ARCHIPELAGO AS A TOOL TO STUDY URBAN FORM: THE CASE OF ANKARA

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THE CASE OF ANKARA

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ABSTRACT

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In the literature on urban morphology, the city and urbanization are considered two antithetical forms since urbanization as a term was coined by Cerda. There is a dichotomy between the practices of these two terms regarding the physical form of the city. This formative dichotomy covers a variety of tensions arising from architectural production processes. In the context of urban morphology, the contemporary city can be defined as a meeting of those spatial contradictions depending on architectural form.

Typology is a discourse including different formative theories that could reveal those contradictions and enhance urban morphology analyses. Within those theories, *autonomous form* is the one that aims to create an independent abstract language of the physical form by isolating it from the other practices that influence the urban form. Under the influence of the theory of *autonomous form*, the literature of urban morphology contains several concepts as a result of different attempts to explore the urban form. "*Archipelago"* can be described as one of the radical concepts depending on the theory of *autonomous form.* It is a metaphor to describe architectural formations that emerge as individual forms of aggregations-resembling the islands of an archipelago- based on their typology.

Since the beginning of the Turkish Republic, Ankara, as the capital city, has encountered the dichotomy between city and urbanization through different planning

periods. Through the planning periods, Ankara has become a laboratory land of urban form, which has accelerated the formative contradictions in the city. Despite those contradictions, Ankara has a considerable domain of *autonomous forms* in terms of urban morphology. In this context, this thesis attempts to explore the autonomous forms of the city, Ankara, by conceptualizing it as an *archipelago*. It is also an attempt to transform the diagram of the autonomous forms into a generative matrix that could discover alternative urban form.

Keywords: urban morphology, typology, autonomous form, archipelago, Ankara, visual matrix

ÖZET

KENTSEL FORMU İNCELEMEK İÇİN BİR ARAÇ OLARAK ARCHIPELAGO:
ANKARA ÖRNEĞİ

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Kentsel morfoloji literatüründe kent ve kentleşme, kentleşme kavramının Cerda tarafından ortaya atılmasından bu yana birbirinin iki zıt biçimi olarak kabul edilmektedir. Kentin fiziksel biçimine ilişkin bu iki terimin uygulamaları arasında bir ikilik vardır. Bu biçimlendirici ikilik, mimari üretim süreçlerinden kaynaklanan çeşitli gerilimleri kapsar. Kentsel morfoloji bağlamında çağdaş kent, mimari biçime bağlı olarak bu mekânsal çelişkilerin buluşması olarak tanımlanabilir.

Tipoloji, bu çelişkileri ortaya çıkarabilecek ve kentsel morfoloji analizlerini geliştirebilecek farklı biçimlendirici teorileri içeren bir söylemdir. Bu kuramlar içinde *özerk biçim*, fiziksel biçimi, kentsel biçimi etkileyen diğer uygulamalardan yalıtarak bağımsız bir soyut dil yaratmayı amaçlayan bir teoridir. *Özerk biçim* teorisinin etkisi altında, kentsel morfoloji literatürü, kentsel formu keşfetmeye yönelik farklı girişimlerin bir sonucu olarak çeşitli kavramları sunmaktadır. "*Archipelago*", *özerk form* teorisine dayanan radikal kavramlardan biri olarak tanımlanabilir. Bu anlamda, archipelago, bir takımadanın adalarını andıran bireysel kümelenme biçimleri olarak ortaya çıkan mimari oluşumları, tipolojilerine göre anlatmak için kullanılan bir metafordur.

Türkiye Cumhuriyeti'nin kuruluşundan bu yana başkent olarak Ankara, farklı planlama dönemlerinde kent ve kentleşme ikilemi ile karşılaşmıştır. Planlama dönemleri boyunca Ankara, kentteki biçimsel çelişkileri hızlandıran bir kentsel formlar laboratuvarı haline gelmiştir. Bu çelişkilere rağmen Ankara, kentsel morfoloji açısından önemli bir özerk biçimler kümesine sahiptir. Bu bağlamda bu tez, Ankara kentini, bir *archipelago(takımada)* olarak kavramsallaştırarak, şehrin özerk biçimlerini keşfetmeye çalışmaktadır. Bu çalışma aynı zamanda, keşfettiği özerk formların diyagramını, alternatif kentsel formları önerebilecek üretken bir matrise dönüştürme girişimindedir.

Anahtar Kelimeler: Kentsel morfoloji, tipoloji, özerk form, archipelago, Ankara, görsel matris

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CHAPTER 1

1. Introduction: Towards a Generative Matrix: Urban Form as an Archipelago

1.1. Problem Statement: The Tension between City and Urbanization as a Typological Problem of Contemporary City

Today, there is an ongoing discussion on the differentiation between the city and urbanization. There is a contradiction/tension between those two, which dates back to the 1850s when urbanization as a form next to the city was proposed officially by Cerda (Aureli, 2011, p.9). In fact, the city and urbanization are two antithetical terms for each other (Aureli, 2011, p. 224). In this respect, the initial problem of this research is the consequences of this tension in the contemporary city. One of the most significative conditions experienced by the contemporary city is the consequences of this tension between urbanization and the city. Aureli argues the antithetical nature by referring to Cerda's explanations of the primal discrepancy between the roots of the terms city (civitas) and urbanization (urbs), which was developed in the primary difference between settlement organization strategies.[1]

The city is a territorial entity consisting of differentiated building aggregations. Indeed, the city is a product of differences in space: public space and private space, political space and economic space, countryside and city. Those differences require the limits and boundaries surrounding those differentiated aggregations. Accordingly, the other aspect of the city is its finite spaces. By contrast, Cerda's definition of urbanization describes it as a limitless, ever-expanding, and all-encompassing apparatus (Aureli, 2011, p. X), whereas the city is a finite territorial formation. In this respect, the differentiation between the building aggregations representing differences in the city disappears. Cerda describes this situation as "To ruralize the city and to urbanize the countryside" (Aureli, 2011, p. 10). Urbanization is the result of a specific paradigm, which is stated as "the condition of limitlessness and the complete integration of movement and communication brought about by capitalism." (Aureli, 2011, p. 9).

[1] See in Aureli, P. V. (2011). *The possibility of an absolute architecture*. MIT press.

The opposition between them originated in two dimensions of contemporary cities: the political dimension of coexistence and the economic logic of social management (Aureli, 2011, p. X). The political dimension of coexistence illustrates the coexistence of autonomous identities through their differences in a community. In fact, the spatial form is one of the most apparent depictions of those identities via visible distinctions in shape. Correspondingly, the political dimension of coexistence introduces the juxtaposed existence of autonomous forms: fragmentary condition. By contrast, the economic logic of social management symbolizes/displays an ever-expanding and all-encompassing apparatus that absorbs and makes the other dimension indistinct: urbanization (Aureli, 2011, p. X). In other words, urbanization is a speculative act that precedes the city. In this respect, it is convenient to say that the fragmentations have become unreadable through the over-spreading actions as a result of speculative urbanization. It is the generic case of most contemporary cities today (Koolhaas, 1995).

Beginning with Cerda, the relationship between the city and urbanization led theoretical works and projects to emerge either as criticism of urbanization or solutions to manage the urbanization process. Cerda's plan for Barcelona was the first attempt to manage urbanization[2]. Indeed, urbanization has transformed into an uncontrollable element of time that causes severe problems in the city. Eventually, the main aim of this study is to explore those problems.

Based on those problems, the conceptualization of the term "urbanization" continued with a series of works. Their conceptual definitions and approaches to the city form distinguish them from each other. Different themes of the city form appear as solutions: genericity (Vertical City of Hillberseimer, The Generic City by Rem Koolhaas), dispersion (No-stop City of Archizoom), the permanence of architecture (The Architecture of The City by Aldo Rossi) fragmentation of the city (Collage City by Colin Rowe, The City in The City: Berlin As a Green Archipelago by O.M. Ungers and Rem Koolhaas).[3] However, all those works meet on a common ground, which is the criticism of *limitlessness* as the main problem based on a *morphological*

[2] More information can be found in Cerdà, I. (2022). General theory of urbanization 1867. Actar D, Inc..

[3] More information about the projects can be found in Aureli, P. V. (2011). *The possibility of an absolute architecture*. MIT press.

framework. Here it is crucial to clarify morphological framework and limitlessness as terms in literature before mentioning the related problematics. I would underline the conceptual nature of the thesis here, in addition to the following points. A morphological framework (study of form) is, by definition, abstract and conceptual.

The word *morphology* was first used by Goethe as 'science that deals with the essence of forms' (Oliveira, 2016, p. 2). Following this definition, the morphological framework is described as ***urban morphology*** in the literature. Larkham describes urban morphology as "... an approach to conceptualizing the complexity of physical form. Understanding the physical complexities of various scales, from individual buildings, plots, street blocks, and the street patterns that make up the structure of towns helps us understand how towns have grown and developed" (Oliveira, 2016, p. 3). In this respect, this study will discuss the problematics of cities and urbanization in a morphological framework.

On the other hand, limitlessness as a problem is associated with Hegel's concept of "***bad-infinity***" (Aureli, 2011, p. 17). In brief, bad-infinity means repeating the production of new finite things without any reasonable goal, which corresponds to the infinite consumption in the contemporary world. In this morphological framework, bad-infinity may be associated with the production of physical forms (buildings, street networks, division of plots...) only for growth related to Cerda's definition of urbanization. Indeed, bad infinity is the first problem related to the tension between the city and urbanization mentioned at the beginning. In this respect, deprivation from the purpose of production makes it difficult to follow the logic behind the development of cities. Accordingly, bad-infinity causes a series of problematic within the discourse of urban morphology.

Today's contemporary cities experience problems related to different contradictions between city and urbanization in a much more severe way. Ankara, the capital city of the Turkish Republic, is one of those cities facing those problems and has become the case study for this research. Since the founding of the Turkish Republic, the tension between the city and urbanization has also reflected itself in different interventions.

Ankara can be considered a laboratory of planning for the Turkish Republic. From the establishment of the Republic onwards, many changing planning frameworks and new ideas of spatial configurations for their times were tested on this once a Mid-Anatolian

town, now a metropolitan city of 5.5 million residents. Ankara, as an experimental city, has experienced five different planning periods under contradictory design strategies since the founding of the Turkish Republic. Those planning periods, which will be further detailed, are as follows: Hermann Jansen Plan (1928-1932), Yücel-Uybadin Plan (1957), 1990 Plan (1985), 2015 Structural Plan (1990), and 2025 Plan (1997). As a result, the city itself became like a collection of physical forms, placed in a rich geographical setting. This aspect of the city, coupled with the notorious history of Turkish urbanism with its many crises and multiple frameworks, creates a rich and unique collage. The rich components within this collage have been extensively studied in the past, either in the context of dissertations or design studios. **Those studies demonstrate that the planning strategies do not represent a consistent set of decisions within a morphological framework (Çalışkan, 2003).**

As neoliberalism emerged in the whole world, Turkey produced its interpretation of neo-liberal urbanism through the political authorities (Batuman, 2017). **In this regard, it is appropriate to claim that bad-infinity in Ankara gained an acceleration that causes ambiguities within the city in terms of urban morphology.** In line with this, planning strategies have transformed dramatically, especially after the 1980's when neoliberalism dominated building production. In fact, the 1990 Plan strategies show the extreme transition to functional planning strategies disregarding urban morphology. This inconsistency peaked after the 2000's when neoliberalism found its local language in Ankara through the government's interventions.

All the processes since the founding of the Turkish Republic have produced different problematics in Ankara related to the city form under the major influence of a bad-infinity. Accordingly, those problematics that bad infinity caused can be clarified by six contradictory conditions, acquired through the major theoretical works on the dichotomy of city and urbanization.[4] Those conditions are associated with city and urbanization in order as follows: ***polarization-unification, poly-nuclear-anucleate,***

[4] Vertical City of Hillberseimer, No-stop City of Archizoom, The Architecture of The City by Aldo Rossi, Collage City by Colin Rowe, The City in The City: Berlin As a Green Archipelago by O.M. Ungers and Rem Koolhaas, Learning from Las Vegas by Robert Venturi, The Generic City by Rem Koolhaas

transparency-non transparency, generative geometry-proliferating geometry, compound shape-fractal, historical-non historical.[5]

First of all, polarization is in the nature of the city, whereas unification is related to urbanization. In an architectural manner, the term posits itself on the individuality of the building aggregations. Ankara can be defined as a polarized city because of the topographical distribution of buildings in the city. However, it is under the threat of unification because of the interventions, such as housing production (TOKI), execution of fast-profit projects (gated communities, towers, shopping malls, business complexes, mixed-used towers), conducted through Neo-liberalism.

The second is the poly-nuclear organism and the anucleate organism. The polarization in the city provides multiple centers that can be differentiated from each other. On the other hand, urbanization grows as an anucleate organism that absorbs the center of the distinctions. Based on the mix of deviating planning strategies (Çalışkan, 2003), Ankara is under the in-between condition of a poly-nuclear and an anucleate organism.

The third is transparency vs. non-transparency.[6] The term "transparency" here is an architectural concept that originated in Collin Rowe's and Robert Slutzky's interpretations. According to Rowe, the city is composed of different layers that are definitive based on solid and void (Rowe, p. 83). The street pattern, the form of an architectural object, the form of a landscape, the pattern of the nature of the landscape, etc. They are all assisting to constitute composites of forms through the identification of those elements as different layers in peculiar forms. The result is a composite that offers components that may be used as generating elements in subsequent products. In this manner, the form of the city offers a rich domain of transparency through its multiple layers. By contrast, despite the outrageous form of the built environment, urbanization does not provide essential transparency because of the inconsistent aggregation of the elements. In this regard, the present city form of Ankara can be classified as a non-transparent form. In particular, the major shift in the planning

[5] Those concepts are a collection and interpretation of the problems mentioned in different works. *Polarization-unification, generative-proliferating geometry, compound shape-fractal, historical-non historical* concepts described based on Koolhaas, R. (1995). The generic city (p. 1255). Sikkens Foundation and Koolhaas, R. (2002). Junkspace. October, (100), 175-190.

[6] The term transparency here is an architectural concept originated in Colin Rowe's and Robert Slutzky's interpretation. According to Rowe, the city is composed of different layers that are definitive based on the solid and void (Rowe, pg.83).

periods due to the reduction in morphological intention can be related to the non-transparent form of Ankara.

The issue of transparency results in two contrary conditions: generative geometry and proliferating geometry, which constitute the fourth antithetical argument in this study. The multiple layers within a city ensure the generative modules that can be rearticulated in the subsequent built developments. Generative geometry here introduces a pool of nameable physical forms (buildings, streets, topography) that can be deconstructed and reused to produce further geometries. Rather, urbanization as an ever-expanding system is not generative. It consistently proliferates built elements that do not offer a system of layers to be decomposed. This conflict results in two formal conditions: compound shape as a city and a fractal as the urbanization. The present form of Ankara demonstrates both proliferating geometry and fractal shape, which is dramatically different from the city form in the early period of the Turkish Republic. This is also a result of increasing neoliberal interventions such as the execution of fast-profit projects (gated communities, towers, shopping malls, business complexes, mixed-used towers), regulatory modifications (villages transformed into neighborhoods), fragmented planning/construction, tremendous infrastructure (roads, bridges) (Batuman, 2020).

The last condition is the city as a historical and urbanization as a non-historical element. The city can be maintained through its history. The generative nature of the city originated in its history through construction purposes. Instead, urbanization has the capability to erase every piece that existed in history and abandon it as a forgotten part of history. This is because urbanization serves only consumption. The last fifty years of Ankara city form have been marked by a tendency to become a non-historical element. This is because the city form of Ankara is a consequence of both the contradicting planning decisions varying through the different periods and the neoliberal interventions of the government increasing the disruptions from the prior city form.

At the moment (2022), the impacts of urbanization in Ankara draw a picture that wipes out the richness of the city based on its nature (polarization, generative geometry, poly-nuclearity, transparency, historical, compound shape). **However, it is not clear yet whether it is still possible for Ankara to differentiate those features of the city or**

not. That is why the total mixture of physical forms, the nature of the individual pieces, and the way that they are coming together is still open to inquiry. Some of the features have been analyzed previously from a morphological perspective.[7] However, urban morphology as discourse is separated into different branches that approach those problematics from different perspectives (historical, political, economic, cultural, and formal). In this regard, this study fills a gap in the formal morphological framework within the body of knowledge to investigate the richness of the city.

The term "formal" does not have its usual connotation in this context. Rather, it depicts a concept of reading a city's design in terms of geometrical relations while excluding the rest of the determinants that make up a city. Indeed, one of the key analytical approaches in urban morphology is the conception of architectural form and its implementation as a criterion. In this respect, the formal morphological framework, which will be further elaborated on in this study, requires analyzing a set of independent components of the form: buildings, street networks, and topography, which are then investigated in their mutual articulation in the specific case of Ankara.

1.2. The Aim and Scope of the Study: Archipelago as a Proof of City

In line with the major problematics of the anti-thetical nature of the city and urbanization, this study first aims to find an analytical methodology that can read the impacts of this condition within a formal morphological framework. In this respect, it also aims to prove the tensions and contradictions between the city and urbanization through the case of Ankara. Accordingly, it is also critical to locate the study w ithin a conceptual framework that can manifest the contradictory conditions. There are radical

[7] See some of them that this study referred in following sources:

i. Cengizkan, A. (2000). Discursive formations in Turkish residential architecture Ankara: 1948-1962.
ii. Çalışkan, O. (2003). *Urban compactness: a study of Ankara urban form* (Master's thesis, Middle East Technical University).
iii. Çalışkan, O. (2013). Pattern formation in urbanism: A critical reflection on urban morphology, planning and design.
iv. Sargın G. A. (2012). *Ankara Kent Atlası*. TMMOB
v. Şenyapılı, T., Altaban, Ö., & Tekeli, İ. (2005). *'Cumhuriyet'in'Ankara'sı: Doç. Dr. Özcan Altaban'a armağan*. ODTÜ Yayıncılık.
vi. Yavuz, I. (2018). Calyx: *A geomorphological approach to formation of urban space in the context of Ankara* (Master's thesis, Middle East Technical University).

concepts that attempt to prove that. Within those concepts, this study aims to construct the analytical framework on the model of the ***archipelago,*** which is a theoretical concept, in order to express a set of different forms that complete each other on the same ground.

The term "archipelago" was first used by O.M. Ungers and Rem Koolhas as a metaphor to express the formal variety (polarization) of the city of Berlin in their thesis “The City Within The City: Berlin as a Green Archipelago”. It is critical here to explain what an archipelago is in brief. An archipelago is a metaphor to describe the architectural entities that appear as finite forms of aggregations, which correspond to the islands of an archipelago on a delimiting ground in a city.[8] So, the islands of the archipelago are systematic, self-sufficient, idiosyncratic structures, in other words, cities in a settlement.

It is mentioned before that differences between finite building aggregations are the essential features of the city in its definition. In this respect, it is critical to express and define the finite forms of those building aggregations to clarify the impacts of urbanization. Accordingly, the analytical methodology first aims at the characterization and description of polarized built aggregations in the city. This methodology is called morphological characterization in the literature. The main aim of morphological characterization is to identify areas that display a distinct character in a settlement (Kropf, 2011, p. 394). An archipelago, in fact, is a conceptual type of morphological characterization that also constructs a theoretical city confronting urbanization. One of the other purposes of this study is to provide a morphological characterization of Ankara by conceptualizing it as an archipelago. In this regard, the concept of the archipelago might give a means of determining tensions between the city and urbanization by defining its own islands, each with its own consistencies and inconsistencies within its form.

