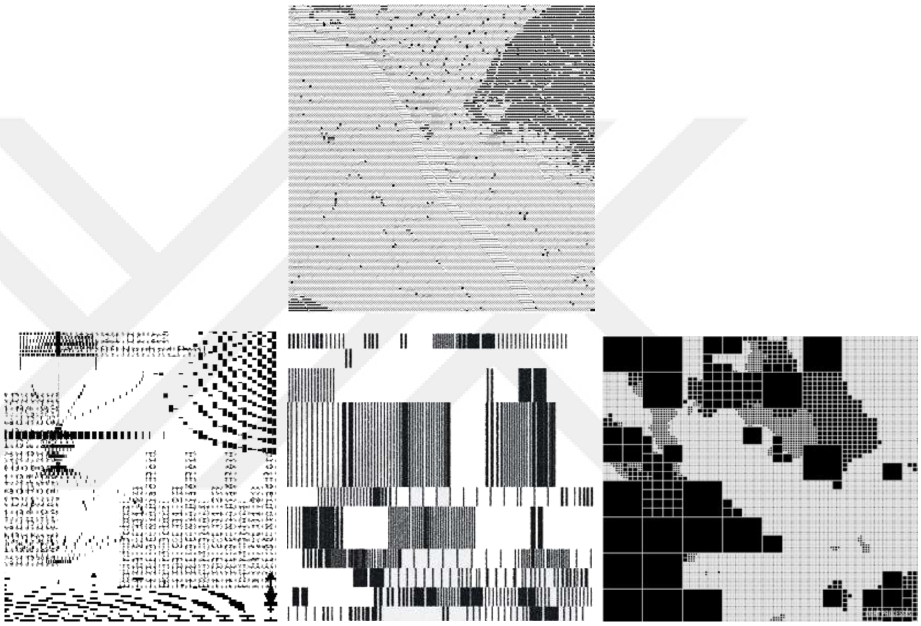


Figure 58: Potential Traces of Nomadic Spaces Arising from the Shifting Habits of Capital Space (Compiled by the author 2025)

The resulting gap, which results from a space's inability to generate context or its detachment from its context (in context: *deterritorialization*), is transformed into something else in two primary ways. This transformation can sometimes be implemented under the control of the coder (in context: states) or more freely within the organization of collective consciousness, such as civil society organizations (in context: minor-becoming).

Primary transformation is sensitive, yet reterritorialized because it is defined under the control of the system. Highways, bridges, and parking lots are all planes shaped by the control of capital system models. For example, in Seattle, USA, approximately 7.5 acres of what was initially a dark and unused highway subdivision was transformed into a city park. This space was reorganised to host one of the first urban mountain bike trails in the US, thanks to local government and community collaborations that foster participatory architecture. In Melbourne, another highway crossing has evolved into a hub for young people to gather, engage in sports, and strengthen community bonds. Similarly, in Amsterdam, the Netherlands, a large area under a highway was reorganised for water activities such as boating and paddleboating. All examples exemplify the use of a gap in capital's grid for participatory, utilitarian policies that will still serve the wheels of its own desire machine.

Secondary transformation, however, is again about what cannot be coded, but this time it involves the transformation taking shape through the organization of collective consciousness, such as civil society organizations. The organized management of collective consciousness plays an active role in the transformation of such non-lieu spaces. According to Durkheim, the sustainability of societies depends on transformative and participatory initiatives that strengthen spatial Fcontext and social memory. In this regard, the acquisition of temporary spaces can be a strategic goal (Figure 59).

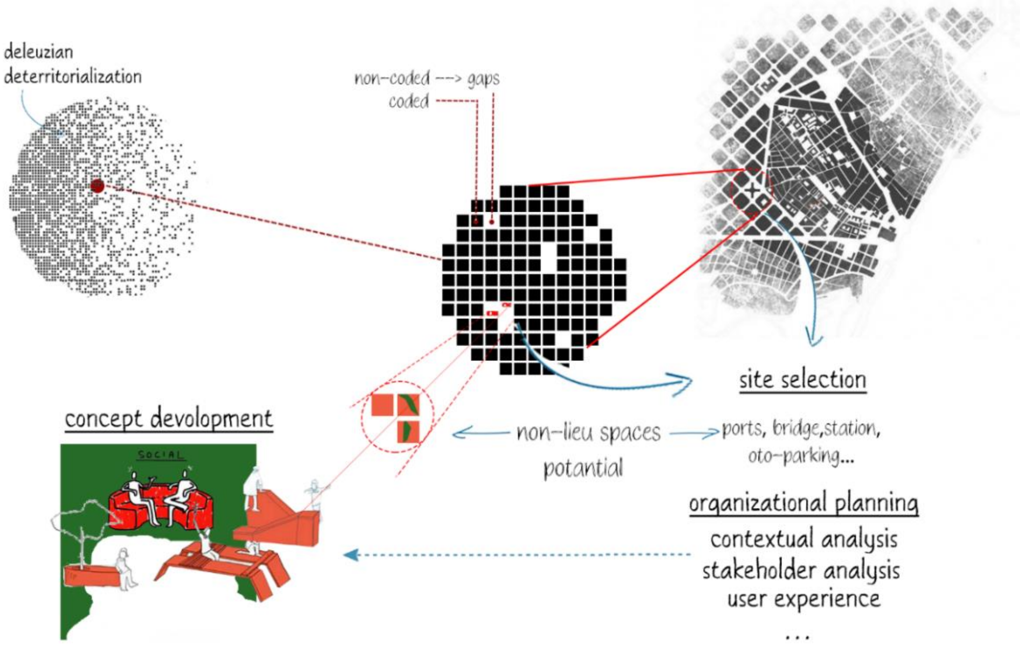
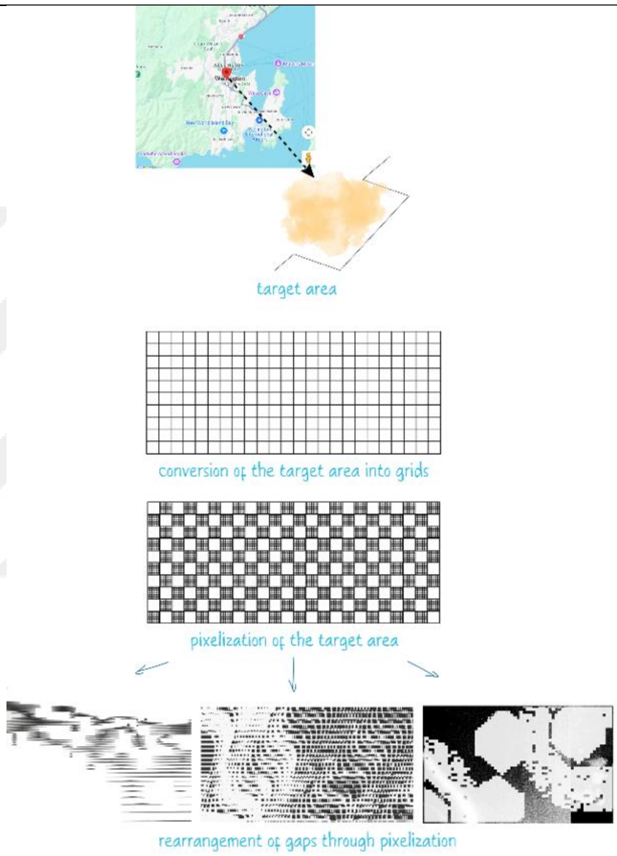


Figure 59: Diagram of the 'Park Day' Movement within 'Tactical Urbanism' (Created by the Author)

The Park(ing) Day movement, which was initiated in San Francisco, USA, in 2005 by an art and design collective called Rebar, and is an important representation of the tactical urbanism initiative, includes such a collective initiative. This initiative, implemented annually in different locations around the world, aims to transform mini-parking lots into public and social spaces temporarily. This initiative highlights the need to redesign streets to be greener, safer, and more equitable. In this regard, typically more than 70% of the streets in cities are reserved for vehicle movement and parking, and the areas that can be used by individuals are quite limited. This rate also means that the air pollution rate in cities is quite high. In this context, the project questions the existence of parking lots (in context: temporary spaces) in the urban plans of the capital system and demands the reclaiming of these spaces for communities. *Park(ing) Day* is a movement that encourages city residents to question the use of their streets and consider how public spaces can be better utilized (Figure 60) (myparkingday.org 2025).

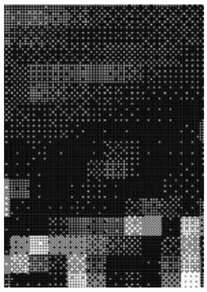
Figure 60: Non-lieus converted as part of the Park(ing) Day movement (Nashville 2013; New Orleans 2016; Philadelphia 2017; Jersey City 2019)

Today, the current possibilities of digital design allow us to organize transformation strategies for such inactive or de-identified spaces in a more flexible, participatory, and context-sensitive way. Data-driven analyses, in particular, can be used to track the relationship between such spaces and current capital flows, and strategic interventions can be developed to find flexible solutions that respond to changing social needs (Table 12).

<table>
<tr><td colspan="2">Table 12: A Computational Method Proposal Based on Open-Source Codes + Image - Rasterizer (Compiled by the Author 2025)</td></tr>
<tr><td>A strategic roadmap for Processing</td><td>Practice: Parking Day Movement + Image - Rasterizer</td></tr>
<tr><td><u>Benefits Of Converting Gridal Syntax to Pixels</u> (Code flow inspired by Tim Rodenbröker creative coding)
1. The target region is defined in the Park (ing) Day Movement framework.
2. This region is framed as a gridal syntax.
3. This region is encoded in pixels.
4. Creative code images are obtained from the pixels.
5. With these images, new images can be assigned to new target spaces.
<u>Park (Ing) Day Examples from Different Parts of The World</u>
</td><td>

Ref: Rodenbröker, T. (2025). Tim Rodenbröker – Creative Coding and Visual Design Education from https://timrodenbroeker.de Rodenbröker, T. [Tim Rodenbröker]. (2022). How to use the image rasterizer [Video]. YouTube. https://www.youtube.com/watch?v=XO8u0Y75FRk</td></tr>
</table>

Table 12. Cont.

Computational Cosmos:	**Diagrammatic:**
Pixel · grid · resolution · bit depth · bitmap · dithering · threshold · grayscale · contrast · brightness · alpha · opacity · sample rate · scanline · quantization · vector to raster · anti-aliasing · image sampling · thresholding · monochrome · binary image · downsampling · upscaling · compression · image mapping · tiling · dot matrix · mosaic · grid subdivision · rendering · pixel sorting · noise · blurring · edge detection · raster scan · image matrix · color quantization · raster cell · raster resolution · density mapping · luminance.	

In participatory projects that support tactical urbanism, such as Parking Day, computational design and open-source software can be beneficial for faster and more creative process management. In this context, data for the target transformation area is initially obtained from platforms such as Google Maps, OpenStreetMap (OSM), and Mapbox. At this point, the target instrument must be defined for further study. Tim Rodenbröker's works on Images and Pixels and Image-Rasterizer, which are image processing and pixel manipulation generators in the Processing programming language, can be a guide in this regard. The aim of the studies involves displaying data as pixels using Processing and making creative changes by manipulating these pixels. Especially considering the axiomatics of temporary and adaptive projects such as Park(ing) Day regarding speed, creativity, and modularity, such an approach can be extremely practical in a scenario where the areas in question are defined as green areas and which areas are to be walked on or where temporary modules will be designed through the mentioned code traffic (timrodenbroeker.de 2025).

3.2.3 Transcending Boundaries: Generating Differential Space through Nomadic Echoes

Until now, we have been searching for a participatory space at the center of sustainable social transformation by clinging to the data of capital. We proposed rethinking the excluded individuals, objects, and machines of cities (nomads in the context) subject to capital dynamics, labor processes, and consumption patterns within the boundaries of capital through an assemblage unity. This time, we want to move away from grid (capital) habits and search for what exists within the possibilities of topography. By trying to produce from a point closer to the pure nomad who clings to what nature has bestowed upon us.

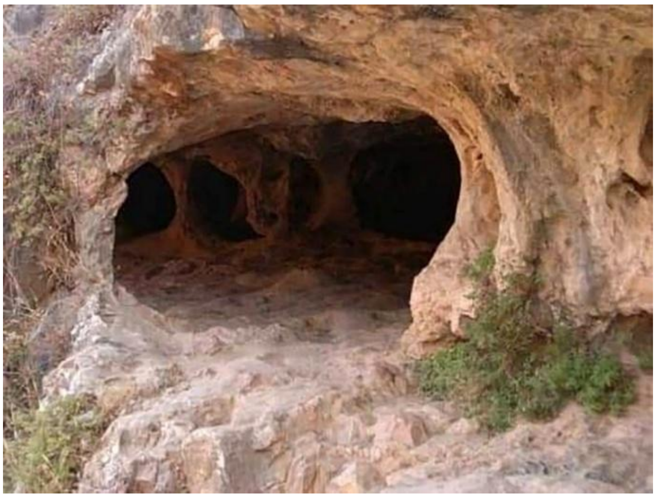
The centralized, competition-driven, and homogenizing spatial production of the capitalist city often disregards the ecological, cultural, and social assets of the topography (Harvey, 2012). However, when we look at the relationship between the pure nomad and the topographic forces that govern its historical existence, it seems possible to find policies that will both facilitate the capital's hegemonic production of space and disrupt rent-focused consumption spaces. For topographic parameters do not only provide the achievement of a physical space; they also exist as a plane of solidarity practices that encompass all segments of society. In this context, it is valuable to create a design strategy based on the internal dynamics of nature and to explore spatial practices as an alternative to the primary capital (Massey 2005).

Lefebvre emphasizes that capitalist actions like to structure space as an abstract object (in context: commodity/meta), and topographic forces motivate *differential spaces* in response to this attempted objectification. These spaces create areas where regional or marginalized communities (nomads in the context) can continue their own practices (Lefebvre 1991). David Harvey, on the other hand, draws attention to how topographic areas are transformed into occupation areas by rent-oriented capitalist initiatives. In his view, these areas should not be abandoned to capital, but should be reclaimed as spaces of resistance through solidarity economies, collective productivity, and ecological movements (Harvey 2012). De Certeau, on the other hand, argues that topographical areas can be transformed into tactical living spaces, especially within the framework of his analyses of daily life practices (*L'invention du quotidien).* Its primary emphasis is on how the individual can be integrated into nature's self-organizing content, which feeds on nature's emergent dynamics. According to de Carteau, topographic traces should not be left to the monopoly of unconscious urban planners. These areas should be transformed into points of resistance that create gaps in the topography through temporary and creative actions to experience everyday life practices (de Certeau 1984). From another perspective, Edward Soja conceptualizes topography through the *thirdspace*, parallel to Deleuze's expression of *straight* and *smooth* space. According to him, Firstspace is a physical and material space that can be measured and observed. Secondspace is an imaginary space characterized by ideologies and dreams. In this context, *thirdspace* is a hybrid and resistance-oriented production space that transcends the hierarchical space of the capitalist city, desired both physically and mentally. According to Soja, the canvas of the third space is the topographic planes. These areas were experimental spaces where local communities or marginalized groups could develop their own spatial practices in response to the homogenizing effects of the capitalist city (Soja 1996).

This part of the study is framed in a way that supports the approaches of spatial theorists that center on topographic possibilities. To achieve these gains, design strategies are created that instrumentalize the utilitarian axioms of digital technologies. In particular, the possibility of manipulating topography through open-source digital assets creates the ideal environment for these topographic forces to be transformed into strategic initiatives. In this context, what is presented throughout the chapter encourages us to rethink almost everything, from the inherent dynamism of nature to the nomadic shelters of primitive times, and bring these into design practice as part of the Deleuzian assemblages of the individual, nature, and the machine.

3.2.3.1 Becoming-Natura

Preface: When researching the origins of a strategic initiative focused on topography, we wanted to go back to the most primitive times. First of all, we did not touch the stones, pebbles, crags, and protrusions this time. We tried to understand its becoming gains. What kind of morphology was this that protected, preserved, and transformed the pure nomad? That was precisely the motivation behind this potential strategy.



For Deleuze, form is a plane of becoming that arises not from an essence containing stability or from any static structure arising from this unity, but from the difference of intensities, flows, and erosions (Deleuze 1994). Deleuze opposes Plato's idealized and immutable concept of the Platonic essence. According to him, there is no ideal form. Everything on earth is shaped only by the repetition of differences and the folds of intensities (Deleuze and Guattari 1987). The emergence of primitive forms is no different from such a transition. The things eroded by rain, wind, and hurricanes condense on one plane and accumulate on the other. As they accumulate, they diminish; what diminishes condenses again and joins another plane.

In order to understand this process and create a strategic path from it, this morphology must be examined more deeply. In this sense, it is possible to come across many different classification methods in the literature. For example, while *Nature of Architecture* makes a classification based on materials in nature and their force effects, *WeChronicle* makes a classification based on the aesthetic contributions of geological formations to architecture. However, especially when the generalizations in *Alessandro Rocca*'s book *Natural Architecture* and *Diana Agrest*'s book *The Architecture of Nature: The Nature of Architecture* are taken into consideration, it seems possible to frame a classification that centers on the visual, morphological, and structural features of natural formations in both geological and architectural contexts. In this regard, with a particular focus on the objective-seeking aspect of the design strategy in question, the classification framework outlined in this chapter has generated a form of content that embraces Deleuzian empiricism as its guiding principle while incorporating its insights into creative becoming and emergence (Hubbert 1972; Boggs 1987; Rocca 2007).

In nature, lateral formations are defined by the expansion and spreading of topography in the horizontal plane through natural processes. This definition implies a purely rhizomatic process. These formations are generally formed by *sedimentation* processes, erosion, or volcanic activity. These lateral formations in nature are ideal for establishing an epistemological framework for architectural design paradigms. Observing the dynamics of horizontal and vertical ecosystem formation over millions of years of evolution and understanding their long-term balances extending to the present day is a critical method for exploring sustainability. For example, the self-organizing, as opposed to non-hierarchical, achievements of nature, which Deleuze and Guattari repeatedly point to in almost all their works, were developed by Manuel

DeLanda in his work A Thousand Years of Nonlinear History (1997) with the intensive spaces. In A Pattern Language (1977), Christopher Alexander discusses the lateral formation of natural systems through the use of a non-hierarchical semi-lattice system. In his manifesto titled Anti-Object (2008), Kengo Kuma emphasizes the horizontal relationships traditional Japanese architecture establishes with nature, emphasizing the power of horizontal patterns against objectified vertical architecture. In Janine Benyus's work *Biomimicry: Innovation Inspired by Nature* (1997), lateral structures are examined and symbiotic approaches related to them are presented. Similarly, Neri Oxman (2010), within the framework of the concept of Material Ecology, particularly in her work at the MIT Media Lab, has addressed lateral relations in nature through digital fabrication techniques and produced alternative models based on new morphological forms using 3D printing technologies.

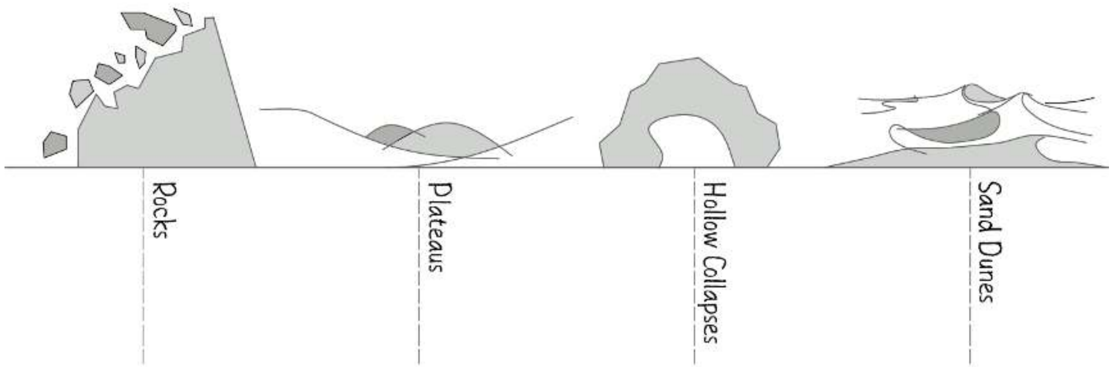
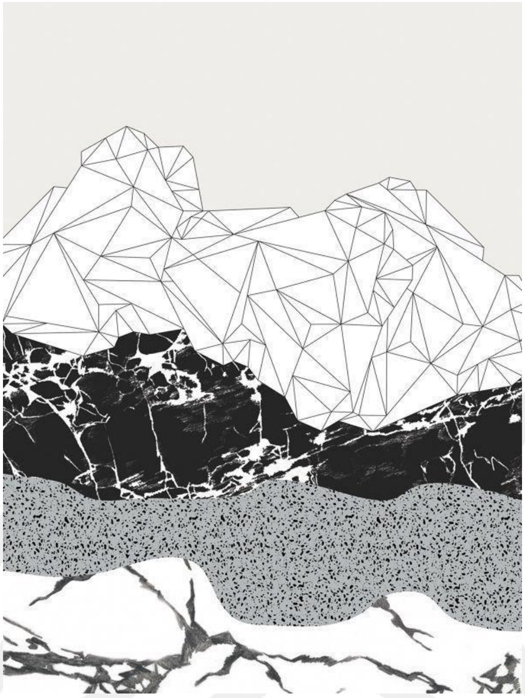


Figure 61: About Lateral Formations (Rocks, Plateaus, Hollow Collopses and Sand Dunes) (Compiled by the Author 2025)

As seen in Figure 61, a differentiated sub-classification of lateral formations is created according to their formation processes and the sustainable gains that emerge afterwards. In this context, phenomena that trigger designer thinking have been grouped based on ecosystems shaped by their internal dynamics without human intervention. Throughout the chapter, the aim is to interrogate archetypal associations related to shelter production through horizontal movement from rocks to plateaus, from lava tunnels to sand dunes.

3.2.3.2 Towards Low-Poly Shelters

Preface: Rocks as the hard shells of Architecture. Despite all this durable content, things that are eroded, transformed, processed, and renewed by the power of time. Could today's digital techniques provide some gain for design thinking by rethinking the physics of formation and disintegration? That was precisely the motivation behind this potential strategy.



Heraclitus, who greatly influenced modern Western thought, used rocks as a tool to trace change and flux (in context: panta rei). He emphasized that these hard planes of nature are continually transformed by erosion due to various forms of destruction over the ages, and that this transformation creates a kind of historical archaeological pattern (Kahn 1987). Bachelard considers rocks as a poetic sign of matter in the immanence of nature and relates them to the metaphor of continuity (Bachelard 1948). Tanyeli, on the other hand, associates it with the power of matter and highlights the function of stone in architecture, from ancient times to modern structures (Tanyeli 2017). Therefore, rocks represent one of the oldest building materials in architectural history, a material bestowed upon designers by nature.

Parametric tools used today are important reference planes for designers to observe rock formation processes, erosion fractures, and the new forms and material behaviors that emerge as a result of these processes. In this context, physics-based analyses that emerge from fractal relationships, particle systems, or, in particular, the geometries of the shapes in question are ideal for controlling the formal and structural properties of rocks in a digital environment (Cundall and Strack 1979).

The possibility of changing the behavior of rocks in any way with parametric design tools may be a possible design strategy. Mandelbrot (1982) uses fractal relationships, which are characterized by irregular and complex geometric analysis in nature, to understand the geometry of rocks. It produces patterns that are both dependent on and independent of the main mass through the self-similarity behavior of fractals and surface fractures based on ratios. For example, when a piece of rock breaks over time or as a result of impact, the resulting small pieces represent miniatures of the main piece in terms of behavior, but reveal very different patterns in terms of form. On the other hand, rocks other than those that show symmetrical and polygonal behavior, such as quartz, generally show organic and asymmetric behavior due to all kinds of tectonic movements, erosion, and crystallization that occur in nature (Bucher 2023). A strategic way to transfer all these trends to the digital environment is possible with the polygon mesh technique.

Polygonal meshes represent a fundamental approach in computer graphics and geometric modeling. Mineral compositions, patterns, and formation processes of rocks can be traced as triangles or quadrilaterals on polygonal surfaces. In this context, the representation of rocks on digital interfaces can be diversified, including 3D reconstruction, procedural modeling, and fracture simulation (Garifullin et al. 2024).

All of these representation techniques allow for detailed digitization of rock surfaces, but they are particularly suitable for large-scale analyses and real-time applications. Consequently, they create high computational and data intensity. In this context, converting high-polygon models to low-polygon models can serve as a strategic bridge between the researcher and the digital world, simultaneously increasing data processing speed and enabling parametric considerations of polygons (Hastings et al. 2015).

Therefore, within the framework of mesh processing algorithms, low-polygon modeling is a technique in its own right. It refers to the simplification of an object or environment by using a low polygon count. Instead of highly detailed and complex forms, the focus is on the essential features of the object or environment, which contain less detail. For example, this integrity allows macroscopic features such as rock crack patterns, surface slopes, and large-scale textural structures to be preserved, making them observable in detailed modeling. This minimizes loss of detail and significantly increases the efficiency of the applied analyses (Westoby et al. 2012).

The minimal use of polygons aligns with Deleuze's thought model, which reduces complex reality to a simple plane of immanence for conceptual production and aims to reveal creative differences within this plane (Deleuze and Guattari 1991). Here, the necessity stemming from the technological limitations of early 3D graphics is transformed into a formative force through the principled nature of Deleuze's thought, which encourages the pursuit of the positive within all limitations. In this context, it might make sense to develop a form-finding axiomatic based on low-polygon principles derived from rock morphology and to instrumentalize these principles in architectural concept creation (Figure 62).

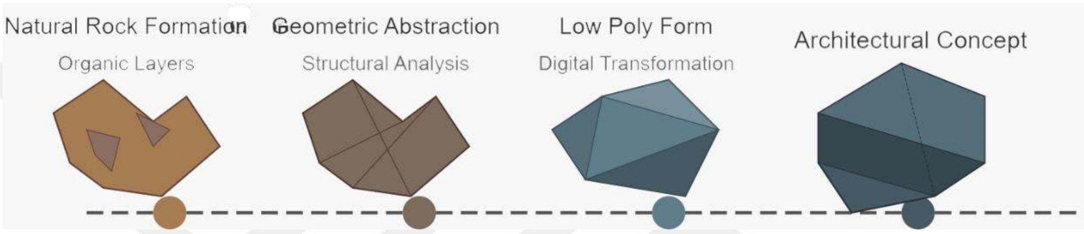


Figure 62: Architectural Language Generation from Rock Morphology Using a Low-Polygon Form-Finding Technique (Created by the AI: claudia.ai 2025)

Casa da Música, the iconic concert hall designed by Rem Koolhaas's Office for Metropolitan Architecture (OMA), is significant for its relatively large-scale structure, yet its added value in terms of function and meaning, combined with its formal simplification. In Casa da Música, the complex cultural function (concert hall) is resolved through a simple, clear-cut geometry. Following the lateral expansion of the building's prismatic form, its exponential function can be observed through the combination of minimal edges and a sufficient (minimal) number of surfaces (Figure 63) (ArchDaily 2014).

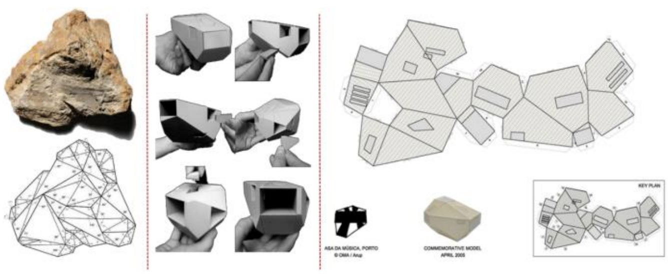


Figure 63: Gallery of Casa da Musica, OMA 2005 (mimdap.org 2025)

The low-polygon shelter production strategy, particularly in the construction of lightweight structural systems, allows for highly utilitarian models because it embraces the principle of sufficient and satisfactory lines or surfaces aligned in volume. In line with this approach, California Polytechnic State University (Cal Poly), ranked first among regional universities in the Western United States by U.S. News and World Report (2025) and known for its engineering and architecture programs, has a very active example of low-polygon shelter production. These temporary shelters, produced annually by university faculty and students committed to a "Learning by Doing" philosophy, are designed entirely using computational design principles and tested in a real-world environment called the Design Village (Architecture Experimentation Lab). Guided by the theme "The challenge is to create simple," students are asked to assemble each component at a portable scale and design the resulting shelter in a way that allows them to experience life for 48 hours. This process fosters community engagement, particularly for young designers, by encouraging collaboration, hands-on learning, and practicing real-scale construction skills. Figure 64. shows examples of modular, lightweight shelters that can be constructed rapidly using low-polygon acquisitions (designvillage; architecture.dvc.edu; calpoly.edu 2025).

Figure 64: Shelters Produced with Low-Polygon Technique (Cal Poly 2025)

Another example, the Cardborigami project, aims to create foldable, lightweight, and portable shelters for homeless people in Los Angeles using low-polygon fabrication techniques. The choice of waterproof and flame-retardant cardboard material offers a sustainable and cost-effective solution. Project founder Tina Hovsepian emphasizes that these shelters are designed with portable, flexible, and privacy-conscious design principles, and can be easily assembled by homeless individuals (Figure 65) (Table 13) (Hovsepian 2013).

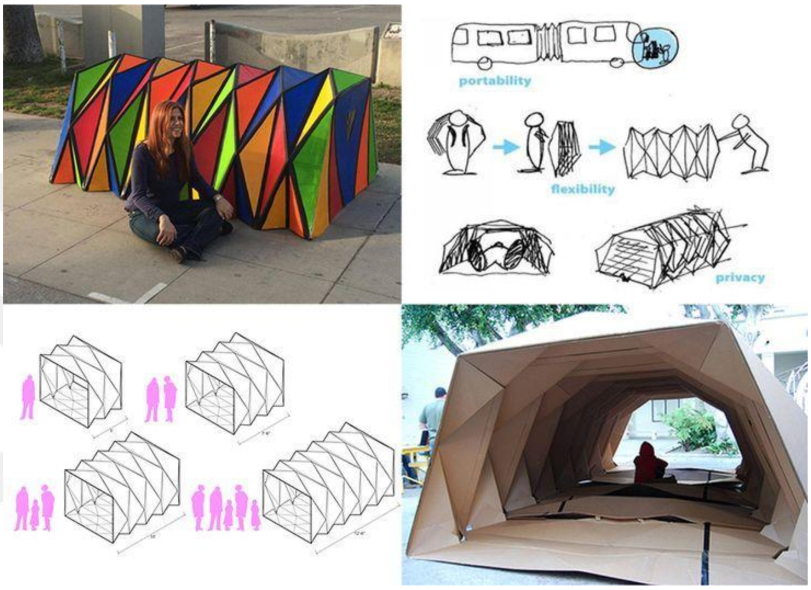
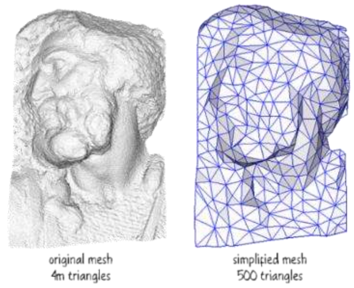
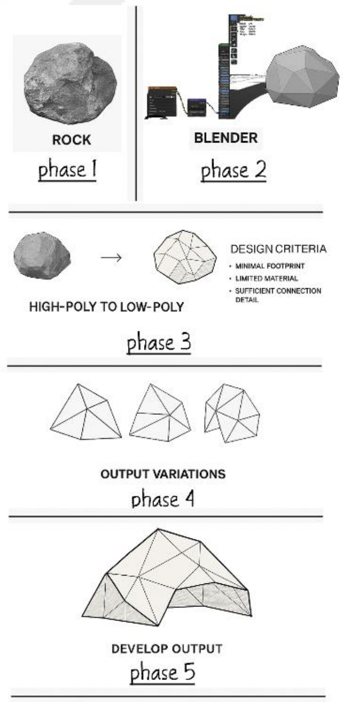


Figure 65: Cardborigami Pop-Up Shelters for the Homeless (Hovsepian 2013)

The table 13. illustrates how low-poly modeling, instead of high-poly approaches, can be adopted as an alternative design path. Through this shift, it becomes possible to reveal how computational design operates within the utilitarian axioms of parametric thinking—emphasizing efficiency, adaptability, and systematic transformation. The terminology and methodological structure presented in this framework may serve as a conceptual trajectory for other designers, offering a referential path for developing new forms of digital-material articulation in design practice.

<table>
<tr><th colspan="2">Table 13: From High to Low Poly (Created by the Author 2025)</th></tr>
<tr><td>Aim: From High to Low Poly
Through Blender 3D, high polygon surfaces are converted to low polygon and this is transformed into a design strategy within the framework of a set of design criteria.
Computational Cosmos in Blender:
Decimation | Retopology | Edge-Collapse | Mesh-Simplification | Polygon-Reduction | Level-of-Detail | Quadrangulation | Optimization | Remeshing | Face-Merging | Vertex-Welding | Normal-Mapping | Baking | Tessellation | Subdivision-Surface | Smoothing | Quad-Flow | Edge-Loop | UV-Unwrapping | Triangulation</td>
<td>
</td></tr>
<tr><th>Phases</th><th>Design Strategy</th></tr>
<tr><td>Phase 1: Rock Morphology Analysis
Select target rock morphology with interesting structural characteristics
Analyze geometric patterns and formations
Study surface properties and natural stress distribution patterns
Phase 2: 3D Modeling in Blender
Develop high-polygon model capturing all essential details
Analyze structural properties digitally
Simulate material behavior and stress distribution.
Phase 3: High-Poly to Low-Poly Conversion with Component Definition
Components are the essential structural elements that will form the shelter.
Connectors/joints; Surface panels; Folding mechanisms; Load-bearing elements
Establish clear parameters for the design to ensure practicality and functionality.
Minimize material usage while maintaining structural integrity.
Ensure simple assembly process with minimal tools
Develop sufficient connection details that allow for quick deployment.
Phase 4: Design Variation Generation
Create multiple-design iterations based on the simplified model
Produce scale variations for different shelter sizes
Develop form adaptations for various environmental conditions.
Phase 5: Detailed Shelter Development
Finalize prototype design
Develop detailed connection mechanisms - Complete full shelter implementation with comprehensive assembly instructions.</td>
<td>
</td></tr>
</table>

3.2.3.3 Plateaus: Catalysts of Alternative Daily Life

Preface: Plateaus… the natural bulwarks of geography. Vast planes that descend, rise, fork, and transform into sustainable potential for possible shelters. In a global universe where climate crises have reached such massive proportions, the idea of building on plateaus does not seem utopian at all.

Another important type of lateral formation is a plateau. These raised areas, usually broad, flat, or gently sloping, are formed by geological uplift or erosional processes. It is formed by the rise of the earth's surface as a result of the movement of tectonic plates, and in this process, a region is pushed upwards and a high plateau is formed. Erosion is characterized by the erosion of these elevated surfaces by natural agents such as water, wind, and ice (Summerfield 1991).

Considering the current climate crisis and the opportunities offered by contemporary living conditions, plateaus appear exceptionally livable. The ecological and microclimatic impacts of the rapidly accelerating climate crisis are far more extensive than in previous centuries. Given their agricultural suitability, access to water, natural climatic conditions, and drought characteristics, these plateaus, once associated with purely nomadic habitats, now appear ideal for separating the capital grid from the codified landscape. According to Smith (2005), the advantages of these plains are significant not only as a solution to the climate crisis but also as a means of reestablishing sustainable social relations. Jackson (1998) emphasizes the socio-political values of daily life practices in the plains, such as equality and accessibility. In his discourse on Reordering the World, Latour (2017) emphasizes the inherent openness and horizontality of plateaus to restructure the relationship between the individual and space. He argues that we must move beyond the hierarchical and closed production of spaces that focus solely on and are shaped by humans. Instead, we should focus on horizontal spatial arrangements that facilitate the interaction of all kinds of crowds, including people, animals, and objects. In this context, a plateau is not merely a topographically open and horizontal surface; through its pragmatic structure that facilitates interaction, it can become a physical canvas for collective existence through projects of transformation.

On the other hand, plateaus are low-risk disaster zones due to their potential for carbon sequestration. In this context, low-sloping plains not only provide protection against potential earthquake risks but also offer significant advantages for the integration of renewable energy systems (Meadows et al. 2012). Consequently, they are also suitable for the deployment of solar and wind energy systems, which are critical for the near future.

All these implications, especially Latour's, support the production of Deleuzian smooth space. Plateaus, which Deleuze and Guattari frequently use as a metaphor in A Thousand Plateaus, represent the most ideal habitats among natural formations. In this context, they encourage us to move beyond capital's limited network to these plateaus and consider infrastructure transformations based on plateau ecosystems, particularly in regions experiencing severe water crises (Figure 66).

Figure 66: Sarnıç Plain, Turkiye (dogumark.com 2025)

Given today's digital capabilities, the ideal architectural software for topography manipulation may vary depending on the purpose, such as conceptual design, detailed modeling, optimization, simulation analysis, or visualization. However, given the utilitarian capabilities of parametric tools, it seems possible to create an ideal computational universe with this software (Table 14).

Table 14: Open-Source Software for Topographic Manipulation (Compiled by the Author 2025)

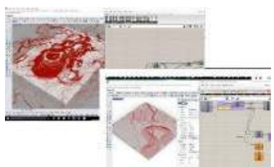
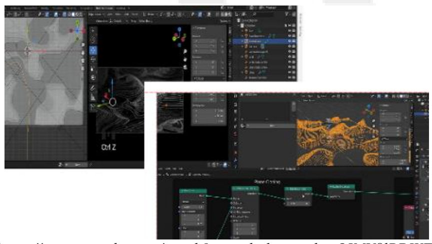
A strategic roadmap for Parametric Topography Generation	Software Interface
Rhino + Grasshopper3d	
• *Advantages: Parametric design, high control, topography data processing with plugins (e.g., Heteroptera, Dendro, Gismo, Elk, Lands Design).* • *Usage: Generation and manipulation of topography from elevation data (DEM), contour lines or mesh.* • *Where it is at its best: Terrain layout, cut and fill analysis, shape generation.*	 *https://www.youtube.com/watch?v=jvHSvw3YRKE*

Table 14 Cont.

Autodesk Civil 3D + InfraWorks	
● *Advantages: Powerful for infrastructure engineering; terrain modeling, roads, slope analysis.* ● *Usage: Detailed topographic analysis and road infrastructure planning, especially in large-scale projects.* ● *Best for: Engineering level topography editing and analysis.*	 *https://www.autodesk.com/tr/products/civil-3d/features*
ArcGIS / QGIS	
● *Advantages: Map and geographic data oriented, detailed topographic analysis with raster and vector data.* ● *Areas of Use: DEM data processing, slope and direction analysis, drainage lines.* ● *Best use cases: Geographic analysis and map-based topographic editing.*	 *https://www.arcgis.com/index.html*
Blender + Geometry Nodes	
● *- Advantages: Open source, very flexible, parametric shaping with node-based system.* ● *- Usage: Mesh-based terrain generation, procedural terrain manipulation.*	 *https://www.youtube.com/watch?app=desktopandv=QIMV8lBDWEI*

Digitally manipulating topography creates diverse benefits in different regions of the world. Visualization techniques were employed in the Andes Digital Shepherds project, which encompasses digital agriculture, health services, and distance learning initiatives in the highlands of the Peruvian Andes. The aim is to preserve cultural heritage in the long term by monitoring the breeding of indigenous animals (llamas and alpacas) using IoT systems (International Development Bank 2022; FAO 2025). Another project, the Scottish Highlands Wildlife Enhancement Initiative, aims to restore natural ecosystems in the Scottish Highlands using GIS and remote sensing technologies. To this end, the project utilizes a combination of digital mapping and GIS techniques, respectively, using the software described in Table 14. Within this framework, changes in vegetation and soil structure are monitored over time based on fine-scale habitat analyses. Potential restoration areas are prioritized. Parameters such as animal movements, temperature, humidity, and water quality can then be determined using remote sensing devices deployed in the region using monitoring technologies. Census records and wildlife restoration are facilitated through AI-assisted species identification systems. The project is considered a community-driven project as it enables digital participation of local farmers and landowners via smartphones through the citizenship app called Citizen Science (Martin et al. 2023).

On the other hand, the benefits of digital techniques in the sustainable inclusion of difficult-to-reach yet fertile plateaus like the Swiss Alps are undeniable. The Alpine Parametric Shelter project, developed by the Architecture and Digital Fabrication Laboratory at ETH Zurich between 2019 and 2022 and designed for the challenging conditions of the Swiss Alps, represents one such achievement. The project aims to redesign traditional mountain dwellings in high-altitude regions with contemporary technologies and sustainability considerations. Environmental parameters such as snow load, sun angle, wind, and more are analyzed using topographic data using parametric design tools (Grasshopper3d and auxiliary simulation plugins). Furthermore, the parametric tools allow for maximum structural integrity with minimal material usage. The resulting modular structure is comprised of components lightweight enough to be transported by helicopter. Integrated photovoltaic panels and passive solar systems ensure energy independence, while a parametric roof system that collects snow and rainwater contributes to the project's sustainability. Furthermore, the plinth structure, which minimizes soil intervention and can be applied even on permafrost, was derived from parametric analyses. On the other hand, another important criterion in the project's production process was that the container was not only designed using parametric tools but also manufactured through digital fabrication techniques, such as 3D printing and robotic assembly, and tested under real-world weather conditions. In this context, the container was developed to be adaptable to different altitudes/slopes and topography to suit all conditions. This achievement was presented to the Swiss Mountaineering Club, particularly due to its potential to create emergency shelters for mountaineers in the region (Figure 67) (Meier and Schmidt 2021; ETH Zurich 2021; Kohler and Gramazio 2022; Willmann et al. 2022; Digital Alpine Architecture Conference 2022).

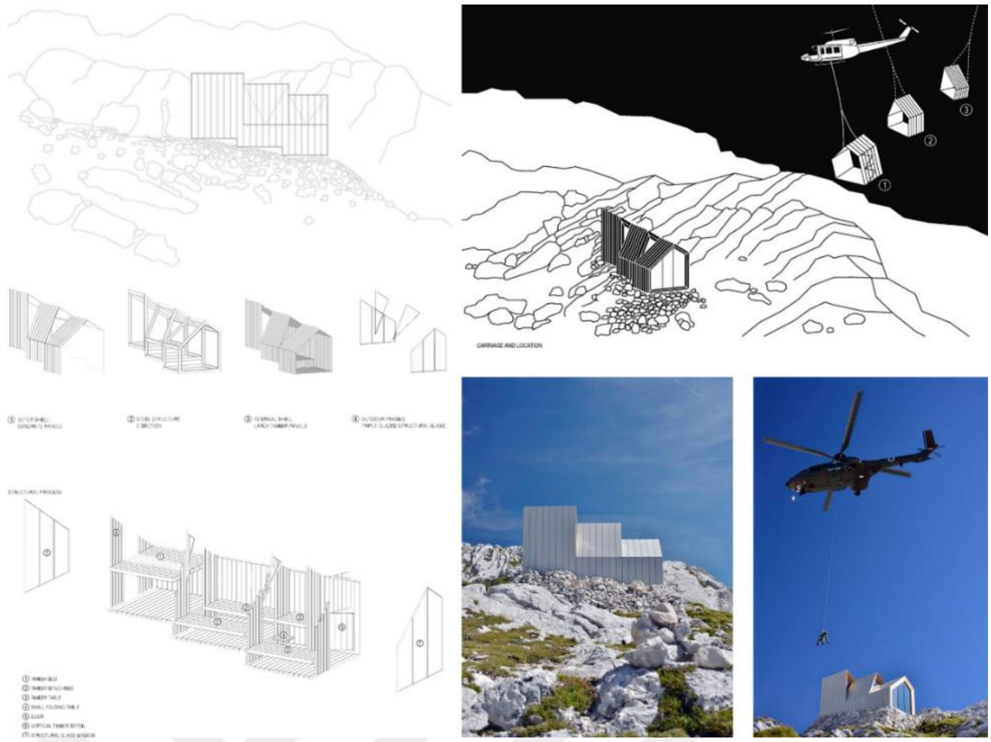


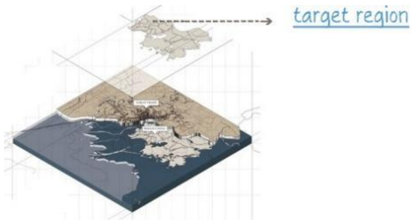
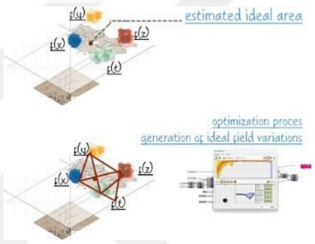
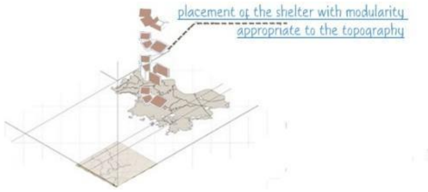
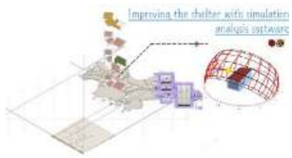
Figure 67: Alpine Parametric Refuge Project, ETH Zurich (fieldmag.com 2025)

As with the Alpine Parametric Shelter, a strategic approach that explores the relationship between the temporary shelter and its intended setting, where topography is considered a kind of canvas (syntax), seems possible. The healthy communication of such temporary shelters with the topography, or from a Deleuzian perspective, the sustainable integration between nature and the object, points to a kind of optimization process. Accordingly, optimal space/object optimizations between the topography and the shelters integrated with it are ideal for such interactions. Table 15 describes the optimization process and the benefits of digital manipulation during the relationship between the temporary shelter and the topography, broken down into key stages.

Table 15: A Strategic Roadmap via Open-Source Software (Compiled by the Author 2025)

I. Digitization of Topographic Data	**Diagrammatic**
Input **+** *Grasshopper Flow* ***Contour lines (manually or from map data)*** *Import contour curves with Curve components; Create surface with Interpolate Curve or Loft; Alternatively, it can be captured real map data with Heteroptera or Elk*	

Table 15 Cont.

II. Topographic Analysis and Documentation	
Topographical Determinations & Visual Clustering of Data ***Topographical Advantages*** *Proximity to water; High altitude; Ideal sun & green areas* ***Topographical Disadvantages;*** *Difficulty of access; Erosion risk; Infrastructure works*	
III. Determination of the Ideal Space	
Optimization Process for Ideal Spaces *Defining Data with Function; Determination of the ideal area criterion; Optimization Process for ideal Space*	
IV. Layout of the Shelter	
Placement of the shelter with modularity appropriate to the topography ***A specific shelter type (e.g. circular or linear module)*** *Slope, orientation of the surface; Locations are determined with evaluate surface; Surface normal with shelter orientation; According to slope analysis, placement on very sloping sites can be prevented; Shelters are placed on the surface or raised with "feet"*	
V. Improving Shelter in Contact with Topography	
Improving the shelter with simulation analysis software *Solar orientation (e.g., Dragonfly); Wind direction (vector flow simulation with Heteroptera); Water flow and erosion analysis*	

Therefore, in this dramatic period when the impact of climate crises is increasingly felt, plateaus stand out not only as natural formations but also as protected areas with the potential for resilience and transformation. These vast and largely untouched topographies offer unique opportunities for rethinking sustainable habitats. Advanced GIS techniques allow for the analysis and processing of these surfaces, enabling the development of flexible solutions tailored to changing climatic, social, and spatial conditions. These strategies, which enable observation, adaptation, and mobile settlements, form the basis of a design approach that prioritizes not only spatial but also environmental sensitivity.

3.2.3.4 Hollow Collapses: Lava Tubes

Preface: Lava tubes…Natural shelters that flow, cool, solidify, and reach their final form. The motivation for a possible design strategy is to create a sustainable shelter, this time through the formation of these tubes, which connect to the outside with an inviting skylight.

La Corona Lava Tub (Onac 2025)

Among lateral formations, the most obvious sheltering representations are observed in the formation of lava tubes. The tectonic formation of lava tubes exists by their own inherent potential, independent of human intervention. A dominant morphology emerges from the cooling and solidification of the surface of lava flows that occur in association with volcanic eruptions, while the underlying lava continues to flow. The actual formation occurs when the lava surface cools upon contact with the air, transforming into a crust. At this point, the actual formation of the mantle occurs when the lava beneath the crust gradually creates a tunnel, and when the eruption ceases or the flow diverts in another direction. These tunnels remain empty, forming the final lava tubes (shelters). From a Deleuzian perspective, the creation of such chaotic self-organization by geological flows can be conceptualized as a folding movement, a differentiation of the magma-object's virtual potentials toward actual solidification. Far from a theological fixity, this process represents the fixation of nature's inherent production of difference in a temporary molar form through cooling and crystallization (Figure 68) (Deleuze and Guattari 1987; Benyus 2002; Biloschaetzke 2014).

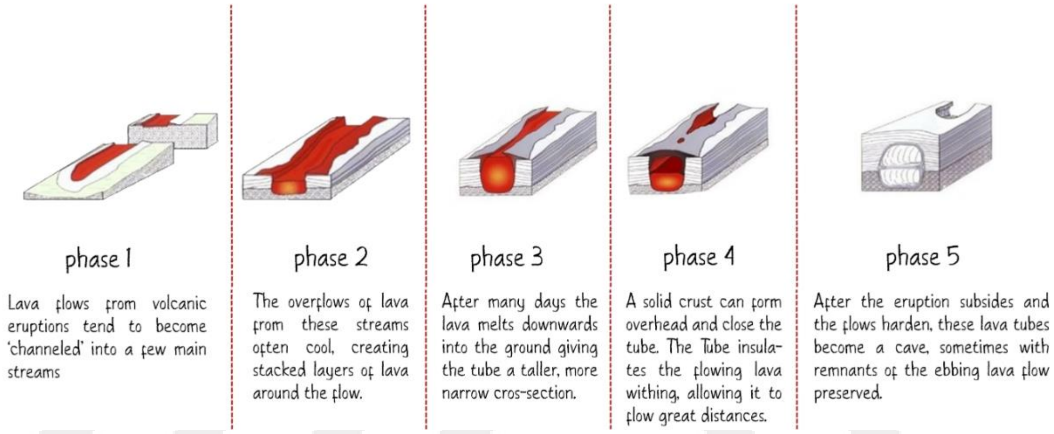


Figure 68: Diagram of the Formation of Lava Tubes (Usgs.gov 2025)

Today, lava tubes are primarily visited for scientific research and, to a limited extent, for touristic purposes (Biloschaetzke 2014). However, they can also be recommended as strategic shelters for sustainable architecture and spatial production, as well as for their suitability for geological studies. Some have large interior volumes hundreds of meters deep, making them ideal for temporary and permanent shelters in disaster and other emergency scenarios. Because they provide insulation against extreme temperature fluctuations in the external environment, climate control is relatively controlled. Considering the strength of volcanic rock, which almost no other composite material can match, it can survive for millions of years and is therefore ideal for long-term use. However, entry into the interior spaces of the tubes is through skylights, which can be dangerous in some places. Specialized equipment, such as robotics, may be required at this point. (Figure 69) (Horz 1985; Horz and Taylor 2016).

Figure 69: Nāhuku - Thurston Lava Tube (Boyle 2008)

Discovering lava tubes is not only thought-provoking for the purpose of providing context for recent sustainable tectonics, but also for providing a kind of analog for theories of possible life on Mars in the long term (Horz and Taylor 2016). Today, Iceland, a prime example of a volcanic island, boasts numerous lava tubes. These lavas share textures similar to those found in volcanic regions on the Moon and Mars, playing a critical role in designing future space colonies (Figure 70) (Somers 2023). Similarly, numerous lava tubes have been observed in the Hawaiian Islands of the United States due to volcanic formations. While finding drinking water on the island is normally quite difficult due to the lack of lakes, ponds, or streams on the surface, the lava tubes have created pools (in context: ipu) where water seeps from their ceilings and filters through porous lava rocks. Therefore, such findings offer insights into possible life forms on Mars (nps.gov 2021).

Figure 70: Expedition Members and a Cooled Lava Flow (Robbie Shone 2025)

Supporting these conclusions, Horz and Taylor (2016) emphasize that these tubes could offer a solution to the challenges of building artificial shelters on the surface due to their structural integrity and natural protection against micrometeorite impacts, cosmic radiation, and extreme temperature fluctuations. In this regard, they evaluated the size, structural strength, and engineering feasibility of potential lunar hubs based on geological formations on Earth.

Using fluid physics capabilities through today's computational design tools (*Computational Fluid Dynamics- CFD*), it is possible to create a simulation based on the formation processes of lava tubes. As indicated in Table 16, primitive objects are initially created using software with high simulation and control capabilities, such as Grasshopper3D, to capture this process. To make the relationship with the liquid more adaptable, a set of vertical spike orientations is defined on the surface of the spheres. The size of these objects (e.g., spheres) and the orientation of the spikes on them can be manipulated using custom scripts based on inputs such as light and air. Fluid behavior modeling tools such as Flow-3D and Houdini are then used to integrate fluid dynamics into the form. At this point, Houdini is particularly effective for simulating such liquid-solid interactions due to its procedural and node-based structure. The impact of parameters such as viscosity, surface tension, and flow direction on the design is determined at this point. Data obtained from fluid behavior is then converted into spatial organization, resulting in the final form (Fang et. al. 2024; sidefx 2025).

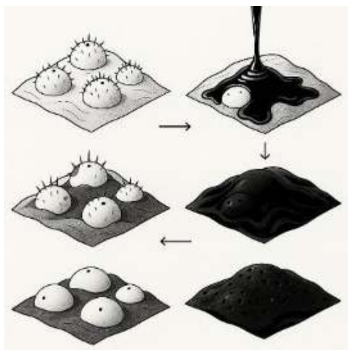
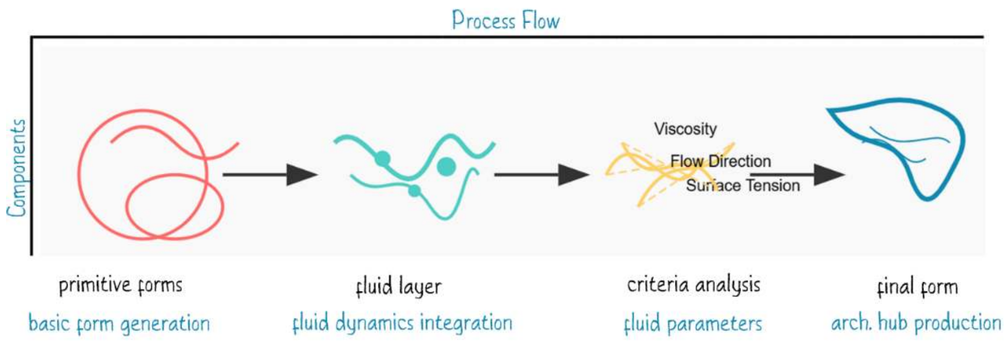
Table 16: Lave Tube Architectural Hub Formation Process (Created by the Author 2025)	
Design Criteria (Flowchart)	
Aim: *Simulating the new formal behavior of primitive objects in the face of fluid mechanics associated with the formation of lava-tubes.* ***Keywords:*** ● *Fluidity: Lava – flow-like continuity* ● *Materials: Thermally optimized* ● *Void: Interior functional zones* ● *Sustainability: Minimal material usage* ● *Adaptive: Responsive to environmental factors*	

Table 16 Cont.



1. Modeling Primitive Geometric Objects	**2. Defining Fuidity**
● *Digitalization of organic forms of lava tubes in nature* ● *Creation of basic forms with parametric modeling* ● *Abstraction of natural references*	● *Integrating fluid dynamics into form* ● *Modeling fluid behavior with Flow-3D or similar simulation tools; e.g., Mantaflow systems* ● *Transforming flow lines into arch. elements*
3.Criteria Analysis	**3. Final Form**
● *Effect of parameters such as viscosity, surface tension, flow direction on design* ● *Transforming the data obtained from fluid behavior into spatial organization* ● *Using fluid criteria for structural optimization*	● *Architectural form formed by integrating all processes* ● *Structural solutions reflecting the natural formation processes of lava tubes* ● *Final version of the hollow, fluid arch. hub*

Therefore, lava tubes are not only geological formations but also natural shelters with geotectonic potential. Their concave geometry, thermal stability, and, as some examples clearly demonstrate, *skylight* openings make these structures ideal for both protection and observation. These dynamic natural processes, in support of Deleuze's approach to "becoming," suggest that architecture be considered as an ongoing transformation rather than a fixed structure. In this context, lava tubes offer inspiration not only for alternative life forms but also for understanding and modeling potential life patterns on other planets, such as Mars. With both their natural occurrence and their openness to speculative spatial constructions, lava tubes offer a powerful metaphor and ground for future settlement strategies.

3.2.3.5 Sand Dunes

Preface: According to Deleuze, the creative process does not emerge overnight. In other words, it does not manifest itself through a sudden "inspiration". Creativity is a matter of becoming. The task of the artist, the designer, is to disrupt existing concepts and forms, to rethink, to construct, to create folds and lines of flight. Inspiration may be a myth, but it essentially produces difference. Traveling dunes are precisely the flow objects that seek the designer's difference in such a position.

Another striking example of horizontal formations is sand dunes. Because they are shaped by environmental forces such as wind direction and intensity, and the slope of the topography, it is not initially possible to speak of statically resisting and therefore of a sustainable tectonic content. However, this process should be re-evaluated, especially considering the intense work of climate crises with desert areas, especially considering the self-organizing ability of nature, the rethinking of materials in laboratory conditions, and the parametric tools of computational design that enable particle manipulation over sand dunes (Farr 2023).

Sand dunes are in constant interaction with their environment, possessing the potential for continuous form transformation without the need for environmental forces or human intervention. Through the Deleuzian lens, sand dunes and this transformation are discussed through geographical imagery, particularly in scenes of desert landscapes in Deleuze's works *Cinema 1: The movement-image and Cinema 2: The time-image*. According to him, the desert scenes, which provide more than just a thematic background, add value to the film through perception, emotion, and action (in context: affect). In this context, sand dunes are analyzed, particularly in the films of Antonioni or Pasolini, which feature extensive desert scenes. In these films, the sand dunes, as a transition scene, function as objects of imagination that create a kind of gap (césure) through Deleuze's concepts of fluer and durée, which do not completely break off the relationship in this gap, blur the boundaries and thus make the flow possible (Deleuze 1986; 1989).

Using the conceptual framework Deleuze developed for sand dunes, along with his works, it seems possible to think about the issue procedurally, given today's computational capabilities. Table 17 provides a comparative analysis of current procedural-based open-source computational design tools that enable the digital manipulation of sand dunes. In this regard, the prominent participation parameters of the software that functions as a strategic generator for the target designer group and the keyword pools derived from them have been compiled. Furthermore, the spatial contribution values of the resulting information were interpreted within the same table from a Deleuzian perspective (world-machine; sidefx; quadspinner; grasshopper3d; blender 2025).