[8] The polarization through the identification of different islands is emphasized via the diagrammatic works conducted by O.M. Ungers and Rem Koolhaas in their collaborative seminal work, The City in the City: Berlin as a Green Archipelago. Whereas the islands correspond to the built forms, the ground becomes the landform that links the islands. Aureli says that while the islands were imagined as the city, the area in between was intended to be the opposite: a world in which any idea or form of the city was deliberately left to its dissolution (Aureli, 2011, p.225).

Morphological characterization requires the foundation of a language that establishes its own rules and grammar for the building aggregations.[9] In this respect, this research is an attempt to set those rules and grammar based on the reinterpretation of the archipelago as both a concept and an analytical tool. Yet, the contemporary city is so complex that it is difficult to hold on to one strategy for the set of grammar. Accordingly, one of the objectives is to achieve a hybrid morphological framework for characterization, which could fulfill the description of the current complexity level in a city. In this respect, the other objective of this study is to generate a catalog of urban form in line with a hybrid morphological framework that has been derived from several prominent works in the field. The catalog of forms will introduce a categorization of physical architectural entities, which vary in terms among the theories-*urban artifacts* by Rossi, *urban organism and nucleus* by Caniggia, and *island* by Aureli. The main impetus behind the production of this catalog is to ascribe a figure/idea/picture to the identity of built aggregations. As a result, this particular study aims to read the built form of the city against the geographical backdrop to code and decode its formal characteristics as well as inconsistencies between the urban components.

It has been mentioned before that Ankara has a fluctuating background through different planning periods that change the morphological dynamics within the city. In spite of the obvious urbanization character of the last 20 years of development (mainly forged by the dominant forces of neo-liberalism), Ankara still displays an incredible morphological richness that has been under construction for more than 80 years after the period of the Republican foundation. Therefore reading those forms today may offer the possibility to reactivate, and restore them to resist the overwhelming dissolution of contemporary urbanization. Accordingly, this characterization should be founded on a historical reading of different forms in the city. Consequently, the final objective of this research is to determine how Ankara may be conceptualized as an archipelago in order to forecast potential reactivations and development areas.

[9] A series of analytical maps were generated to extract the morphology of each island for Berlin regarding the following: building structure, axes, street systems, architectural objects, and nature (Hertweck, Marot, 2013, p.47).

1.3. Research Questions: Why do we need to define archipelagos of the cities?

Based on the problematics and the objectives of this research, there is a list of questions that have to be explored through this study. The main question is *"What could Ankara's distinct building aggregations/islands be as part of an archipelago?"* The question opens up a second methodical question, "How *can the archipelago of Ankara be defined based on a formal framework?".* The second question requires an answer to questions of *"What should the parameters be to define the islands of Ankara?" and "How to interpret the concept of islands based on the adopted parameters and indigenous form of Ankara?".* Towards the end of the study, these questions relate to two meta questions in the wider context of urban design "*How can the concept of archipelago provide/reveal the tensions between the city and urbanization in the depiction of a city form, Ankara in this case?*" and "*How to transfer a descriptive body of knowledge of an archipelago city into a generative/transformative framework for future explorations?"*

1.4. Methodology

To fulfill the abovementioned objectives, this study attempts to construct a methodology by interpreting the concept of archipelago. First of all, interpreting archipelago provides the inquiry of the way of defining indigenous islands to understand the city as an archipelago. In this regard, this research first elaborates the morphological concepts to develop a hybrid-morphological framework. Those concepts are mainly type, typology, typo-morphology, typological process, and archipelago, which will be elaborated within the theoretical framework, as the central approach of this study. Indeed, there is an extensive/huge domain of descriptive methods among morphological theories. Yet, certain parameters are put under examination to address this issue. In light of this framework, several data types are classified to achieve expressive/descriptive knowledge. According to this perspective, archipelago is regarded as a method that investigates the main/common morphological aspects of the islands that comprise Ankara's peculiar archipelago. Three major elements of a city set the data for this framework: buildings, street network, and topography.

The second step of this study is to construct the parameters to produce morphological characterization. Setting the parameters based on the hybrid morphological framework is critical within this study. It is mentioned before that the contemporary city is a complex structure that is difficult to characterize through one analytical framework. Accordingly, the set of parameters is formed as a **multi-scalar framework** under the significant influence of Caniggian methodology to interpret the urban form. Following this, a series of visual matrices, analogous to the exploration of geometries by O.M. Ungers, systematize the data within this multi-scalar framework. In this respect, the analytical method of this study benefits from two major morphological characterization methods: **hierarchical characterization and thematic characterization**. Those two methods will be elaborated upon, but it is also important to mention the difference between the two in brief. Hierarchical characterization is a method that reads the building aggregations/character areas in a systematic organization that can be deconstructed into its scalar components.[10] On the other hand, thematic characterization disregards the scalar components and concentrates on the geometric orders of either a building aggregation/character area or a building.[11] In this regard, the concept of archipelago is transformed into a methodology that could generate a taxonomy of the urban form.

Following this, one of the central problems related to morphological characterization is the interpretation of the data, which are buildings, street networks, and topography. However, it is also mentioned that to foresee the possible development strategies through this analytical reading, it is critical to conduct characterization based on a historical reading. In this regard, this study conducts a visual interpretation of each planning period in Ankara. Accordingly, the study will interpret those five planning periods (Hermann Jansen, Yücel-Uybadin, 1990, 2015, and 2025) through the visualization of master plan maps. However, it is not only the maps that this study benefits from set characterization. Both the structural and thematic characterization requires data on smaller scale elements in the city. For this, the study makes use of detailed drawings of small-scale strategies (drawings of campuses, districts, buildings,

[10] Scalar components here represent an orders of components from bigger scale to smaller (such as building aggregation, network of building blocks, building block, and building)(mostly based on Caniggia's typological theories)

[11] The geometric order here represent the deconstructable shapes of building aggregations: linear, circular, rectangular (mostly based on O.M. Ungers, Colin Rowe, Aldo Rossi)

and building complexes) proposed through each planning period. Gestalt methodology becomes the main tool that facilitates the abstraction of the built-form data of Ankara. Indeed, a set of abstractions is conducted through a series of diagrams constructed in a gestalt fashion and the use of 3D modeling.

After the interpretation of data, producing a catalog of character areas is one of the main objectives of this study. Yet, it is also important to define them based on a set of constraints. In this respect, taxonomy will be the major methodology of this study. After this step, to achieve generative inferences through this taxonomy, the study will produce a transformative visual matrix system that matches different conditions.

1.5.Structure of the thesis:

This study is composed of six chapters. As an introduction, the first chapter attempts to briefly clarify the major problems observed as a research gap and the objectives via certain methodologies.

The second chapter, firstly, constructs the theoretical framework of this study through a brief literature review that points out the major morphological concepts adopted in this study. After the clarification of the significant theoretical concepts, the second chapter also introduces the hybrid morphological framework that this study produced in light of those concepts. Since this hybrid morphological framework is constituted through the interpretation of theoretical concepts by the author, a list of adopted morphological terminologies is presented. Based on this terminology, which will be elaborated in the second chapter, the archipelago islands are named the *assembly* for Ankara. Through the use of those terminologies, the study constitutes a set of parameters -which this study calls *urban conditions*- to conceptualize Ankara as an archipelago.

The third chapter is an introduction to the city form of Ankara as a catalog of the archipelago. Through this catalog, the third chapter proposed site-specific terms that identify Ankara's cataloged *assemblies*. This identification provides a categorization as a result of the detailed analysis of Ankara’s present morphology based on the set of parameters mentioned as the urban conditions in the second chapter.

The fourth chapter appears to monitor the evolution process of the assemblies considering the urban conditions in Ankara. This process is followed through selected different planning periods in chronological order, which Ankara has experienced. Indeed, this chapter presents a series of visual diagrams for each planning period to compare the urban conditions of cataloged assemblies. In this regard, the fourth chapter is divided into six sub-chapters, which investigate each planning period.

The fifth chapter introduces an evaluation and synthesis of the analysis of the assemblies of Ankara through a list of *formative projections* based on the information revealed in the third and fourth chapters. The *formative projections* appear to achieve the main aim of this study: to reveal the contradictions between the city and urbanization and foreseeing the potential reactivations and transformations. It is a chapter as a proof that the concept of archipelago turns into a tool that can reveal the tension between the city and urbanization as well as becoming a descriptive tool. In addition, the fifth chapter proposes a methodology that could visualize and conceptualize the transformation strategies by constructing a *generative matrix*.

Lastly, **the sixth chapter,** which is the conclusion of this study, illustrates a set of determinations striving to open up new discussions for further studies.

CHAPTER 2

2. Composite Morphological Matrices as a Descriptive Tool

As mentioned earlier, one of the main objectives of this research is to achieve a morphological characterization of Ankara by conceptualizing it as an archipelago. The initial step to construct this characterization is to constitute a hybrid morphological framework. There are certain reasons behind constructing a hybrid morphological framework. First, the city form has been interpreted from different perspectives to produce analyses that precede the design. Urban morphology is divided into multiple branches. Whereas some of the branches have similarities, some contradict each other.

Typology is the main tool that morphological frameworks benefit from. The initial discourse encompasses all the different perspectives under a classification of morphological features of the city in the history of architectural theory. Indeed, typology is the main practice for morphological characterization. However, typological practices vary according to the definition of their subject. The subject here represents the urban form. In other words, the city form does not generally illustrate the same sense among the theoreticians. The subject of typology may appear in different descriptions of city form (building footprints, building elevation, street layout, street network, landform, topography...). Those different descriptions are the result of contradictions and analogies that each morphological stance expresses. Jacoby (2013) states that the distinction, misunderstanding, and synonymity of types as a concept or model result in the constant modification and appropriation of their meanings. Jacoby (2013) further highlighted those diverse definitions are observable in the pursuit of historicist and normative types considered as immutable models capable of restoring received forms.

In this regard, this study constructs its hybrid-morphological framework by eliminating specific definitions and focusing on certain typological concepts that meet the idea of autonomous form as retrospective and prospective. From this perspective, the framework attempts to isolate itself from the other determinants (sociological, political, economic, and historical) without discounting their importance. Within the typological concepts adopting the autonomy of form while defining the city form, certain scholars' (Durand, Aldo Rossi, O.M. Ungers, G. Caniggia, G.L. Maffei, P.V.

Aureli) definitions constitute the dominant part of the hybrid morphological framework. Whereas some of those scholars (P.V. Aureli and O.M. Ungers) inspired the primary conceptual framework with their theories on city form behind this study, some (G. Caniggia and O.M. Ungers) established the methodological terminologies of this study. Accordingly, this chapter first illustrates the major concepts (type and typology, autonomous and persistent form, process-based typology, and typology as theme) that those scholars developed to define the city form and the background of the autonomous form.

Another common ground of those selected typological concepts is their tendency to *structuralist* approach. *Structuralism* here shows a phenomenon that constructs common rules and principles, attributing the complexity problem to the nature of relations rather than materials (Marzot, 2013, p. 281). However, it is not possible to identify the selected typological concepts as sole structuralist theories. Rather, some of the mentioned scholars (Rossi, Ungers, and Caniggia) can be identified as being under the influence of *structuralism* when constructing their typological discourse.

Subsequently, by producing its hybrid morphological framework, this study also constructs its terminologies for typological analyses, which are adopted from the mentioned concepts. It is appropriate to describe those terminologies as structuralist typo-morphological terminologies depending on the majorly adopted methods of typology. Following this, this study generates a comparative matrix under the influence of a composite morphological framework as an illustration of structural analysis of the city form.

As a result, the first step is to present an overview of selected typological concepts.

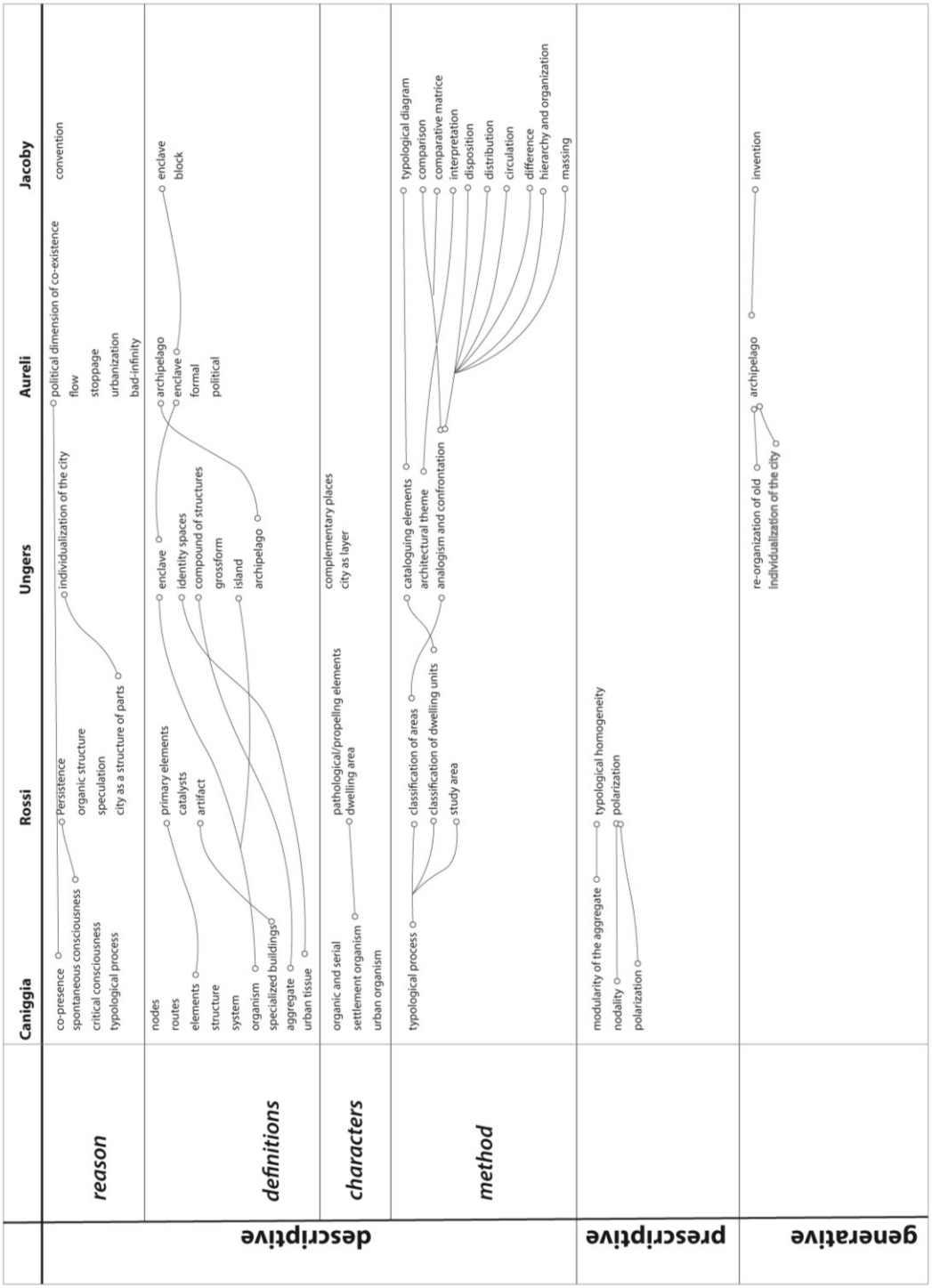

Figure 2. 1. Classification of adopted theories in this study

2.1. The Overview of Morphological Terminologies/Concepts in History

2.1.1. Type and Typology:

Typology is the science or discourse of types (Lee, Jacoby, 2011, p. 17). In this respect, it is important first to clarify what the word "***type***" depicts within architectural and morphological discourse. The definition of the type first appeared formally in architectural discourse through Antoine-Chrysostome Quatremère (Lee, Jacoby, 2011, p. 17).

"The word type presents less the image of a thing to copy or imitate completely than the idea of an element which ought itself to serve as a rule for the model."

Dictionnaire d'architecture

In this respect, what is critical to comprehend here is that type is not imitating or copying the formal structures of architecture. Indeed, type is a set of constraints/rules for the model productions. The word "model" is critical at this point. A set of constraints should be repeated in a series of built forms until they constitute a model in the history of built forms. In architecture and urban morphology, the model corresponds to the specific buildings, street networks, and building aggregations, whereas the set of constraints means particular repeating characteristics common to those built forms (buildings, street networks, topography).

Durand, who can be counted as a former of Quatremere, initiated typology as a specific discourse which the subsequent generation, including Muratori, Caniggia, and Rossi, expanded its content and execution in different ways. Although he never mentioned the word type (Lee, 2020, p. 167), he constructed a rational discourse that systematizes architectural knowledge to find an analytical way of designing buildings (Lee, 2020, p. 169). Here, architectural knowledge, which corresponds to the knowledge of models, is the main element setting the constraints of a type. Indeed, it is important to clarify how Durand introduces this systematic discourse. The systematization process began with his architectural composition manual, Precis des lecons d'architecture (Petruccioli, 1998, p. 10). The manual was prepared to provide a clear method of teaching design to the students at Ecole Polytechniques in Paris (Petruccioli, 1998, p.

10). Indeed, he proposed three stages of systematizing models to lead into the designing process. Those three stages, which go from part to whole, are the study of the architectural elements, which are walls, openings, columns, structural parts, slabs, roofs, and vaults (Lee, 2020, p. 187), and the assembly of these elements into systems, and the adaptation of a formal scheme to designated use (Petruccioli, 1998, p. 10). The analytical system that Durand found requires mainly the extraction of certain elements from architectural models and their recomposition into different versions to produce new models. This is the main process that all the descendants of Durand -Caniggia, Rossi, Ungers- practiced and developed those stages in different ways. This research also follows this to reach the generative narrative from the descriptive narrative.

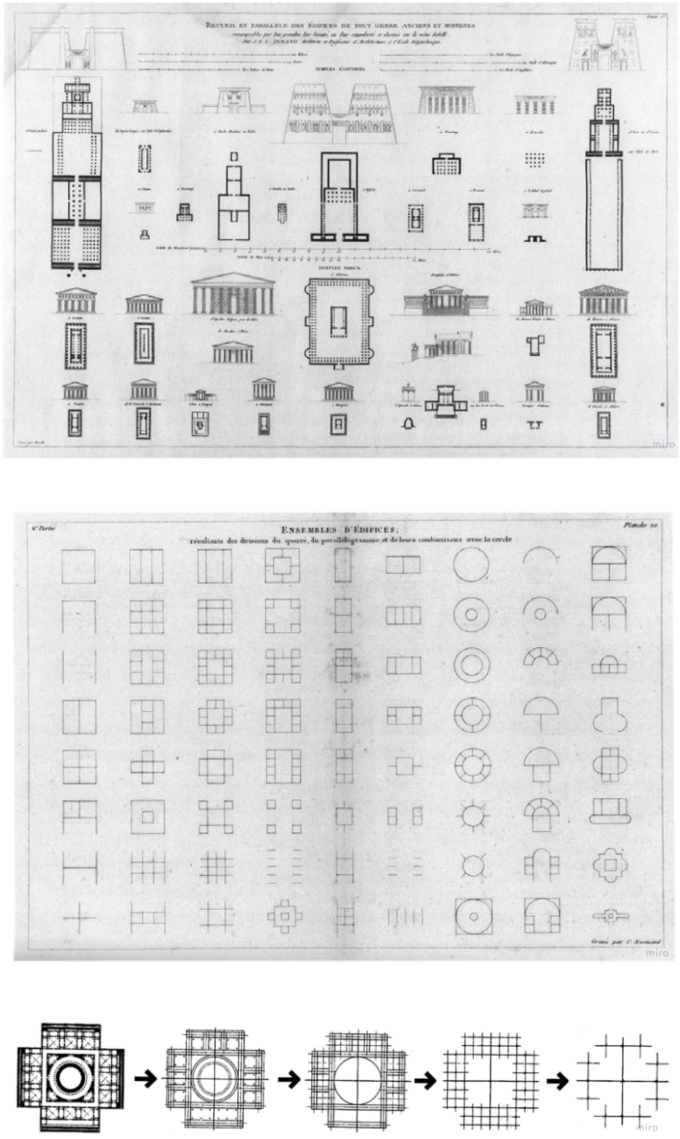

Figure 2. 2 Durand's drawings of typological studies (Source:Jacoby, S. (2013). The reasoning of architecture.)