Table 17: Ideal Open-Source Software for Creating Sand Dunes (Comparative Table) (Compiled by the Author 2025)

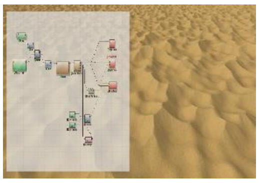
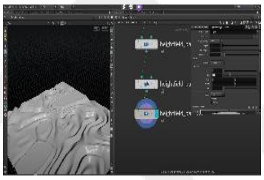
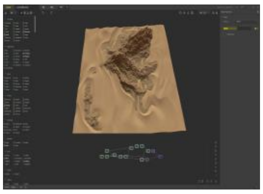
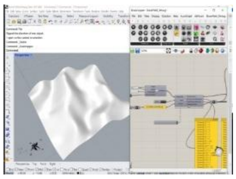
Op.		Definition	Computational Cosmos	Visual Diagram	Deleuzean Implication
Pprocedural	World-Machine	Real-time terrain generation tool. Ideal for erosion algorithms, elevation maps, realistic dunes, desert landscapes. Preferred by designers because it offers fast preview and is iterative.	Real-Time, GPU-Based, Nodal Systems, Erosion Algorithm, Inversion, Sedimentation, Procedural Filters, PBR, High Maps, Voxel, Noise.		Instantaneous feedback and manipulation refer to Deleuze’s haptic field. By iteratively shaping the dunes on the fly, the designer achieves a continuous (emergent) design practice through natural processes.
	Houdini	Due to its powerful software in particle and fluid dynamics, it is ideal for parametric control of dynamic dune and wind blow simulations.	Particle Systems, Procedural, FLIP Fluids, VEX, Dynamic Simulations, DOP, Nodal Networks, Dent (RBD), CGA, L-System.		The high level of procedural control plays an important role in the designer's relationship with the variations of the virtual, blurring the boundaries between the virtual and the real.
	Gaea	This is QuadSpinner's advanced terrain generation software. A plus here is that chaotic dunes can be created entirely with the operator called 'Dunes'. Large dune fields can be synthesized with wind direction, dune height and chaos parameters.	Node-Graph, Erosion Simulations, Noise, Fractal, Hydrological Modeling, Wind Direction, Sediment, Erosion, 2D-To-3D, Geological Processes, Mask-Based Transformations.		From a Deleuzian perspective, producing only 'x' event-specialized components within a software defines the boundaries of subjective experience. this specialization is a kind of becoming-x.

Table 17 Cont.

Pprocedural	**Grasshopper**	Sand accumulation due to desert wind and obstacles can be simulated. DuneWorm plug-in is especially ideal for modeling sand dunes accumulating around an obstacle.	Dune Worm, Cellular Automata, Genetic Algorithm, Swarm, Sand Accumulation, Permeability, Gradient Descent Morphogenetic.		Particularly in A Thousand Plateaus, Deleuze treats the concept of obstacle not as something that stopping or limiting in the classical sense, but as deviation, curvature, and opportunity for generating.
	Blender	Dune-like landscapes can be generated with noise patterns, mesh modifications, and particle/fluid simulations. For example, high-resolution hills and valleys can be defined with GN.	Subdivide, Sculpt, Mode, Draw, Inflate, Smooth, Grab Displace, Subdivision, Surface, Bsdf, Bump Map.		Its open-source structure encourages collective exploration. The variety of forms created in Blender is a non-hierarchical “micro-thinking” approach. This software allows the designer to freely shape the desert landscape, embracing the experimental concept of space emphasized by Deleuze.

Rethinking the complex geometries of sand dunes through diagrams, imitating them, or relating them analogically through the digital software in question seems ideal for parametric productivity. In this context, with the effect of digital added value, six main types of sand dunes, namely barkhans, transverse (transverse dunes), linear (longitudinal dunes), star dunes, parabolic dunes, and dune covers (sand sea), are classified in Table 18 (Wilson 2021; Lancaster 2022; Zhang and Thompson 2024). In this context, barkhans, which refer to crescent-shaped sand dunes that form in areas dominated by unidirectional winds, can be associated with a topographic syntax, and when formal productivity is achieved using a cellular automaton algorithm. Wind-sand interaction is ideal for creating crescent-shaped topographic patterns, particularly by simulating the pattern that emerges from the repetition of interaction rules in particle-based systems (Mitchell 2009). *Transverse* dunes are in an analogical relationship with wavelength graphs. With computational design tools, it is possible to produce wavy topographic surfaces using sinusoidal functions and parametric curves. Creative emergent patterns can be achieved using frequency modulation, amplitude values, and interpolation techniques. (Piker 2013). Linear lines (longitudinal dunes) are suggestive in pattern productions that refer to the parametric control of distance or thickness changes between lines in a controlled manner on a defined orientation field (in context: vector field). The aim of the process is to simulate the generational propagation of flow lines in an anisotropic topological field. The algorithm presented here generates a particle trace by iteratively integrating translation vectors over vector fields defined by gradient operators (Trefethen and Bau 1997). Star-shaped dunes develop multiple arms under variable wind conditions, creating a radial form, while parabolic dunes are shaped by the influence of vegetation on partially fixed sand surfaces (Ahmed et al. 2023). It is possible to deform multi-directional wind effects via voronoi cells with vector fields in both dunes and to create self-organizing complex geometries or differential morphologies in this direction (Boissonnat et al. 2018). Finally, in obtaining multi-directional dune formations, the Perlin noise algorithm, fractal turbulence, and a *coherent pseudo-random scalar field* over scalable frequency components are ideal for this type of shape generation. In this combination, the basic way begins with creating a scalar field by assigning a value to each point. This randomness (in context: stochastic value distribution) mimics spontaneously occurring textures in natural systems using continuous gradient interpolation. Because exposure values are managed with smooth transitions, natural-looking fluctuations are achieved (Knuth 1997).

Table 18: Computational Spatial Syntax Generation & Cosmos on Sand Dune Types (Compiled by the Author 2025)

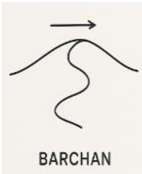
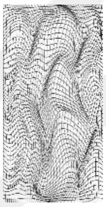
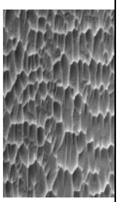
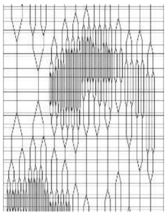
	Diagrammatic	Visual	Computational	
			Syntax	Cosmos
1				*Pufferfish, Mesh manipulation, Tweening curves, Surface operations, Geometric transformations, Procedural modeling, Topology optimization, NURBS processing, Subdivision surfaces, Parametric meshes, Complex geometry, Discrete systems, Grid-based simulation, Rule-based evolution, Emergent behavior, State transitions, Neighborhood interactions, Pattern formation,https://www.youtube.com/watch?v=ln5XjT4IF34*
2				*Millipede, Sinusoidal functions, Frequency modulation, Amplitude, Interpolation, Finite element analysis, Amplitude variation, Linear interpolation, Spline interpolation, Data-driven design, Force-based simulation, Procedural geometry, Dynamic analysis, Topological-constraint https://www.creativemutation.com/millipede*
3				*Anisotropic behavior, Vector field, Generational propagation, Gradient operators, Iterative integration, Particle trace, Directional dependency, Flow simulation, Differential geometry, Path tracing, Force vectors, Numerical integration, Spatial dynamics, Emergent trajectories, Computational fluid Dynamics https://www.youtube.com/watch?v=ln5XjT4IF34*
4				*Anisotropic behavior, Vector field, Generational propagation, Gradient operators, Iterative integration, Particle trace, Directional dependency, Flow simulation, Differential geometry, Path tracing, Force vectors, Numerical integration, Spatial dynamics, Emergent trajectories, Computational fluid Dynamics https://www.youtube.com/watch?v=ln5XjT4IF34*

Table 18 Cont.

5				*Parametric rigid angular polygons, cells boundaries partition computational design generative delaunay triangulation mesh topology optimization proximity points space division irregular network script component plugin pattern generation computational geometry discretization random distribution control points seed points cell structure module paneling surface decomposition https://www.youtube.com/watch?v=tSUeNTySAE*
6				*Perlin noise, Fractal turbulence, Pseudo-random scalar field, Stochastic generation, Scalable frequency, Gradient noise, Coherent randomness, Procedural texture, Noise interpolation, Octave layering, Simplex noise, Multiscale patterns, Randomized continuity, Spatial coherence, https://www.youtube.com/watch?v=Kq5TdpGT8ks*

These parameter gains are particularly beneficial in generating sustainable spatial solutions for desert climates and potential biomimetic relationships. In this context, dunes offer advantages in terms of acoustics, thermal performance, and structural efficiency, as well as formal diversity (Lee et al. 2022). Dune Anti-Desertification Architecture, a speculative yet feasible project, is one such project. It aims to raise climate awareness to address the crises in extreme heat regions. In the Sahel region of Africa, dunes are moving southward at an intense rate of approximately 600 meters per year, causing homelessness and inevitable migration for the people living in this region. The project proposes habitats that adapt to the reality of desertification rather than mitigating it to prevent this migration, which has become a serious problem, especially in Africa (Figure 71) (Larsson 2010).

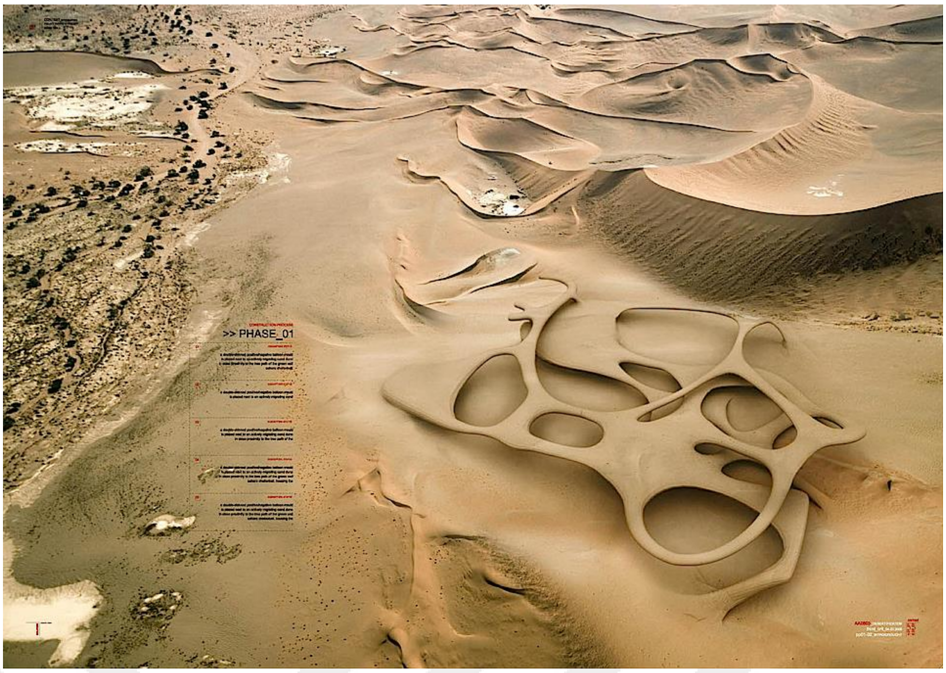


Figure 71: Dune Anti-Desertification Architecture Project (Larsson 2010)

The project incorporates traditional solutions such as creating habitable habitats near trees and creating water and shade along sand dunes—an extension of the previously launched "Green Wall Sahara" initiative in Nigeria. It is also notable for the speculative but feasible strategy developed by Professor Jason DeJong, which aims to transform sand into sandstone using bacteria. This approach enables the construction of structurally stable and durable formations, creating a physical shelter against desertification and ultimately providing shelter that local communities can use without having to abandon the area (Figure 72) (Holcim Foundation 2009; Larsson 2010).

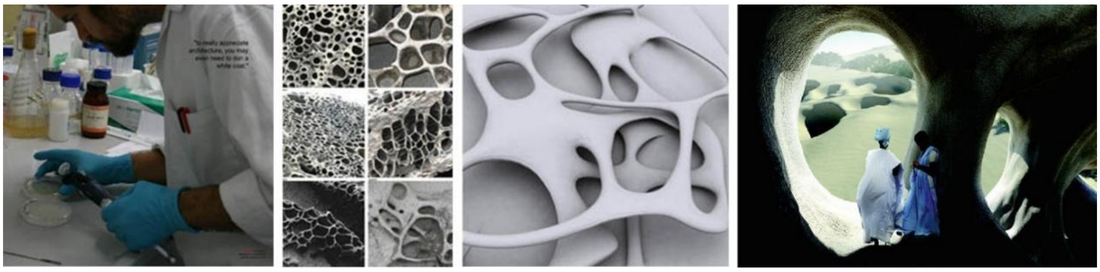


Figure 72: The Process of Transforming Sand into Sandstone (*right*); Interior Space (*left*) (Larsson 2010)

For a group of designers who embrace the orthogonal production habits of traditional architecture, computational thinking through grains of sand seems challenging at first. Despite such a challenge, it might make sense to treat grains of sand as discrete units (pixels) and transform this into a design strategy. Influenced by Spinoza and Bergson, Deleuze thinks about fluids and discrete units in a layered way, implying that discrete elements constitute functional compartments to regulate flow and generate new formations within this flow (Deleuze 1966). Therefore, from a Deleuzian perspective, instrumentalizing the digital for manipulating formless formations in nature is utilitarian in that it provides continuity to the potential for new formations (in this context: the production of the virtual). Dividing and controlling the flowing, accumulating, collapsing, and redistributing content of sand in its natural continuity into artificially discrete fragments through digital representation means creating a plane of immanence (Deleuze 1994; Deleuze and Guattari 1987).

Powdertoy, an open-source, physics-based 2D sand simulation game, is particularly interesting for its ability to transform grains of sand into pixels, making it a design-focused simulator. The game allows users to choose different materials - sand, water, fire, steam, lava, and more - and observe their interactions. The chemical reactions and physical behaviors of these elements are fully simulated, allowing players to create their own simulations with countless combinations (pudertoy 2025).

Such sandbox games are not as comprehensive as other professional open-source software for modeling real sand dunes, but they can offer an advantage precisely for this reason. Such sandbox applications can function as drawing interfaces. The virtual space provides the designer with a space of freedom to control all kinds of particulate objects. In this space, the physical and chemical reactions resulting from their interactions with real sand dunes and other matter are clearly observed. This observation is particularly informative for natural structures such as sand dunes, which result from actions such as the aggregation, collapse, and coalescence of organic particles and are quite difficult to control tectonically. With this approach, the digital world serves as a canvas for the designer, and from a Deleuzian perspective, the new achievements produced by the relative separation of multitudes imply a strategic machine community (Deleuze and Guattari 1987). The similarity between the diagram prepared for the Dune Anti-Desertification Architecture project in Figure 73. and the visual in the dust toy game, produced entirely independently of this diagram, suggests such a relationship.

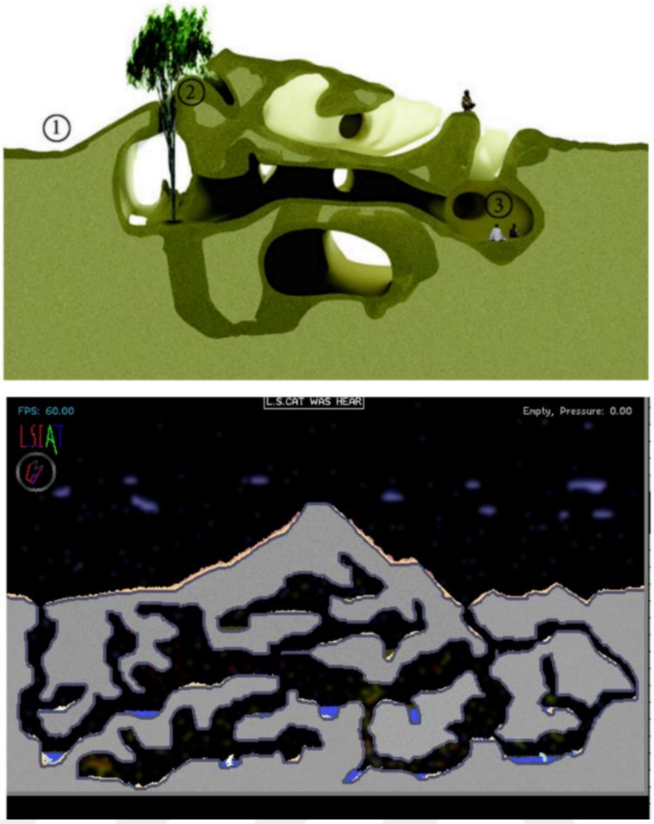


Figure 73: A Diagram for the Dune Anti-Desertification Architecture Project (*above*); Derived Voids Subject to Physical Simulation in Powdertoy Game (*bottom*)
(Compiled by the Author 2025)

Therefore, dunes are not merely temporary topographies shaped by the wind; they are also the spatial counterpart of a becoming that does not occur in a single moment but is constantly transformed by external forces, as Deleuze emphasizes in his definition of the creative process. In this context, we should speak not of fixed tectonics, but of a multiplicity of becomings. Formative variations such as barkhan, transverse, longitudinal, star, or parabolic dunes can now be procedurally modeled with today's computational design capabilities. These parametric achievements are enriched with both formal and environmental (acoustic, thermal, etc.) performance data to develop sustainable spatial strategies, particularly for desert climates. The instrumentalization of the digital on these formless natural formations, when intersected with Deleuze's concept of becoming, becomes not only a tool for generating form for architectural strategies but also a way of thinking. Open-source software and virtual space modeling environments, in particular, offer unique opportunities to develop new design forms by emulating the multilayered structure of dunes.

3.3 CHAPTER RESULTS

This chapter aims to develop design strategies that can be followed by other designers, theorists, sociologists, social scientists, and those aiming for social transformation. In this regard, the need for a design strategy is defined, based on the analysis of the capitalist system's effects on spatial production in the previous chapter. Starting from Deleuzian principles, the main motivations for this need are to create an alternative spatial production and a sustainable roadmap that is inclusive of all segments of society, moving away from current capital habits, traditional architectural practices, and urban planning habits.

The strategy developed from Deleuze's conceptual framework approaches the design object not merely as a final product but as a transformation itself. In areas where capitalism is intensified by all manner of global crises emerging today, it motivates how strategic moves with the potential to transform this intensity can be developed. In this regard, the rhizomatic methodology of this study, the framework of which was defined in the first chapter, was considered together with digital production technologies and a strategic sequence model was created.

The chapter summarizes the current reflections on radical global crises (pandemics, climate catastrophes, mass migrations, earthquakes, floods, etc.) experienced particularly after 2020. This table demonstrates how crises, in a Deleuzian context, point to intensities, breaking points, and relational transformations. According to Deleuze, these crises reveal areas of tension shaped by the processes of deterritorialization and reterritorialization of capitalist desire. The design strategies presented throughout this chapter aim to transform these areas of crisis into opportunities.

The process of strategy formation is framed through Deleuze's n-1 approach. This approach is a method that disrupts existing systematic systems and paves the way for new formations, generating difference. Thus, potentials suppressed or ignored within capitalism can be reactivated. The strategies developed in this context aim not only to produce spatial solutions but also to transform social organizations. Supported by diagrams, analogies, and trace methods, these strategies have become concrete representations of the Deleuzian concept of design.

In the model developed in this context, the capitalist order was taken as ‘n’; lines of flight were represented as ‘n-1’; and temporary and dynamic assemblages were conceptualized as ‘n+…’. This diagram visualizes where and how architectural strategies can be positioned within the network of interactive relationships established between technology, human, and nature. In this chapter, the object of this design strategy is clearly defined. In the first chapter, open-source code, which functions as a planemenon based on Deleuze's plane of immanence, is instrumental in creating this chapter's design object. What design now needs is to create an alternative canvas against the gridal border system of capitalism. This canvas emphasizes not only opposition to centralized state policies but also the inclusion of topographic realities in the design process. In line with the Deleuzian understanding of assemblage, the holistic network of relationships between the individual, nature, technology, and the machine has become the defining framework of these strategies.

In this context, the concept of border is revealed as one of the chapter's fundamental discussion points. Borders are not merely a geographical distinction drawn by the state; they are also a coding tool that blocks the social and creative potential of the individual. This strategic chapter proposes to rethink borders in both their physical and abstract aspects. Thus, instead of the "clear distinctions" favored by capital, permeable, polycentric, and rhizomatic border approaches have been proposed (Figure 74).

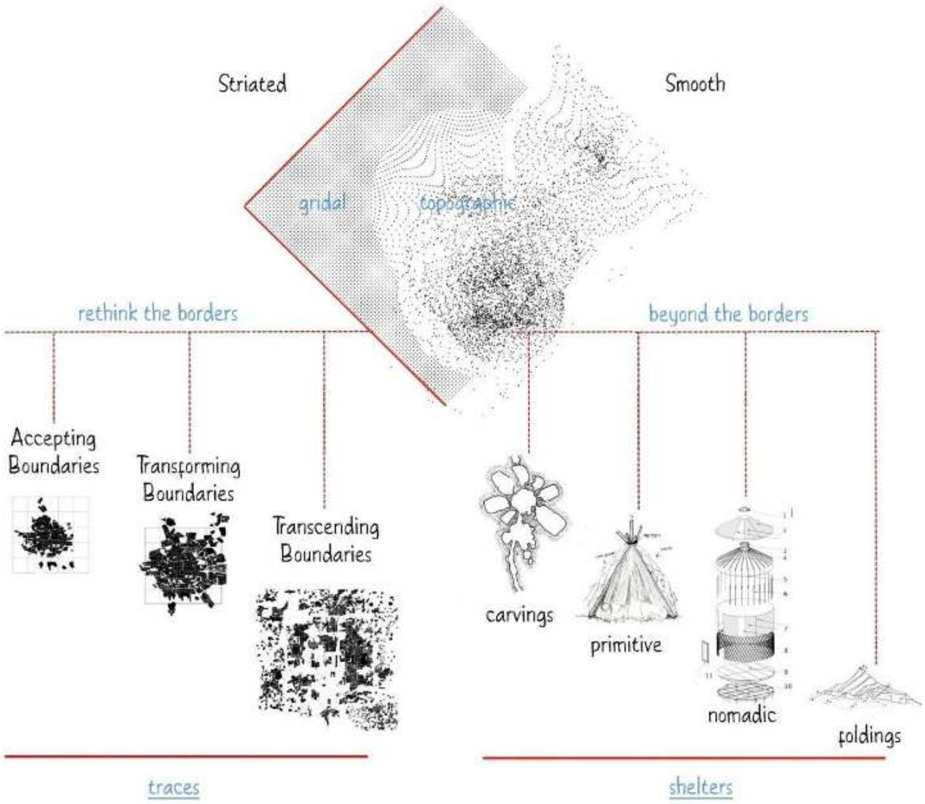


Figure 74: A Creative Analogy Constructed Through the Grid of Capitalism (Created by the Author 2025)

In the final section, the strategies developed are shaped by a focus on social transformation for minor communities (minorities, nomads, semi-nomads, marginalized people, homeless people). These groups represent areas of resistance marginalized by the capitalist system but with high potential for transformation. Therefore, the design strategies were developed with a holistic sustainability approach that is not only human-centered but also encompasses nature, animals, and climatic conditions.

Methodologically, these strategic proposals were instrumentalized using open-source software and enriched with the computational possibilities offered by parametric design. The strategies were transformed into sequences using tables inspired by Deleuzian concepts, thus developing a traceable and producible methodology at both conceptual and practical levels (Table 19; Table 20).

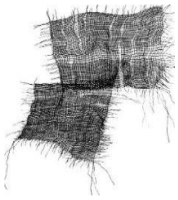
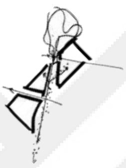
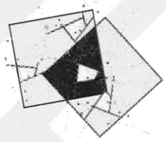
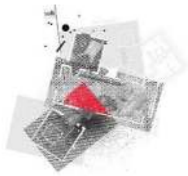
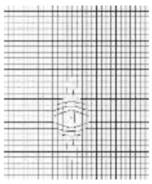
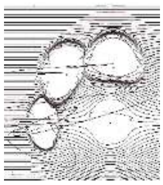
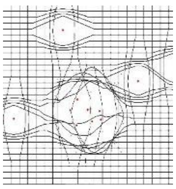
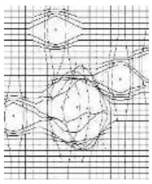
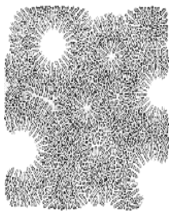
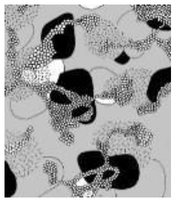
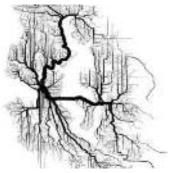
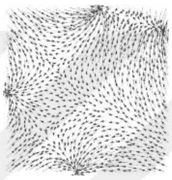
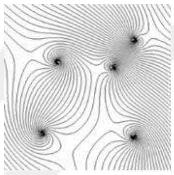
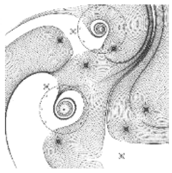
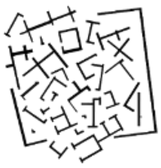
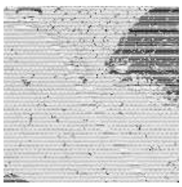
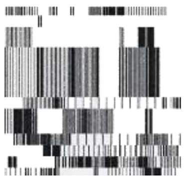
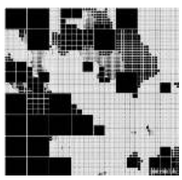
<table>
<tr><td colspan="5">Table 19: Generating Traces of Deleuzian Difference by Clinging to the Capital Grid (The Completion of Borders) (Created by the Author 2025)</td></tr>
<tr><td>Completing
Boundaries
Discontinue
½ Housing</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Computational Cosmos: Incomplete Combinatorics, Set Theory, Subset (K-Subset), Permutation, Combination, Cardinality, Combinatorial Explosion, Sparse Matrix, Probabilistic Space, Graph Theory; Data Tree, Boolean Masking, Subset Selection.</td></tr>
<tr><td>Completing
Boundaries
Junction
From Grid to
In-Between
Sp.</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Computational Cosmos: Change Detection, Satellite Imagery, Image Segmentation, Multispectral Imaging, Ortofoto, Remote Sensing, Image Processing, Change Detection, Urban Decay, Object Detection.</td></tr>
<tr><td>Completing
Boundaries
Porous
Occupying
the Voids</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Computational Cosmos: Perforations, Porosity, Pores, Heteroptera, Dendro, Parametric Field, Spanning Tree, Discrete Simplex Noise Field, Voxel, Volumetric Design, Fractal Growth, Smooth Volumetric Mesh, Voxel.</td></tr>
<tr><td>Completing
Boundaries
Colonization
Bug Dome</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Computational Cosmos: Cocoon, Weaverbird, Metaball, Isosurface, Charge Field, Adaptive Meshing, Marching Cubes, Stellate, Laplacian Smoothing, Catmull-Clark, Marching Cubes.</td></tr>
</table>

Table 20: Generating Traces of Deleuzian Difference by Clinging to the Capital Grid (Transforming of Border) (Created by the Author)

Transforming Boundaries **Bifurcations** Multi-Path Gains				
Computational Cosmos: *Heteroptera, Dendro, Parametric Field, Spanning Tree, Discrete Simplex Noise Field, Voxel, Volumetric Design, Fractal Growth, Smooth Volumetric Mesh Voxel Resampling, Adaptive Mesh.*				
Transforming Boundaries **Centrifugal** Highly Centralized				
Computational Cosmos: *Fields, Noisefield, Saddle-Node, Pitchfork, Hopf, Bifurcation Theory, Vortex, Perlin Noise, Populate 2D, Amplitude, Frequency, Vortex Force, Radical Force, Vops, Bounds, Arraypolar.*				
Transforming Boundaries **Fructuring** Multi-Axis Returns				
Computational Cosmos: *Voronoi, Fractal, Segmentation, Tessellation, Recursion, Populate 2D, Convex Hull, Centroidal Voronoi Tessellation, Dirichlet Tessellation*				
Transforming Boundaries **The Uncodifiables** Non-Places				
Computational Cosmos: *Pixel · Grid · Resolution · Bit Depth · Bitmap · Dithering · Threshold · Grayscale · Contrast · Brightness · Alpha · Opacity · Sample Rate · Scanline · Quantization · Vector to Raster · Anti-Aliasing · Binary Image · Downsampling*				

In this context, the third chapter presents how a new design strategy can be constructed at both conceptual and practical levels by integrating some trace productions, nourished by the concept of creative difference presented by Deleuze's thought, with digital techniques. While the current conditions shaped by the crises of the capitalist system necessarily redefine the boundaries of spatial production, they also enable the emergence of alternative, sustainable, and collective potentials. This strategic framework proposes not only a human-centered design approach, but also a holistic and ethical development model that takes into account nature, nomadic communities, and societal vulnerabilities. Thus, the third section provides both a methodological and theoretical basis for the case study in the next stage of the study, paving the way for testing the applicability of strategic production in the field.

CHAPTER IV
RHIZOMATIC SPATIAL PRACTICES: THE YÖRÜKS AS A CASE OF MINORITARIAN POWER

Praface: This case study, carried out within the scope of this thesis is based on the project titled: Possibilities of Anatolian Turkish Tent through Deleuze and Guattari's Rhizome Metaphor: Space Production Based on Computational Design, Çankaya University, Scientific Research Project (BAP), Project Number MF.22.004 and Project Date: 01.09.2022 - 31.08.2023 was supported by Project Executives: Assoc. Prof. Dr. Gülru MUTLU TUNCA and Ph.D. Student Engin DEMİROK.

Besides unveiling a solid philosophical and theoretical context for contemporary design practice, this thesis implements Deleuzian principles of anti-hierarchical and decentralized organization, nourished by multiple relationships, into a solid methodological framework to reveal how the substantial body of philosophical context will interact with current technological, social, geographical, and economic realities. At this point, the implications of Deleuzian thought on nomadic Turkish history through the concept of nomadolody are analyzed. The next chapter focuses on the *Yörük* culture, which bifurcated as a minor branch of nomadic Turkish history and whose existence extends to the present day. The *Yörük* example provides a fertile ground for how rhizomatic connections can be produced on a practical level through the phenomenon of nomadism. In this context, after revealing the geographical and historical background of the *Yörük* culture, its rhizomatic formation and how it exists (resistance) as a minor power, how it transforms against the capital majority, and its daily life facilities and mobile tent lives are analyzed as a rhizomatic assemblage representation.