Based on three stages, typology here constructs three methodological elements: cataloging the types, classification of constraints, and recomposition of constraints. However, cataloging typologies under specific titles bring into question how to categorize and catalog the types. Indeed, the history of typological discourse reveals inconsistencies in the categorization of buildings (formal, functional, historical, political). Durand's method was to first collect the buildings according to their functions, such as churches, temples, theaters, etc, -that construct the type- then classify them based on their geometric and compositional rules: round shape, rectangular shape, horizontals-that constructs the constraints. However, this method has transformed over time through the contributions of different scholars. This resulted in a major perspective division between the scholars as they adopted functional and formal approaches (Petruccioli, 1998, p. 10). It is not correct to define Durand's method as based on a sole functional approach since he also classifies the architectural elements according to the geometry at a secondary phase. At this point, it is significant to mention where/when, and why a strict division between functional and formal categorization emerged.

2.1.2. Autonomous and Persistent Form as a Model in Typological Discourse:

Typology as a concept/discourse begins with the systematic organization of architectural knowledge. However, the urban morphology includes a much bigger organism, the city. Accordingly, the description of urban form becomes critical to selecting the elements to be extracted from the city. The definition of urban form represents inconsistencies among scholars depending on the embraced perspectives (Kropf, 2014, p. 43), which will be elaborated on subsequently.

What initiates the division between the formal and functional categorization is Aldo Rossi's contribution of the term "***urban artifacts***". Durand's architectural models correspond to the artifacts. However, there is a differentiation in the categorization of artifacts. Rossi categorizes artifacts regardless of their function. His definition of artifacts as types finds themselves on the secondary classification parameter of Durand, which is geometry. Instead of categorizing buildings regarding their function, Rossi believes in the ***autonomy*** of architectural form. It is difficult to clarify the autonomy of form from one perspective since the autonomy of form originated from

the idea of ***persistent forms***. So, it is critical first to explain the persistent forms before mentioning autonomy.

The persistent forms originated in Rossi's definition of **persistency**. Accordingly, the history of a city lies in the persistence entrenched in its elements. Indeed, the turning point here is recognizing that persistency in a city is maintained through building forms instead of functions. Even though the function and some elements of a building change, the essential form of a building remains nearly the same and continues to perform in space. Rossi goes further on the theory of persistency and categorizes the buildings into two types of persistency. He argues that cities tend to remain on their axes of development, maintaining the position of the original layout and growing according to the direction and meaning of their older artifacts (Rossi, 2007, p. 59). In this case, he differentiates the persistency of the urban elements as *pathological and propelling elements*. While the pathological corresponds to an element that has been modified in its function but still performs in its physical form, the propelling represents the element that keeps its vitality in terms of both function and physical form. In both cases, persistency is related to form. In this way, Rossi justifies/legitimizes the persistent architectural form as an urban artifact that is the component of a city to be extracted.

In this regard, the persistence of form enables architecture autonomy. Yet, this autonomy should not be considered an independent feature from other influential factors in the development of a city. The autonomy of form, indeed, lies in the fact that the architectural form is a depiction of all the other determinants (history, culture, politics, economy) in one solid object. The urban artifacts of Rossi are the complete/end/finished models in the process of transformation within the city. According to Rossi, the city/architecture as a form maintains its principles of such determinants in a city through its unique formal language, which is different from the exact principles of those determinants (Marzot, 2014). An artifact as an autonomous and persistent form is capable of fulfilling its function of serving and resisting the changing conditions of a city through its complete model. That is why it constitutes its grammar and language through architectural form. Accordingly, the formal categorization, that takes its essence from Durand, begins to find its definition in the history of architectural theory. However, this concept opened the doors to different inquiries and concepts of autonomy within the formal approach.

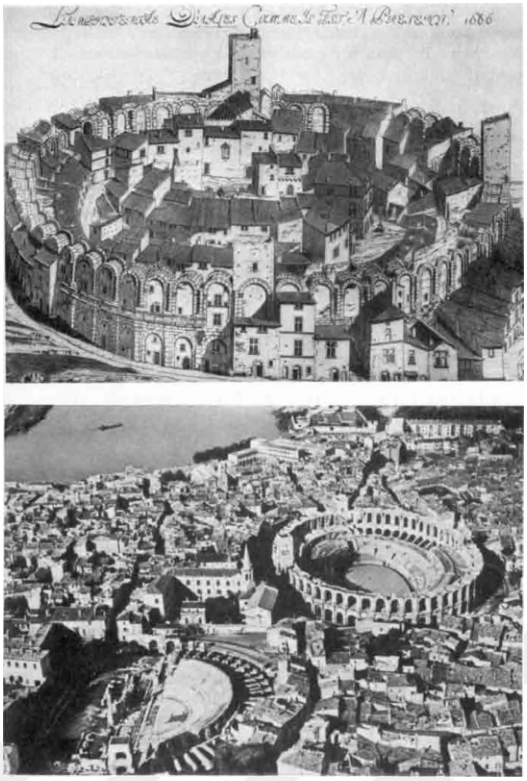

Figure 2. 3. Arles, the Roman Theatre.Example for Rossi's concept of persistent forms. (Source: Marzot, N. (2014). Beyond the typological discourse: the creation of the architectural language and the type as a project in the western modern city.

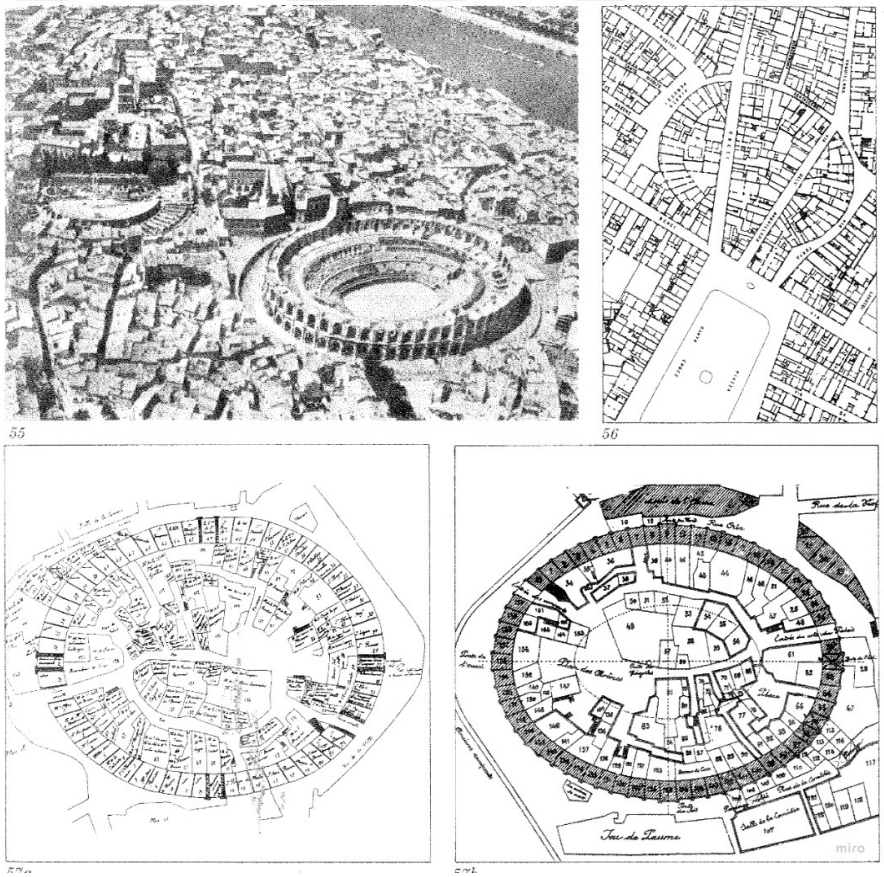

Figure 2. 4. Examples to urban artifacts which are persistent elements in city according to Rossi (source: Rossi, A. (1984). *The architecture of the city*. MIT press.

First of all, "urban artifact" was a term corresponding to the permanent monuments and public buildings that resist the transformation in a city since they are the essential and unique forms/models that actually resist the transformation. In this respect, they represent an eternality that means they could become a model through their formal constraints at any time in history. By contrast, the residential building aggregations, to Rossi, have always been faced with an inevitable transformation in cities which resemble an ephemerality. However, it is not always the case in the contemporary city, which has resulted in the appearance of different concepts. Indeed, the description of autonomous form through urban artifacts causes an inconsistency within typological discourse. In this respect, Rossi responds to the need for a formal definition of categorization instead of a functional definition. Yet, within the formal categorization, his approach leads to an essential question in the contemporary city: “What is the essence of permanent form?"

Marzot (2014) states that what Rossi missed out through his typological reading is the conceptual and material connection between residential aggregations and urban artefacts, and the aggregative systems that become essential factors for various manifestations of building. Indeed, an aggregative system including urban artifacts may also be permenant forms within a city.

Rossi’s initial idea was to found and represent the city’s own language and grammar through autonomous urban artifacts.[12] However, there is an ambiguity within the definition of city form through artifacts. In fact, they were limited to expressing the city form since the artifacts were the formal depictions of public monuments and buildings. As Marzot (2014) pointed out, the city’s own language should inquire into the nature of aggregative systems as well. The street network, topography, and residential buildings, which are the essential elements of aggregative systems, were somehow outside the formal pursuit of Rossi. In this respect, they became open to exploration in time. Indeed, the relative and subsequent typological concepts needed an explicit description of both the city forms and their elements. In this regard,

[12] “If we want to briefly sum up the essential objectives of Aldo Rossi’s work, we can say that he sought constantly for a logical foundation for architecture outside history - even though the history of urban artefacts served him to find confirmation of the existence of first principles - even though his definition of the city as an “artefact” presupposes the existence of an artisanal logic of continuous adjustments” (Marzot, 2014, pg. 339)

different concepts of city form as a persistent element in the city appear in the discourse.

2.1.3. Different Dimensions of Persistent/Autonomous City Form:

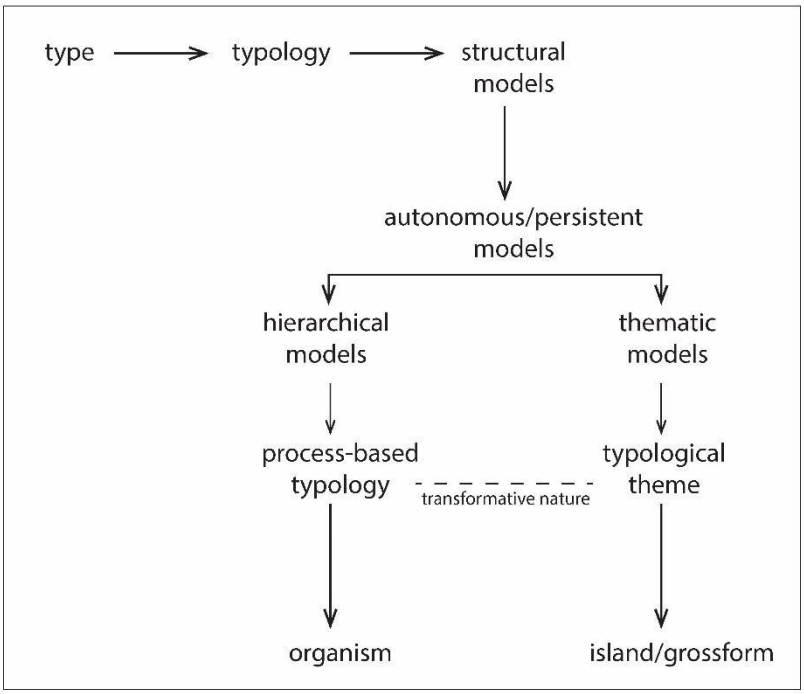

Figure 2. 5. Typological concepts based on the persistent forms

The process of determining a consistent definition of city form as a reference key is a step toward formalization, and it is important to place that step in context and define what the outcomes may represent and claim to do (Kropf, 2014, p. 43). In this respect, before referring to persistent city form definitions, it is significant to clarify concepts related to typology and urban morphology that this research adopts. Two effective typological concepts that could fill the blanks that Rossi's artifacts opened up within the city form, appeared in history through Gianfranco Caniggia and Oswald Matthias Ungers. Both theoreticians approach forms of the city from a structuralist perspective (Marzot, 2014), yet in different manners. Whereas Caniggia sets a hierarchical structuralism for city form, Ungers constitutes a conceptual structuralism within the analytical side of typology.[13] Indeed, the first concentrates on the residential

[13] The classification of both theoretician as structuralist and the work thematic structuralism is originated from Marzot. On the other hand, the phrase "hierarchical structuralism" is a merge of both Kropf and Marzot's expression on the description of Caniggia's approach. Kropf, K. (2014). Ambiguity in the definition of built form. Urban morphology, 18(1), 41-57. Marzot, N. (2014). Beyond the typological discourse: the creation of the architectural language and the type as a project in the western modern city.

aggregations as part of the city form and explore what is missed in Rossi. By contrast, the latter expands the definition of urban artifacts in different terms that could include aggregative system relations as well. However, before mentioning their methodologies on defining and analyzing city form, it is significant to point out the common concepts that constitute the basis of both perspectives.

There are two major dimensions that the ambiguities within the definition of artifacts directed those two theoreticians into two central concepts based on the autonomy of form. The first one is linked with the relationship between history and types, whilst the second is about the fragmentariness of the city through artifacts.[14]

The gap within the relationship of types with history is, in fact, accomplished through the concept of ***process-based typology***.[15] In contrast to urban artifacts, the typological elements of process-based typology are residential areas. Since the definition of artifact strictly depends on the resistance of a form against transformation in a city, the residential aggregations, as built forms which are always exposed to transformation, were excluded from the definition of autonomous forms by Rossi. Also, a residential building as isolated from its aggregative system in its own form represents a conventional form that makes it difficult to assign a formal character. However, there is a different aspect of residential aggregations that constitutes a particular/different kind of definition for both persistence and autonomy of form. This kind of persistence appears within Caniggia's work of typological analysis. It is critical here to define what process-based typology is.

2.1.3.1. Process-based typology:

Process-based typology is an exploration of the development process of residential aggregations. It primarily originated in the work of Italian architect Saverio Muratori, but it was developed best by Caniggia who studied under Muratori (Kropf, 2009, p. 111). The methodology they developed attempts to fill in architectural knowledge and proposals through an investigation into the detailed structure and historical process of their formation (Kropf, 2009, p. 111). It is mentioned before that a residential building is a conventional form that Rossi excluded from autonomy. However, an aggregative

[14] The word fragmenteriness is used as a theme by O.M. Ungers, which emerges from Aldo Rossi's conception of "city by parts"(Marzot, 2017, p. 84)

[15] Maffei, G. L., & Caniggia, G. (2017). Interpreting basic buildings. *Interpreting basic buildings*, 1-240.

system that residential buildings reside in is a much more complex system that generates and constitutes its own rules of development/growth in time. Process-based typology, in fact, as a result of the recognition of those rules' specific persistence, improving specific strategies against transformation.

This persistence, in fact, was expressed through two particular types of consciousness by Caniggia. Indeed, Caniggia explains the evolution of the architectural form as dividing it into two stages depending on the two types of knowledge: spontaneous consciousness and critical consciousness (Caniggia & Maffei, 2017, p. 39-40). The word consciousness, indeed, corresponds to the builders' and planners' specific state of consciousness in the process of construction and planning. The spontaneous consciousness represents the state of consciousness in which building and planning strategies turn into a praxis/practice which sets rules and codes of construction at the hand of builders. At this state, the praxis/practice represents the persistence of formal building and planning strategies. In Caniggian way of terminology, the aggregative system of residentials is realized through spontaneous consciousness, and residentials are named spontaneous buildings (Caniggia & Maffei, 2017). Yet, the formation of spontaneous consciousness requires a process that modifies the formal dynamics within the aggregative systems. The change in formal dynamics is a consequence of critical consciousness intervention.

In this regard, critical consciousness illustrates the state of crisis within different periods of spontaneous consciousness. This state is a realization of the need for alteration within the building and planning strategies when the spontaneous consciousness does not work within the transformation process of the city. Caniggia (2017) calls this state a codification crisis as well since the codes by praxis/practice rules turn into uncertainties at different periods.

On the other hand, the process of spontaneous consciousness represents a hierarchical system that generates structural codes and rules in the minds of builders and planners during the formation process.[16] Those codes and rules are the elements that develop in time. They resist the time as well as develop in it after the rules acquired its complete

[16] The hierarchical system corresponds to the evolution of codes under an hierarchy of process and scale. The more information will be further elaborated. Yet, in brief, Caniggia defines this hierarchy as following: buildings as smallest and first units, structures as alignment of buildings on a route, systems as the repeated aggregations of buildings and routes, organism as the aggregations of different systems. (Kropf, 2014)

version. In this respect, they become constraints that provide some formal persistence within the residential aggregations.

At this point, process-based typology is a method of investigation the codes as products of both the spontaneous and critical consciousness in the historical evolution of aggregative systems. It is a search of already existed hierarchical codes embedded in the residential aggregations through spontaneous consciousness and codes under development through critical consciousness.

In addition to the fact that those codes represent a unique persistence in city form, they are linked with the artifacts of Rossi, which correspond to the specialized buildings of Caniggia. The hierarchical codes of aggregative systems influence the formal development of artifacts within the city. This is because the aggregative systems become both inclusive and restrictive/limiting in the presence of artifacts. The definition of artifacts was generating an ambiguity in relation to history since it excludes the inclusive and restrictive nature of the aggregative systems. In this respect, the historical ambiguity that artifacts cause as terms is resolved by the process-based typology of Caniggia. In both concepts of *persistence* and *consciousness*, it is clear that the way to comprehend the city is to extract the elements that are persistent and have become persistent through a spontaneous consciousness.

Until this point, it is appropriate to claim that despite Rossi's differentiation of formal approach, Durand's functional classification was still valid in its elementary version, which still separates residential aggregations from public buildings, in both persistence and spontaneous consciousness.[17] Although the persistence of form is explicit in both ways of formal exploration, in fact, this condition causes further ambiguities related to the notion of autonomous form. The existence of a basic separation causes a single-sided description of the autonomous form, which explores the form of either residential aggregations or public buildings. In this respect, O.M. Ungers takes a step further in the formal approach. He develops another concept that wipes out the basic functional division and attempts to clearly define the form as a unique language. This concept,

[17] The residential aggregations and public buildings corresponds to residential organisms and specialized buildings in Caniggia's process based typological approach, whereas, in Rossi, the first corresponds to dwelling areas and the latter is represented by artifacts.

which is typology as a theme, treats both physical forms of the city as fragments of a city regardless of their scale and structural elements.

2.1.3.2. Typology as Theme

Typology as theme has emerged as a concept that attempts to achieve an autonomous language of physical form. It has been mentioned before that Rossi's autonomous forms were valid for public buildings and monuments, which are urban artifacts. In addition, process-based typology as a concept was proof that aggregative systems, regardless of the artifacts, maintain a specific persistence, gaining their autonomy. However, both were a depiction of form autonomy in partial system of a city. This partial system was a dual functional partiality through the separation of residential and public buildings. Accordingly, the autonomy of form was under an ambiguity that maintains the functional separation. However, this partial autonomy is mainly due to the differentiation of building scale factors, which influences the resistance of form against the transformations in a city. There is a major scale difference between the residential buildings constituting aggregative systems and public buildings. Based on the scale factor, residential buildings can be identified as microforms, whereas public buildings correspond to a city's mega forms. Whereas microforms were seen as tending more to transform, urban artifacts were resistant to transformation at the building scale. Until the concept of typological theme, their scale difference resulted in the reading of formal composition in two different ways: hierarchical in process-based typology and geometric through artifacts.