As seen in Figure 74., the case study will be conducted in three main phases. The first phase, the contextual phase, will include a literature review on the geographical and historical background of the Yörük culture, and analyze the rhizomatic formation of their mobile tent dwellings in relation to their daily life facilities, revealing how they resist as a minor power against capitalist majorities. For this first, the representative relationship of the rhizomatic conceptual framework of the study with the settlement practices and social organization forms of the *Yörük* community will be examined. It will then methodologically discuss how parametric and computational design tools can transform this abstraction into concrete strategic data and how to operate in space. Subsequently, these strategic sequences will be tested through practical exercises involving a sample group and an on-site application (Figure 75).

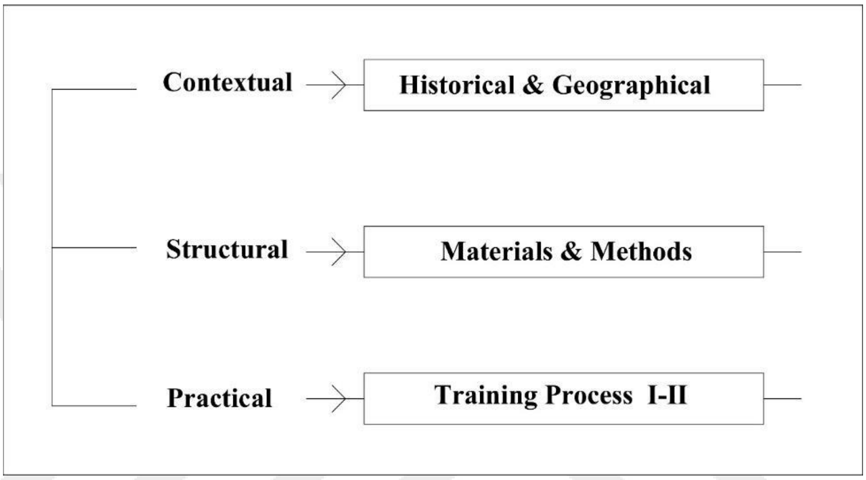


Figure 75: The Framework of the Case Study Analysis (Created by the Author 2025)

The scope is to explore how the rhizome concept can be mobilized as a strategic and methodological tool in processes of sustainable social transformation. To this end, the following section will examine a case study through its contextual relation, focusing on spatial associations informed by historical and geographical indicators.

4.1 CONTEXTUAL FRAMEWORK OF THE CASE STUDY

Within the scope of this study, special attention was paid to ensure that the characteristic features of the selected sample group exhibited an inclusive approach to the rhizomatic outcomes of Deleuze and Guattari's thought, which were emphasized in the theoretical framework of the research. In this context, the sample focus of the study was primarily nomadic and minor (*in the Deleuzian context: Becoming-Minoritarian*) communities that function as a kind of projection of the rhizomatic relationality of Deleuze's thought against the established hierarchies in everyday practices. Testing an abstract concept with a metaphorical/analogical expression, such as a rhizome, in an applied community sample is important in terms of providing truly productive outputs and concretely demonstrating the possibilities of a sustainable spatial transformation. Thus, the main point emphasized in this section is the fact that the ideal counterpart of rhizomatic relationality, which this thesis points out in the theoretical framework, in the everyday life practices of a decentralized, multiple, nomadic, minor but resilient community.

As localizing the concept of rhizome, in other words, experiencing it in a concrete life practice with a selected sample, clarifies how the rhizome can offer a resistance strategy against hierarchical forms of space production. The case study facilitates re-reading the concept of rhizomatic social organization through nomadic movement and grounds its sample selection in this context. Thus, it tests the adaptability of the conceptual framework to contemporary social, geographical, and economic contexts by focusing on the production of space.

One of the main aims of this research is that nomadic phenomena do not present a uniform form of existence, but rather produce different nomadic planes located within capitalist spatial boundaries. While the sphere of dominance of capitalist organizations reshapes some nomadic communities within its borders and transforms them into Semi-sedentary or hybrid forms, some communities transcend these borders and maintain a centralized, stateless, and resistant form of existence to external interventions. The latter is the context to which this research relates current realities. As can be seen from the examples of rhizomatic spatial strategies presented within the scope of the thesis, while the "relatively localized" nomads located within the border somehow adapt to the flow of capital, the purely nomadic communities located outside the border can maintain a small but extremely resistant, minimal life practice habit at the spatial and social level by constantly producing *lines of flight* against modern capitalist networks (Deleuze and Guattari 1987).

In this study, the *Yörük* society, which neither has a completely localized nomadic identity within the boundaries of capitalist spatial organization nor is it a purely nomadic community completely unaware of today's realities, but functions as a hybrid community in a sense, was chosen as a sample. With this hybrid selection, the advantages/disadvantages of the *Yörük* nomadic life, which previously exhibited a purely nomadic existence, in the process of transformation with today's capital realities are discussed, and it is clearly revealed how it can chart a sustainable path in the near future.

Therefore, the sample in question, with its hybrid character that is on the brink of capital limits, especially in the face of technological developments that emerge every day, and that persistently holds on to its resistant historical and traditional habits, serves as a database for the purpose of revealing a sustainable social organization, which is the target focus of this study. In this context, the sample group compiled into a database in this study aligns with the search for a mobile and sustainable alternative model of organization, both spatially and socially, despite the entrenched hierarchies of capitalism. Thus, the case study explores the possibilities of a rhizomatic transformation by revealing the internal continuities of a life form that remains external to the center, alongside the 'strategic improvements' imposed by the capitalist topography addressed throughout the thesis. In this context, the selected sample provides a unique context for both the transfer of the rhizome concept proposed in the theoretical framework to spatial practice and how alternative lines of flight can be organized (Deleuze and Guattari 1987).

Discussing the paradigm of rhizomatic space through a case study requires an understanding not only of contemporary modes of spatial production but also of how these modes are historically layered and how they persist and transform in changing geographical contexts. Therefore, understanding the forms of resistance developed by nomadic communities against the settled order requires a multi-layered, discontinuous, and fluid spatial reading that goes beyond a linear historical narrative expressed in static numbers (Braudel 1972). Consequently, before focusing on *Yörük* culture, it is necessary to consider how nomadic forms of mobility are rhizomatically shaped in historical and geographical contexts, how they are re-limited in different periods, and what kind of relations they establish with capitalist spatial organization. Thus, how rhizomatic thought intersects with spatial strategies will be deepened in the axis of non-linear historical flows and nomadic routes.

4.1.1 Historical & Geographical Trajectories: From Nomadic Routes to the Edge of Capital

In the introduction to *The Turks in World History*, a book on Turkish origins and identity by the German historian Carter Vaughn Findley, the author writes: The whole phenomenon of Turkishness resembled a bus traveling across Asia from East to West. The trip took a long time, and there were many stops. Many intended to go only short distances. The idea that what they shared with all the other passengers on the bus was more significant than their differences probably never crossed their minds. Occasionally, the bus broke down and had to be repaired with parts found along the way. By the time it reached Turkey, it was hard to know which, if any, of the passengers or parcels had been on board for the whole trip. The bus, too, was no longer the same as it had been when it set out. However, this was still the Trans-Asian Turkish Bus (Findley 2005:5).

Findley's metaphor of the bus emphasizes the Turks' historically mobile way of life and their expansion to vast geographies, shaping the socio-cultural, economic, and political backdrop of the present day. In Findley's words, the bus traveling from East to West across Asia constitutes just one dimension of the nomadic history of the Turks. The heritage of Anatolia and the Islamic legacy, stretching back to the 7th century Arabia, influenced the formation of the modern Republic of Türkiye (Findley 2005: 5-6). Therefore, Turkish history is not a route ending in the West but a prosperous path beginning in Eastern Inner Asia, intersecting with multiple routes and extending throughout Eurasia.

The Turks' nomadic practices of historically rejected settlement can be framed through Deleuze and Guattari's critique of capitalism in *Nomadology: The War Machine* and its articulated concepts. According to Deleuze and Guattari (1987:404), the political, economic, or socio-cultural characteristics of nomadic people are less well-known than their survival skills. However, the phenomenon of migration is a sociological event impacting all the dynamics of society. The migrant integration process, particularly, is a complex process that pushes societies toward genetic descent (Adıgüzel 2018).

Deleuze and Guattari open *Nomadology: The War Machine* with the axiom, "The war machine (in this context, the nomad) is outside the control of the state." (Deleuze and Guattari 1987). This externality is first situated within mythology, epics, and dramas. In Turkish epics of Central and Northern Asia, there are migration-themed stories and dramas, some rooted in extraordinary elements and others grounded in realism. The reasons for these migrations are mainly labeled as forced migration because of enemies, migration stemming from internal conflicts, migrations driven by social and economic factors, and those resulting from moral values (Arsav 2012: 217-224). From a Deleuzian perspective, this section is mainly concerned with the political, socio-cultural, and pragmatic outcomes of migrations rather than their causes. Deleuze and Guattari (1987:18) argues the following:"…Does not the East, Oceania in particular, offer something like a rhizomatic model opposed in every respect to the Western model of the tree? …"

Sociologist Bahattin Akşit highlights that the Turkish movement, which began in Eastern Inner Asia due to the Mongol invasions, was a highly creative and thought-provoking process with significant outcomes. Akşit analyzes the nomadic Turkish movement through Deleuze and Guattari's "*Nomadology: The War Machine*" and "*A Thousand Plateaus*" and draws important conclusions about the Turkish movement. He highlights how the Turkish movement, which began as a minor event with the 13th-century Mongol invasions and left a strong mark on world history, drew the attention of Deleuze and Guattari. This was such a survival struggle that emerged with neither state control nor higher authority. The beginning is entirely minor and profound. Instead of a hierarchical and settled state (appareil d'État), the mobile and nomadic nature of Turks (appareil de capture) deeply influenced the shaping of Western cartography. This is a strong example of how rhizomatic action can transform into significant potential against the state (Akşit 2018). Deleuze and Guattari (1987: 380) state that "it is true that the nomads have no history; they only have a geography."

The Turks' movement, free from any state organization, can be labeled as a form of grouping. In other words, it is the war machine/capture apparatus opposing the state. French historian Braudel argues that war and warrior societies should not be considered opposites of civilization. Instead, he discusses their long-term contributions and impacts, particularly regarding the political, economic, and cultural interactions between societies (Figure 76) (Akşit 2018; Özbaran 1974: 336).

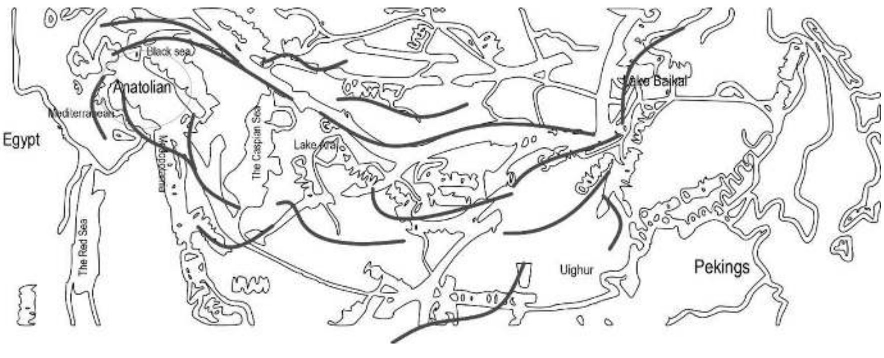


Figure 76: Non-Linear Turkish Movement (Created by the Author, inspired by Koşay's illustration 2024)

Another key outcome of interconnected causes is reflected in topographic traces— mountains, hills, plateaus, seas, and deserts. All are representations of cartography. Therefore, a non-linear representation interconnected in a rhizomatic manner is there. Manuel DeLanda (2000) argues that history is not a static, linear sequence but a dynamic process constantly influenced by a rhizomatic network model. Unlike the traditional linear view of history that moves from beginning to end, he suggests that major historical movements trigger one another. Consequently, he highlights the presence of non-linear dynamics emerging from this process, connecting them to theories of self-organization and complex systems.

This historical and geographical stratification makes visible how nomadic mobility penetrates spatial and social contexts like a rhizomatic network. The fluid structure of nomadic routes, which are uninterrupted and articulated to different topographies and produce new lines of flight, is closely related to Deleuze and Guattari's concepts of *deterritorialization* and *reterritorialization*. In this context, Turkish nomadism, which historically shaped the Anatolian geography, can be read as a local expression of this rhizomatic movement.

In this study, the *Yörük* culture, which is the living representative of the nomadic tradition in the contemporary context, will be discussed, and how this culture has developed a minor but powerful resistance strategy against established spatial boundaries and capitalist forms of organization will be examined. Thus, the concept of rhizomatic organization, which is put forward at the conceptual level, will be discussed through a concrete example of the multifaceted and heterarchical life practices of the *Yörüks*.

4.1.2 The *Yörüks*: Tracing Nomadism through Rhizome

Preface: In this section and the following subsections, the data obtained from the interview study conducted to increase the depth of the database obtained through literature research and field observation on the *Yörük* culture and to frame it with a matrix, prepared in the *Project Approval Form No. 2 of the Research and Publication Ethics Committee* dated *03/01/2024* and evaluated in accordance with *the Ethics Committee Report No. E-31115241-050.99-147374 of the Çankaya University Scientific Research and Publication Ethics Committee, dated 08.02.2024, was* used. Data obtained from the literature and interviews conducted during the study of the *Yörük* culture are included in the text, along with their references, in relevant places.

Yörüks are among the oldest living representatives of nomadism in the Anatolian geography. Etymologically, the word *Yörük* is derived from the Old Turkish verb "yörü-" (to walk, to move) and means being on the move, constantly changing place (Erder 1976). In this context, the concept points not only to a way of life but also to the continuity of mobility, fluidity, and spatial flexibility in social memory. In studies on the nomadic communities of Anatolia, it is emphasized that the *Yörüks* are a variant of the Turkish nomadic tradition that was carried from Central Asia to Anatolia and adapted to the Anatolian topography (Sarıtaş and Tarakçı 2008; İnalcık 1997).

Throughout history, Yörüks have attracted attention with the flexible and adaptable lifestyles they developed against the settled order imposed by dominant power apparatuses (in the Deleuzian context: *State Apparatus*). From Braudel's long-term (*longue durée*) perspective, the Yörüks have constantly reproduced space within a kind of historical stratification with their nomadic routes and seasonal plateaus and winter quarters (Braudel 1972). This mobility is a rhizomatic form of existence in the sense defined by Deleuze and Guattari. There, a decentralized, multifaceted, non-hierarchical network existed as a minor form of resistance to the established and disciplinary production of space by modern state apparatuses (Deleuze and Guattari 1987).

The geographical spread of the *Yörüks* was shaped within the difficult topography of Anatolia, extending from the Taurus Mountains to the Aegean and Central Anatolia (Şahin 2012). This distribution, by rejecting the production of a fixed space, creates a mobile spatiality intertwined with climatic conditions, animal husbandry, and subsistence practices. In this context, the *Yörük* existence is not only a nomadic movement, but also a complex *assemblage* in which modes of production, social relations, and daily life practices are transformed together. As Deleuze and Guattari use the term, an *assemblage* is a dynamic whole formed by those who come together not around a fixed center but through multifaceted articulations encompassing nature, technology, economic, and social parameters (Deleuze and Guattari 1987).

Therefore, considering a *Yörük* assemblage is not just about the positioning of tents; numerous elements such as animal herds, temporary shelters, summer pasture-winter pasture transitions, natural conditions, regional climate, continuity of pastures, and even local government policies work together (Sarıtaş and Tarakçı 2008). This is a truly rhizomatic organization in which the topography is constantly transformed by permeable connections rather than closed boundaries, and by a multifaceted and transformable settlement pattern rather than fixity.

The fact that *Yörüks* have lived throughout history partly by accepting the control of the central authority and partly by breaking away from it can also be interpreted through Deleuze and Guattari's concepts of deterritorialization and reterritorialization. Nomadic life has existed in a cycle of dispersion (*deterritorialization*) and reconnection (*reterritorialization*) (Deleuze and Guattari 1994). This cyclicity is also seen in the heterarchical social organizations that the *Yörüks* established among themselves. For example, bands or tribes are not organized into a fixed pyramidal structure, but rather reshaped according to seasonal needs, livestock, and family ties (Yaman 2021). They are displaced and adapted according to circumstances. Context is in constant flux; it both organizes and is regulated by circumstances.

The fact that the *Yörük* life practice is still maintained by some communities today constitutes a strong example of small-scale sustainability in terms of rhizomatic space production. The unique resistance strategies and self-organization model of nomadic existence constitute an alternative spatial sustainability model to the modern agricultural and settled production systems of the capital regime (Salzman 2004). In this context, the parameters of the *Yörük* community cannot be reduced solely to geographical mobility. Cultural rituals, family structure, forms of social solidarity, subsistence economy, tent settlements, animal husbandry, and their symbiotic relationship with topography are components of this structure.

On the other hand, the fact that topography is an integral part of local life, both as a living entity and as a content, is strong enough in terms of the continuity of spatial production. For example, the current possibilities of the topography are directly related to parameters such as climate changes in the selection of migration routes, water resources, and pasture continuity. This dynamic interaction between nomad and topography is related to Deleuzian folds (Deleuze 1993).

As a result, this study aims to re-evaluate *Yörük* culture as a rhizomatic assemblage, while at the same time analyzing how its social, cultural, economic, and ecological components are intertwined and how it can produce its own lines of escape within today's capitalist production of space. In this way, *Yörüks* function as a basic sample in the concretization of the conceptual framework as a living representative of Anatolian Turkish nomadism on the one hand, and as an alternative model of spatial sustainability on the other.

In the remainder of this section, the daily life practices, social and cultural characteristics of *Yörüks* will be discussed in detail, and the potential parameters of this structure within the logic of rhizomatic organization will be discussed.

Present-Day Yörüks: Fragmented Continuities and Adaptive Practices

Today, the Anatolian nomads continue to exist as a local variant of the Turkish nomadic culture, which is historically brought from the steppes of Central Asia to the different topography of Anatolia, especially the 'Mediterranean' and 'Taurus' Mountains (Erder 1976). Traditional *Yörük* communities have developed a spatial organization that depends on the climatic opportunities of geography, with its highland-winter order based on seasonal migration cycles for centuries (Sarıtaş and Tarakçı 2008).

However, modern nation-state processes, since the 19th century, the re-settlement policies that have accelerated during the Ottoman and Early Republican periods, have disintegrated nomadic forms, and the transition to settled life has been encouraged or compulsory (Şahin 2012). This transformation caused the breakage of spatial and social continuity in the life patterns of Yörük communities. Nomads living in a tent life were partially integrated into the settled order (Öztürk 2020). However, some nomadic groups still maintain mobile relations associated with seasonal animals and still remain disintegration of nomadic spatialism (Şahin; Güneysu Budak, personal communication 2025).

This adaptation is undoubtedly a reflection of the horizontal and resistant properties of nomads that are not centralized and leaking with multiple minor connections everywhere. The fact that nomads are scattered in both mountainous highlands and plains, sometimes adding to urban areas, but still do not completely give up the seasonal transition, is the social equivalent of this issue of rhizomatic relations. As a matter of fact, some branches of the local communities are re-adapted to livelihood practices by turning to agricultural production or seasonal workmanship. While partial settlement continues in urban centers, active nomadic life continues by returning to traditional migration routes during the summer months (Tosun 2022; Güneysu Budak, personal communication 2025). This makes a double-layered organization within and outside the capitalist spatial boundaries and produces flexible escape (*flight*) lines against fixed domination relations (Deleuze and Guattari 1987).

Erder (1976) deals with the area that acts as a permeable network of social relations, not just as a physical place of the *Yörük*. Therefore, the local identity cannot be limited to a fixed definition of belonging; On the contrary, displacement and transition become the founding parameters of identity. In this context, *Yörüks* have produced a multi-layered identity area between different forms of settlement, such as villages, towns, or cities, even today (Öztürk 2020).

Today, some nomadic families continue their seasonal nomadic practices in the Taurus Mountains, the Central Anatolia Plateau, and the mountainous regions of the Aegean. Parameters such as highland culture, ovine livestock, and traditional crafts remain resistant (Çimenli 2012). However, factors such as pressure of global agricultural markets, contraction of animal husbandry, privatization of pastures, and climate change make this mobility gradually fragmented and fragile (Tosun 2022).

In this context, the concept of the rhizome offers an important theoretical tool for understanding the current position of the nomads. It is obvious that today's nomads maintain their existence by developing new connections and hybrid forms in both spatial and socio-economic contexts. Practices such as citizens' associations, seasonal migration organizations, traditional festivals, and fairgrounds established in city centers are not stuck in fixed nostalgia; on the contrary, they show that they are rhizomatic in new spatial and cultural contexts (Yaman 2021).

This proves that nomadism is not only a historical heritage, but can also function as an alternative form of organization for contemporary spatial design practices. *Yörük* life practice offers a heterarchic, permeable, and re-adaptable form of mobility against the fixing, boundary-defining mechanisms of established capitalist models of spatial production.

Therefore, this continuity, albeit fragmentary, can be read as a projection of rhizomatic thought at the practical level (Deleuze and Guattari 1987). Today, some of the nomadic communities work in the seasonal labor or construction sector in cities. In the other periods, it produces alternative livelihoods such as livestock, crafts or plateau tourism (Tosun 2022; Güneysu Budak, personal communication 2025).

This hybrid existence is integrated into the disciplinary spatial order of the urban center, while at the same time, the memory of traditional migration routes. Thus, *Yörüks* exist as a rhizomatic assemblage living both inside and outside capitalist spatial boundaries, in intermediate transitional zones. This multi-layered situation reveals that *Yörüks* today cannot be defined as “completely settled” or “completely nomadic”. Therefore, today's nomads not only show that nomadism can be an alternative sustainable life model but also provide an important living laboratory for discussions on spatial design, social organization, and cultural continuity (Salzman 2004).

In this context, the next section, ‘‘Socio-Cultural Patterns and Ways of Life: Rhizomatic Logics in Everyday Nomadism’’ will focus on how this rhizomatic continuity permeates everyday life practices. In addition, as a spatial phenomenon, tent tectonics and flexible space production will be examined with the logic of rhizomatic assemblage. Thus, the fragmented yet resilient continuity that has moved from traditional to the present is not just an ethnographic data set; it will also be positioned as a potential alternative for contemporary spatial organization and design paradigms.

Socio-Cultural Patterns and Ways of Life: Rhizomatic Logics in Everyday Nomadism

The socio-cultural patterns of the *Yörüks* exhibit a horizontal and heterarchical structure, unlike the usual vertical and hierarchical forms of organization in established societies. Just as the rhizome is an underground network that can be connected from one point to another and can sprout from other places even when it is cut, the social organization of the *Yörüks* can be read as a flexible life practice in which every element is equally important and not tightly tied to a central authority. According to Erder (1976), while explaining the form of organization of the local communities, it emphasizes that there is a variable and a relationship between units such as oba or tribes, instead of a variable and a needed hierarchical solid boundary. That is, the social division of labor, subsistence economy, and rituals of daily life are shaped by participatory decision-making processes and collective practices rather than a set of rules imposed from the top down (Sarıtaç and Tarakçı 2008; Şahin, Personal Communication 2025).

This cooperative functionality is directly related to the mobile lifestyle of *Yörüks*. Daily life in nomadic yurts is based on a collective organizational logic, from the erection of the tent to the grazing of animals, from the production of handicrafts to the order of pasture and winter pasture (Çimenli 2012). This is not only an economic division of labor, but also a guarantee of social cohesion, internal solidarity, and the continuity of the community. The equal participation of each individual in production, decision-making processes, and social relations can be seen as another rhizomatic element that keeps *Yörük* culture in a state of “becoming”.

Attempts by modern state apparatuses to discipline nomadism and integrate it into settled life have continued from the Ottoman period to the present day, supported by settlement policies. (Şahin, 2012). However, in the face of these regulatory apparatuses of power, the *Yörüks* sometimes united, sometimes retreated, and created their own lines of escape with the topographical advantages provided by the mountains and plateaus. For this reason, the *Yörüks* did not completely surrender to established authority; on the contrary, they rearranged all lines of authority with their own self-organized structures in the practice of daily life.

The fact that social roles in *Yörük* culture do not conform to a fixed pyramid scheme also reinforces rhizomatic heterarchy. Depending on the general and customs, the elderly word is valuable, but young people, women and children are active participants of daily life (Yaman 2011). This is moreover an example of social flexibility to the sexist or age-based authoritarian roles seen in established agricultural societies. From this point of view, the *Yörük* lifestyle also produces a fragile but resistant minor power line against patriarchal domination.

Since the nomadic philosophy of mobile life is not based on a fixed “property” logic, relations with space are permeable. This symbiotic relationship with topography plays a key role both in the determination of highland-winter migration routes and in the sustainability of the livestock economy. Salzman (2004) defines this spatial flexibility that develops through the joint use of soil and natural resources in nomadic pastoralist societies as a “resource sharing ethic " that is not seen in modern established societies. For *Yörüks*, different topographic planes such as mountains, plains, plateaus, heights, or descents are the versatile connection lines that make mobility possible, such as the spread of root stems under the ground in different directions.

Rejecting a full transition to settled life, the *Yörüks* delayed their affiliation to the state or the pressure of fixed taxes and settlement as much as possible, and created a situation of "unconnected affiliation" by organizing rural lands in their favor (Erder, 1976). In this respect, the lifestyle of the *Yörüks* presents a collective “socio-cultural assemblage”, each element of which is equally important, not closed to the outside world but internally. In summary, the socio-cultural axiomatics of the *Yörüks* are rhizomatic, despite the contemporary capitalist system model. In the next sub-section, tent life as a field of action of the social relations of nomads and how their daily life practices are reflected in spatial phenomena will be discussed in more detail.

4.1.2.1 The *Yörük* Habitat: Tents Beyond Cartographic Boundaries

The wool tent, which can be considered the spatial backbone of the historical existence of the *Yörüks*, is not only a temporary shelter but also a concrete projection of topography, climate, production economy, and social organization. As stated by Erder (1976), the *Yörük* tent functions as a permanent mobile living space that provides the mobile flexibility of nomadic life practices with its lightness and ability to be rebuilt. The structural organization of the tent is also an important example for understanding its connection to the heterarchic and rhizomatic social order.

Traditional *Yörük* tents are usually made of thick fabrics woven from goat hair. The texture provides both waterproofing and breathability. It is an ideal natural material suitable for the variable climate conditions of the Taurus Mountains (Çimenli 2012). Hair weavings can be dismantled and wound without losing their flexibility, transported to another plateau, and re-erected by adapting to the new topography. This fold, similar to the conceptual idea of *Pli* (Deleuze, 1993), which Deleuze developed with inspiration from Spinoza, allows space to function as a surface that can be reopened and closed by intertwining rather than a fixed form. The tent structure generally consists of a detachable wooden frame system. As Çağlar (Personal Communication 2025) emphasizes, this wooden frame is a highly durable frame made primarily of Demircik wood. The uprights, side uprights, and support poles ensure that the load is carried in a balanced manner. The hair cover is carried by placing it on poles. This tectonic lightness allows both sustainable use of natural resources and minimal energy expenditure when moving to new areas (Salzman 2004).

The tents are not complicated to set up. A flat plain or hillside slope, wind direction, sun angle, and the positioning of animal herds determine the direction of the tent, its openings, and settlement area (Erder 1976; Şahin 2012; Yaman 2021). As Güneysu Budak (personal communication, 2025) emphasizes that tents should not be set up on mountain tops or valley floors. In particular, it is emphasized that the best places for security are those with mountains behind and open spaces in front (Figure 77).

Figure 77: A Typical Yörük Tent (freepik.com 2025)

According to the Deleuzian view, there is an organism that behaves as if it were part of a smooth space rather than a striated space and that never enjoys fixity (Deleuze and Guattari 1987: 478-479). Therefore, the hair tent is a “habitat-object” that completes the topography and forms a rhizomatic community with it. Multiple factors, such as the strength of the wind, humidity, and the shading needs of the animals, determine how the tent is shaped. Thus, rather than a fixed typology, each tent is a “process of formation” (in the context: becoming) that is rewritten with each new installation according to the parameters of its location and surroundings.,

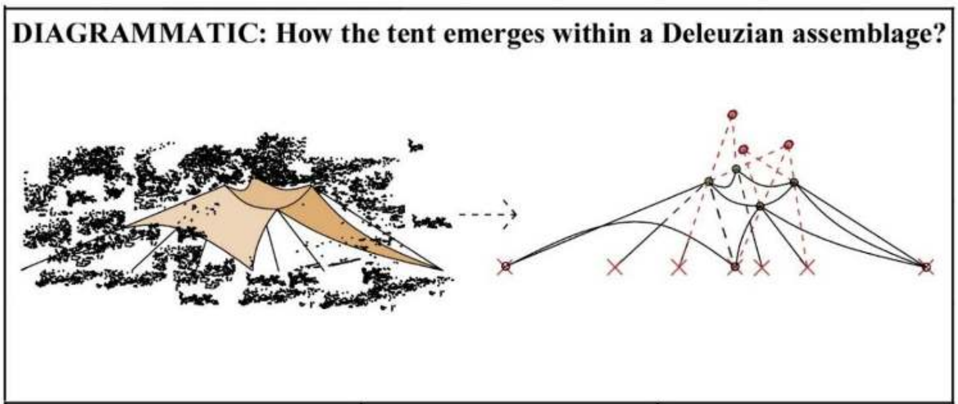
Deleuze's concept of *pli* in *The Fold* (1993) is embodied in the tectonics of the Yörük tent. As a surface, the tent canvas is constantly folded, unfolded, and rolled up. This physical flexibility is not only a practical means of mobility for the nomadic community; it also means that space and social organization can unfold, intertwining and producing new orders (Deleuze 1993). This foldability produces heterarchy rather than hierarchy. A tent's individual part is useless. Without the poles, the tent cannot stand. Each element is equally important. Thus, a decentralized rhizomatic assemblage of sorts is produced, again composed of multiple components.