In this regard, O.M. Ungers laid the foundation of ***typology as theme*** through a series of works including both aggregative systems and public buildings. The prior objective of the appearance of typology as theme was to emphasize the architectural form as an autonomous/independent language, capable of communicating ideas, which are themes, that precede and condition it in its element selection and inner articulation constraints (Marzot, 2014, p. 352).

Typology as theme is not a historical concept as process-based typology. It is critical here to clarify what the theme means in typological discourse. The theme is an abstract term in order to collect all the initial ideas, illustrations, and content of an architectural form (building, building ensemble, city) under one analogous figurative object. Indeed, the theme corresponds to the archetype in typological discourse but under sole

geometric principles. Yet, the geometric aspect of the theme is different from Rossi's artifacts, which also adopt geometry. The transformative nature of geometry is essential to Ungers' theme rather than the artifact's persistency. The word "theme" first appeared in O.M. Ungers' book "Architecture as Theme" in 1982. In this book, According to Jacoby (2013, p. 282-283)

> O.M. Ungers states that morphological transformation is instrumental to conceptualise and visualise the necessary abstraction through rational and iconographic themes. Transformation is the fundamental dialectical design principle and can be 'seen as a process that exerts a determining influence on creative thought, since not only does it inform thought as far as contrast and alternatives are concerned, but above all with respect to complex interdependencies and correlations.

In this regard, the theme is autonomous but also demonstrates persistency through its transformative processes, which are similar to process-based typology yet differ from Rossi's persistence of forms.

First of all, the theme might vary according to subjective decisions. That is why it is better to clarify its use as a constraint through different examples. The very primitive version of the theme as a constraint appears through the artifacts of Rossi. Yet, what Rossi did was collect all individual architectural themes under one big title as artifacts, constant forms in a city. Ungers distinguishes various themes in his works as individual types, not as models of a theme artifact. On the other hand, a former example of architectural theme as a constrain may be assumed as Collage City of Collin Rowe. What Collage City did is more close to typological themes. It extracts individual buildings or aggregative systems regardless of their functions from their context, which represents a complex form, and names them according to their stimulative forms, in other words, themes. At the end of the book of Collage City, we are able to see a series of typological themes through specific illustrations: memorable streets, stabilizers, set pieces, splendid public terraces, ambigious and composite buildings, the garden, nostalgia-producing elements.[18] They are not only visual reinterpretations of the object and the ground. In fact, each of them symbolizes a spatial condition in a

[18] More information can be found in Rowe, C., & Koetter, F. (2013). Collage city. In *The Urban Design Reader* (pp. 198-217). Routledge.

city. Also, substantially, they depict the new definitions/descriptions of subsequent urban form and found a new grammar of language as generating new rules of themes, the transformative nature.

O.M. Ungers, by the time, had developed series of projects in both architecture and city scale. Indeed, he carried the typological theme a step further. The first introduction of theme appeared in the term Grossform, which he mentioned in a lecture on housing 'Grossformen im Wohnungsbau', in 1966 (Jacoby, 2016, p. 272). "Grossform"[19], which means megaform in the literal sense, does not represent the actual mega structures. It is described by formal articulations rather than the scale (Schrijver, 2021, p. 72). Here, formal articulation is a crucial word in terms of the explanation of a theme. Indeed, it is a metaphorical depiction of a structure that has achieved self-sufficient complexity in its geometry and form regardless of its scale (Schrijver, 2021). In this definition, Ungers removes the distinction between residentials and public buildings by ignoring the scale difference to achieve complexity. Yet, it is critical to define self-sufficient complexity. Associated with this, it has its own criteria to achieve self-sufficient complexity: *the existence of an over-accentuated/prominent element, connecting element, the existence of figure and theme, and an ordered principle* (Hättasch, 2016, p. 61).

According to Ungers, those four criteria reflect themselves through the characteristics of four dominant architectural typologies: *wall, street, plateau, and tower* (Jacoby, 2016, p. 272). It is a system of terminology that depicts the formal articulation as architectural themes. What is critical here to clarify is the figure and theme criteria. It actually represents the thematic depiction of the architectural object. For example, a wall is a depiction of a solid linear building or series of buildings that symbolizes a boundary.

The over-accentuated element is an architectural typology that can thematize the whole structure through its form. In this respect, wall, street, plateau, and tower become the over-accentuated elements of a gross form. Indeed, the variation in typology can be expanded through the unique typologies visible in different cities as Ungers did in his book Architecture As Theme. **The figure and theme** represent the

[19] The word Grossform, in fact, was previously proposed by Ungers' erstwhile teacher Schweizer in his book on the architectural Grossform, that also discusses the responsibility of architecture as transcending common considerations of function(Schrijver, 2021, pg.71).

thematic depiction of the architectural object. For example, the wall is a depiction of a solid linear building or series of buildings that symbolizes a boundary. **The connecting elements** are the routes, and streets that the buildings are bounded. **The ordered principle** is a systematic combination of the over-accentuated and connecting element. In this respect, it may refer to the principles that lies in the articulation form of aggregative systems.

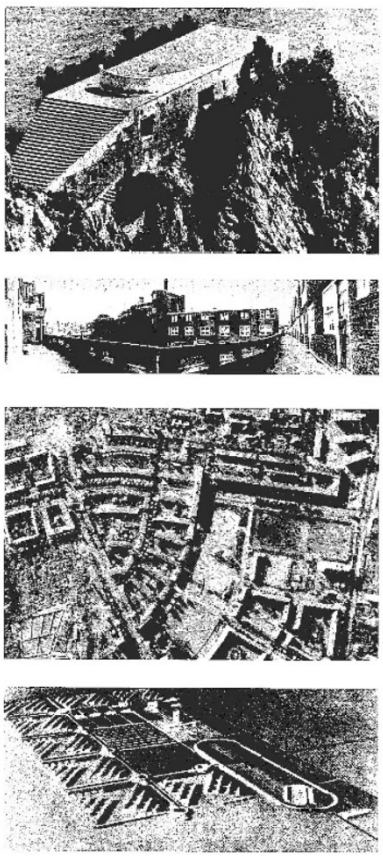

Figure 2. 6. Projects that Ungers defined as Grossforms (Source: Schrijver, L. (2021). *Oswald Mathias Ungers and Rem Koolhaas: Recalibrating Architecture in the 1970s* (p. 206). transcript Verlag.

Following this conceptual approach, Ungers proceeded with the development of the idea “City as a Metaphor”. The city in his definition, indeed, corresponds to the Grossform. In 1970, within the projects that he developed with the students, we are able to see different architectural forms as thematic cities: Adaptable City, Instant City, Pretty City, and Dense City (Pierron, 2021, p. 189). There is here a distinct style of thematic description from Grossform. In addition to the form articulation, the aggregative system configuration comes into play when constituting typology as a thematic discourse in "City as a Metaphor". The words such as adaptable, and instant illustrate transformative tendency of those systems as well.

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Figure 2. 7. Thematic projects of Ungers (source: Pierron, T. J. B. (2021). *Architecture, environnement et artefact total: la ville selon Reyner Banham et Oswald Mathias Ungers* (No. THESIS). EPFL.)

On the other hand, The City in the City: Berlin As a Green Archipelago[20] arises in 1978. It is one of the radical works he completed with Rem Koolhaas on the way of reaching the maximum borders of the thematic classifications on the city scale. Similar to the artifacts, the islands of an archipelago were in fact the thematic Grossforms of Berlin. All those islands had a name according to their theme of a form: Linear City,

[20] More information can be found in Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city.

Amphitheatre City, Mini-Manhattan City, Radial City, Cathedral City, Boulevard City, Grid City, Castle City (Hertweck, 2013). Although it seems as if there is no particular decision on the thematic rule at first glance, all those themes, city names, either evoke a complete form of a project or describe the growth pattern of an aggregative system. In fact, on the contrary to Rossi and Rowe, O.M. Ungers attributed theme two certain constraints: the form of the complete piece as an object, the growth form as an enlarging aggregative system.

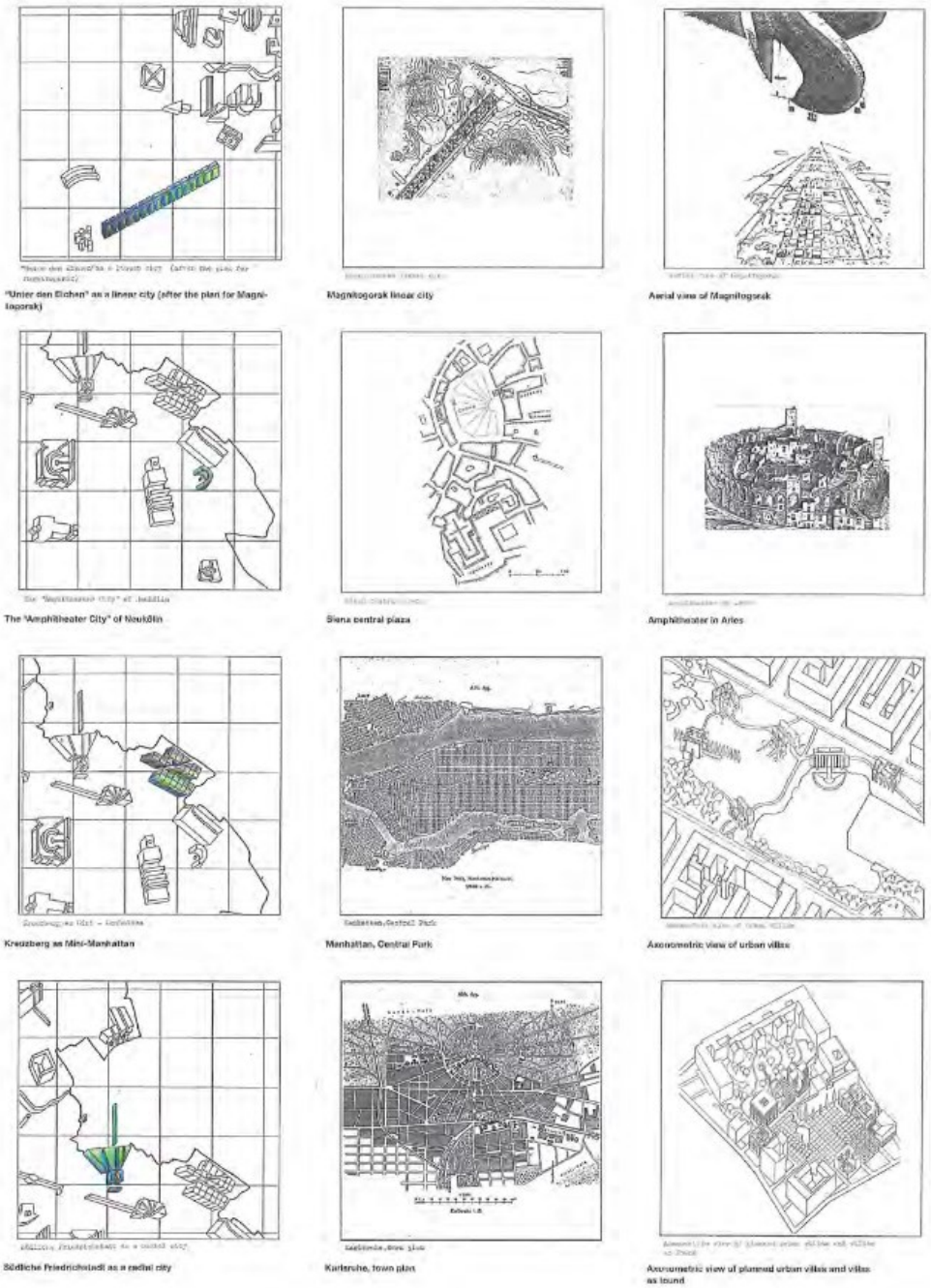

Figure 2. 8. Islands of Berlin in "The City in The City: Berlin as a Green Archipelago"(source: Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with

Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).)

Within all those typological themes, the autonomous language of form is constituted through analogies between the architectural form and form. Typology does not call for other descriptions from other disciplines (functional, sociological, political, and economic). Instead, the form defines itself by the terms within architectural forms. Accordingly, through the typological theme, form constructs its language and grammar. This is, in fact, another dimension of persistence and autonomy of form. In this way, typological discourse founded its formal methodology, which began with Durand, regardless of function.

2.1.4. Definition of City Form Based on Process-Based Typology and Typological Theme

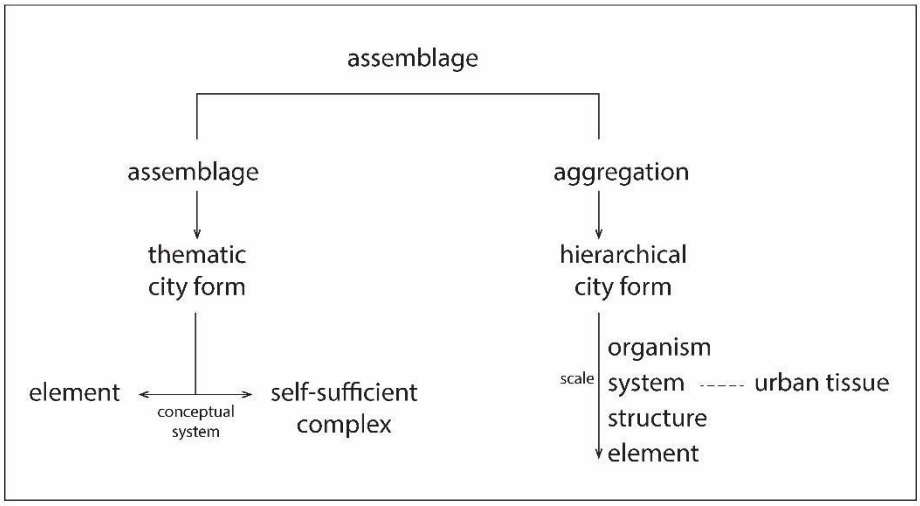

Figure 2. 9. Assemblage and aggregation as typological concepts

Typology is a tool to conduct morphological characterization of a city. Indeed, morphological characterization requires a consistent definition of city form. It has been mentioned before that typological discourse differentiates between formal and functional approaches, which attempt to constitute definitions for city form. We also know that the formal approach separates into different branches according to the definition of autonomous form.

Within those branches, process-based typology and typology as theme are the ones that prominently set a clear definition of city form within themselves. Although they also represent some inconsistencies within the element definition of city form, it is critical to represent the clear methodology of both concepts produced. In fact, the description of city form based on those two concepts can be clarified by the two major

metaphors of city form in their own interpretation of autonomy and persistency: ***assemblage and aggregation.*** It has been mentioned before that both process-based typology and typology as theme discuss the persistence and autonomy of form in different ways. Both seek autonomy of form, yet in different types of articulation as aggregative systems (mainly representing residential aggregations) and self-sufficient built forms (including all types of composition). In this respect, whereas the city form in process-based typology corresponds to aggregation, the description of city form in typological theme becomes a representation of assemblage.

It is critical here to look at the original definition of both assemblage and aggregation. The term *assemblage* is defined as a work of art created by grouping together "found or unrelated objects" in the Oxford Dictionary (Strappa, 2020, p. 185). Unrelated objects as a phrase are critical in this description of the typological discourse. Autonomy of form that was adopted by typology as theme, which is rooted in urban artifacts and Collage City, is an interpretation of unrelated objects in the definition of assemblage. Ideally, where self-sufficient built forms correspond to unrelated objects, the city as a collection of autonomous forms becomes the assemblage. In this regard, the city form, which is an assemblage, can be defined through the detection of unrelated/self-sufficient objects in a typological theme.

On the other hand, *aggregation* is described as "*an organized collection obtained by the conjunction of specific elements*" (Strappa, 2020, p. 185)[21]. In this definition, "organized collection" is crucial as a phrase. This is because, in general, the word "organized" represents a hierarchy within the elements of a collection. In the theory of urban morphology, this term plays a fundamental role (Strappa, 2020), which was developed by Caniggia as a process-based typology. In this respect, it is appropriate to claim that an aggregation, which corresponds to city form, can be defined through hierarchical relationships in process-based typology.

Under the depiction of city form as assemblage and aggregation, the city form's elements are described in two methodologies: hierarchical definitions (within process-based typology) and thematic definitions (within the typological theme).

[21] Also, it is stated that "The late Middle English term derives from Latin aggregatum 'shepherd together', from the verb aggregare: ad- 'towards' and gregem 'flock': joining the flock, unite with a constituted group" in Strappa, G. (2020). Assemblage and aggregation. Reading the ancient city and urban composition methods. *URBAN MORPHOLOGY*, *24*(2), 184-199.

2.1.4.1. Hierarchical Definition of City Form in Process-Based Typology

It is mentioned before that process-based typology searches for the codes within the aggregative systems that descend from a spontaneous consciousness. In this respect, the main impetus is to characterize aggregation types, which come through different moments of spontaneous consciousness, in a city (Caniggia and Maffei, 2017, p. 102). Describing aggregation types requires the knowledge of relationships between a series of micro-scale buildings, which correspond to the residential buildings in history, on a larger scale (Caniggia and Maffei, 2017, p. 102). In fact, the relationships between buildings in aggregative systems generate a network, which means a system of connections. From here, Caniggia describes an aggregative system as an "organism", consisting of a systematic connection of cells**.** Accordingly, hierarchical definition intervenes to determine codes within the aggregation at this point. The analogy between a biological organism and aggregative systems reveals the hierarchical nature of aggregates.

Indeed, this is not the initial work of starting to read the city form within hierarchical relationships. There was also a common recognition, before Caniggia and Maffei, in urban morphology, that the elements of the city are connected to one another in a hierarchical order (Kropf, 2014, p. 44). This recognition dates back to Muratori. Yet, Caniggia and Maffei accomplished to set certain/clear parameters to be able to define the city form as composed of hierarchical components. They describe the city form through scalar components that aggregate in a hierarchy as if studying an organism composed of bones, organs, and cells from whole to part. The hierarchy in aggregation originated from the scale differences related to an organism. In this respect, they differentiate four scalar components that constitute an organism from part to whole: ***elements, elementary structures, structure systems, and system organisms*** (Caniggia and Maffei, 2017, p. 63). It is a bottom-up approach that separates the organisms into their smallest units from a structuralist point of view. At this point, defining what those components correspond to in city form is critical.

In a city, streets, districts, and building blocks in order correspond to the bones, organs, and cells of an organism in the hierarchical definition. In this regard, elements as the smallest components in the organism represent the buildings composing the cells of an organism. Elementary structures, in fact, are the cells that constitute the type of

aggregate. They are building groups, in other words, building blocks, consisting of a series of similar elements (buildings), which are the products of the same spontaneous consciousness, aligned on a street. The structure systems are the districts that emerged through the aggregation of elementary structures (building blocks). As a result, the organism is a town of the historical cities composed of a network of structure systems (districts). Each structure system (district) can be defined as unique aggregative system of a town since their pattern through street networks will be differentiated from each other.

It is mentioned before that typology is a science of types, and types are the constraints obtained through the models in typological discourse. The model corresponded to the buildings in Durand's typological methodology, whereas it became artifacts in Rossi. In the hierarchical definition of city form, the structure systems (districts) and organisms (towns) indeed become the models for the aggregation types. In this regard, there are two main constraints defined in process-based typology: ***urban tissue and route (street) patterns***. Caniggia and Maffei differentiate urban tissue as a type of organism. Urban tissue, ideally, is associated with the elementary structures (building blocks) in a settlement aggregation. Yet, it has a specific description in process-based typology. A group of buildings clustered in a specific way (row, etc.) on a route (street). On the other hand, route (street) patterns depict different articulations of the urban tissue in a structure system. Different route patterns generate diverse structure systems in an organism (town).

2.1.4.2. Thematic Definition of City Form in Typological Theme

The typological theme was developed to a great extent by Ungers' series of theoretical projects on both architecture and the city. Therefore, in the thematic framework, the definition of city form finds itself mainly through those works. In this respect, the city form can be explained through the most common initial ideas and concepts of those works from a thematic perspective. It is mentioned before the names of the works related to the city form (City as Metaphor, Dialectic City, The City Within The City: Berlin as a Green Archipelago, Grossform, Architecture as Theme). Within all those works, there is an initial idea that collects them under one common feature: a self-sufficient complexity in form that is independent of the scale. O.M. Ungers interprets architecture as an archetype of the city and its elementary type composing a

morphological complex across scales (Jacoby, 2013, p. 276).[22] As well as each architectural typology has a theme as an archetype, within the works of Ungers, the city represents one specific theme by its nature in Ungers' projects. As an archetype, the city adopts the metaphor of "assemblage". It is critical here to refer the similarities between the city and assemblage in definition through Ungers' recognition of the city.

Assemblage is described as a composition of unrelated objects in the dictionary, as it is mentioned before. According to Ungers, a unified image of the city is impossible to achieve through suspending architecture and the city in a stable condition (Jacoby, 2013, p. 283). Instead of a unified image through persistence, the formation of the city appears through discontinuities, superimpositions, and complexities, in other words, as "coincidence of opposites" that are technically useful to design, emerging through a process of transformation (Jacoby, 2013, p. 283). In this respect, the theme of assemblage meets a collection of fragments, a collage of unrelated objects, undergoing transformation constantly (Jacoby, 2013).[23] From this perspective, the typological theme inherits one feature of process based typology in the description of city form: autonomy of process-based codes.

While the city form corresponds to the assemblage, it is equally important to note what the fragments belong to. The elimination of scale factor in theme interferes here in the typological discourse. The description of the fragments clarifies the independence from the scale. In reality, depending on the amount of complexity, a theme may occur in even the tiniest buildings. In this regard, the phrase "The City within the City," which is the name of Ungers' radical project that analyzed Berlin as a coincidence of opposites, captures this independence from scale. The city is a product of theme assemblage while the fragments of this assemblage also represent their individual themes. In other words, the city form is a model of "The themes in the theme, the cities (fragments) within the city (assemblage)". In this regard, fragments compose an assemblage. On the other hand, a fragment might be comprised of one building, building ensembles, or building aggregations that represent unique themes. The series

[22] Sörgel and Alberti's concept of morphological compartition and analogy of the 'large house' as a 'small city' was an initial inspiration to this concept (Jacoby, 2013, pg.276).

[23] It should be noted that the college of unrelated objects should not be confused by College City of Colin Rowe. Although, Ungers' works were influenced by College City, the fragments of Ungers are more contectual than the architectural figures and textures of Rowe. See in Jacoby, S. (2013). The reasoning of architecture, pg.283.

of works Ungers did were the expression of endless individual variations, fragments (Marzot, 2014, p. 352). In this regard, it is appropriate to claim that O.M. Ungers defines the city form as a network of themes.

The theme, in fact, reads the city form as an assemblage comprised of geometric components rather than the scalar components as process-based typology defines them. Yet, geometric components should not be recognized as fragments of assemblages. Instead, the geometric components are the built elements/forms that individuate each fragment as themes. Since each typological theme assigns each fragment of the city a unique representation of geometric articulations, it is difficult to formulate city form as Caniggia did through the organism. Ideally, it does not have specific definitions of the geometric components of the city form, as Caniggia and Maffei described through process-based typology. Each theme illustrates the unique geometric articulation and components of an archetype. In this respect, geometric components precede hierarchical components in process-based typology somewhat.

For instance, what Caniggia and Maffei defined as an organism, in fact, can be named as one of the themes in a historical city. Also, this behavior of organisms might represent analogies with one building rather than aggregations. In other words, an organism's theme and codes of an organism might appear in a building. In this regard, the hierarchical definition can be counted as one of the expressions of geometric components existing in a city. From this point of view, as well as the organisms of Caniggia and Maffei, the urban artifacts of Rossi may correspond to one of the themes alive in a city. On the other hand, there might also be hybrid versions of organisms and artifacts through different themes.

Although there is no common formula for the geometric principles and components of a theme, Ungers follows a consistent methodology to extract each fragment's unique themes in a city. This methodology lies in two dialectic strategies in the book Dialectic City: ***complementary places and city as layers*** (Ungers, 1999, p. 18). Indeed, both strategies complement each other in a series of architecture and urban design projects. Ungers states that the city is composed of “complementary places” which are comprised of the largest possible variety of different parts (Ungers, 1999, p. 20). Ungers (1999, p.20) explains the main idea behind complementary places as follows:

> *"Every part has its own special features, without however being complete and self-contained. In each case only one aspect, residential, cultural or commercial, is highly developed and therefore combines with other highly developed places to form a complex system, a kind of federation. Examples of complementary places are the historical city, but also the new settlements on the periphery, whether industrial estates or large recreational areas. The places are structured hierarchically. Some are more, others less important. Their value derives from the place itself not from any idealized concept of it. That is why any form of building, highrise or low-level, large-scale or solitary, is possible."* [24]

Indeed, morphological characterization of fragments, at the maximum variation, in a city illustrates complementary places as a method. What is essential in this methodology is the top-down approach. Top-down approach means recognizing first the fragments that are complementary by looking at the whole city and then characterizing it. It is appropriate to claim that the city as a layer is the characterization methodology of those fragments. "City as layers" is a structural concept that separate and isolate different layers of a city (Ungers, 1999, p. 21). Ungers states that cities are comprised of superimposed layers which are either complementary or opposed (Ungers, 1999, p. 21). Indeed, this approach is similar to how Caniggia defines scalar components through the combination of two layers: buildings and streets. Yet, Ungers expands the variation of the layers since the themes do not only cover the aggregative systems, but are unique. In this respect, street networks, parks, water, greenery, and buildings constitute the complex structure of the contemporary city (Ungers, 1999, p. 21).

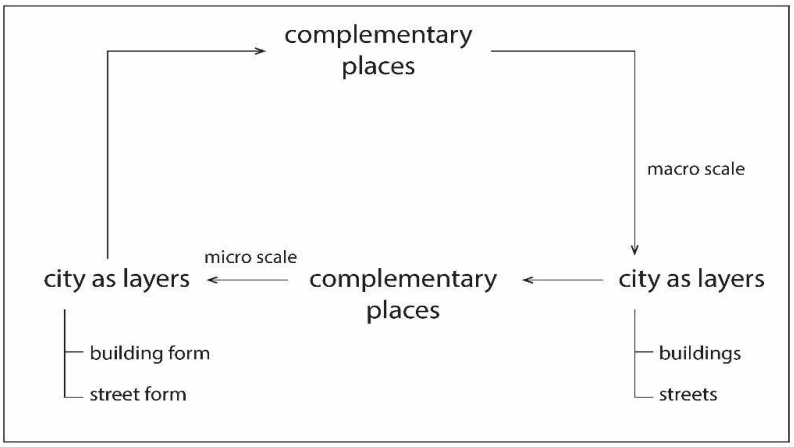

Figure 2. 10. Order of two strategies: complementary places and city as layers

[24] Ungers, O. M., & Vieths, S. (1999). *The Dialectic City*. Skira-Berenice.

2.1.5. Archipelago as Descriptive and Transformative/Generative Typological Theme of a City: Depiction of Complementary Places and City as Layers

The archipelago as a theme is a 'system of fragments,' an interpretation that Ungers worked on for many years, that negotiates the difficulty of generating a feeling of community that may transcend the simple individual without eliminating the capacity for individuation (Schrijver, 2021, p. 65). It embodies the two principle nature of the city as a symbolic version of the term assemblage. First, ideally, it is a way of materializing the city fragments to confront the absorbing forces of urbanization. The second is the concrete depiction of complementary places as generative/transformative forces in the city. Aureli (2011, p. XI-XII) stresses the descriptive and prescriptive nature of the archipelago as follows:

> *The concept of the archipelago describes a condition where parts are separated yet united by the common ground of their juxtaposition. In contrast to the integrative apparatus of urbanization, the archipelago envisions the city as the agonistic struggle of parts whose forms are finite and yet, by virtue of their finiteness, are in constant relationship both with each other and with the "sea" that frames and delimits them. The islands of the archipelago describe the role of architectural form within a space more and more dominated by the "sea" of urbanization. The islands are framed by this sea, yet their formal boundaries allow them to be understood as what frames and, to a certain extent, (re)defines the sea between the islands. Such an act of framing and redefinition consists not in the imposition of a general principle or of an overall norm, but in the strategic deployment of specific architectural forms that act as frames, and thus as a limit to urbanization.*

It is critical here to clarify that the sea of urbanization corresponds to the contradictory forces of urbanization against the city itself. Also, the words "framing" and "redefinition" depict the descriptive and generative features of the archipelago. Through defining islands (themes of fragments), the archipelago assigns the different parts of the city geometric and spatial principles.

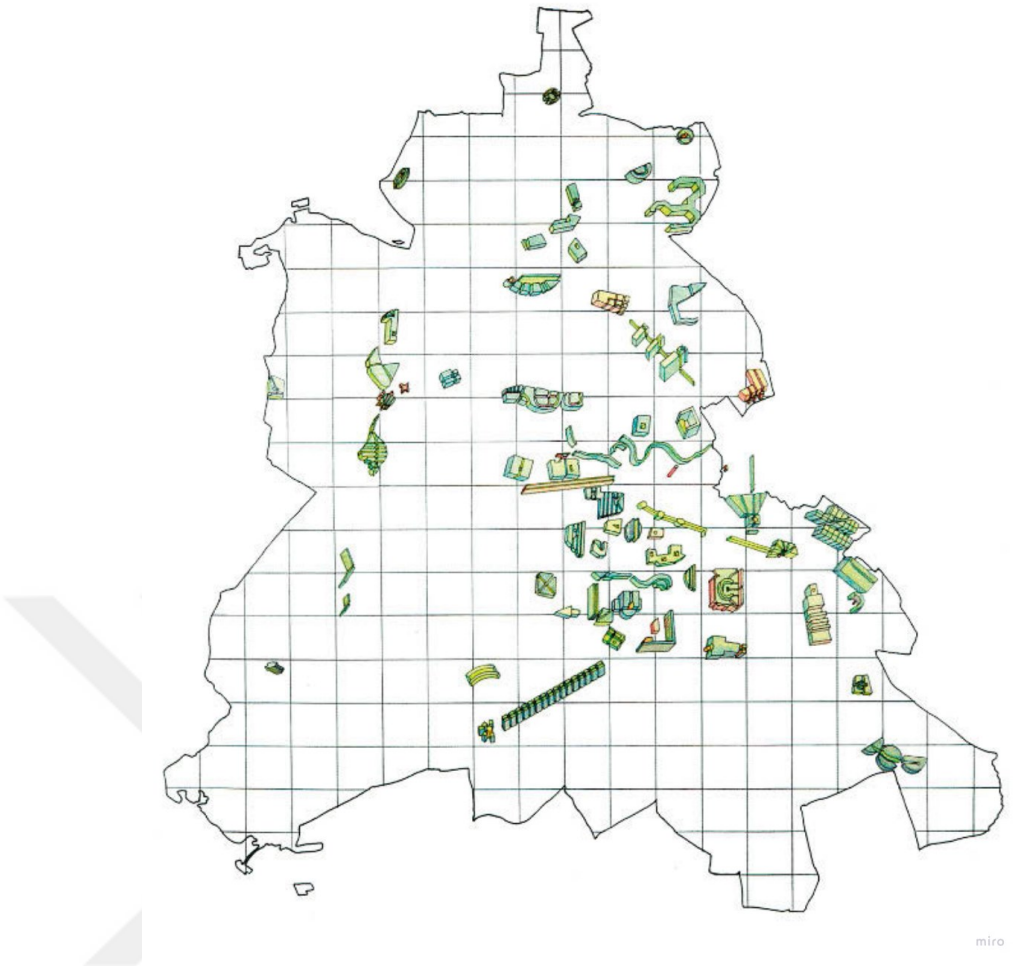

Figure 2. 11. Archipelago of Berlin by Ungers and Koolhaas (source: Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).

Figure 2. 12. Island forms of Berlin by Ungers and Koolhaas (source: Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).)

It has been mentioned before that the term "archipelago" was used as a metaphor to describe the fragmented nature of the city form by Ungers and Koolhaas in The City in The City: Berlin as a Green Archipelago. In fact, it is not only a metaphor, the visualization of a city as an archipelago turns it into a method towards generative archetypes. Although the theme might appear as a subjective term, the diagram of the archipelago sets a consistent methodology. The City in the City: Berlin as a Green Archipelago as a thesis constructs its methodology through a series of illustrations. The thesis benefits from the two strategies through a typological diagram, which Ungers proposed in Dialectic City as *complementary places* and the *city as layers*. In this way, The City in the City bridges the gap between analyzing the present city (in this example, Berlin) to derive 'urban rules' and projecting important urban conditions for the future (Schrijver, 2021, p. 65). Indeed, it is a characterization through a visualized catalog of Berlin's islands (fragments) in 1977 based on individual themes. In this respect, it is important to briefly clarify the background of this project before discussing the methodology.

The thesis led by O.M. Ungers was proposed by a group of architects -including Rem Koolhaas, Peter Riemann, Hans Kolhoff, and Arthur Ovaska- in 1977 (Aureli, 2011, p. 178). At the time, Berlin was a postwar city -experienced the destruction of the Second World War- which had to encounter an ongoing urban crisis by the separation of East Berlin -the capital of the Democratic Republic of Germany- and West Berlin -the eleventh state of West Germany- was encircled by a borderline wall (Aureli, 2011, p. 177). At the time, West Berlin was a city that consisted of isolated buildings, which seemed like islands, swimming in the vast tracts of empty space after the devastating war, and it was depopulating (Aureli, 2011, p. 177).

In addition to the architectural condition of the city, the dominant trend in urban design was the concept of "*urban repair*" (Hertweck, 2013). According to the group led by Ungers, urban repair implies an unlimited desire for ever more housing, ever more stores, and ever more social services in each urban site, which may then be manifested by a simple operation, the building of a more healthy urban fabric (Hertweck, 2013, p. 20). From this point of view, urban repair was a concept that legitimized the forces of urbanization in opposition to the nature of the city. In the thesis, urban repair was expressed as an assumption that additional and supplementary construction might preserve and maintain historical episodes of the city (Hetweck, 2013, p. 88). In other

words, it was a concept that left the historical parts alone and continued to fill the vast tracts between the isolated buildings (islands). In this respect, the urban repair could easily become a threat to the city's historical identity since the construction process might result in uncontrolled growth. Accordingly, it was described as an illusionary concept that aims to repair the city to transform it into its former historical substance and configuration, yet this might result in a misunderstood nostalgia (Hertweck, 2013, p. 88). Also, for a city that was under depopulation, this attitude could have consequences in a nonoperative strategy.

In this respect, Archipelago as a concept was proposed as both a reaction to urban repair and an urban design strategy that could reactivate the historical nature of the city. The reaction was a radical model of "*disurbanist*" strategy or "*urbanism of negative urban growth*" for designing the city (Hertweck, 2013, p. 7). "The disurbanist strategy" or "urbanism of negative growth" here should not be understood as a devastating strategy towards the city. Instead, it is the recognition and identification of the original elements in the city that could be transformative models when necessary. According to the group proposing the thesis, the isolated buildings within the vast empty areas provided a powerful model of a "city made by islands" (Aureli, 2011, p. 177). Through the identification of islands, it was attempted to prevent uncontrolled growth, which could result in real devastation because of disregarding the originality of the inherited parts of the city. Following this, The City in the City: Berlin as a Green Archipelago reflects the antithetical nature of the city and urbanization.

On the other hand, what is more important to clarify is the materialization process of those ideas. The transition from the descriptive to transformative framework reflects by a bilateral methodology. The bilateral methodology appears as a verbal and visual taxonomy. Through a visualized catalog, the project discusses eleven theses on the architectural condition of Berlin. In the illustration of islands, analytical maps, and visual matrices -which have been mentioned before- intercede. Analytical maps -defined as the *decomposition and recomposition of West Berlin* in the exhibition of the Project- are differentiated by the gestalt illustrations of both isolated layers and superimposed combinations of those layers that constitute the city structure. The isolated layers were high-density areas, water, streets, objects and axis, and islands (mini-cities), whereas the superimposed combinations were as follows: objects and water, objects and streets, islands and water, islands and streets, islands and objects,

and finally islands, water, objects and streets (Hertweck, 2013). The analytical maps are not only the separation of structural layers in a city, such as total figure-ground drawings of all buildings. Instead, they initially generate a descriptive typological diagram through the demonstration of islands and objects as city layers. This, in fact, corresponds to the concept of *complementary places*, mentioned before. In this respect, those maps impose a crucial responsibility to select and extract the districts (islands) in the city which are easy to distinguish in terms of form. Ungers and the group call those islands "identity-spaces" since they stress the significance of the selection criteria of islands that possess clearly recognizable characteristics to rationalize their preservation. (Hertweck, 2013, p. 94).

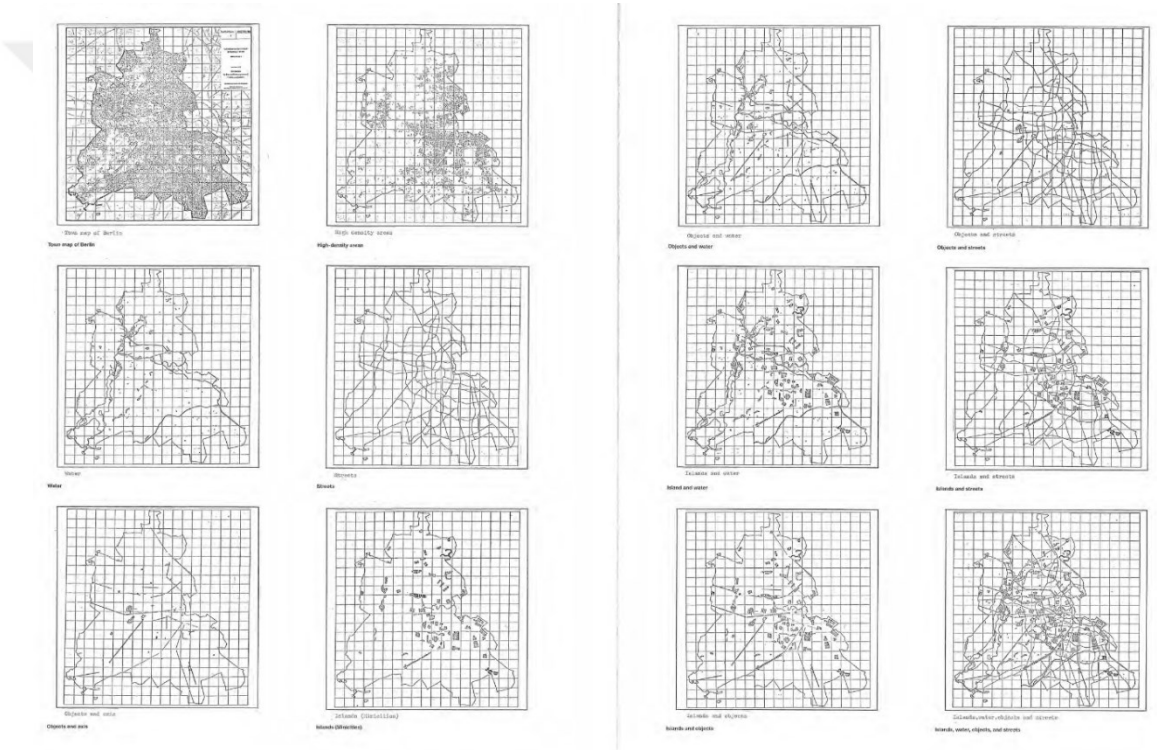

Figure 2. 13. City layers of Berlin by Ungers and Koolhaas (source: Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).)