Due to these factors, the daily life practices in the tent are very different from the boundaries of the capital. The door of the tent is generally kept open; Visitors can easily enter and exit neighboring tents. This transparent interaction suggests that the tent functions as a fluid object rather than a closed interior. However, the interior of the tent flexibly carries functions such as daily activities of the household, hosting guests, production, and shelter (Erder 1976).

The woven parts of *Yörük* tents, such as the ceiling, walls, and carpets, form a functional whole that facilitates portability. Felt tents used in the daily life of nomads consist of various parts such as ceiling cover, side walls, carpets, and woven sacks for storage purposes. Thanks to its highly functional and adaptable modular parts, the tent can be easily disassembled and carried on the backs of various animals, providing practicality during seasonal migrations. The felt tent offers much more than a simple shelter, fulfilling multiple domestic functions by combining a kitchen, bedroom, and living area in the same flexible space. Thanks to this multifunctional design, the practical needs of the nomadic lifestyle of the *Yörüks* are met, and a sense of belonging is created in each new settlement (Figure 78) (Genç and Koyuncu 2021).

Figure 78: Interior View of a Sarıkeçeli Yörük Tent (TRT Belgesel 2023)

The tectonics of the black tents traditionally used in Anatolia are structurally simple and highly functional. Although the number and type of central poles may vary, examples with 3, 4, 5, or even 7 poles are frequently observed. In an ideal Yörük tent, the central covering is elevated approximately 2.75 meters from the ground by means of vertical poles (theblacktentproject 2020). When analyzed within a Deleuzian assemblage, the tent can be understood not merely as a temporary shelter defined by structural simplicity, but also as an articulation of nature itself, its presence is clearly embedded in the environment. This basic tectonic system, defined by the relationship between the poles and the fabric, demonstrates the potential to generate maximum function with minimal components. Both the material and the spatial logic of the tent are drawn directly from nature, resulting in a continuous articulation that emerges from it. As illustrated in Figure 79., the fragmented components of the tent when situated within Deleuzian axiomatics reveal their operational and adaptable character. These components can be added or removed as needed, reflecting a fluid and contingent axiomatics. From a Deleuzian perspective, the tent, as a fragment detached from nature, constructs its own actuality through its flexible tectonic elements. Here, the poles may function as virtual generators, and when joined with the fabric covering, they fold into actualized shelters each one a moment of spatial expression born from material intensity.



	All kinds of traces (soil, mountains, plateaus, water, green areas, animals and plants)	Topographical traces as a part of Deleuzian assemblage
	Supporting poles used in traditional Yörük tents	Actuals/ The actualized axiomatics of the Deleuzian n – 1
	The tensile spatialities of the Yörük tent	Virtuals/ A particular kind of Deleuzian lines of flight
	The cover of the Yörük tent (shelter)	The enacted axiomatics emerging from Deleuzian fold (*le pli*)

Figure 79: Seven-Pole Yörük Tent within a Deleuzian Assemblage (Created by the Author 2025)

In addition, the Yörük tent is constantly rearranged together with the topography of the place, climatic conditions, animal herds, human labor, and social networks. In each migration season, the same tent updates itself in a new plateau, a new micro-topography. On the other hand, felt tents are often seen in Anatolia today not only as shelters but also as cultural symbols. Setting up tents at festivals, fairs, or cultural events means passing on the community's memory to the present day. Therefore, the existence of the *Yörük* reminds us of itself through the image of a tent within capital (Deleuze and Guattari1987; Tosun 2022).

4.1.3 Instead of Interim Final: Matrix Generation on the *Yörüks'* Minimal Self-Sufficiency Criteria

At this pint, conceptual discussions on the rhizomatic organizational forms of the *Yörüks*, mobile life practices, and flexible spatial solutions such as goat hair tents are framed on a matrix in order to connect with the applied dimension of this computational design-oriented study. At this stage of the thesis, minimum living standards were defined by reducing them to basic elements in order to concretize the spatial parameters of the existing nomadic living space and to create the necessary database for the rhizomatic design strategy.

As a result of the literature review, on-site observation, and interviews with local people and experts on this subject, the following matrix was obtained within the scope of the research. As can be followed through the matrix, the information obtained through the question groups that constitute the content of the research was grouped, and the answers that showed close sensitivity were clustered. At this point, although the question titles change, the junctional relationship between the answers that constitute the content of the minimum life criterion is remarkable. Therefore, the results obtained from this matrix reveal the self-sufficiency (minimum) living criteria of the *Yörük* Turks.

Based on the interview findings and supported by the literature, the main factors influencing the choice of migration routes among nomadic communities include livestock and grazing opportunities, climate (seasonal) change and productivity, trade and communication networks, security and defense strategies, economic diversification, and environmental impact. These key terms, frequently emphasized in the participants' responses, demonstrate that migration routes are planned in a multidimensional manner.

In this context, the minimum life matrix to be developed provides a strong database on how the heterarchical, participatory, and mobile life practices of *Yörük* communities can be transformed into spatial production. This matrix functions as a rhizomatic strategy guide at each stage of the computational design process, contributing to the shaping of topography manipulation, habitat placement, and spatial production decisions based not on purely theoretical but on real societal data. Thus, the rhizome metaphor emerges from a conceptual discourse and transforms into a measurable, calculable, and parametrically reproducible design tool (Table 21).

Table 21: Matrix Production Based on Self-Sufficient (Minimum) Life Criteria of *Yörüks* (Created by the Author 2025)

Matrix Generation	This table was prepared based on short interviews and discussions approved by the Çankaya University Scientific Research and Publication Ethics Committee with the number E-31115241-050.99-147374 supported by relevant literature. During the construction of the table, key terms from the common responses were clustered, and value-added coefficients were later defined in the simulation process.			
	Input		Output	
R.Q 1-2-3	Factors Affecting the Location of the Tent in Yörük Daily Life		Databa	Coefficients
	Key Terms	Description		
What is the significance of the migration route among *Yörüks*?	Livestock and Grazing Climate (Seasonal) Change and Productivity Trade and Communication Security and Defense Economic Diversity Environmental Impact	Since nomadic communities were generally engaged in animal husbandry, they needed grazing areas. Migration routes enabled animals to meet their food needs by following grazing areas in different seasons. The climatic conditions and vegetation in different seasons affect the productivity of livestock and agricultural activities. Migration routes allow communities to adapt to changes in climate and make the most efficient use of resources. Migration routes facilitate trade and cultural interaction between different regions. Nomadic communities can establish commercial relations by exchanging goods and information from different regions. Migration routes are also important for the security and defense of communities. Moving along a specific route allows for better defense planning and organization against potential dangers. Resources and opportunities in different regions allow nomadic communities to achieve economic diversity. This allows for the development of income sources that do not rely solely on livestock. Social and cultural ties can form between communities in different regions along migration routes.	Orientation	1
What is the significance of the sun among *Yörüks*?	Navigation and Time Measurement Livestock Agricultural Activities Religious and Mythological Meanings Heating and Light Source Environmental Impact	Yörüks were communities that had to migrate over long distances. Therefore, the sun was a natural compass and timekeeping tool for them. The rising and setting of the sun helped with navigation and the timing of Daily activities. Also, the position of the sun in the sky was important for understanding the change of seasons and climate. Nomadic Turks usually made their living by raising livestock. The sun was an important guide for animals. The sun had a guiding role in finding suitable pastures and water sources for animals. The sun also played an important role in agricultural activities. If the fields to be cultivated benefit sufficiently from sunlight, supports a productive production. Nomadic Turks mostly lived in tents or in the open. In cold climates, the sun was important as a natural source of heat. The sun was also used to illuminate the tents at night.	Sun	1
Page 1				

Table 21 Cont.

It is a continuation of the Matrix Production Table				
What is the vital natural resource that determines *Yörüks*?	Drinking and Utility Water Water Needs of Animals Agricultural Activities Wildlife and Hunting Trade and Economy Environmental Impact	*Yörüks* stayed in temporary settlements established near wetlands for their water needs. These areas had to be close to suitable water sources to provide clean drinking water and potable water. *Yörüks* constantly moved their herds to new pastures for grazing. For this process to continue the animals' water needs had to be met. Wetlands were suitable places for animals to drink water and allowed nomadic tribes to feed their animals in a healthy way and *Yörüks* engaged in agricultural activities as well as animal husbandry. Wetlands provided suitable areas for agriculture and allowed nomadic tribes to interact with cultivated areas on a seasonal basis. Growing cereals and other crops in wetlands was important for nutrition and increased the food security of the tribes. Wetlands were rich in wildlife. Nomadic Turks were engaged in hunting and the wetlands were an important resource for them as a shelter for game animals and as a stopover for migratory birds. Wetlands could support nomadic tribes' trade relations and economy. Especially settlements established near water could have been centers of trade and facilitated the exchange of goods and services between different tribes.	Water	1
What is the significance of the altitude among *Yörüks*?	Grasslands and Source Climate Change Migration Routes Security and Defense Trade and Economy Cultural and Social Interaction	Mountains are usually areas where rainfall is concentrated and, therefore, can host water resources. Plains, on the other hand, are usually flat areas and therefore have a better chance of accumulating water. For nomadic communities, these water sources are vital because they are needed to water and graze their livestock. Different climatic and seasonal changes between mountainous and lowland areas affect grazing strategies. For example, it is considered more appropriate to move up to the highlands in summer to graze animals in cool and abundant pastures and down to the lowlands in winter to stay in warmer and sheltered areas. Mountainous regions can sometimes form migration routes linking different highland and lowland areas. These routes help animals move according to the seasons and reach more suitable grazing areas. For nomadic communities, mountainous areas can be advantageous for security and defense. From high ground, it can be easier to observe enemies and defend against attacks. The interaction between the mountain and the plain can affect the cultural and social exchange of nomadic communities.	Altitude	1
Page 2				

Table 21 Cont.

<table>
<tr><td colspan="5">It is a continuation of the Matrix Production Table.</td></tr>
<tr><td rowspan="6">What is the importance of soil structure (ground) among</td><td>Livestock and Grazing</td><td rowspan="6">Yörüks conduct their seasonal migrations using tents or similar portable dwellings. The choice of settlement location depends on the suitability of the ground. A smooth, solid, and durable base is essential for a stable tent setup. In other words, it is important that the ground you will be pitching your tent on is hard, flat, and free of rocks. Soil structure can affect the tent's durability. Moreover, Nomadic communities generally engage in animal husbandry and sometimes agriculture. Soil structure is vital for grazing animals and growing crops. A nomadic lifestyle is crucial for understanding the value of water resources and soil fertility. Staying close to water sources is crucial for watering livestock and meeting their water needs. The ground and soil structure must provide durability based on climate and weather conditions. A suitable ground selection is essential to withstand harsh weather conditions (wind, rain, snow, etc.) and protect the tents. Soil structure also affects the use of underground resources. Nomadic communities can benefit from these resources by settling in areas close to underground water sources and mines.</td><td rowspan="6">Ground</td><td rowspan="6">1</td></tr>
<tr><td>Agricultura l Activities</td></tr>
<tr><td>Ecological Balance</td></tr>
<tr><td>Water Resources and Irrigation</td></tr>
<tr><td>Seasonal Migration</td></tr>
<tr><td>Social and Community Life</td></tr>
<tr><td></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td rowspan="6">What is the importance of green areas among Yörüks?</td><td>Livestock and Grazing</td><td rowspan="6">Pasture farming and livestock grazing are often the primary livelihoods of Yörüks. Therefore, green spaces are critical for animal husbandry. Pastures allow animals to graze, which contributes to the production of animal products such as meat, milk, and wool. Green spaces also allow vegetation to grow and produce to be grown. Nomadic communities can meet their fruit and vegetable needs by growing certain crops in green spaces. Besides, green spaces are part of natural ecosystems and support ecological balance. Vegetation prevents soil erosion, regulates the water cycle, and preserves biodiversity. Green spaces are often close to water sources, and water is vital to these communities. Access to water is crucial for both watering livestock and growing crops. For nomadic communities, green spaces can also be associated with cultural and traditional ties. Specific grazing or camping areas carry meanings related to the community's history, mythology, and identity. Green spaces support the seasonal migrations of nomadic communities, who migrate to green areas where they can better feed their animals and where living conditions are more favorable. Green spaces are important for the social interactions and community life of nomadic communities. Tent cities, or nomadic campsites, are places where community members gather and interact.</td><td rowspan="6">Green</td><td rowspan="6">1</td></tr>
<tr><td>Agricultura l Activities</td></tr>
<tr><td>Ecological Balance</td></tr>
<tr><td>Water Resources and Irrigation</td></tr>
<tr><td>Seasonal Migration</td></tr>
<tr><td>Social and Community Life</td></tr>
<tr><td colspan="5">Page 3</td></tr>
</table>

In the next practice (training) parts of the thesis, this data matrix, which systematically classifies spatial, social, and environmental criteria filtered through the historical and current life practices of the *Yörüks*, will serve as a kind of parametric design input set to be fed into computational design tools (e.g., Grasshopper nodes). Thus, the abstract concept of rhizome has become both a functional planomenon and a concrete tool that allows for the digital processing of topography.

It is clear that the answers and observations in question are grouped within the framework of "Agricultural Activities, Animal Activities, Commercial Activities, Security and Defense, Orientation and Time Measurement, Social-Cultural and Traditional Activities, Climate and Weather Conditions, Relationship with Water Resources, and Religious and Mythological Values." In other words, the social organization of the *Yörüks* is clustered within the framework of these criteria.

Another important outcome is that, as evident from the responses and observations obtained, no one outcome is more important than the other. Each minimum life parameter is equally important. Therefore, in the following sections where the case study is related to computational design, the coefficient value is set to '1'.

The minimum life matrix to be created in this context will serve as a basic reference to show how a rhizomatic organization can be adapted to real topographic data in site selection, habitat settlement, and space production strategies in the following sections.

4.2 MATERIALS AND METHODS: RHIZOME IN PRACTICE

Preface: The facts presented in this chapter also form the basis of a draft article prepared jointly by the author and advisor of this thesis. The article in question was developed simultaneously with the thesis process and was evaluated during the revision phase at the time the thesis was submitted. Therefore, some findings, analyses, and text sections are common in both the article draft and this thesis.

The methodological framework of this research fully aligns with its theoretical underpinnings. A rhizome is a network of plateaus, each independent but interconnected in various ways (Deleuze and Guattari 1987: 21). The rhizomatic logic—advocating the 'horizontal' and the 'minor,' incorporates a symbiotic synthesis of Deleuzian concepts such as assemblage, abstract machine, 'actual and virtual,' ‘difference and repetition,’ and is stratified with explicit indicators like ‘Connection and Heterogeneity, Multiplicity, Cartography and Decalcomania’ is utilized as a generative design strategy, rather than a purely philosophical metaphor. Accordingly, this study’s innovative methodology, focusing on the sustainable manipulation and acquisition of topography, is an attempt to bridge philosophical theory, specifically Deleuze and Guattari’s rhizome, with computational design strategies in architecture.

For Deleuzian thought (1987:12), constructing a map with these rhizomatic plateaus necessitates the progress of reimagining and reconsidering the geography and its trajectories by forming novel connections from one plateau to another. Therefore, mapping the diversity of potentials in a landscape across various dimensions requires the total fluidity of Deleuzian cartography, which is subject to “constant modification” through folding, inversion, addition, and detachment processes. This transforming nature adopted by today’s technological tools also transliterates the map from being a mere representation of information into a “creative map,” which functions as “a tool and part of a differentiated design approach,” actively participating in the production of space (Aral 2018: 70). As the opposite of static mapping, such computer-based cartography allows each “abstract machine”—as called in Deleuzian terminology to explore a “plane of consistency” in continuous transformation, utilizing contemporary technological possibilities. Deleuzian thought conceptualizes the machine as a “plateau” of change, instrumenting to position variables of content and expression, which are interwoven functions aligned with a unified intent (Deleuze and Guattari, 1987: 511). This case study evaluates open-source software (OSS) of today as Deleuze and Guattari’s “abstract machines” due to their dynamic and participatory qualities, constructing an ultimate “plateau” of evolution, regardless of any material or formal commodities.

Correlating the rhizomatic relationality of Deleuzian thought with open-source software (OSS) of today’s digitalization and simulation technologies, this case study articulates the Galapagos plug-in and Grasshopper3D software to explore and verify a sustainable design strategy, offering a structurally flexible diversity, sensitive to the global climate crisis in direct relationality with the topography. As other researchers using open-source software can improve and manipulate the proposed tectonics by implementing altered strategic sequences, each subjective adjustment will endorse the enduring sustainability of this study’s design strategy.

Hence, this case-study follows the principles of rhizomatic multiplexing by strategically sequencing its initial data, often referred to as ‘n-1’s, with today’s simulation software, as per Deleuzian simulation approaches. The proposal for new sustainable architectural tectonics begins with defining the strategic approach to optimize the population capacity by determining the parameters for extraction from the complex towards a minimal but potential (a process of extracting the ‘minimal’ with potentiality from within the ‘complex’). In other words, this part employs parametric relations through a rhizomatic methodology as a form of optimization strategy that generates diversity akin to a kind of genetic mutation, in order to produce a sustainable spatial condition. By the end of this process, what is necessary, sufficient, and ultimately satisfactory is brought to light.

In the next section, the instrumentalization of this rhizomatically emerging production process, how this instrumentalization occurs, and which operating tool is used are discussed in depth using Deleuzian concepts.

4.2.1 Design Tool: Grasshopper3D as a Rhizomatic Generator

By utilizing the rhizome logic as a generative design strategy through the analytical representations of rhizomatic metamorphism, this case study offers a workflow in the digital environment of the Grasshopper 3D platform. Functionalized not only as a representational interface but also as a conceptual (philosophical) manipulation platform (generator), allowing horizontal and minor connections, this open-source software assumes the role of a planomenon (“in Greek: planos (wandering, directionless, stray; space for thought)” + “menon (emerging)”). The planomenon represents an interface that promotes the transient nature of unidentified processes and connections. Within the study’s framework, planomenon encompasses both a design (actual) and a simulation domain (virtual), functioning as a creative plane from which a multitude of strategic trajectories emerge through iterative development processes such as rhizomatic rupture, expansion, and transformation of topographic traces, enabled by parametric algorithms. In this context, the reduction (optimization) and/or the multiplication of lines function as a transformational generator, wherein interactions with topographical data not only facilitate sustainable outcomes but also spatialize these outcomes through overlapping projections (Figure 80) (Deleuze and Guattari 1994; Harper 2025; Parr 2010).

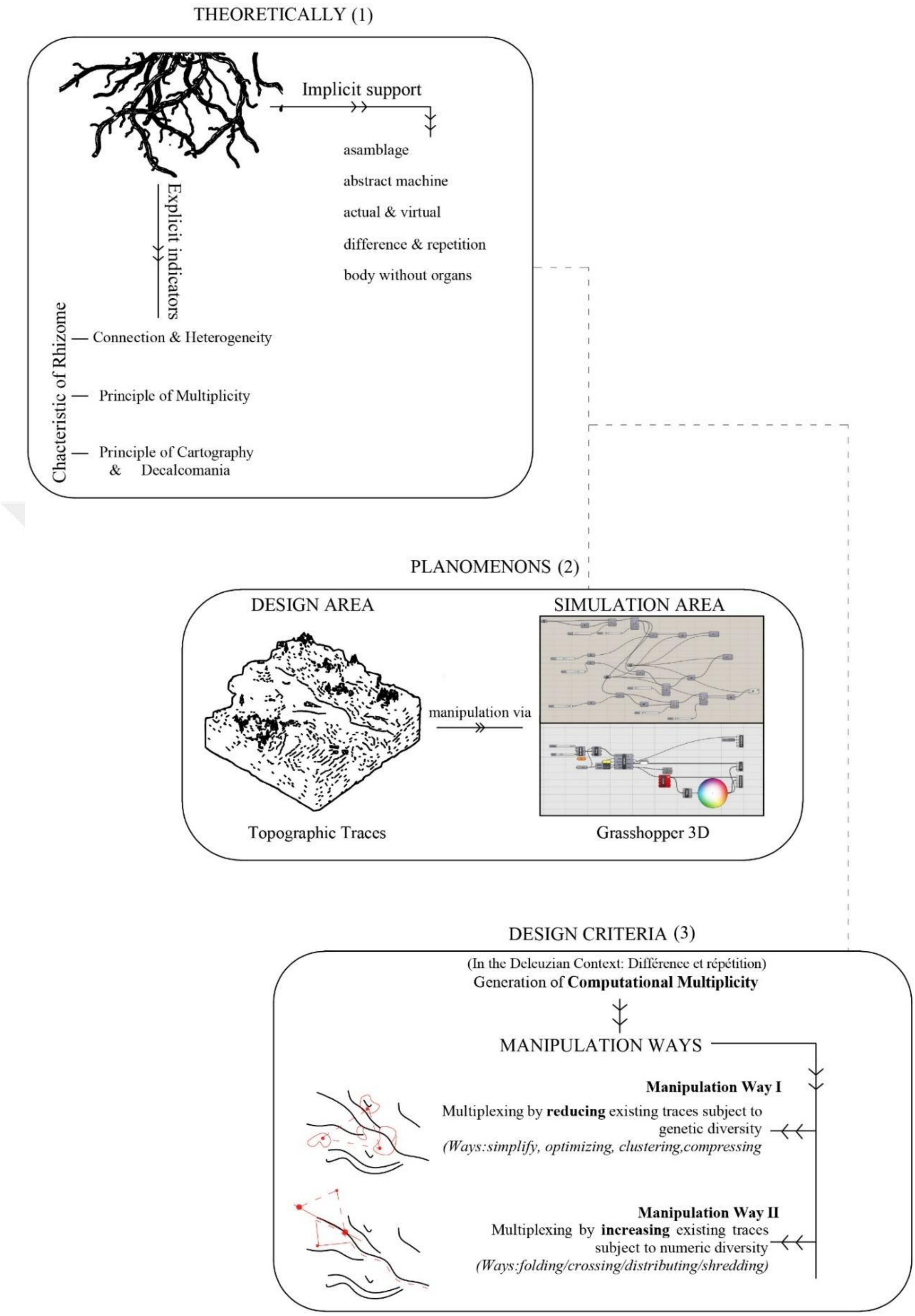


Figure 80: Methodological Workflow (Created by the Author 2025)

Topography serves as a strategic opportunity area, functioning akin to a Deleuzian *plane of immanence* that facilitates minor formations with heterogeneous and rhizomatic connections. Corner (1999: 157) specifies topography's bending and twisting surfaces not as obstacles but as active generators of potential supporting the Deleuzian *plane of immanence*. Similarly, Allen (1997) emphasizes that architecture ought to engender a series of effects rather than confine itself to producing fixed objects and displacements, highlighting the potential of topographic traces to yield variable intensities. Complementarily, Greg Lynn's work titled Animate Form (1999) critiques the pursuits of rigid form-finding in architecture for a transcendent unity; instead, it advocates fluidity in architectural forms that evolve in response to the multiplicities presented by topography, significantly influencing current discussions on sustainability within the architectural domain. Considering previous research, this study advocates for a dynamic interpretation of trace/form productivity that adopts evolving topographic conditions. It proposes a flexible and manipulable strategy that operationalizes the Grasshopper3D software to explore the sustainable potentials of topography for translating these possibilities into tangible benefits that foster fluidity in design thinking, contrasting with rigid, transcendental ideals that result in static outcomes. At this juncture, the study explicitly elaborates on creating a database derived from topographic traces utilizing a series of parametric processes within the Grasshopper3D. In opposition to conventional paradigms, the methodological framework of this study, grounded in a post-structural theoretical framework, endeavors to operationalize Deleuzian concepts through a strategic pathway in open-source parametric design tools, which provides the ideal medium to cultivate a horizontal relationality among commands and facilitates minor fragmentation, thereby encouraging a total fluidity of design solutions.

Intermediate: *Up to this point, the sample set of the research, the methodological framework and tools through which the population within this sample will be manipulated, and its relationality with the theoretical framework of the study have been established. In this section, the methodological flows of the design strategy intended to be implemented within the scope of the case study are presented separately, aiming to ensure its replicability by other researchers.*

Referring to the Deleuzian concept of nomadic space, which is flexible, flowing, and constantly displacing (Thrift 2007), this thesis adopts spatial cartography as a starting database, nourished and enriched by the cartographic traces of the topography, representing the capillary act of a rhizomatic growth (Figure 81). Thanks to today's current GIS techniques, it becomes easy to manipulate these vectorial data with simulation and artificial intelligence interactions (De Landa 2002). In other words, these traces are more than sufficient to manipulate a community that interacts with the topography, such as the *Yörüks*.

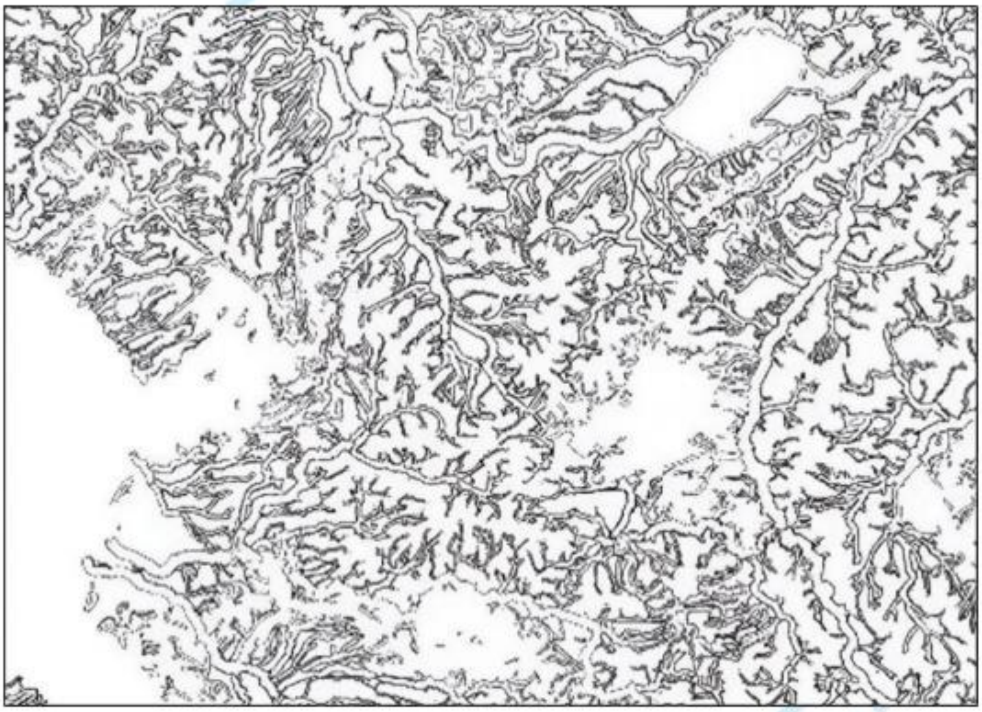
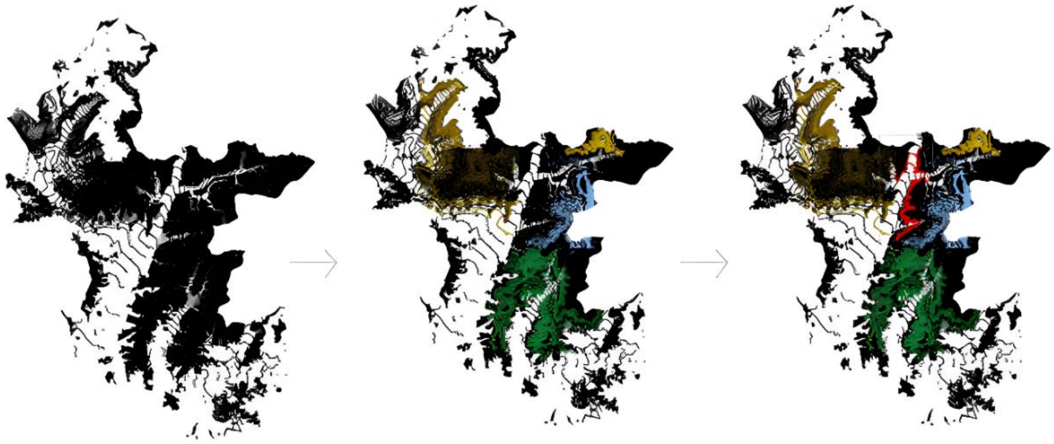


Figure 81: Topographic Traces (Vectors) as a Rhizomatic Generator (Created by AI: midjourney 2025)

A three-stage strategic step ensures sufficient diversity in the processing of these traces through computational design subject to rhizomatic relationality. For these, the first phase, *Preserving/Virtualizing*, works by preserving the topographic traces' existing fluidity and spatial continuity without directly intervening in their stratification—a form of re-reading the topography lines as ontological (apriori) data. At this stage, as much data diversity as possible is essential. The second phase, *Optimizing Lines*, which is for reducing, diluting, and optimizing lines, requires requestioning the connections between lines by operating auxiliary add-ons such as Galapagos, Wallace, Octopus, and Opossum. According to Manuel DeLanda (2006), computational abstraction techniques enhance a simplified and data-driven form-finding by associating topographic data with criteria such as functionality, accessibility, and resource use. Such evolutionary algorithm-based auxiliary software not only focuses on reducing functional data during the data simplification operations in question but also can produce variation simultaneously and facilitate the achievement of a Deleuzian' *difference*.' The third phase, *Multiplying Lines*, creates new spatial possibilities by multiplying the traces - the multiplication, bending, and re-articulation processes can all be associated with the concepts of rhizome and the fold (*le pli*). In this stage, the lines spread rhizomatically, transforming into new assemblages within themselves and producing new topological meanings with each multiplication. Having evaluated the consequences of these three phases together, the strategic association of topographic data with multilayered digital possibilities subject to Deleuzian conceptualization via Grasshopper 3D addresses a creative and strategic design paradigm for design thinking that surpasses any attempt that merely analyzes the existing tectonics (Figure 82).