On the other hand, the thesis presents a visual matrix of each island under the name of *"Morphological sequences."*. Indeed, this episode of the catalog legitimizes/justifies the reasons behind the selection of the islands through a series of diagrams. The visual matrix constructs an organized analogy with the identified islands of Berlin as well as the justification. Whereas the rows of the visual matrix represent each island model, the columns include a series of illustrations of those islands in two parts. The first, which is the justification, demonstrates in order an aerial photo of the island located, a

plan of the location, a figure-ground of the building structure of an isolated island. The second, which is identified as an analogy, shows in order an axonometric drawing of the island, a plan of the analogical project, and a perspective representing the sample project. Analogical projects, in fact, facilitate the transformative framework. This is because, although the fact that each island has a figure and a theme is proven, they are still complementary places that are and will be under transformation. In this regard, the analogical projects become instructive projects to derive the potential complementary elements for each island.

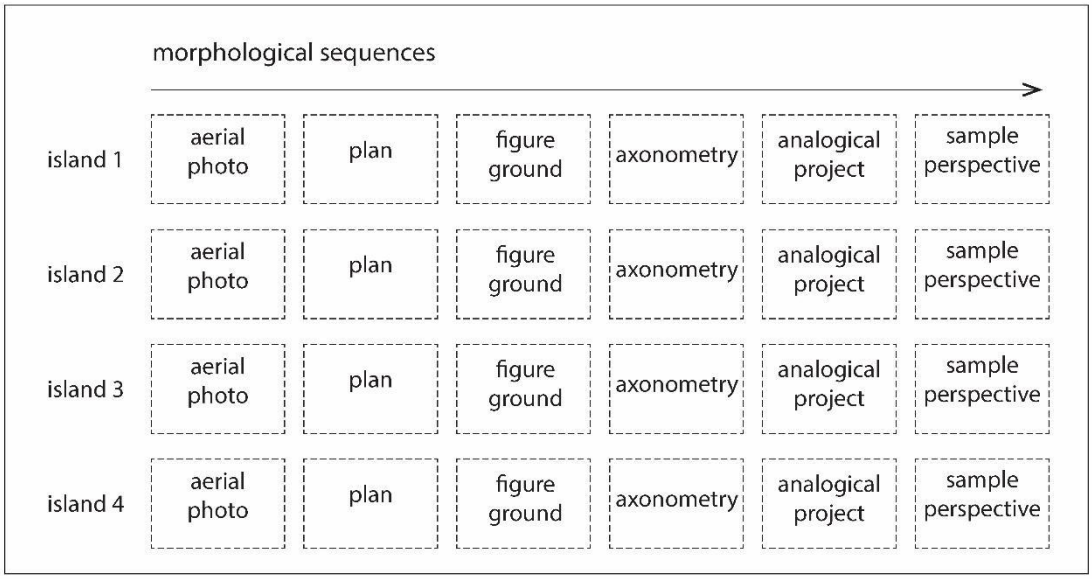

Figure 2. 14. The order of morphological sequences as a matrix

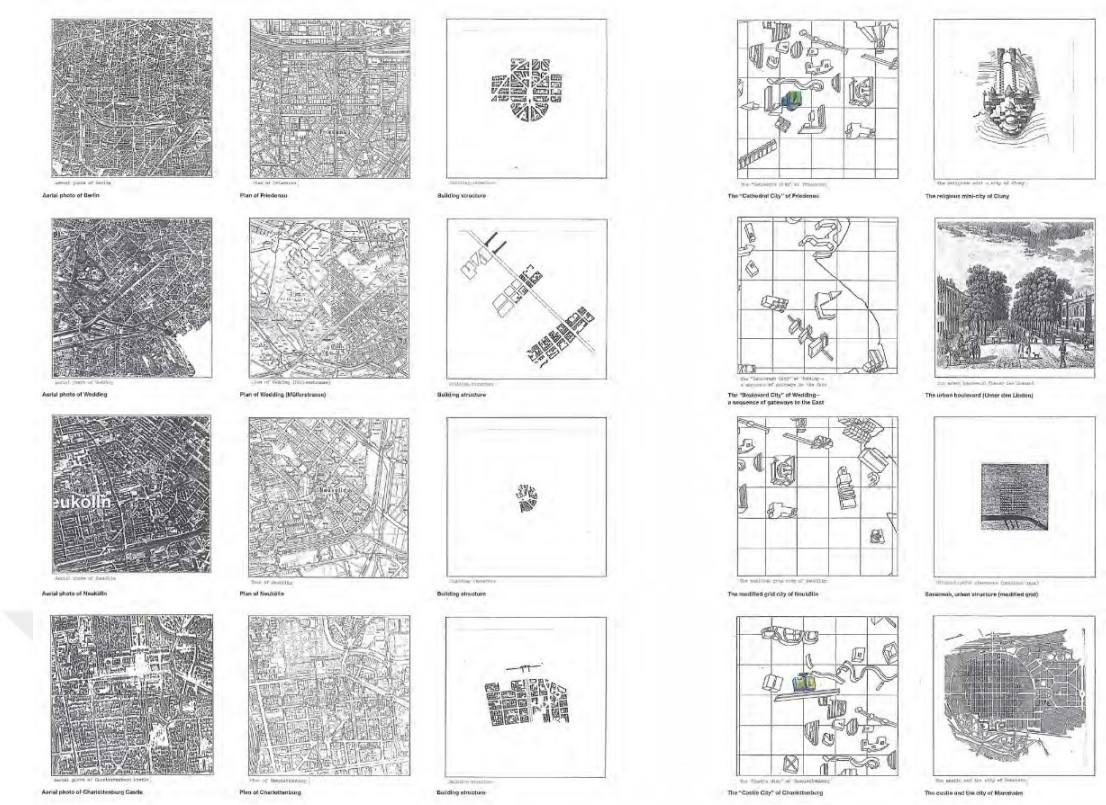

Figure 2. 15. Part of *morphological sequences* matrix for Berlin by Ungers and Koolhaas (source: Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).)

Each island is a model for a theme, archetype while the analogical projects proposed for each island are also associated with the same themes. This is ideally the realization of an attempt to construct an autonomous language for the city form. Archipelago is an assemblage of fragments that are open to consistent transformation with their own language. As a consequence, the thesis is a presentative example of a typological theme as a methodology, which uses typology as both descriptive and transformative through a formal framework.

2.2.Hybrid-Morphological Framework: Multi-scalar Diagram

This research is an attempt to produce a city narrative from descriptive to generative through the construction of a hybrid morphological framework. This hybrid framework establishes its own terminologies based on the typological concepts that were able to illustrate an autonomous language of form. In this respect, the framework is a systematic/analytic composition of both process based typology and typological theme. Within both, the typological diagram has a significant place in the constitution

of the autonomous language. In this respect, this study benefits from the morphological and typological diagrams to assemble the two typological approaches to each other.

It has been mentioned before that both concepts separate from each other at a major point: the scalar approach. Whereas typological theme adopts a multi-scalar approach originated in Ungers' typological studies (Jacoby, 2013), process-based typology follows a hierarchy within the defined scalar components. This differentiation lies on the relationship between the terms "assemblage" and "aggregations". Indeed, typological theme reads the city as an assemblage of both assemblies and aggregations-which represent mainly two different scale relationships within their components-, although it was not mentioned. In this respect, the hybrid framework of this study mainly posits itself on the typological theme which becomes inclusive of the hierarchical definition of aggregative systems in process-based typology as a sub-theme of assemblage. Yet, it is critical here to detail the word multi-scalar.

The multi-scalar as a term embodies two crucial factors in this study: ***an interscale morphological characterization of city form*** and ***the inseparable link between the main city layers across different scales***. The first is related to the two strategies that the typological theme follows. The strategies of 'complementary places' and 'city as layers' in typological theme cause this interscale characterization. Whereas complementary places as a strategy necessitate the selection of themes in a city at the beginning, a city as layers becomes both the initial and secondary justification of those themes. Indeed, both strategies require a back-and-forth analysis of city form. In other words, there is a recycling process of morphological characterization in between 'complementary places' and 'city as layers' through the scale. First, a city's existing assemblies and aggregations are recognized on a macro-scale through the isolated city layers, which are buildings, streets, and topography in our case. This step corresponds to the distinguishing of "complementary places" in a city. The second step executes the total depiction of 'complementary places' on superimposed layers. The third is the justification of the 'complementary places' on both mezzo and micro scales, again through isolated layers. The last step is constituted by a return to the complete picture of the city as an assemblage.

On the other hand, 'the inseparable link between the city layers', which are buildings, streets, and topography, is the reasoning behind the multi-scalar approach in this study.

Each layer is the major component, which integrates with each other in different conditions across the scales of an assemblage, as much as being the justification of the assemblage. A modification of each layer component on the micro-scale may influence the macro scale. In this multi-scalar nature of the city, a particular building type is integrated with a specific street layout on a micro-scale. Yet, the street layout may be extended on a macro-scale so that new building types may emerge based on the growth pattern of a street in an assembly or aggregation. Indeed, this could result in the transformation of an assembly type into a different theme because of the new typologies.

Both of the concepts-typological theme and process based typology- conducts morphological characterization through the typological diagram. In this respect, this research establishes a system of ***multi-scalar diagram*** which adopts the identification rules of both the mentioned concepts and merges them with secondary concepts-street patterns and landforms. The multi-scalar diagram provides the descriptive narrative to be transformed into a generative narrative. In this respect, the diagram itself, at different levels of scale, will be an illustration of a city form as a metaphor of archipelago. 'The City in The City: Berlin As a Green Archipelago' was one of the radical examples of a descriptive narrative towards the generative narrative. It is mentioned before that this study pursues the two main strategies -complementary places and city as layers- which The City in the City also applied. Yet, it should be realized that The City in the City becomes an inspiration for this study instead of serving as a formula to constitute a multi-scalar diagram. In this respect, it is critical here to clarify how this study understands both descriptive and generative narratives together with the concept of the archipelago as a city form.

2.2.1. Interpreting Archipelago as Descriptive and Generative Narrative Through Multi-scalar Diagram

From the long list of reasons, this research first considers the selected theoreticians' reasons before interpreting the archipelago. From the past to the present, the need to describe the city form has been shaped by the tension between the city itself and urbanization, as has been mentioned before. The elements of this tension are explained previously. Yet, within this history, those elements are expressed under different

terminologies and conceptions that resemble similarities with each other. The content of analogical conceptions sets themselves up for three main reasons:

1. The fact that a city is a structure of parts
2. The city is a product of a typological process
3. The persistence and autonomy of forms

Rossi describes the city as an entity constituted of many parts, which are complete in themselves (Rossi, 2007, p. 96). He calls this condition “the city as a structure of parts”. As it has been mentioned before, the city is a result of polarization between individual forms. Indeed, its nature lies in its fragmentation. This condition is termed co-presence of elements by G. Caniggia, compound of structures by O.M. Ungers, and co-existence of differences by Pier V. Aureli. In fact, they attempt to explain the multi-structural nature of the city.

Archipelago of this study is both a metaphor of the city form and an analytical tool through complementary places and the city as layers in the context of Ankara. It is a metaphor to express the “fragmentariness” of the city form. Accordingly, Typological theme demonstrates one significant fact about the city: The city as an archipelago includes both composite and homogenous fragments. Whereas homogeneous fragments correspond to the aggregations, composite fragments represent more of the hybrid version of aggregation with an artifact of Rossi. In this respect, composite fragments can also be defined as an assemblage. A fragment may be homogenous structures such as aggregations, which are constituted through the repetition of similar elements, whereas another fragment may be artifacts. Yet, a fragment may appear as a composite of "the aggregation" and "the artifact" through a unique composition/link of both. In other words, the islands of an archipelago are not always separable as aggregations and artifacts, as both Caniggia and Rossi did in the past. There may be a unique hybrid of both as fragments in a city, depicting distinct themes.

On the other hand, those aggregations, artifacts, and assemblages- as major titles of city fragments, are under constant transformation according to the reading of both process based typology and typological theme. In this respect, the fragments in a city are products of a serial transformation periods, which correspond to spontaneous consciousness and critical consciousness-Caniggia and Maffei discusses. Those

periods are not only a development period for either an aggregation or an assemblage. In fact, through the different spontaneous and critical consciousness states, an aggregation may turn into an assemblage, while an artifact may also be separated from an assemblage. In this respect, this study attempts to propose a term that could cover/represent all, which is ***"assembly"***. The word "assembly" in the dictionary of Cambridge is described as "*the process of putting together the parts of a machine or structure*".[25] The city as an archipelago is an endless process of assemblage, an uncompleted machine. That is why this study selects "***assembly***" instead of ***"island"*** as a term to illustrate all the fragments/themes distinguishable in a city, in our case, Ankara.

Under the lights of main objectives, multi-scalar diagram constitutes both descriptive and generative narrative of assemblies in Ankara. The descriptive narrative follows a twofold approach based on the hybrid morphological framework of this study. It is a search of both the existing city forms and the construction of a process based narrative. In this respect, it covers a selection of existing assemblies and monitoring of critical consciousness states, which also represent the accumulated assemblies of spontaneous consciousness. In this respect, the six planning periods of Ankara correspond to the states of critical consciousness.

All critical consciousness periods can be described by a typological diagram. Indeed, Ungers' typological diagram limits the potential descriptions, analyses, and formal projections while simultaneously managing a generative set of design problems and the potential formal expressions of the generic in specific form (Jacoby, 2018, p. 4). Those limits are introduced via disciplinary terms such as structural and organizational conventions (Jacoby, 2018, p. 4). Following this, the typological diagram transforms into an interscale characterization with a multi-scalar approach. Interscale characterization requires a definition of structural components at different levels of scale as well as different conditions between those components. In this respect, the multi-scalar diagram first describes the structural components of assemblies based on hierarchical and geometric relations of the city form on three main layers of the city: street network, building footprints, and topography. It sets the descriptive narrative through visual matrices of different urban conditions present between the structural

[25]Retrieved from https://dictionary.cambridge.org/dictionary/english/assembly

components. At this point, gestalt methodology becomes the method of abstraction to constitute both hierarchical and geometric components as well as the visual matrices.

Indeed, visual matrices of urban conditions lead to a generative set of design problems and potential formal expressions. In other words, the visual matrices are the essential tool to illustrate the justification of selected assemblies.

Urban conditions here illustrate the major typological composition of the structural components. The generative narrative here represents to envisage possible emergence of forms. At this point, urban conditions provide the grammar of a formal language that could imagine the potential transformations in the city.

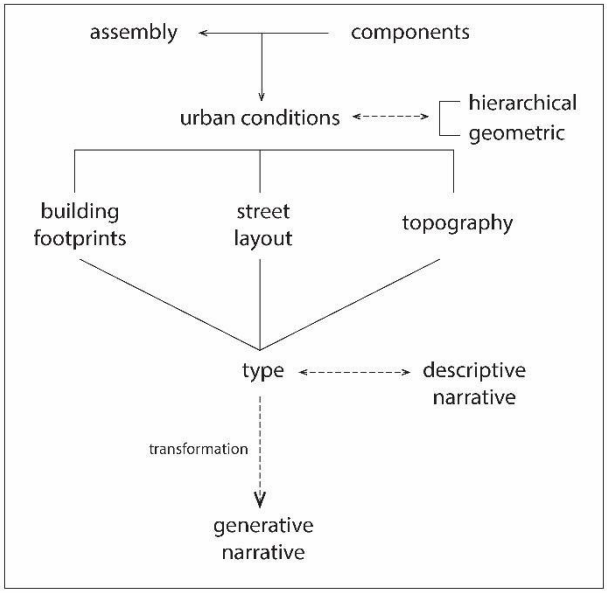

Figure 2. 16. Definition of city layers and analytical strategy for morphological characterization of Ankara

2.2.2. Structuralist Typo-Morphological Terminology Set

1) Assembly:

It is an identifiable self-contained city form of structural components (hierarchical, geometric, or both) that express complementary or analogous/homologous composition principles between them. The structural components of an assembly may appear as either hierarchical, geometric, or both on three city layers, which are building footprints, street networks, and topography. What is critical in the definition of an assembly here is the term self-contained and the two composition principles. The term self-contained should be understood in the thematic manner of typological discourse. The definition of assembly is under the major influence of Ungers' 'Grossforms'.

‘Grossform’ had four main criteria to achieve self-sufficient complexity. Yet, as a term, it did not include aggregations or hybrid forms. Instead, it was more of an architectural term. On the other hand, the term ‘island’ was an expanded version of Grossform to the morphological composition. Based on both, the assembly has its own hybrid criteria to be a self-contained city form. The selection of an assembly requires five main features, as follows:

i) *being a product of history (spontaneous consciousness and critical consciousness),*
ii) *differentiable structural components*
iii) *representing compositional principles,*
iv) *having a definable formal boundary, and*
v) *generating urban exterior and interior themes in a multi-scalar context*

An assembly is a persistent and autonomous city form since it is a product of history. This attitude is adopted from a combination of autonomous concepts visible in process-based typology and typological theme.

The structural components and compositional principles actually indicate the assembly type, which can be an aggregation, an assemblage, or both. In order to represent the complex relations of built forms in the contemporary city, this study divides the assembly type into two based on the structural components and compositional principles: hierarchical assembly and non-hierarchical assembly.

A definable formal boundary is crucial as a criterion to separate an assembly from a municipal neighborhood. The boundaries of some assemblies may appear nearly the same as the boundaries of a neighborhood. However, not all assemblies can be described by the boundary of a neighborhood. The boundary in a typological context can be defined through the monitoring limits of complementary or analogous principles between the structural components.

The urban exterior and interior theme is a concept that appears in Ungers’ typological theme. In fact, it is the reasoning of all the compositional principles in an assembly. It is an illustration of how the formal principles operate in the spatial environment.

a) Hierarchical assembly: It is an assembly in which hierarchical components are dominant. In fact, an assembly may be composed of either only hierarchical

components or of both geometric and hierarchical components. This condition may appear when an "artifact-like" form appears between the hierarchical components as being in a formal relation to them.

b) **Non-hierarchical assembly:** It is an assembly in which geometric components appear as dominant elements and the hierarchical components act as secondary elements. This is the opposite version of hierarchical assembly in terms of component types and compositional principles between them.

2) **Descriptive Components of City Form on the Building Layer:**

a) **Hierarchical components:** These components represent the structural components of 'organisms' defined in process based typology. In fact, they are adopted to inquiry the compositional principles between the aggregative systems. That is why they are called hierarchical components. In this respect, the scalar components of process-based typology are the hierarchical components in this study.

i) **Unit:** The aggregative systems are composed of repetition. The unit is the smallest repeated component-which is a building- in an aggregative system. The units in different aggregative systems may vary in size, proportion and geometry of the building.

ii) **Structure:** The repetition of a unit, in general, follows certain rules that define the aggregation type. On the smallest scale, this rule can be read through the structure. The structure is the smallest cluster of aggregated buildings, in which the distribution and composition geometry of the units are definable.

iii) **Structure system:** The structures as the smallest clusters in an aggregation, may generate different configurations through the aggregation of different structure types. The structure system is a bigger cluster which becomes common in an aggregative system through its repetitive construction. The geometric configuration of structures is the major determinant in the definition of the structure systems.

iv) **Assembly:** It is a composite aggregative system composed of unique articulations of dominant structure systems. The assembly, in this relationship, can be dismantled through the different levels of scale.

b) **Geometric components:**

The definition of geometric components is a product of inspiration through Ungers' specific work on a strudent housing project.[26] In contrast to the hierarchical components, geometric components are not repetitive that generates structural rules on a bigger scale. In Ungers' typological diagrams, geometry is the only feature that defines basic elements as typologies. Instead of repetition, the assembly is composed through the contraction of buildings into basic elements that represent unique geometry regardless of their size.

i) **Unit:** The determinant is the geometry in the definition of unit type. Each geometry, such as linear, circular, or rectangular, is a unique component of a non-hiearchical assembly. In general, the geometric units appear as megaforms compared to the units of hierarchical units.
ii) **Assembly:** The geometric units can compose an assembly by integrating them into one particular spatial concept, as Ungers defined as a grid, a sequence of rooms, or a sequence of movement processes (growth, narrowing, widening, etc.). (Jacoby, 2018, p. 15)

[26] "Student housing competition at TH Twente". More information can be found in Jacoby, S. (2018). Oswald Mathias Ungers: dialectical principles of design. *The Journal of Architecture*, *23*(7-8), 1230-1258.