I II III

Preserving/Virtualising	Clustering /Optimising	Multiplexing
Using the density of topographic traces as a data layer and thereby virtualize them	Clustering datas/lines according to their similarities to optimize and create the ideal living space	Rethinking minor and multiple pathways on a new plane where the ideal field has been actualized

Figure 82: Using Grasshopper3D with a Rhizomatic Approach for Topographic Benefit (Created by the Author 2025)

Thus, a sequential method based on the instrumentalization of Grasshopper3D is employed for the computational formation of topographic lines through Deleuzian concepts. The following section outlines the methodological framework that reveals how the *Yörüks* arrive at the minimal, based on their natural relationship with the topography and in accordance with criteria aligned with what is sufficient and satisfactory for their way of life.

4.2.2 Methodological Approach to Achieving Minimalism

Preface: The aim of this section is to present an original method for achieving minimalism in a universe that accepts ontological multiplicity (*rhizomatic multiplicity*) as its starting point. Here, the function of the minimal is not to eliminate the initial multiplicity or even the chaos by simplifying or reducing it. Rather, it is to derive a productive parallelism by grounding that multiplicity in minimal yet socially meaningful and satisfactory values or criteria.

Considering the rhizomatic methodology of the research, organizational models that target horizontal relationships, equal interactions, and openness rather than organizing with hierarchy or different coefficients are important for this study. Therefore, while maintaining a conscious distance from models that assume hierarchical or metric superiority, theoretical approaches based on equivalence have been questioned at the literature level.

One of the main aims of this study is to develop an approach that prioritizes diversity rather than unity and to use tools that can structure diversity with evolutionary inputs. This methodological stance proceeds with tools that support heterogeneous differentiations rather than predetermined formal conclusions. The design process is based on a self-organizing and rhizomatically shaped process rather than a top-down imposed logic. From a perspective that overlaps with Deleuze's concepts of difference, immanence, and becoming, this method proposes a modulation continuum against transcendental organizations (Deleuze and Guattari 1987).

In this context, minimalism is not the absence of multiplicity, but rather a way of organizing multiplicity through refined relational strategies. Therefore, the case study presents a dynamic, testable, and context-sensitive minimalist design approach.

Defining Optimization Criteria through Topographic Density Mapping

The initial stage of producing the minimal (sufficiency and satisfaction) from the multiplicity obtained from topographic markings involves identifying essential conditions needed to discover the minimum, referring to humanity’s strategies to survive struggles throughout history. As German architectural theorist Semper argues in his Primitive Hut Theory, architecture’s primary purpose is to provide ‘shelter,’ and the basic, functional, easily detachable, and attachable tectonics of nomadic tents offer sufficient principles for meeting the requirements of everyday life. In other words, tent tectonics directly connects the essential user needs with the topography. As the strategic aim of this research is to fully utilize the richness of the topography and the practical application of tent structures, the production of the targeted tectonics through optimization starts with determining the ideal habitats according to sustainable parameters such as maximum sun, proximity to green space, natural resources, optimal altitude, and fertile soil. Then, the simulation generator pins the proper point to start (Laugier 1755).

As the Grasshopper3D Program—the primary optimization software of this study needs certain creative and derivative principles to import selective cartography, the design strategy activates the criterion of 'proximity' for 'roughly' rendering adequate zones based on predefined parameters to determine the optimal location for the best habitat equidistant to all zones. For instance, curvilinear lines representing green areas capture the densest green area in the selected topography, while those representing wetlands encompass the area closest to the water. Then, using the multi-criteria decision-making method (MCDM) together with the rhizomatic principles of Deleuzian thought, which refuses hierarchy and instead promotes co-principality (coefficients), it generates a nonlinear network, associating the center points of those zones with each other, with identical coefficients and n-1 relationships, and identifies the points of equilibrium in rhizomatic co-relationality according to two specific fitness functions: The first one is obtaining maximum sunlight; therefore it defines any point between the specified zones with maximum sun gain. The second one, on the contrary, establishes a new correlation between the determined fitness function and the selected satisfactory zones. As the Galapagos plug-in in Grasshopper3D facilitates identifying various ideal points instead of a specific one, the proposed design strategy allows for obtaining a minimum point or set of points among the topography's maximum potentials and allocating the appropriate location for building the tent structure (Figure 83) (Zhang 2014).

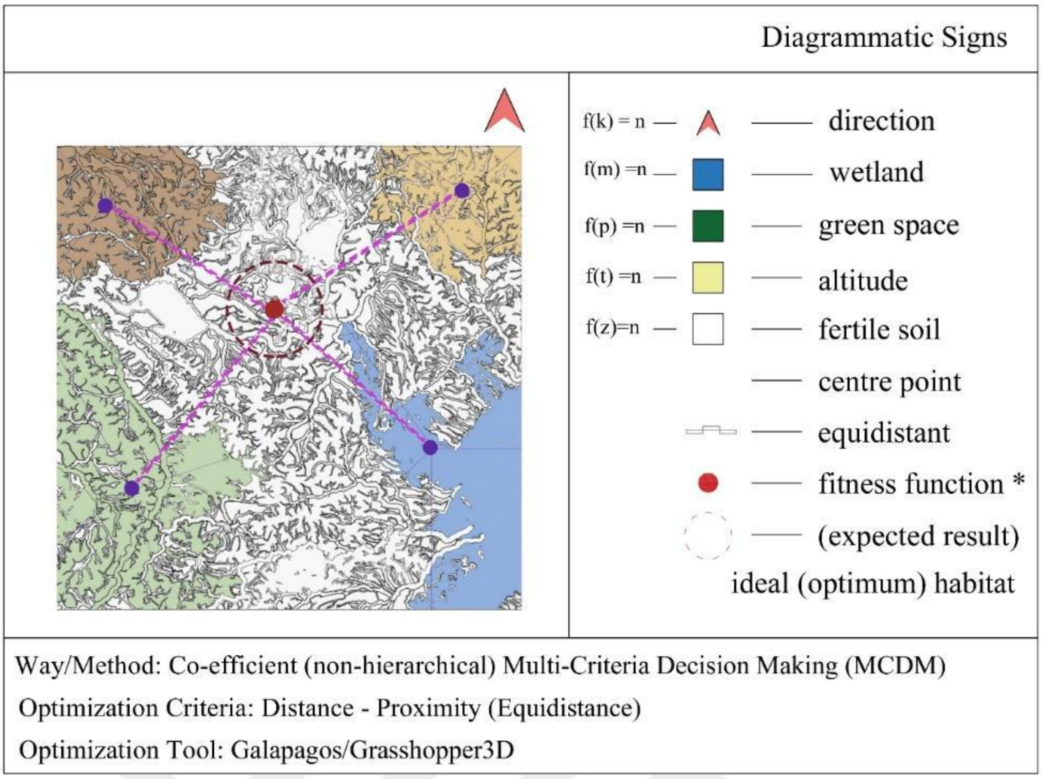


Figure 83: Minimal Database and Association Principles for Optimal Habitat (Created by the Author 2025)

At this point, Galapagos is an evolutionary analysis tool within Grasshopper 3D and scans a large number of possibilities during the parametric modeling process to find the most appropriate (ideal) solution. This process begins with the definition of a "fitness function." The user defines the parameters to be included in the analysis as genes, and Galapagos iteratively generates sets of solutions that minimize or maximize the fitness function by trying different combinations of these genes. At each iteration, better-performing individuals are selected to produce the next generation; this process is similar to the principles of natural selection, mutation, and crossover. As a result, parametric variations are discovered that best respond to user-specified performance criteria in the multi-dimensional design space. In this respect, the Galapagos was specifically selected for the optimization of the ideal habitat of the *Yörüks* (Figure 84) (KERIS Studio 2016).

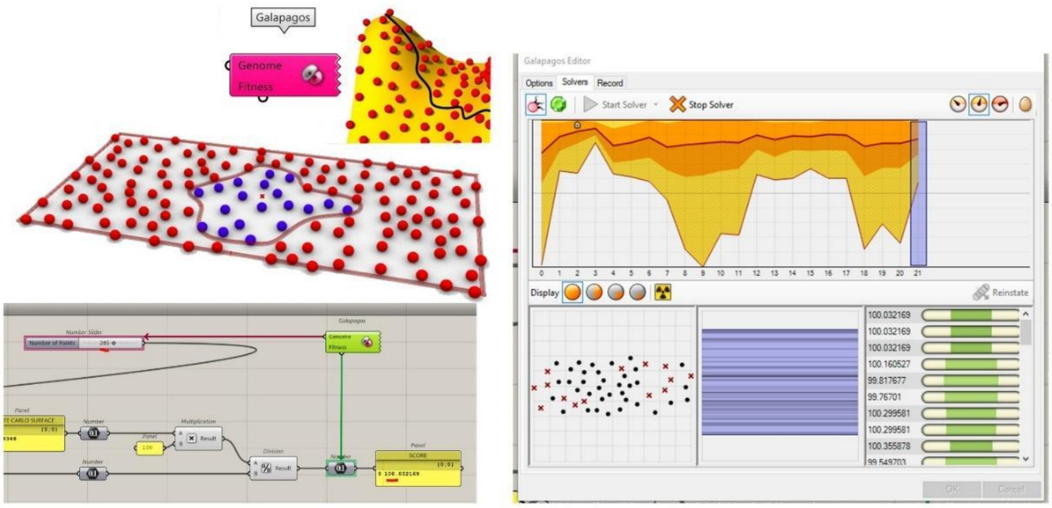


Figure 84: Galapagos Components for Optimal Solution (KERIS Studio 2016; Paracourse 2025)

In this section, a parametric strategy that traces the ideal and the minimal, starting from an initially accepted multiverse, was revealed. Despite the designer's subjective decisions, the developed method is both repeatable and testable. This process, conducted using tools like Grasshopper and Galapagos, has demonstrated how topological data can be simplified through optimization and how a spatial density focus can be discovered through this simplification. The next section will explore a strategy that prioritizes multiplication and generates new possibilities by multiplying variations, following this minimal approach.

4.2.3 Methodological Approach to Achieving Multiplicity

Preface: The aim of this section is to create a new tectonic cover on the ideal living environment, purified from the chaotic plane of topography and achieving minimalism. Here, the function of multiplicity is formally shaped, again according to Deleuzian principles. In this context, the traces are first organized within their own formation according to Deleuzian folding and rhizome principles and take on variable tectonic formations. These traces are then volumized and transformed into a cover plane using the facilitating tools of parametric design.

In the second phase of this design strategy, a new spatial pattern is aimed at, starting from an ideal starting point. At this stage, the ideal living environment, optimized but diversified, serves as a "starting point." From this point on, a process of expansion begins in which diversity multiplies, the surface is layered, and new differences are produced. In the context of Deleuze's notions (especially difference and becoming), this process is not only a formal proliferation, but also the production of an open-ended relationality that allows for the emergence of possible potential relations. Thus, the minimal form is no longer a static end; it becomes a dynamic threshold from which multiple potentials emerge.

At this point, it is critical that the strategy of transforming the clusters of dots and lines that serve as a foundation into a cover. The tectonic approach of the research, which praises horizontal, flexible, and hierarchical relationship networks instead of fixed, vertical, and hierarchical relationships, methodologically brings a curvilinear geometric approach to analysis.

A curvilinear cover with a structure that is open to constant change, folding, and twisting on the lateral plane makes it possible to produce spatial differences (Difference and Repetition) rather than a fixed form. This surface, as in Deleuze's concept of fold (*le pli*), transforms within itself within an internal continuity while at the same time establishing a multi-layered network of relations with its environment (Deleuze 1994). The flexibility between curvilinear lines facilitates a rhizomatic organization. Instead of a fixed hierarchy or centrality, tectonics of relationships with multiple orientations and points of connection is achieved. Folding occurs not only as a physical deformation but also as a potential phenomenon. In other words, each folding causes a new threshold to form in the space. Form develops in layers of difference. Planes are interrupted within continuity, each interruption forming the basis for another connection. Therefore, this tent cover acts as a foldable, expandable, and multipliable organism at both topological and ontological levels (Figure 85) (Deleuze and Guattari 1987).

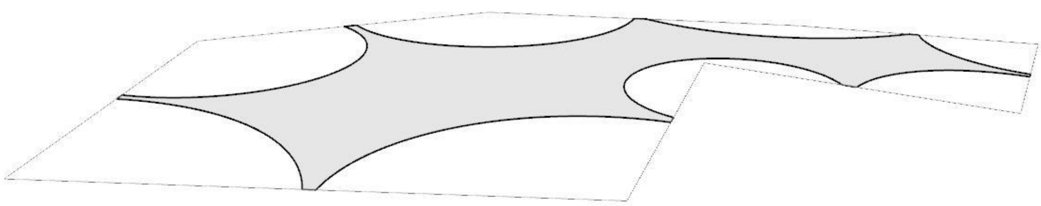


Figure 85: Lateral Unfolding of a Manipulable Curvilinear Surface (pinterest.com 2025)

As the outcome of these steps provides an ideal curvilinear axis to locate the construction of the tent structure, cartography production continues with the following steps: First, the design strategy accomplishes several subsequent parametric processes by operating the Kangaroo Physics Engine (Piker 2025), which can simulate and visualize the creation of a tensile membrane roof. Employing Kangaroo allows us to interact with the 3D model during any progressing simulation and to participate in the virtual form-finding processes, just like the virtual spaces of the Deleuzian simulation, allowing control and manipulation. Therefore, the next steps of the design strategy include generating the tension points of the membrane structure via the Kangaroo Physics engine by first offsetting two auxiliary lines parallel and equidistant to the ideal curvilinear axis and then by attaching "*lines of flight*" to each breakpoint on the curvilinear axis, creating perpendicular connections between both auxiliary lines. While the length of these *lines of flight* determines the maximum stretching dimension of the tent structure, their starting and end points delineate the potential tension points of the tensile structure. Consequently, first defining the breakpoints on the central axis as main stress points and selecting the starting/end points of auxiliary lines as auxiliary stress points, the design strategy generates perpendicular and cross-related line segments for obtaining minimized curve surfaces in-between, which designers can manipulate flexibly via the Kangaroo Physics Engine (Figure 86) (Piker 2021; food4rhino 2025; Karamba3D 2025).

This aesthetic flexibility in *Kangaroo* is supported by *Karamba3d*, another useful open-ended plugin. *Karamba3D* is a structural analysis plugin that works within the Grasshopper parametric design environment and allows the static behavior of architectural models to be evaluated at an early stage of design. Working with the finite element (FEA) method, *Karamba3D* can calculate structural data such as axial forces, bending moments, displacements, and stability on rod, shell, and plate elements. In this way, both the formal possibilities of the design and the load-bearing system setup are evaluated simultaneously. By analyzing criteria such as structural efficiency, material optimization, and load-bearing capacity through parametric inputs, the user can ensure that the form is optimized not only aesthetically but also performatively. Karamba3D is a critical tool for providing engineering feedback, especially on designs with complex tectonic structures such as tent covers (Karamba3D 2025).

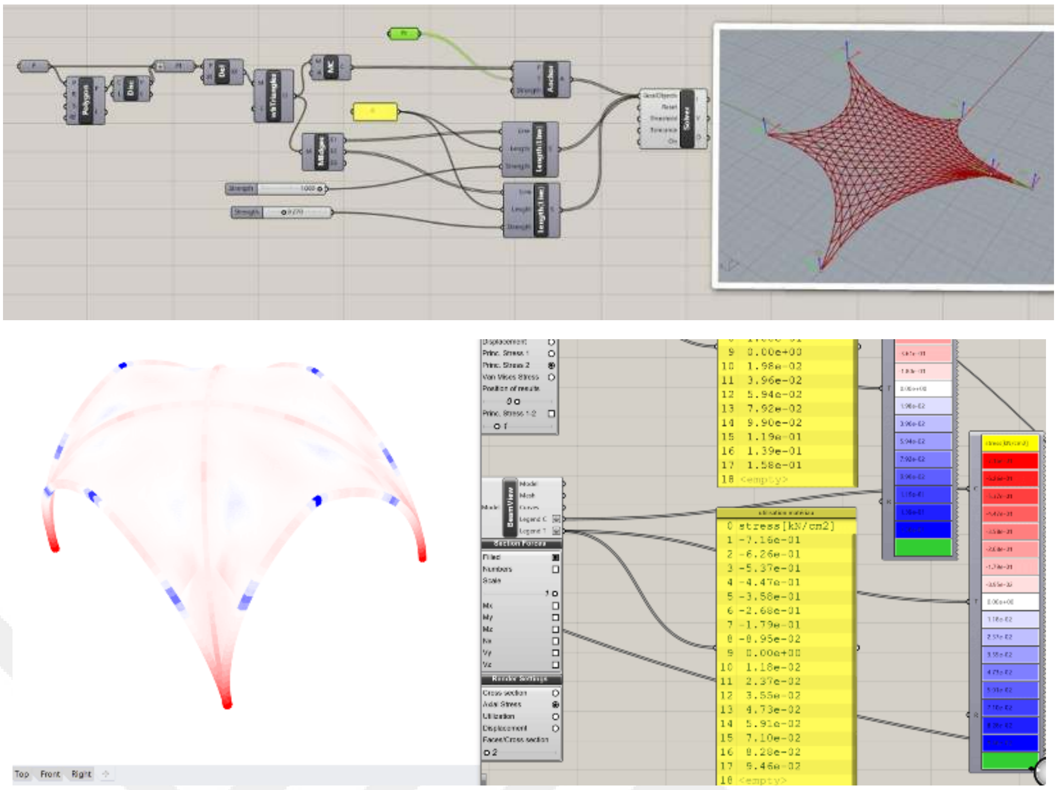


Figure 86: Combined Usage Flow Chart of Kangaroo and Karamba3D (pinterest.com 2025)

Accordingly, *Kangaroo* and *Karamba3D*, which are commonly used plugins in the Grasshopper3D environment, are instrumental in generating a surface from a set of points or lines. Although both contribute physical simulation capabilities to the parametric design process, they serve functionally different purposes. Kangaroo functions primarily as a plugin developed for real-time, physics-based form-finding and geometric optimization processes. It supports flexible and interactive design scenarios such as simulation of force balances, spring systems, membrane surfaces, and dynamic stresses. In contrast, *Karamba3D* offers engineering-oriented structural analysis tools, specifically used to evaluate the performance of structural systems and perform moment, shear, displacement, and stress calculations. While Kangaroo focuses more on aesthetic, spatial, and kinetic balance relationships in the design process, Karamba3D offers a more analytical approach to test the engineering validity of the building. This difference is reflected in the more technical and computationally oriented nature of Karamba3D, as opposed to the intuitive and design-oriented use of Kangaroo. However, when both extensions are used together in the manipulation of a flexible cover such as the *Yörük* tent, it becomes possible to establish a multi-layered relationship between the spatial qualities of the form and its structural behavior.

4.2.3.1 Multiplexing Tent Covers with Rhizomatic Tracing

The second strategic stage of the proposed design strategy aims to integrate the new architectural tectonics into the predefined boundaries and breakpoints of the best habitat. Having decided on a starting point for the rhizomatic growth of adaptable cartographic traces in the topography and defined them as curves (lines) with various breakpoints in Grasshopper3D, the design strategy incorporates new fitness functions to determine the ideal orientation and best physical conditions for constructing the tent structures. Referring to a literature review on the nomad's cultural habits and driving climatic conditions affecting the orientation of their settlement for instance, they migrate towards the warm coastal regions (winter range) in winter and towards the high and fantastic mountain ridges (plateau) in summer (Diyarbekirli 1972: 42, 44, 48) the first fitness function "orientation" assigns the minimum required distance between the entrance openings of the tents and decides their direction (Erden 1978: 78-79; Bozkurt 1993:160). The second fitness function, "flatness," on the contrary, is about analyzing the altitude to render a flat area (plateau) and connecting the topography's flattest possible set of points for installing the structure of tent covers (Figure 87) (Radloff 1956: 278-280).

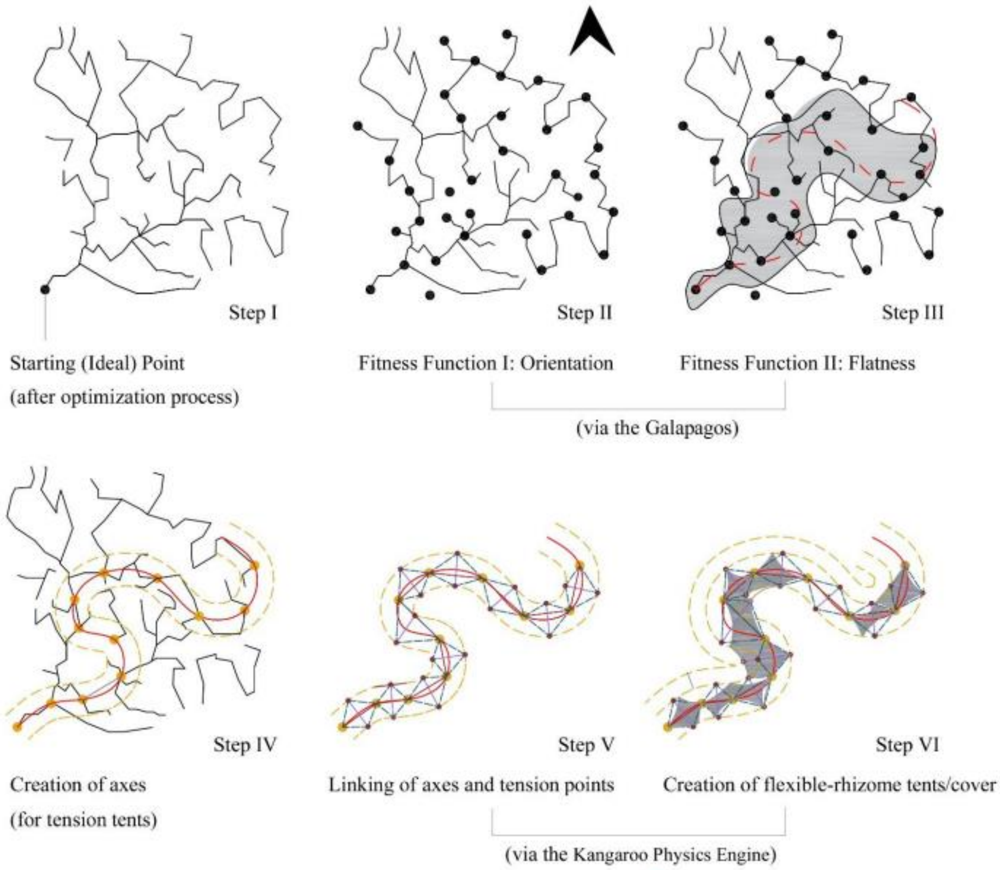


Figure 87: Multiplexing Principles of Rhizomatic Tents Based on Topographic Traces via the Galapagos & Kangaroo Physics Engine (Created by the Author 2025)

Folding tectonics makes it possible to rethink the form in architecture not only as an aesthetic result, but also as an area where structural, material, and conceptual relations are intensified. Inspiration from Deleuze's Le Pli (The Fold) concept, folding is not only an action, but a process of formation (Deleuzian becoming), not a fixed surface, but the spatial expansion of an infinite immanence. In this context, folding produces a difference in the uninterruption of continuity; Each fold produces a new vector, a new context, and a new tectonic possibility. Computational design tools - physical-based simulations, such as structural analysis components, such as Grasshopper3D, Kangaroo, and Kangba3D, allowing these folds to be tried both formally and structurally in a digital environment. The created surfaces are not only simple curved deformations; They are tectonic interfaces in which physical effects such as stretching, compression, and bending are blended with data. Variations in Figure 87. reveal how folding can be transformed under different power points and edge conditions, and each folding proposes a new form of organization. Thus, folding is not only geometric; It becomes a topological, structural, and conceptual movement (Figure 88).

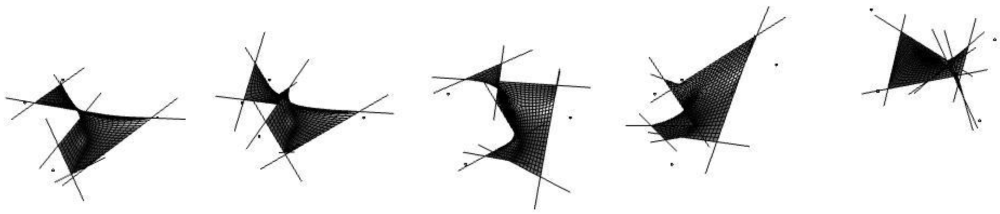


Figure 88: Formal Variations of Tent Cover Production Characterized by Stretching, Pulling, and Folding (vimeo.com, scopemotion 2025)

Tent tectonics is a field of formation where the distinction between structure (poles) and cover is blurred, where the structural and the spatial are constructed simultaneously. In particular, the stretching potential of tense surfaces creates a physical, as well as spatial, productivity. As the surface stretches, projections, stretched edges, overhangs, and curvatures define temporary but effective spaces. These tensions are not only structural obligations; they also contribute directly to passive environmental strategies such as shadow production, air circulation, and light transmittance. Shadow is not only a result, but a design input; It is guided by bending the surface, expanding or narrowing according to the position of the sun. Thus, the stretching surface produces microclimate areas that change dynamically throughout the day. These tense surfaces, which are simulated with Kangaroo and Karamba3D physical motors, lead to the way to optimize not only the form of the lid, but also performance. The geometries generated in the digital environment combine with the detailed abilities of weaving or membrane materials, creating high areas of sensitivity associated directly with environmental data. The tent is no longer a temporary shelter; it is a tectonic organism that reacts to data, physical behavior, and contextual factors (Figure 89).

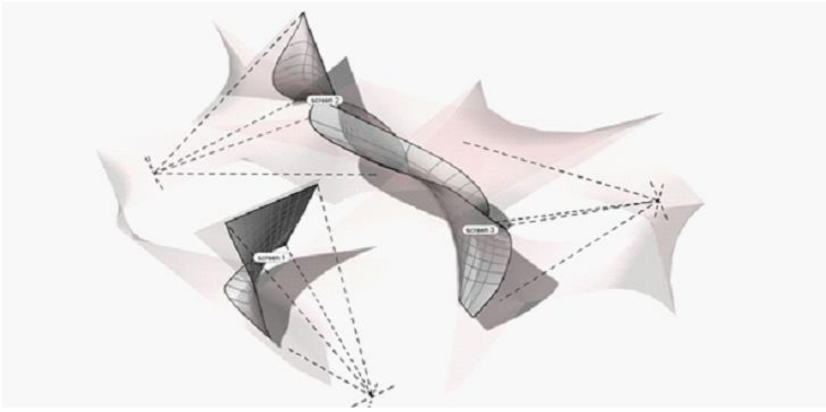


Figure 89: Tent Cover and Shading from Curvature (vimeo.com, scopemotion 2025)

In a computational design environment, anchoring is not just a fixing or anchoring action, but a set of topological decisions that determine the behavior of the surface Dasari et al. (2022). Physics motors such as Kangaroo are activated at this point. The stabilization of certain points, the simulation of the stress forces, and the effects of these forces on the tissue are modeled according to physical principles. These fixations are not a kind of fixing; It provides the emergence of a surface stretched, redistributed, and reacting. Each anchor point establishes a rhizomatic connection. It is the node of a decentralized, hierarchy-free but effective organization. The stretching is defined not only by the flat line between the two points, but by the forces spread throughout the system. Thanks to the "goal objects" structure of Kangaroo, direct and continuous updated relationships can be established between anchoring and the curvature of the surface, the load distribution, and the official transformation of the surface (food4rhino 2025). These relationships transform every point of the surface into a potential field of production, as in a Deleuzian rhizome. Therefore, anchoring in computational design is not a fixing, but a form of differential association. It is a multi-centered stretching system that determines the topological and structural presence of the surface. At each node of this system, form and force are reproduced together (Figure 90).

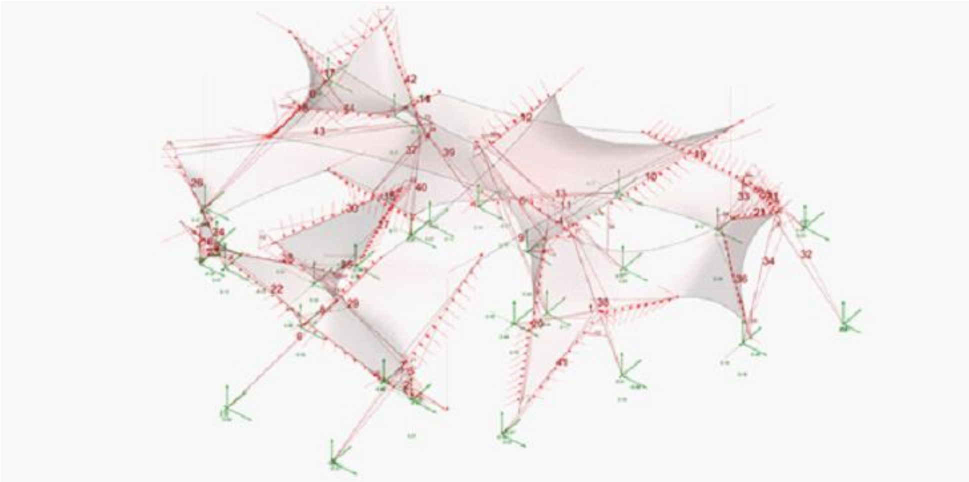


Figure 90: Production of rhizomatic flight lines over stretching and anchoring relations of tent covers (vimeo.com, scopemotion 2025)

As a result of these processes, the design strategy offered by this study enables the designers to obtain flexible and adaptable tent covers on the ideal topographies and to articulate the spreading of the tent cover over the topography, just like the Deleuzian rhizomes. As these structures can be multiplied or divided, the simulator engine allows the regeneration of the form from any gap or fracture where the divisions occur. However, in no case does it rupture away from its tectonic integrity. Depending on variations in the tent cover, it is possible to reduce or add rhizomatic 'n-1' results with the production of rhizomatic space based on these strategic sequences using topography (Figure 91).