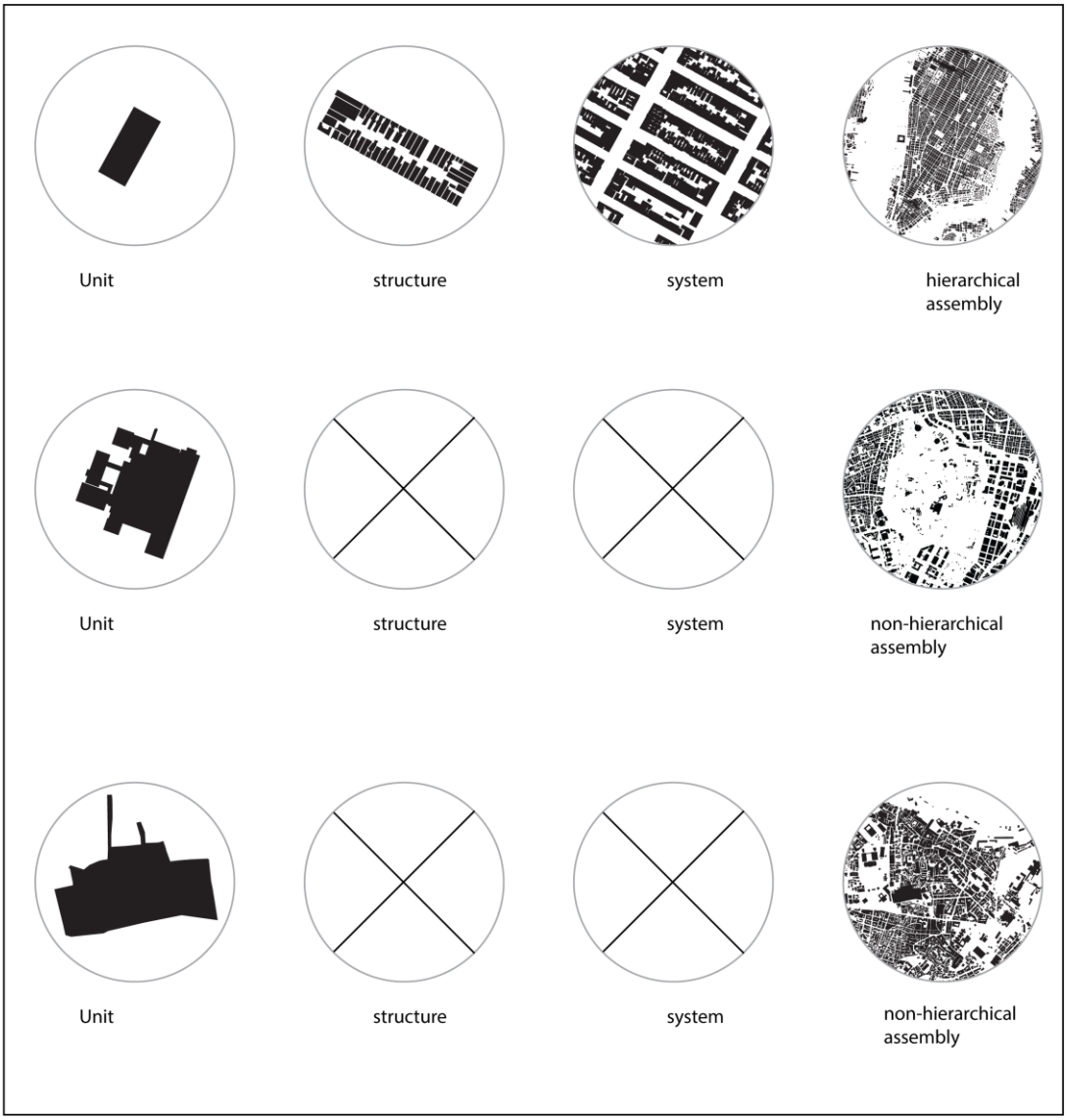

Figure 2. 17. Sample diagrams to the definitions from diverse cities in world (New York, Tokio, İstanbul)

3) Descriptive Components of City Form on Street Layer:

The street system as a built forms is difficult to dismantle easily by contrast to the buildings since it is a network rather than a structure of articulation. There are major studies on street networks that classify the components based on different geometric articulations as well. However, this study follows the hierarchical street definitions of Caniggia in order to set the hierarchical components. The geometry, on the other hand, is more influential on the description of urban conditions in an assembly. In this respect, this study applies only to hierarchical components.

a) Hierarhical components:

i) Route: A course that leads to the distribution of the buildings/units.

ii) **Matrix route:** A route that precedes the buildings and becomes the primary leading element. In other words, a matrix route is a route that is formed through its own course prior to the aligned buildings on it. The matrix route is the initial street in a growing street network. The characteristics of it lie in the linearity and straightness-that was not broken-of it through different processes in history.

iii) **Planned building route:** It is a route that is planned to be aligned by building aggregations or units. In general, the planned building routes create regular grids that lead to the growth pattern of a street network.

iv) **Break-through route:** In different periods, a street may overlap with either a pre-planned building route or a matrix route. Accordingly, the street breaks the previous street network and causes the existing city form to transform. This kind of street is described as a break-through route..

2.2.3. Urban Conditions: Analytical Terminologies

Urban conditions, in this study, are the main parameters that lead to the denominating of the themes of assemblies based on their unique characters. In other words, it is the process of justification of the described theme in an assembly as well as the reasoning of the autonomous fragments in a city. The hierarchical and non-hierarchical assemblies represent different composition types of structures. Indeed, the composition differences due to hierarchical and geometric dominance require two major approaches to the definition of analytical terminologies. Under the influence of the methodologies of both process-based typology and typological theme, the analytical terminologies separate into to as hierarchical and non-hierarchical terminologies. As constructing a multi-scalar diagram in order to compare the urban conditions, analytical hierarchical and non-hierarchical terminologies of appear in three levels of the scale: macro, mezzo, and micro scale. The macro scale conditions facilitate the justification of assembly themes. On the other hand, wheres mezzo scale terminologies appear as non-hierarchical ones, the micro scale terminologies illustrate the urban conditions within the structures and structure systems as hierarchical conditions. Yet, this separation is valid only on building and street layers in the city.

The topography, as the third layer in a city, can be read as an urban condition when it is considered with the components on both the building and street layers. In other words, it is not possible to consider the topography as an independent layer that could

generate urban conditions. In fact, it is the reaction of buildings and streets, in the periods of spontaneous and critical consciousness, to the topography that determines the urban condition. In this regard, it is difficult to separate urban conditions through interaction with buildings and streets into two as hierarchical and non-hierarchical terminologies. The analytical terminologies in topography can be determined through the idiosyncratic reflections/interpretations of landforms through the other two layers.

1) Hierarchical Analytical Terminologies:

a) Urban Conditions on Building Layers:

i) Configuration:

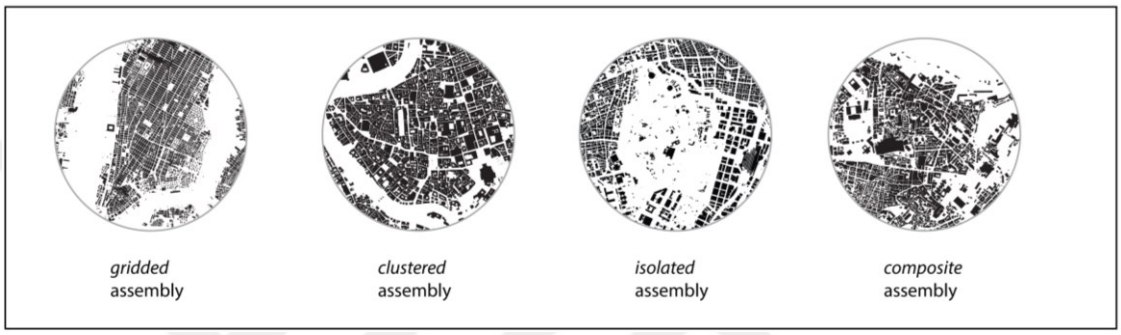

Figure 2. 18. Sample figure grounds for different configuration types (New York, Rome, Tokio, İstanbul)

Each assembly represents a system of configuration between the structural components. In fact, the configuration[27] type is one of the major determinants that facilitate to clarify dominant structure of an assembly. There are four main configuration types that this study adopted for the purpose of characterization on Ankara. They are named as ***gridded, clustered, isolated***, and ***composite configuration***.[28] Whereas the gridded and clustered configuration types are more related to hierarchical assemblies, the isolated and composite types are mainly linked with the non-hierarchical assemblies. The gridded and clustered configurations illustrate the aggregation patterns of structure systems in a hierarchical assembly. The ***gridded*** aggregation of structure systems in an assembly is called an ad gridded configuration. When the structure systems aggregate without a certain rule but generate identifiable groups, the configuration is named ***clustered***. On the other hand, if an assembly is composed of certain boundaries without the structure systems and

[27] The word "configuration" was used in different descriptions of spatial arrangement in Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons.

[28] These terms are also adopted and interpreted from a series of comparative matrices used in Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons. "Gridded", "clustered", "isolated" were used to classify different urban form.

hierarchical relations, the configuration type is called ***isolated***. When an assembly represents more than one configuration type, such as including both isolated and clustered, it illustrates a ***composite*** configuration.

ii) Orientation:

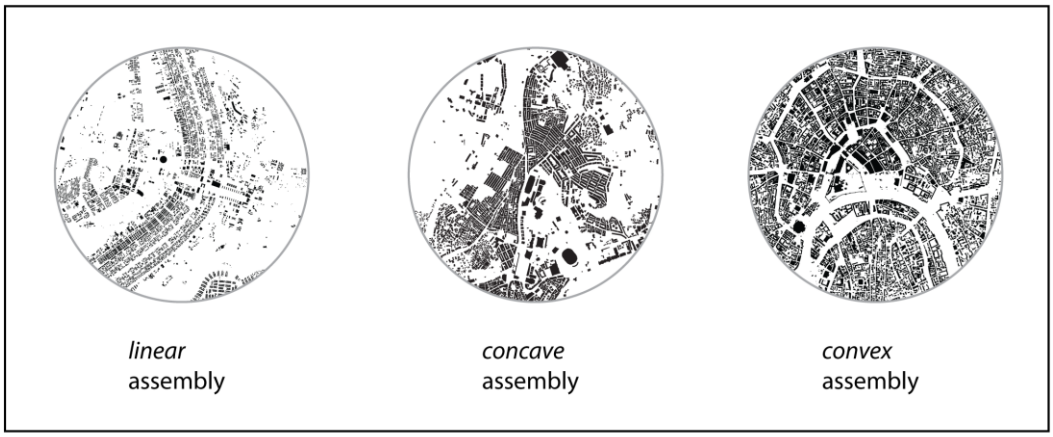

Figure 2. 19. Sample figure grounds for different orientation types (Brasilia, İstanbul, Moscow)

The orientation represents the growth direction of an assembly on the macro scale. Indeed, the orientation determines the direction of the boundaries of an assembly. Regardless of the configuration type, an assembly follows either a ***linear***[29], ***concave***, or ***convex*** expansion in time.[30] A ***linear*** assembly mainly grows on an axis and transforms alongside this axis without expanding much on the transversal axis. The ***concave*** orientation illustrates the wavy/fluctuating expansion of an assembly. In other words, when an assembly grows partially outside the borders, the boundaries take a concave orientation. The ***convex*** orientation is the opposite of the concave type. In the case that an assembly grows equally outside on its periphery, the orientation illustrates a convex type.

[29] The term "linear" used in different theoretical works to stress the linear bindery of a built form, such as "Linear City" by Leonidov. The term also used to represent the orientation of an urban form in Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons.

[30] Contrary to the term linear, concave and convex are the interpretations of the analogies in Ungers, O. M. (1982). *Morphologic: City metaphors*. Walther König.

iii) Disposition:

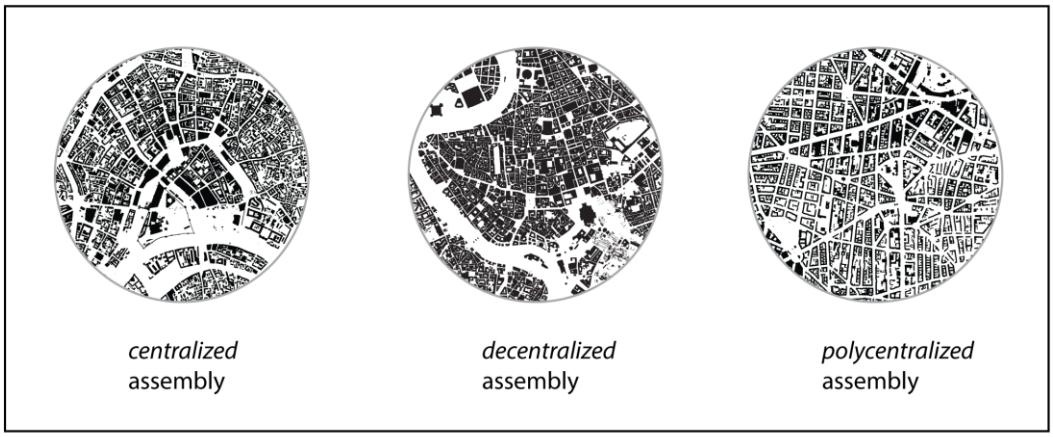

Figure 2. 20. Sample figure grounds for different disposition types (Moscow, Rome, Berlin)

The arrangement of structural components in an assembly may have centers or not. The disposition[31] illustrates the centrality of the structural arrangement in an assembly. In this regard, there are three types of disposition apparent in cities: ***centralized, decentralized, and polycentralized***.[32] If the structural components of an assembly are arranged around one center such as a matrix route, it is a ***centralized*** assembly. If there is no distinguishable center between the components but they still represent a unification between themselves, the disposition type can be named as ***decentralized***. On the other hand, if there are multiple centers connecting structural components in an assembly, they are ***polycentralized*** assemblies.

iv) Distribution:

The structures in hierarchical components are composed through a specific distribution of similar units. The distribution[33] as an urban condition describes that specific aggregation of units. In an aggregative system, there are four major distribution types apparent in general. They are ***detached***, ***attached***[34], ***serial repetitive***, and ***organic***

[31] It is defined as "the general, overarching principle underlying the composition of a whole building (complex)" (Jacoby, 2016, p. 139). The term interpreted by its comination with Caniggia's matrix routes.

[32] The terms are adopted and interpreted from Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons.

[33] Jacoby (2016, p. 141) describes the term distribution as " the relative disposing of building parts (historically applicable to private rather than public buildings) and defined by use based on definition of Jean-Nicolas-Louis Durand. In this regard, the term is another interpretation used for the structure in this study. Also, the term repetitive is adopted from Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons.

[34] The terms *attached* and *detached* adopted from Lynch, K. (1984). *Good city form*. MIT press. They are used to describe different housing typologies.

repetitive.[35] The detached type means that the units aggregating to compose a structure are detached from each other. By contrast, the units may constitute a structure by attaching to each other. On the other hand, the units may aggregate as aligned to an axis. This corresponds to the serial repetitive condition. By contrast, regardless of being detached or attached, the structure may be composed of more arbitrary repetitions of units in an aggregative system. This is called the organic repetitive distribution type.

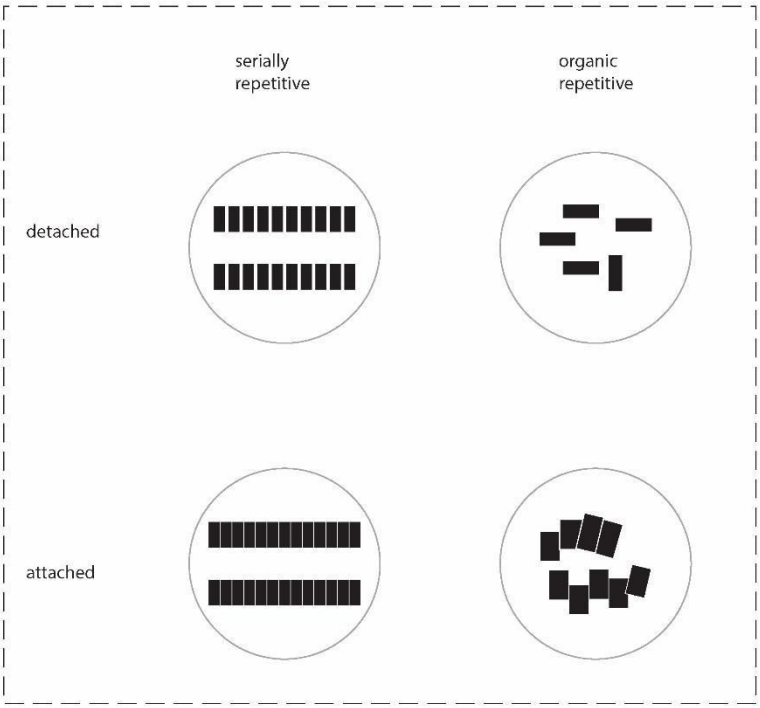

Figure 2. 21. Sample figure grounds for unit distribution types in a structure

v) Spatiality:

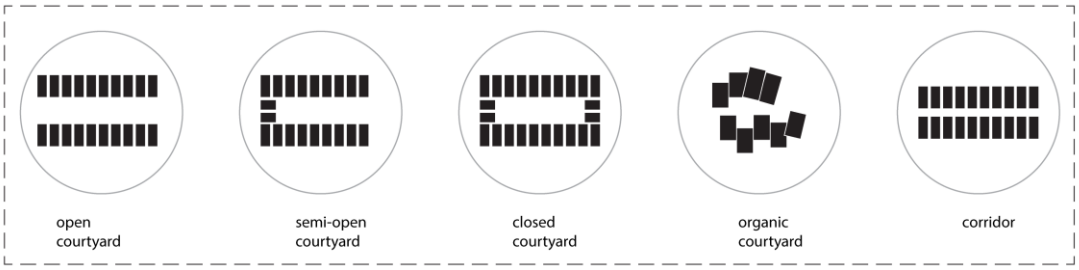

Figure 2. 22. Sample figure grounds for spatiality types in a structure

The structure systems, which evolved in time, store architectural potentials originating from their distribution types. Architectural potentials here depict a spatial quality that

[35] The concept of serial and organic appear in "Maffei, G. L., & Caniggia, G. (2017). Interpreting basic buildings. *Interpreting basic buildings*, 1-240." On the other hand,

can be identified as either interior or exterior (façade) on an urban scale. As mentioned earlier, Ungers' thematic description of the city form was also developed to establish a distinction between the urban interior and exterior. This description is described as ***complementary architectonic space,*** producing an architectural interior and an urban exterior (room) (Jacoby, 2013, p. 285). The spatiality as an urban condition depict the architectonic potentials of structures in the hierarchical assemblies.