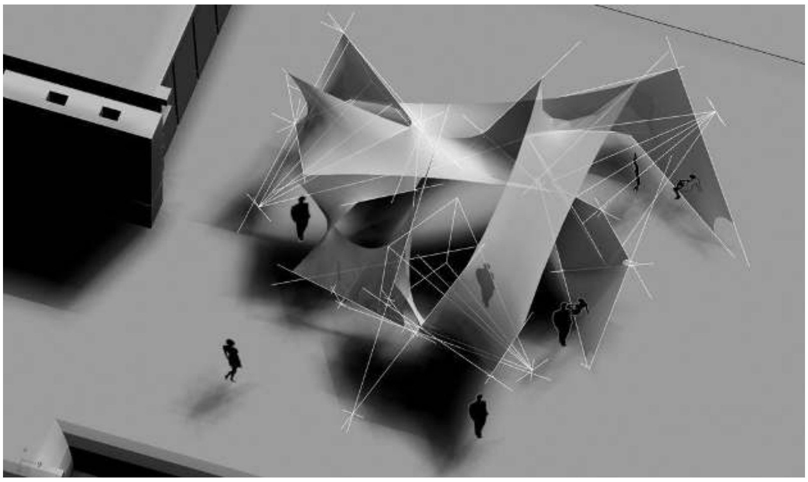


Figure 91: Final Visualization of Tent Assemblages in Rhizomatic Relationship with Each Other (vimeo.com, scopemotion 2025)

As a result, tent tectonics as an assembly has a significant potential to respond to both the spatial and structural needs of contemporary architecture with its flexible, spatially adaptable, and reconfigurable features. In this context, parametric control, physics-based simulation, and data-driven decision-making processes provided by computational design tools enable the production of not only formal but also functionally and contextually optimized solutions in the creation of tent structures. Thanks to this developed methodology, it not only provides a theoretical framework but also includes field applicability. In the next section, the reflection of this methodological approach on the field will be discussed in detail through a practical example developed in a specific context.

4.3 TRAINING PROCESS: A KIND OF DELEUZIAN PRAXIS

Preface: In a Deleuzian context, *praxis* is defined as the way in which thought is transformed into action, that is, the way in which theory interacts directly with life, becoming, and difference. Simply put, the union of theory and practice amounts to thought in action. Therefore, this chapter aims to clearly demonstrate the practical applicability of rhizomatic methodology while retaining its Deleuzian context. In this study, qualitative data belonging to the *Yörük* culture were instrumentalized and transformed into a planomena in the Grasshopper environment with their mathematical equivalents, and this transformation paved the way for a Deleuzian praxis plane.

This chapter follows a two-stage strategic path. The first phase aims to practically test the discovery of the “ideal living space” in topography. This testing process is not only a spatial optimization, but also conceptual research within the holistic framework of the thesis, questioning whether a mobile and sustainable lifestyle supported by open-source digital tools, independent of capitalist production relations, is possible on an individual and collective scale. Therefore, this stage creates a basis for inquiry that takes into account both environmental and socio-political parameters in spatial decision-making processes.

In the second stage, it is investigated what kind of architectural tectonic pattern can be formed at the ideal living point determined in line with this research. In this context, Deleuze's concepts of fold and rhizomatic relationality enable the emergence of a new structural thought based on flexibility. This way of thinking, which has historical parallels with the wool tents of the nomads, is revisited in the simulation processes. In this process, the flexibility and pragmatic aspects offered by open-source software components are clearly revealed; thus, it is observed how both the theoretical framework and technical applications feed each other.

4.3.1 Data Set, Case Site, Selection Criteria, and Training Process

Preface: In this section, the findings obtained from the daily life practices of *Yörüks*, tent-based shelters, mobility-based settlement strategies, and social organization structures are transformed into a database that will form the basis for the construction of architectural tectonics and sustainable social organization models. The rhizomatic relationship methods explained in detail in the previous section and the parametric design methodology developed on these relationships not only provided an abstract theoretical framework but also a testable strategic path in which design criteria were clearly defined. In this context, it will be discussed how the methodology in question is used with field data, with which selection criteria it is concretized, and how it is transformed into architectural outputs. Practical experience of this methodology in the finally determined case area aims to demonstrate the testability of this study. In this regard, how the data set obtained from the qualitative data of the *Yörük* culture was processed, which parameters were taken as a basis, and how the design criteria were used will be explained in detail.

This process is the first step in determining the optimal topography and then defining the ideal point that should be located on this topography. This process, which was achieved with the Minimum Living Criteria of Nomadic *Yörüks*, was discussed in detail within the framework of a matrix in the previous sections. In general, the framework of the qualitative parameters consists of the physical relations, socio-cultural and economic axiomatics, and topography of the nomadic *Yörüks* obtained from the matrix. The results from this matrix are clustered as keywords that are converted into mathematical functions. In this context, five basic parameters are at the forefront without establishing a superiority relationship with each other. Within the framework of the data obtained from the matrix, the 'route of migration movement' among the *Yörük* Turks was accepted as one of the criteria for the discovery of the ideal place. Within the framework of the data obtained from the matrix, the ‘Sun’ was accepted as another criterion in the discovery of the ideal place among the *Yörüks*. *Yörüks* have qualities such as direction finding and time measurement, heating and lighting source, discovery of suitable grazing areas in animal husbandry, and obtaining efficiency in agricultural activities. Another indispensable criterion is the relationship with water and natural resources. Being close to water has been a choice for Yörüks in many ways. The presence of water has played an active role in areas such as drinking and utility water, water needs of animals, agricultural activities, wildlife and hunting, trade and economy, so that people can sustain their daily lives. Another criterion in the discovery of the ideal place in the *Yörüks* is 'altitude'. For *Yörüks*, depending on seasonal changes, high places can be used for access to pastures and spring waters, as well as for security and defense purposes. Moreover, most importantly, different climate and seasonal changes between mountainous and lowland regions affect livestock grazing strategies. For example, it is thought that it is more appropriate to go to the highlands and graze animals in cool and fertile pastures in the summer months, and to go down to lower regions and stay in warmer and more sheltered places in the winter months. Earth is another parameter. Nomadic communities carry out their seasonal migrations using tents or similar portable dwellings. The location you choose depends on the suitability of the ground. A smooth, solid, and durable base is essential for a safe tent setup. In other words, it is important that the ground where the tent will be pitched is hard, flat, and free of stones. Earth structure can affect the tent's durability. Moreover, equally important is the acceptance of green space as a criterion in the discovery of the ideal space within the framework of the data obtained from the matrix. They have been in direct interaction with green areas at almost every point, especially in animal husbandry and grazing, agricultural activities, ecological balance, water resources, and irrigation. The results obtained in this direction clearly form the database according to the mappings made during the training process.

Table 22: Quantification of Qualitative Data from the Results of the Minimal Life Matrix of *Yörüks* for Optimization (Created by the Author 2025)

Obtaining quantitative data from the qualitative criteria of Yörüks for GH					Contribution to Optimization			
Research Questions (R.Q 1-2-3) See: Table X			The outputs from (R.Q 1-2-3) are associated with the topography at this stage.		Visual expression in GH	Functional expression in GH	Functional Representation	coefficient (impact factor)
			(Final) Database	Description				
R.Q 1- Physical Aspect	R.Q 2- Socio-Cultural Aspect	R.Q 3- Economic Aspects	Direction	The process is twofold: first, the orientation axis of the settlement area is established; second, the direction of the tent opening is defined. See: Fitness Function 1- 2		Fitness Function 1- 2 (direction & flat surface)		*1*
			Green Areas	The boundaries of the ideal green area in the site		***m***	***f (m)***	*1*
			Source Water	The boundaries of the ideal green area in the site		*z*	***f (z)***	*1*
			Altitude	The boundaries of the ideal altitude in the site		*t*	***f (t)***	*1*
			Ground	The boundaries of the ideal ground (earth) in the site		***k***	***f (k)***	*1*

Each of these parameters is defined with variable colors and variable symbols (m, z, t, k) in the Grasshopper 3D environment. In the context of the research, the "Equal Coefficients & Multi-Criteria Decision-Making Method" (EC-MCDM), referring to Deleuze and Guattari's rhizomatic multiple relational models, which prioritizes "equal" importance among data, as opposed to hierarchical relationalism, is used to relate these functions to each other. In line with this principle, the quantitative value of each coefficient in the Grasshopper 3D environment is defined as 1. This same principle is used in the way the data are related both among the Grasshopper 3D components and in the Galapagos optimization (Table 22).

After the quantitative equivalents of the minimum life parameters of nomads are transformed in the Grasshopper3D environment, the next section will reveal how these minimum life criteria relate to the application area of the research, and according to which design criteria this relationship is established.

4.3.1.1 *Girdev* Plateau: Characteristics Potentialities

Preface: This process defines the steps involved in determining suitable topography and determining the suitability of the selected parcel area in terms of minimum living standards. The target research area for this study is *Muğla* province and its surrounding areas, where the *Yörük* people are frequently observed due to seasonal conditions. In this context, firstly Muğla province, then *Fethiye* district and its surroundings were selected as the research area. The aim of the field visit was to discover the *Yörük* living in the Hair Tent, which is the architectural representation of the *Yörük* culture. However, although the exploration was carried out in two different seasons, it was seen that goatskin tents were mainly used in the tourism sector. Although nomadic communities live in the plateaus, nomadic Turks living in goatskin tents have also been encountered. This finding of the research was supported by data obtained through interviews with regionally important people and a literature review. In order to determine the plot region, a topographical survey was first carried out, covering the Minimum Living Criteria of Nomadic *Yörüks*. *Girdev* Plateau and its surroundings in *Seydikemer* district of *Muğla*, which have the potential to meet the mentioned criteria, were selected as the plot region of the research.

Girdev Plateau is a polje-type living area surrounded by slopes, located at an average altitude of 1,800 m in *Muğla-Seydikemer* (Ölmez 2020; FTSO 2023). The vast meadows surrounding the lake, varying in size between 3 and 4 km², offer an important natural ecosystem with their rich vegetation, high biological diversity, and important wetland structure (KTB 2023; Balayı Villasıkirala 2023). The plateau is a traditional living space where nomadic culture is still maintained, and small livestock farming and local milk production continue. (FTSO 2023; Dogaderneği 2018). With its topographic diversity, clean air, basic infrastructure facilities, and level of social acceptance, *Girdev* can be considered a strong candidate for a sustainable living space, both physically and socially. With these features, the region has high potential for both light structural tectonic land settlement and bio-cultural sustainability (Figure 92).

Figure 92: Girdev Plateau, 36°41′25″ N, 29°38′49″ E (seydikemer.bel.tr 2025)

The natural topography, climatic advantages, and cultural continuity of the *Girdev* Plateau are considered not only as a traditional living space but also as a strong ground where alternative settlement models in contemporary architecture can be tried out. Both the physical and socio-cultural layers of the region show qualities that can fit the definition of "ideal living space based on minimum living criteria", which is the focus of this study. In this context, *Girdev* Plateau was selected as a sample area. In the next section, the training process carried out in this unique context and supported by open-source computational tools will be discussed step by step; how parametric inputs are selected, processed, and how the results are transformed into design decisions will be explained in detail.

4.3.2 Training Process I: Habitat Suitability (Optimization)

Preface: This section constitutes the first step of the two-stage strategic process. Minimum life values specific to the Yörük culture have now been systematically formulated, and a parametric correlation has been established to test the spatial correspondences of these values. In this direction, the goal is to optimize the location, orientation, and relationship of the ideal (optimal) living space with the topography on a specific site with the help of computational tools. Thus, the traditional nomadic living space will be reinterpreted with a contemporary design methodology, and a tectonic proposal that is both sustainable and contextual will be developed.

This phase is based on data visualization, data association, and ultimately determining a minimal yet satisfactory space that meets minimum living needs. The first step of the process, Data Visualization 1, involves transferring geographic datasets obtained in the QGIS environment to the Grasshopper 3D environment and initially displaying these data only as point distributions. This representative structure is then made parametrically readable by converting it into surface/topographic functions such as f (x), f(y), and f(z). In the Data Visualization 2 phase, the functional parameters created from digital topographic data are associated with each other according to the distance-proximity criterion, and the aim is to discover potential settlement areas. In the Data Visualization 3 stage, points that are not suitable for the habitat setup are filtered, and only data that meet the minimum habitat criteria are clustered. These criteria sets are tested through parametric optimization via the Galapagos plugin in the second phase, Associating Data. In this way, both the ideal habitat points and the data set obtained from the data set close to this point can be manipulated parametrically. At the end of the process, by comparing the graphical outputs, the most appropriate layout decisions for the site are determined with numerical precision (Figure 93).

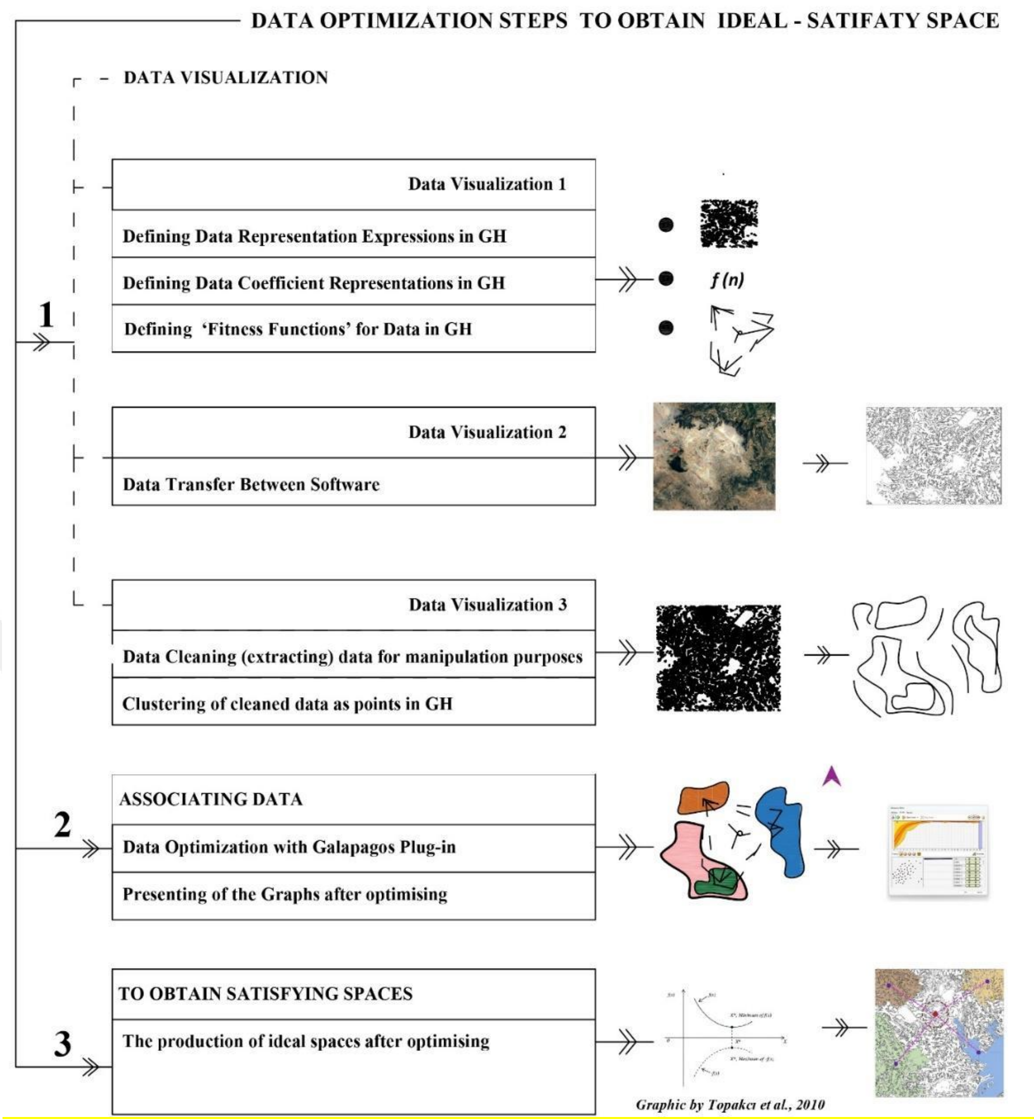


Figure 93: Visualizing Data through Grasshopper 3D for Adaptive Habitats (Created byt the Author 2025)

The optimization process begins with importing the region corresponding to the coordinates of *Girdev* Plateau 36°41′25″N, 29°38′49″E into QGIS. Satellite images of this area were converted into data in ASCII Grid format and integrated into the Grasshopper 3D environment. In the first step, basic axiomatic transformations such as mirroring, orientation, and axis shifting were applied to the topography to give it a manipulable form. Next, a 2D projection of the topography was created using the Grid Mesh component, resulting in a functional point cloud. This point cloud served as the primary dataset for spatial analysis and optimization throughout the design process (Fgure 94; Step 1; 2).

The fitness function defined in the first stage of optimization is related to the tent installation direction. This orientation was determined according to the preferences of the nomadic communities during seasonal transitions: North and east directions are preferred in the summer months, and south and west directions are preferred in the winter months. In this context, analysis layers for ideal orientations were created on the point cloud through components sensitive to direction data in the Grasshopper3D environment, and this orientation was introduced to the system as the first fitness function (Figure 94; Step 3).

In the second stage, boundaries were created based on spatial variables such as proximity to water resources, presence of green areas, altitude, and soil type, determined in line with the minimum living criteria of the *Yörüks*. These frames are analyzed by the area definition components in the GH environment. The centroids of the identified areas are determined, and a new relational pattern is created based on the centroids. Thus, a new potential location was obtained where all functional requirements intersected. This process paved the way for the definition of the second fitness function (Figure 94; Step 4).

The "flatness" parameter was determined as the second fitness function because tent structures create difficulties in terms of spatial efficiency and stability in sloping areas. In analyses based on this criterion, a random point is assigned within the boundaries of a functionally relevant area, and the immediate surroundings of this point are examined for flatness. This area is considered "ideal" for placing a tent only if it has a sufficiently even slope (Figure 94; Step 5).

In the last stage, the genetic algorithm for all defined parameters was run via the Galapagos plugin. In this process, the mutation value is activated and the gene diversity is increased, thus enabling the system to test different variations. The extent of diversity is controlled using the mutation rate, gene pool diversity, and speciation, starting with a random genome; adjust the mutation rate options available in the Galapagos interface. Finally, based on the graphical outputs obtained, a comparative analysis can be made between the variants, and the desired minimal areas can be selected according to subjective expectations. This process digitizes the dynamics of traditional nomadic life and integrates it into a parametric optimization system, while also offering an innovative settlement model that takes the local context into account (Figure 94; Step 6;7;8).

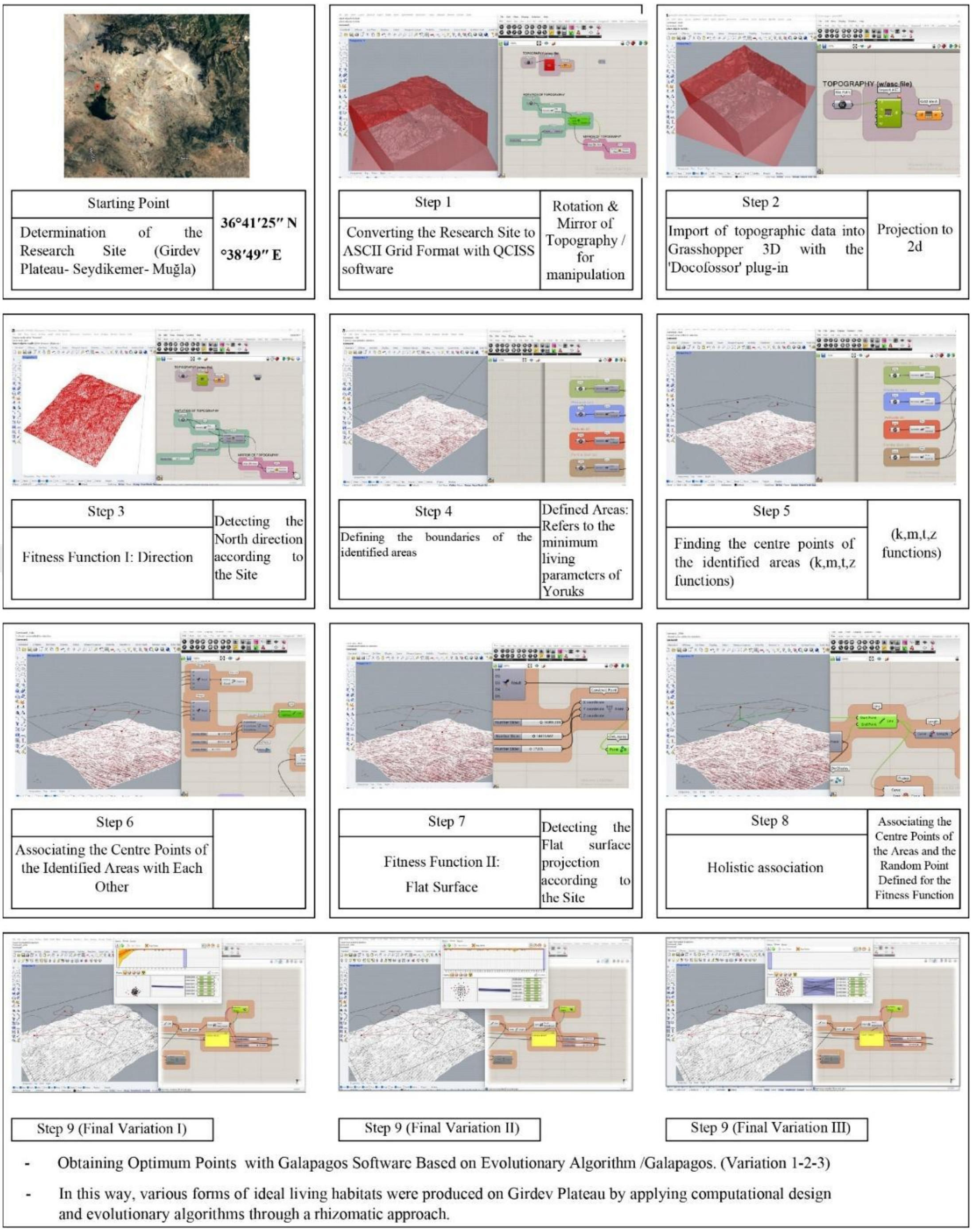


Figure 94: Creating Habitat Variations in the Girdev Plateau Based on Minimum Living Parameters of *Yörüks* (Created by the Authors - GH Code Generation Was Done by Demirok and Teke 2023)

This entire process is the product not only of a theoretical model but also of a valid design test tested with real data. This parametric analysis, conducted in a unique region like the Girdev Plateau and based on a specific sample group containing life scenarios consistent with the historical and contemporary life practices of the Yörüks, is one of the applications that combines field data with cultural criteria on the same level.

In addition to producing formal solutions through digital tools, the developed method offers a holistic design approach that evaluates the spatial, environmental, and social dimensions of architectural decisions together by associating these solutions with the socio-cultural context. The parametric strategy developed for the geographical/topographic positioning of the ideal living space was completed during Training 1, and its spatial validity was ensured by testing it with field data. As a result, the developed model can be considered as a type of space optimization that is both valid in the local context and adaptable to similar geographical and cultural situations.

4.3.3 Training Process II: Spreading of the Tent (Multiplexing)

Preface: This step covers the second stage, Training 2 process. At this stage, it is tested how architectural tectonic patterns will be formed on the pre-defined and optimized living space, and according to which structural and functional principles they will be organized. Deleuze's concepts, such as fold, flow, and rhizomatic continuity, will be reinterpreted in parallel with the formation of this structural order, and goat's hair tent tectonics will be reinterpreted with parametric design tools based on cultural and structural criteria. Thus, it will be investigated how not only a space but also the physical equivalent of a sustainable life within that space can be produced. At the end of this process, a conceptual and functional flow chart was developed that explains the design pattern from topographic traces to cover tectonics.

The scheme describes the transformation of data lines into dynamic tent surfaces in the Grasshopper3D environment, starting from rhizomatically branching data lines that often do not even represent simple 2D topographic traces. The starting point is the ideal life point obtained as a result of Training Process 1. This point is defined by the initial fitness function, orientation, and forms a path. The path functions not only as a linear line but also as an axis that can be connected to a point cloud that can then be converted into a surface. In the next step, a second fitness function, planarity, is evaluated with respect to this path. This not only makes the existing spaces suitable, but also ensures spatial sustainability for the positioning of the tents. The traces produced on this projection are transformed into cover surfaces by being shifted equally to the right and left at certain distances. Then comes the stage where the axes are connected to each other and the stress points are determined. Finally, using the

Kangaroo physics engine, self-organizing, topography-aware rhizomatic tent covers were generated according to environmental stresses and flexible construction principles.

The Training 2 process focuses on tent cover production using the ideal point set optimized and determined in the Training 1 phase. The first step, called “Starting Point of Tent Covers”, is to use the ideal living points determined on site as a starting reference in the production of architectural forms. The second step, “Determining the Orientation Axis of the Tents / Fitness Function (Orientation)”, is the process of defining the orientation axes of the tents. At this stage, the first structural traces are created by processing the curved lines defined in the Grasshopper components with the "loft" command. These traces form the basis of a decentered tectonic pattern that spreads freely across the field, in accordance with Deleuze's concept of rhizomatic flexibility.

In the third step, "Creating Point Diversity Around the Orientation Axis," diversified clusters of points are created around the specified orientation axes. This is an axiomatic support for diversity, in line with Deleuze's principles of heterogeneity and multiplicity. In the next step, “Converting Point and Line Sets to Surfaces”, the created linear and point systems are converted to surfaces. In this process, components such as Deconstruct Mesh and Mesh Surface are activated to create the covers topologically. The fifth step, "Manipulation of the Tent Surface," involves computational manipulation and control of the tent surfaces. Here, the design is tested not only formally but also behaviorally. In the sixth step, “Tent Surface Production – Obtaining Rhizomatically Related Tent Covers”, rhizomatically related covers are obtained through the contexts established between the surfaces. This process is defined by the principles of fluidity and continuity between surfaces. The final phase, "Variable 3D Images of Tent Covers Due to Pull-Tension Movements," involves simulating tension, flexure, and structural behavior using the Kangaroo and Karamba3D plugins. In this way, the form of a rhizomatic tent cover as an environmentally sensitive, self-organizing, lightweight tectonic system integrated with topographic data is both tested, and evidence is presented for its manufacturability. (Figure 95).

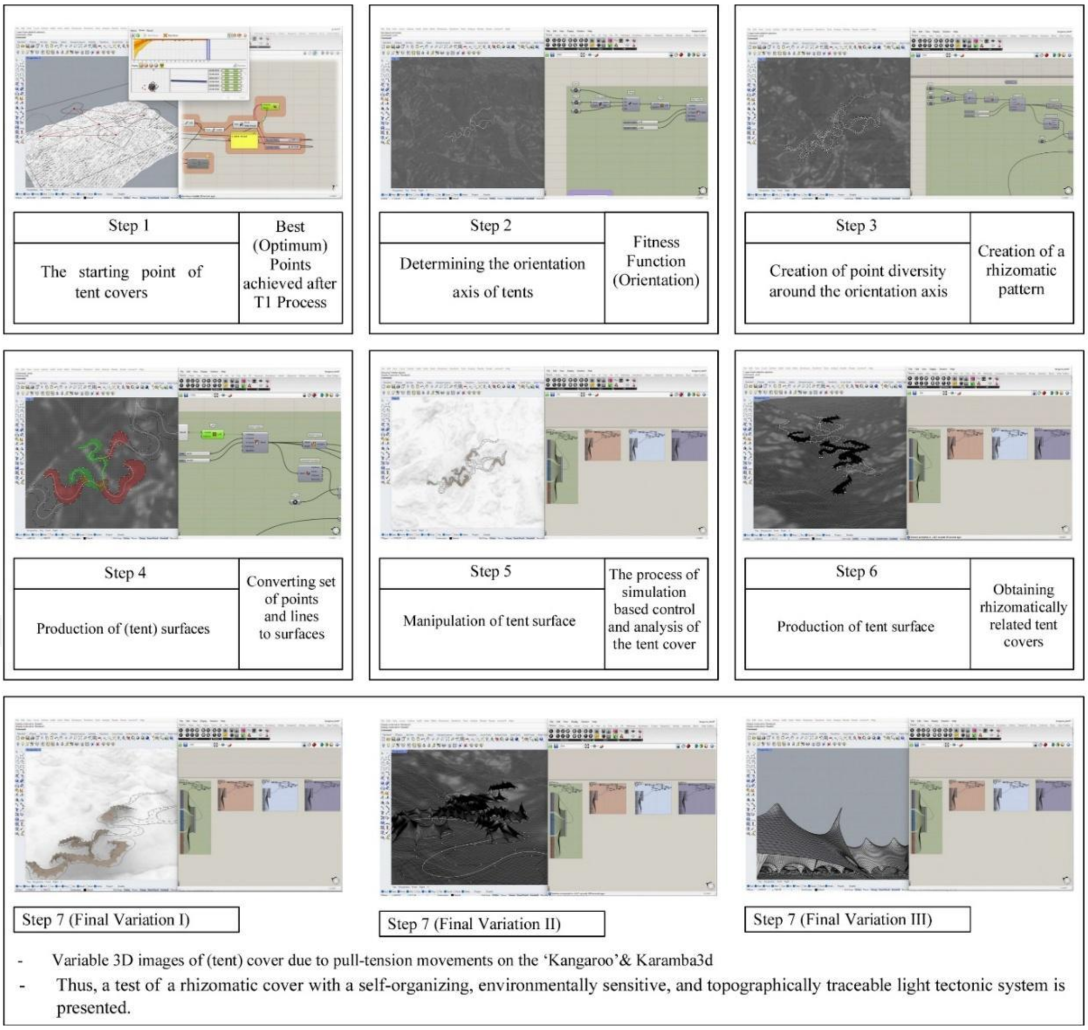


Figure 95: Multiplexing Rhizomatic Tents Based on Topographic Traces via the Galapagos and Kangaroo Physics Engine (Created by the Authors - GH Code Generation Was Done by Demirok and Teke 2023)

As a result, Training Process 2 is a comprehensive and dynamic production process of the traditional *Yörük* tent created by combining digital and adaptive parametric design tools. From orientation to surface manipulation, from point diversity to tension-based simulations, each step is aimed not only at producing form but also at establishing the relationship of form to cultural, environmental, and structural contexts.

This architectural tectonic pattern, developed in line with Deleuze's concepts of rhizome, folding, and multiplicity, enabled both theoretical and computational modeling of a decentralized, adaptive, flexible, and place-connected living structure. Thus, the sustainability potential of the nomadic lifestyle was visualized as a site-compatible architectural system reproduced with open-source tools. This process constitutes an important example of both the contemporary interpretation of cultural heritage and the integration of computational design into the social context.

4.3.4 Instead of Final: Tent Spaces as Assemblages

Preface: This section was shaped as a natural extension of the findings obtained in the first two stages of the research. In the Training 1 process, the ideal living space was rethought through various parameters and functional relationships based on the matrix created based on *Yörük* life practices, and the spatial flexibility existing in the life organization of nomadic communities was made visible through computational models. In the ongoing Training 2 process, the tent tectonics covering these ideal areas were questioned in terms of both surface flexibility and the capacity to relate to the topography, and sustainable gains were discussed through different scenarios. In this third-articulated phase, the tent is no longer merely a cover or formal structure; it is considered a structure inextricably linked to the topography itself. This new perspective proposes to conceive of the tent not merely as a physical machine, but as one that operates with social, environmental, and operational inputs. Furthermore, it is redefined as an organismic structure interacting with nature and a tactical space intertwined with everyday life.

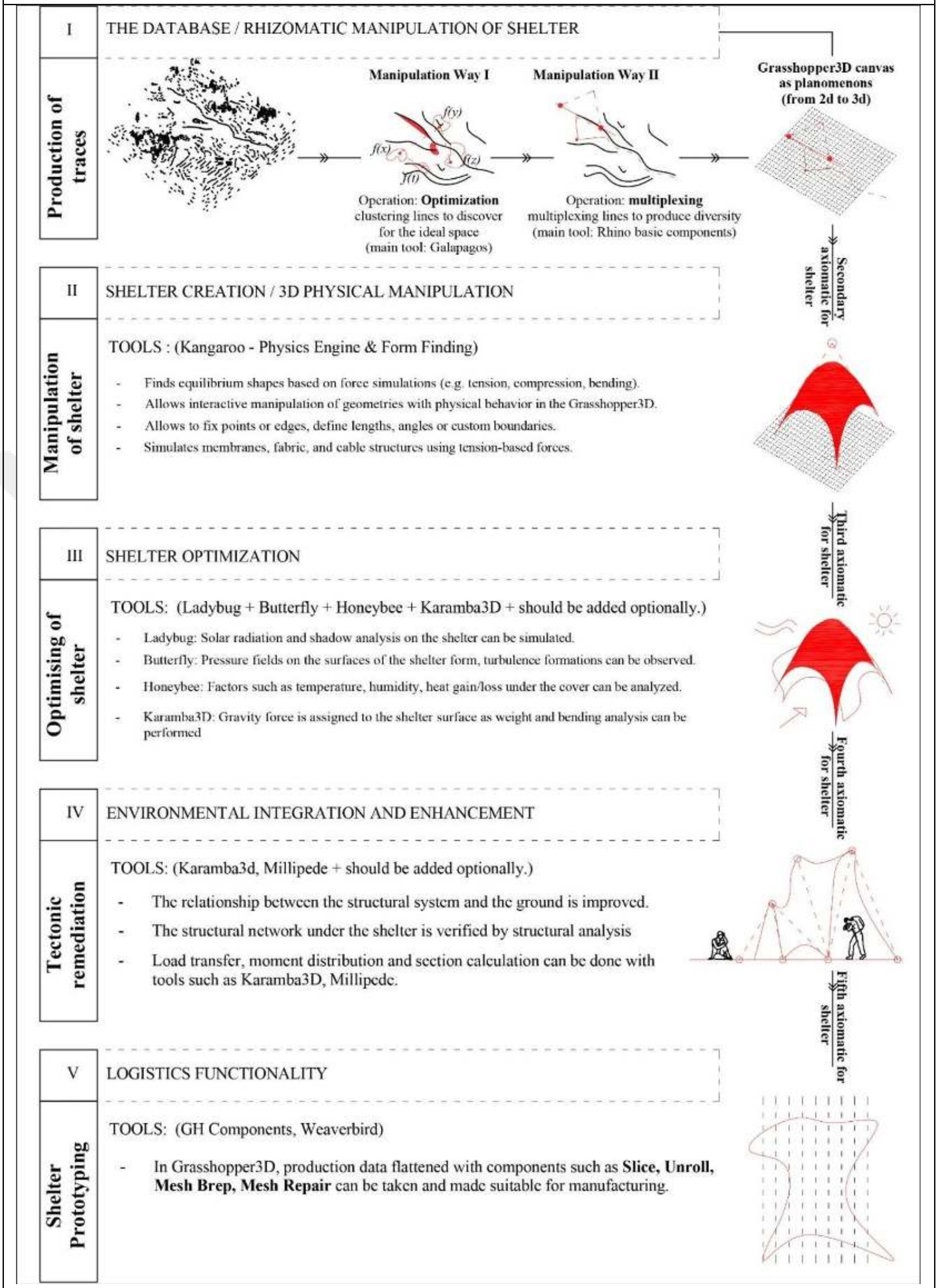
Table 23. illustrates the overall workflow in this study's design strategy while producing a sustainable shelter. As discussed above, this process encompasses several stages, from the production of cartographic traces as syntax to the physical manipulation of syntax as shelter, including optimization, tectonic remediation, and prototyping of the shelter. To summarize, the initial stage concentrates on distilling the existing map into cartographic traces to identify the optimal location for habitation based on topographic features. Using the Galapagos plug-in, Manipulation Way 1 involves parametric operations such as simplification, optimization, clustering, and compression of traces into points and lines. After optimizing the cartography and identifying the ideal settlement location points, the subsequent step involves multiplying lines to achieve a diversity that resonates with what Deleuze calls the 'difference.' This phase, Manipulation Way 2, aims to generate a rhizomatic, minor, and plural substructure (syntax), which is flexible, a-centered, and non-hierarchical. The techniques employed in this stage include folding, crossing, distributing, and shredding. Utilizing the Kangaroo physics engine, a plugin for Grasshopper3D that allows for the physical manipulation of surfaces through tension, elasticity, and

deformation analyses, this phase seeks to create a dynamic surface, a new syntax plane, in other words, characterized by tension fields. These two stages have been tested with code generation in Grashhopper3d, and the articulation process, which essentially works like a machine assembly, begins in stage 3.

In the third stage, referred to as shelter optimization, the shell structure gains the capability to respond to various environmental factors, including wind, sunlight, load-bearing capacity, and so on, all guided by variable material suggestions and water flow dynamics. Operating various auxiliary plug-ins of Grasshopper3D at this stage enhances the tensile shell structure's building performance. As an illustration, Ladybug Tools can simulate solar radiation and shadow analyses by calculating sunlight intensity on shell surfaces and optimizing material choices and structural configurations accordingly. Butterfly, which integrates Ladybug and OpenFOAM support, enables airflow and wind simulation to observe pressure areas and turbulence patterns affecting the tensile shell form. Notably, the Kangaroo's "Load" and "Anchor" components associate wind loads with stress points of tension systems. Furthermore, the Honeybee plug-in can analyze environmental factors such as temperature, humidity, and heat gain/loss, establishing a direct relationship between the shell and user comfort. Environmental analyses play a critical role in guiding designers when determining windbreaker orientations, passive ventilation, and shading preferences while influencing material selection for the shell. For instance, designers can simulate the impact of "gravity force" on the shell's surface and assess its bending capabilities using tools like Kangaroo or Karamba3D. They can evaluate critical factors such as surface weight, stress distribution, and material density for adaptive, organic materials like felt, in case they align with local availability and climate conditions. An alternative option can be ETFE due to its lightweight (100–200 g/m²), highly transparent material, which gains structural support through internal air pressure. Designers can simulate its physical behavior through Grasshopper3D by combining 'pressure load' and 'surface tension' components and its UV transmittance and heat control properties by using Ladybug (Vector Foiltec, n.d; Grasshopper3d.com, 2025). To enhance sustainability, designers can incorporate data regarding carbon footprint, production cost, and recyclability into the decision-making process using Rhino plug-ins like One Click LCA or Cardinal LCA, importing this information into Grasshopper planomenon as custom components or structured data trees. As material selection for the shell may vary based on the local climate, designers might opt for felt in shaded areas while choosing ETFE for sun-exposed zones. Additionally, combining materials such as ETFE for the exterior surface and heat-retaining felt layer for the interior can further enhance performance and assembly efficiency. To finalize the constructive details of the shell, the fourth stage focuses on articulating specific structural system proposals and developing strategies for modular assembly according to detailed construction and material specifications. This stage does not indicate the dissolution of the virtual using Deleuzian terminology but rather its reconfiguration in a productive context, transforming the digital form into a tangible, physical one that is both topological and tectonic in its functionality. In this phase, the designer optimizes the relationship between the syntax and the structural system. This phase encompasses the validation of the shell's structural feasibility through various stability and buckling analyses. The auxiliary plug-ins, proficient in assessing load transfer, internal forces, displacements, bending moments, buckling checks, and cross-section calculations, are Karamba3D and Millipede, which can work with optimization tools like Galapagos and Octopus. These plug-ins facilitate real-time feedback between design and analysis, especially the design of node points and their connection details, depending on the chosen material.

By considering compression, tension, and stretching principles, these tools empower designers to clarify their material preferences through tests conducted on the relationships between the nodal points of the tensegrity system and materials ranging from steel, carbon fiber, and ETFE to more accessible and economical options like wool rope or timber studs. Ultimately, the final form of the shell's tectonics becomes ready for digital fabrication with machines such as CNC machining, laser cutting, 3D printing, and textile stretching (Arturo 2011; David 2013; food4rhino.com 2025; Grasshopper3d.com 2025; discourse.mcneel.com 2025).

Table 23: Operationalizing Tent Tectonics within Assemblage (Created by the Author 2025)



Now that tent tectonics has adopted the utilitarian axiomatics of parametric design and operates like a machine assemblage, it has attained a structure that can be manipulated extremely effectively. Basic tectonic actions such as stretching, stabilization, anchoring, and flexing are defined parametrically in the digital environment, the relationships between variables are coded, and new morphologies can be derived from these relationships. Thus, the tent is not limited to its sheltering function; it transforms into an organism that interacts with the topography, responds to environmental data, and can reshape itself according to local needs. This approach transforms the designer's subjective intuition into a systematic strategy, enabling structural flexibility to be reproduced both materially and conceptually (Figure 96).

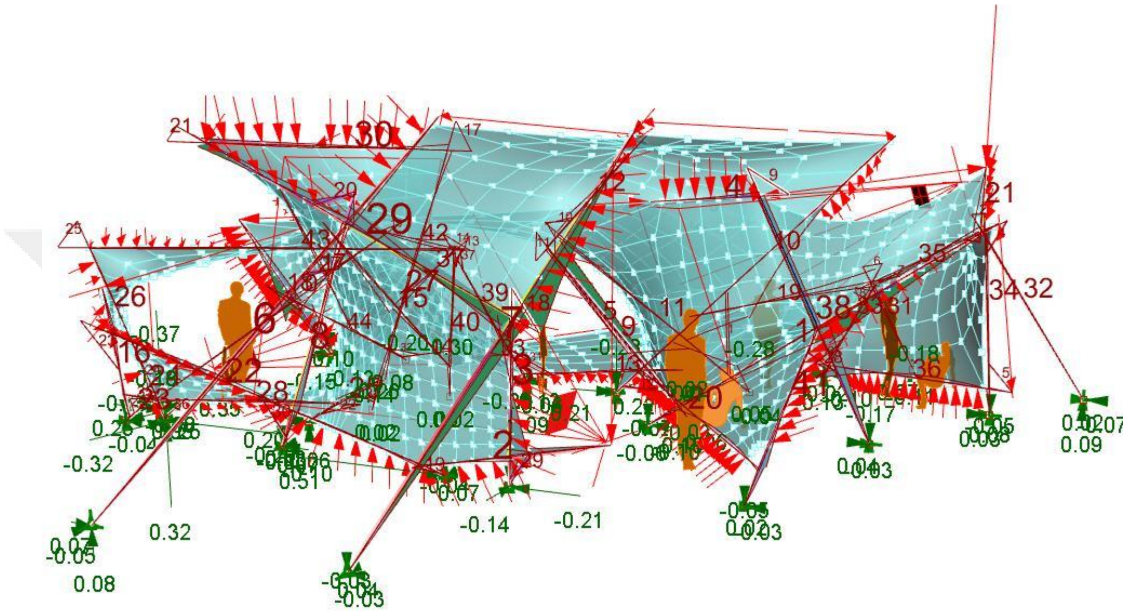


Figure 96: A Subjective Sketch of Tent Tectonics as a Machinic Assemblage Associated with Mathematical Axioms (vimeo.com, scopemotion 2025)

Recent advances in materials suitable for tensile stress include PTFE-coated fiberglass, ETFE film, coal nanotube (CNT) nanofibers, and biobased membranes, all of which offer potential for integration with Grasshopper3d. In particular, the ability to test these materials using Grasshopper3d, combined with calculations of high strength-to-weight ratios, UV resistance, and chemical resistance, could play a critical role in extending the lifespan of tent tectonic covers and reducing maintenance.

For example, ETFE maximizes natural lighting with a light transmittance of up to 95%, while its recyclable structure also contributes to certification processes such as LEED or BREEAM (Yap 2024; Morrison 2025). In addition, CNT fibers offer high modulus and fracture properties, potentially enabling the development of ubiquitous, large-scale membrane fabrics (Mikhalchan and Vilatela 2020). In terms of sustainability, these conditions offer much less raw material consumption and a lower carbon footprint compared to traditional building materials (Comitti 2024). In addition, the lightness of the structures reduces energy consumption in both transportation and installation; since membrane fabrics are reusable or recyclable, waste load at the end of life is minimized (Tensile Systems 2023; Morrison 2025). In the near future, the integration of these advanced membranes with active systems will also be decisive. For example, photovoltaic cells or climate-controlled smart coatings will provide energy production or environmental sensitivity while increasing functionality without compromising the membrane's flexibility (Architizer 2025). Therefore, a planomenon like Grasshopper3D, which can be associated with any kind of mathematical function, is critical for such flexible gains (Figure 97).

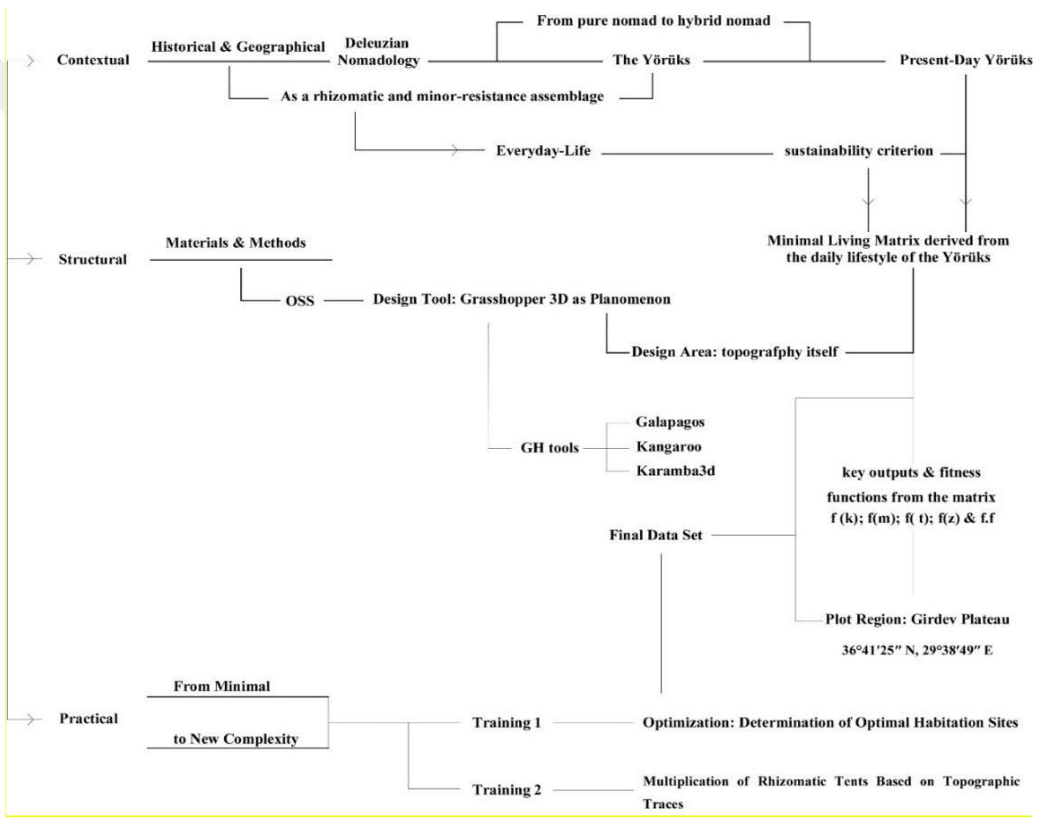
Figure 97: Tent Tectonics Articulated with Advanced Tensile Materials and Functioning as Part of an Assemblage (vimeo.com, scopemotion 2025)

Accordingly, it is important for sustainability to consider tent structures within an assembly philosophy in order to increase the usability of tent tectonics in the near future. In this context, strategic steps have been revealed as to how the importance given by Deleuzian thought to the machine-daily life-nature triad can be experienced through tent tectonics. The *Yörük* tent is no longer just an official or cultural symbol; it functions as an assembly unit that incorporates numerous inputs such as parametric factor effects, social catalysis, and references to the future.

4.4 CHAPTER RESULTS

This chapter aims to demonstrate the applicability of the design strategies and rhizomatic methodology developed within the scope of this thesis in field conditions. To this end, a multi-layered application process was used to test how the rhizomatic approach, theoretically constructed in the first chapter, was instrumentalized through open-source software and how it could produce concrete outcomes based on a specific sample group.

Table 24: General Framework of The Case Study (Created by the Author 2025)



The chapter structure is organized under three main headings, as can be seen in Table 24. First, the contextual conditions of the selected field and sample group were defined. In line with Deleuze's approach, which combines geographical thought with historical readings, a sample population was selected based on forms of nomadism and minor lines of resistance. This selection was determined both by the researcher's accessibility and by the selected group's continued existence today. In this context, the

Yörük community was chosen as the sample group for this research, both for its minor (Deleuzian) way of life and its capacity for self-organization.

Throughout the case study, the daily life practices of the *Yörüks* were evaluated within the conceptual framework offered by Deleuzian literature. In this context, qualitative data were analyzed on the potential for minor resistance, horizontal organizational capacity, and minimal life strategies. These data were converted into structural components for transfer to a parametric design environment and digitized and processed in Grasshopper3D. These data demonstrate not only a formal transformation but also the applicability of the rhizomatic methodology with technical tools.

Therefore, the tools used in this process are open-source parametric platforms (Grasshopper3D, Karamba3D, and Kangaroo), demonstrating how the methodology operates on the planomenon plane. Here, Grasshopper3D operates as a planomenon, where data is transformed into design outputs and the intellectual flow is horizontalized. The topography itself was chosen as the design field, enabling the manipulation of Deleuze's rhizomatic traces. This allows for a direct interaction between data and space. The strategic paths developed in the three-dimensional simulation environment clearly demonstrate how this methodology is implemented in practice. Tectonic models developed using Kangaroo and Karamba3D software, in particular, reveal the possibilities an open-source rhizomatic approach can create in spatial production.

In the final stage, this methodology was applied to a real topography *Girdev* Plateau within the borders of *Muğla* provinceand how the sample group would be trained was tested in a field-based manner. The implementation process proceeded in two main steps. In the first stage, a habitat model was created, in line with Deleuzian principles, to produce a quantitative representation of an ideal habitat. In this stage, minimal living elements specific to *Yörük* culture were correlated using the Galapagos algorithm to produce the optimal habitat scenario. This correlation method is based on a non-hierarchical, Deleuzian formalism based on equality values.

The second phase addressed the tectonic covers that would develop on this habitat and the resulting forms of social organization. Analyses of the tent covers were conducted using Kangaroo and Karamba3D software. Potential settlement areas were identified on the topography, and new tectonic patterns were created by placing rhizomatic pathways in these areas. Thus, prototypes for both the transformation of sociospatial production patterns and shelters adaptable to today's conditions were developed.

The final chapter of this study aims to discuss not only the structural but also the social potential of the prototypes. These tectonic patterns, combined with the reproducibility and participatory principles offered by open-source code, provide a pluralistic foundation for future spatial transformations. Therefore, this chapter demonstrates that both the rhizomatic methodology conceptually defined in the first chapter and the transformation of social space within capital flows discussed in the second and third chapters have been transformed into a concrete and workable model.

CHAPTER V
CONCLUSION

This study has revealed the spatial production strategies of communities that have become minoritized under the capitalist regime, by instrumentalizing the minor powers they possess. In this context, the focus has been on how minor politics maintain themselves within capitalist-dominated communities, where major powers are primarily directive; moreover, even though it was not the direct aim of this study, minor power has been revealed within the hegemony of major structures through a form of spatial strategy, employing lightweight, tent-like tectonic forms. In particular, in the last chapter of the study, the daily life practices of *Yörük* communities as a representation of a minor community are examined to reveal how rhizomatic organisation operates in the context of minoritarian power. Analyses on habitat use without harming the environment, nomadic representations, multiplicable tent tectonics, self-sufficient and minimalist Yoruk life practices show that these communities not only occupy space, but also create sustainable traces that transcend the ages. At this point, the meaning and scope of the concept of sustainability used in this thesis should be clarified. Within the scope of this thesis, sustainability has been approached as a relational and context-sensitive concept, rather than a fixed or universal standard. The study emphasizes how minor spatial practices such as the deployment of tent-like, lightweight tectonic forms by minoritized communities can operate in ways that are ecologically aware, socially responsive, and adaptable to local environmental conditions. However, it is important to acknowledge the boundaries of this approach: sustainability here is understood primarily through the lens of localized, minor-scale interventions, and does not claim to address broader systemic ecological challenges. In this sense, the findings illustrate both the potential and the limitations of contextually grounded sustainable strategies, showing that while minor powers can generate resilient and adaptive spatial practices, these practices remain contingent upon specific environmental, social, and political conditions.

The findings of this research underscore the importance of understanding space as a relational and emergent phenomenon. By integrating Deleuzian concepts with parametric design strategies, this research provides a framework for analyzing and implementing rhizomatic spatial arrangements in socially marginalized contexts. By tracing the rhizomatic pathways of *Yörük* habitats, the study has highlighted how these communities engage in practices that balance mobility, social cohesion, and ecological sustainability. The generated matrices and field deployments exemplify how theoretical principles of rhizomatic organization can be translated into practical design strategies, offering a replicable model for analyzing minoritarian spatial dynamics in other contexts. These outcomes also demonstrate the applicability of Deleuzian frameworks in bridging the gap between abstract spatial theory and tangible, on-the-ground interventions.

It is important to note that the boundaries of this study are inherently defined by a Deleuzian theoretical framework. For readers accustomed to classical Western phenomenological approaches, the theoretical and methodological choices may appear unconventional. Unlike hierarchical, sequential, or linear modes of analysis, this study emphasizes articulation, relationality, and, most importantly, horizontal forms of productive interaction. All spatial productions, analytical approaches, and methodological choices are interpreted and applied through the lens of Deleuzian concepts, particularly the rhizome metaphor. Consequently, the findings and interpretations presented herein should be read within this philosophical and conceptual context. While this approach provides a cohesive and theoretically robust framework, it simultaneously imposes certain limitations: alternative theoretical lenses or methodologies could yield different insights or interpretations regarding the same spatial practices. Therefore, the study's conclusions are most meaningful when situated within the literature and conceptual apparatus of Deleuze. For example, alternative theoretical frameworks may provide different insights, and the strategies outlined here, particularly those involving lightweight, tent-like tectonic forms, demonstrate their effectiveness in specific socio-spatial contexts rather than offering universally generalizable solutions.

Another significant outcome of this study lies in its rejection of a dialectical terminology that rigidly separates interior from exterior, or enclosed from open space. Instead, drawing on Deleuze's distinction between striated and smooth spaces, spatiality is approached here as an articulated continuum rather than a binary opposition. This mode of reading space introduces not only a conceptual shift but also a new paradigm for spatial production: one that values articulation, fluidity, and adaptability over fixed boundaries. In this sense, space is no longer reduced to a static form, but understood as a relational field at times folding inwards and providing shelter, at other times opening outward and drawing energy from the flows of topography. Such a perspective offers a pragmatic advantage as well, as it allows for the rethinking and re-creation of space in ways that are both contextually grounded and dynamically responsive.

Future research could extend this study by exploring rhizomatic spatial strategies in broader urban contexts or by integrating larger datasets on social interactions, thereby expanding its applicability. The methodological value of this work lies precisely in its alignment with Deleuze's critique of hierarchical and closed models of thought, and its adoption of the rhizome metaphor as a framework for spatial inquiry. By employing open-source coding, parametric design algorithms, and script-based methods, the rhizomatic methodology developed here demonstrates a productive, flexible, and expandable model one that can be manipulated and further evolved by other researchers. In this sense, the study underscores how Deleuze's propositions from the 1980s find concrete resonance today in artificial intelligence, computational design, and open-source platforms. Observing this continuity highlights the potential for future design research to build upon and reconfigure the methodological apparatus presented here, thus ensuring its adaptability and relevance in diverse socio-spatial contexts.

Thus, transforming the rhizome metaphor into a methodological framework not only produces specific spatial forms but also demonstrates how different social and ecological dynamics can be integrated into the design process. In this context, Patrick Schumacher's Parametricism Manifesto is worth recalling. The Manifesto defined parametric design as a "new style" on a global scale, giving the design discipline a powerful direction by focusing on formal differentiation, fluidity, and complex adaptation processes. However, this approach has mostly remained on an aesthetic level and has been limited in establishing a deeper relationship with socio-ecological contexts. At this point, the rhizome methodology proposed in this study carries the formal power of Parametricism without rejecting it, but shifts it to a productive ground that is more open, pluralizable, and accommodates the spatial strategies of minor powers. In particular, the relationship between the rhizome methodology proposed in this thesis and the utilitarian axioms of open-source software offers a distinct possibility at this very point: With its open-source, manipulable, and pluralistic structure, it considers not only forms but also the spatial strategies of small communities and the dynamics of topography. Therefore, future research could open new doors for developing more flexible, social, and sustainable spatial strategies by combining Parametricism's powerful computational tools with rhizomatic methodology.

Building upon the preceding discussions, it becomes evident that one of the lateral contributions of this research lies in its attention to sustainability and heritage preservation. In this respect, the study positions *Yörük* communities not only as a cultural case but also as an exemplar of sustainable representation where tradition and modernity are brought into productive dialogue. On the one hand, the research emphasizes the importance of respecting and preserving cultural traditions as vital elements of heritage. On the other, it shows how these traditions can be reinterpreted through contemporary and sustainable channels, offering pathways for resilient modes of living that remain responsive to both ecological and social demands. This dual positioning becomes particularly relevant in a world where global crises climate change, displacement, resource scarcity are accelerating with unprecedented momentum. In this context, the framework of the United Nations' Sustainable Development Goals (SDGs) provides a transformative agenda. Defined as a 17-point plan to radically improve the lives of both people and the planet by 2030, the SDGs highlight the urgent need for integrated solutions that bridge cultural, social, and environmental concerns (unicef.org, 2025). This thesis resonates strongly with these goals by demonstrating how small-scale, context-sensitive interventions rooted in the spatial strategies of marginalized communities can contribute meaningfully to global sustainability agendas. Ultimately, the methodological and conceptual approach presented here shows that cultural heritage is not static, nor is sustainability merely technical. Instead, both are dynamic, relational, and capable of shaping futures where human well-being and ecological balance are mutually reinforced. By aligning with the principles articulated in UNESCO's policies on resilient and culturally grounded heritage practices, and by overlapping with the UN's SDG framework, this research underscores how rhizomatic, open-ended, and minor spatial practices can play a role in the broader transformation toward more sustainable and inclusive futures.

In approaching the conclusion, it is important to acknowledge that this thesis has been framed as an idealized exploration. Yet such ideals are not distant abstractions; they may find resonance today in the minor formations of civil defense organizations, in the tactical movements of social collectives, and in the collaborative agency of designers, educators, and social theorists within contemporary discourse. The methodological framework developed here demonstrates that both the axiomatic logics of parametric design and the lightweight tectonic systems exemplified by the *Yörük* tent could permeate more deeply into urban fabrics and fertile topographies. In this way, tent tectonics need not be confined to emergency scenarios alone. Just as the United States once saw Hoovervilles and, more recently, the resurgence of urban tent cities amid housing crises, contemporary adaptations can reframe lightweight structures as legitimate, adaptive, and sustainable interventions within cities. What emerges, therefore, is not simply a nostalgic reflection on tradition but a forward-looking paradigm one that reveals how minor architectures, when aligned with technological tools and collective social practices, may articulate resilient futures where heritage, sustainability, and design innovation converge.

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