The names of those potentials are adopted from Ungers' series of works constituting themes.[36] There are five major spatiality types that ideally emerge in a city: ***open courtyard, semi-open courtyard, closed courtyard, organic courtyard,*** and ***corridor***. Firstly, it is significant to differentiate corridor and courtyard in a structure system. The differentiation of the corridor and courtyard is dependent on the geometry of the architectural space in-between the units. If the geometry is wide enough to define a courtyard, the spatiality becomes a ***courtyard***. By contrast, if the geometry illustrates a linearity, a direction between the units, it can be defined as a ***corridor***. On the other hand, the courtyard types are also dependent on the geometry. The ***open courtyard*** illustrates a geometry that provides passages on the two transversal edges of the structure. The ***semi-open courtyards*** illustrate a structure in which one transversal edge is closed by the repetition of building units. The ***closed courtyards***, on the other hand, illustrate a courtyard geometry surrounded by all edges of a structure. An organic courtyard corresponds to a courtyard which is difficult to define via rectangular geometry and the closed edges.

On the other hand, depending on the distribution type, architectonic urban exteriors are proposed in this study, which are ***wall*** and ***garden***.[37] Wall here depicts a continuous surface on the urban exterior of a structure system. The structure systems in Ankara represent two sub-categories of the wall concept as ***barrier wall*** and ***passage wall***. As the sizes of the unit types change over time, the passage wall acquires distinct urban exteriors based on the unit length to passage width ratio. ***Garden***, on the other side, displays a spatial frontage comprised of a relativey small surface contact with the

[36] The terms are interpretation of several example typologies, expecially used in Ungers, O. M., & Vieths, S. (1999). *The Dialectic City*. Skira-Berenice.

[37] Ungers' works are also inspiration for these terms. Jacoby (2016, p. 276) states that a Grossform may be broken down into four major elements and two broad aspects: function and form, with the elements street and plateau connected with function and wall and tower with form. Accordingly, the definition of Grossforms became inspiration for the terms such as wall and room.

urban frontage separated by large gaps. These wide gaps provide a continuous flow of open areas that resembles a vast open public ***garden***.

Although the architectonic potentials are described for structures of hierarchical assemblies, they can be observed in the isolated buildings which appear mostly in non-hierarchical assemblies.

2) Non-hierarchical Analytical Terminologies:

a) Urban Conditions on Building Layers:

i) Geometry:

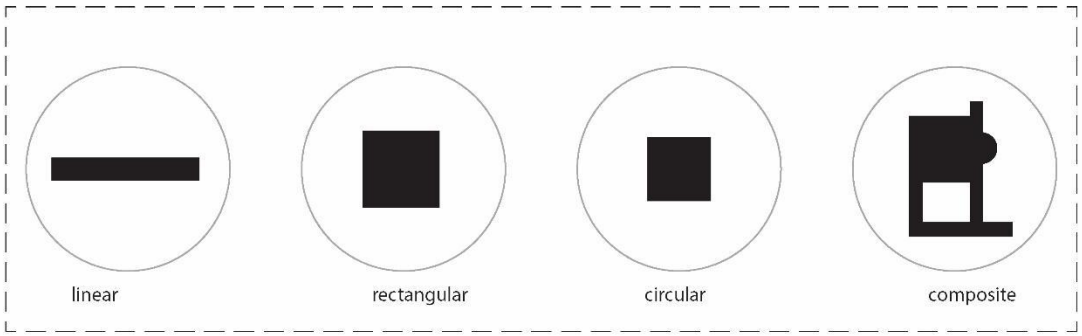

Figure 2. 23. Object geometry types

In non-hierarchical assemblies, the urban conditions are dependent on the geometry of the unit. The units, ideally, appear in four main geometries in a city as follows: ***linear***, ***rectangular***, ***circular***, and ***composite***.[38] The composite condition is when more than two geometries constitute a unit in a non-hierarchical assembly. The geometric conditions of megaforms are significant to comprehending the thematic nature of non-hierarchical assemblies.

ii) Position:

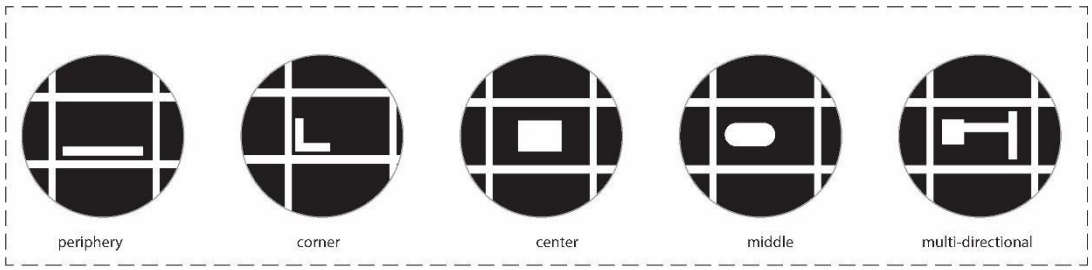

Figure 2. 24. Object position types

The geometry of a unit in a non-hierarchical assembly is not sufficient by itself to assign a theme. According to the surrounding street boundaries, the position of units

[38] All these terms adopted from Ungers' project student housing competition for TH Twente.

is significant to understanding the spatial quality in a city. Within the street boundaries, a unit may be positioned in six different types: ***periphery, corner, center, middle, multi-directional,*** and ***out-middle***.[39] The different combinations of both position and geometry types may produce unique themes in a city. For instance, if a linear unit is positioned on the periphery, it may generate a continuous surface on the street side. Also, a circular unit may be located on a corner and provide an orientation on the street.

b) Urban Conditions on Street Layers:

i) Composition:

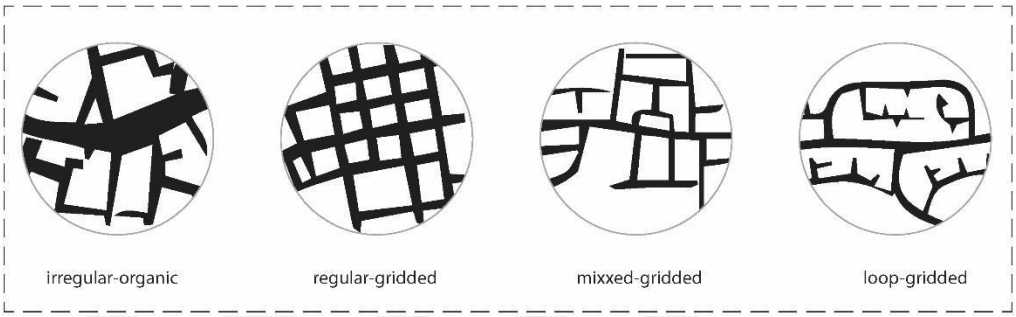

Figure 2. 25. Street composition types adopted from (source: Marshall, S. (2004). Streets and patterns. Routledge.

The composition depicts the street pattern of an assembly on a macro scale. This study adopts the four main street pattern types based on the composition and configuration conditions in a city.[40] The four types can be classified as follows: ***irregular-organic, regular-gridded, mixed-gridded, and loop-gridded.*** Irregular-organic street composition represents the short streets intersecting in fine scale angular, which also vary in width. Regular-gridded street patterns illustrate orthogonally intersecting, rectilinear streets, which are also consistent in width. Mixed-gridded street composition depicts a mixture of regularity and irregularity. The streets may follow curvilinear forms as well as rectilinear forms, which are still consistent in width. Loop-gridded compositions include disconnected streets as well as intersecting streets. They may also appear as curvilinear or rectilinear meeting at right angles.

1) Topographical Conditions:

Topographical conditions separate into two as isolated conditions and interacted conditions. Whereas isolated conditions illustrate the landform type independent from

[39] These terms are also adopted from the Grossform interpretation in Jacoby, S. (2016). *Drawing architecture and the urban*. John Wiley & Sons.

[40] More information can be found in "Marshall, S. (2004). *Streets and patterns*. Routledge."

the building and street layers, interacted conditions represent the landform type in relation to the building and street layers.

a) Isolated topographical conditions:

Isolated conditions are also divided into two as the *elevation* and *orientation* (Kurt, 1966) of a landform. In this respect, whereas the elevation of a landform demonstrates the degree of slope on it, the orientation illustrates the section curve of a landform. In this regard, landforms may have high slope, low slope, or steep elevation types. As an orientation, a landform may be either *introvert* or *extrovert* (Kurt, 1966) on the section.

b) Interactive topographical conditions:

Obtaining architectural interpretation requires the illustration of the link between the built-forms and the nature of the terrain. Indeed, the interactive topographical conditions give certain impressions of the terrain based on several criteria. This thesis selects three descriptive criteria to be able to constitute a descriptive framework, which could be directly transformed into a generative matrix. The three criteria are as follows: **three dimensional size of a unit, vertical figurative configuration of the structures, and structure system or unit pattern on top of** isohypse**.** Based on such descriptions, this study proposes that the city forms interactive with the topography illustrates two urban conditions, which are ***spatiality*** and ***interpretation.***

i) Spatiality:

Spatiality exhibits three related to the topography's figurative concept of sectional abstraction: ***corridor, terrace,*** and ***platform***. Terrace depicts the condition when the units sit on the isohypse of an extrovert hillside serially. Corridor illustrates the alignment of units along a narrow valley floor on both hillsides. Platform, on the other hand, appears through the units sit on a plateau.

ii) Interpretation:

In sectional representations, the interaction of units with the landform is not always coherent with the topography itself. The vertical size of a unit or structure in an assembly defines the **interpretation of** both the elevation and slope of the land. In general, there are positive, negative, and neutral interpretations of topography in a city. In this respect, the interpretation of topography as an urban condition can be classified into three types: reinforce, rejection, and expression. Reinforce (Kurt, 1966) means that the units and structures in an assembly stress both the elevation and slope of the

landform. Rejection (Kurt, 1966), by contrast, illustrates where the units and structures are positioned as reducing the elevation and orientation impact of a landform. Expression (Kurt, 1966) represent where the units and structures neither stress nor reduce the elevation and orientation. Instead, expression illustrates a consistency between the landform and built forms.

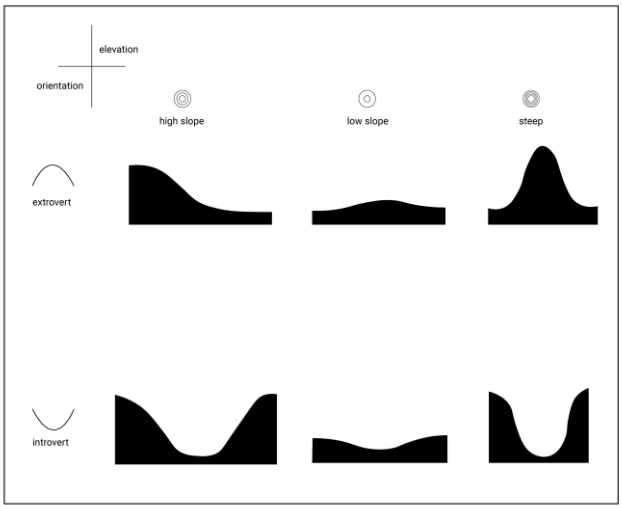

Figure 2. 26. Topography elevation and orientation

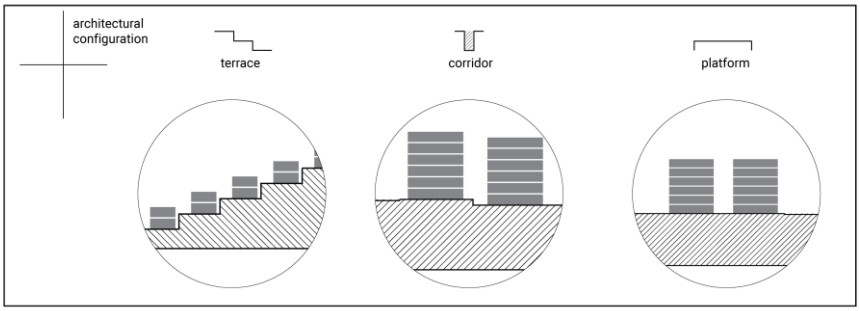

Figure 2. 27. Spatiality of buildings with topography

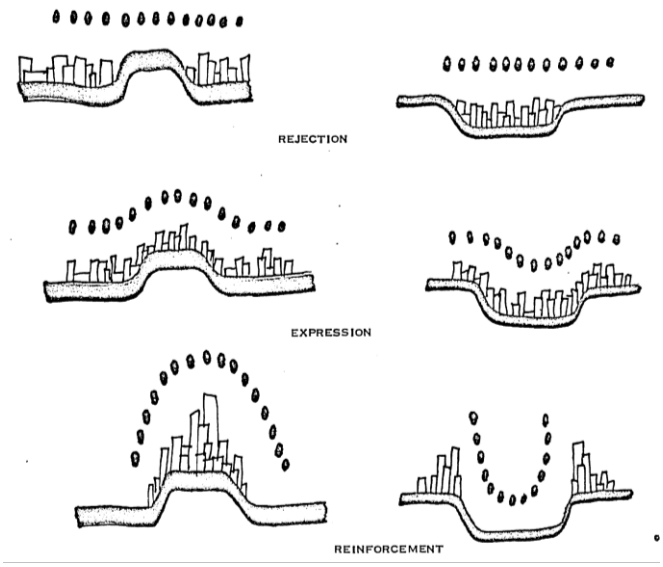

Figure 2. 28. Topography interpretation (source: Kurt, C. M. (1966). Topography and urban form (Doctoral dissertation, Rice University).

CHAPTER 3

3. Catalog of Assemblies: Ankara

3.1. Descriptions of Existing (2022) Assemblies in Ankara

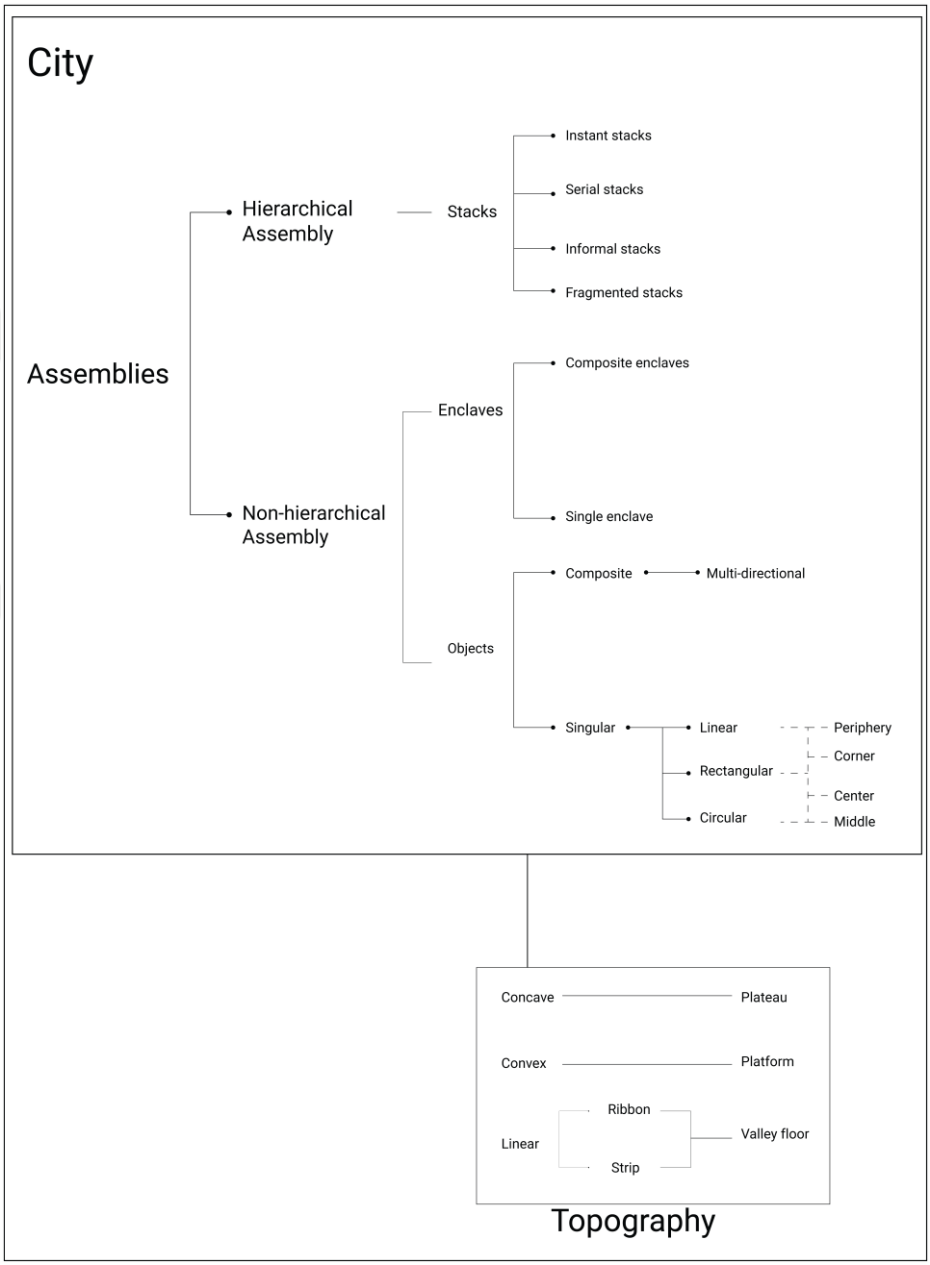

Figure 3. 1. Assembly definitions of this study for Ankara

The multi-scalar diagram of Ankara on three layers (building footprint, street network, and topography) demonstrates that there are 36 distinguishable assemblies within the current urban morphology diffused by forces of urbanization. Yet, the number of

thematic varieties is not the same as the number of assemblies. In fact, the typological analysis shows that some of the assemblies can be classified under certain themes so that some confusion due to excessive categorization can be avoided. Based on the similarities and complementary urban condition types, this study deals with the assembly data in three major themes: ***stacks, objects, and enclaves***. Those types, indeed, are the illustrations of the primary separation of the assemblies as hierarchical and non-hierarchical, which was mentioned before. Whereas the urban condition types in stacks represent hierarchical dominance, the objects and enclaves are much more illustrations of non-hierarchical assemblies. The reason behind those characterizations will be elaborated further. However, in brief, the stacks consist more of hierarchical components while the geometric components constitute the essence of both enclaves and objects.

The three thematic terminologies represent the fundamental morphological characterization of Ankara. Indeed, they are proof of the fact that each city is composed of site-specific urban conditions and assembly types, which turn them into unique/autonomous structures. This is the main reason behind the appearance of terminologies partially foreigner to the literature as themes in this study: being proof of site-specific urban conditions. The stacks, objects, and enclaves can be described as hybrid terms that adopt some definitions in the literature and reutilize them within a complementary context. Each term embodies sub-categories, which are also hybrid terms, according to smaller differences in the formation of assemblies. Following these, under the light of multi-scalar analysis, this study constitutes its own dictionary of assemblies through those terms.

3.2.1. Dictionary of Assemblies in Ankara

3.2.1.1. Stacks:

The word ***stack*** is described as “a large pile of something” in the dictionary of Cambridge. Based on this definition, “stack" refers to a pile of urban fabric in a city. The aggregation, in fact, corresponds to the pile of buildings in a city. However, aggregation as a term was a depiction of hierarchical relations excluding some form standing unfamiliar within the similar buildings yet linked to the aggregative systems. Furthermore, it is significant to recognize a point at the moment. “Stack” as a term represents an assembly type rather than an urban fabric type. This is related to an indigenous form of some assemblies in Ankara. Some assemblies include multiple

urban tissue types rather than one type. On the other hand, the recurrent urban fabric of Ankara's assemblies is difficult to describe apart from some mega forms that constitute numerous centers within one assembly. In this regard, the assembly type "stack" portrays a network of a pile of dominant urban fabric interconnected with mega forms as well as each other.

The urban conditions on building layers are priorly definitive in the definition of stacks in Ankara. Two major configuration (gridded, clustered, isolated, composite) types regardless of orientation (linear, concave, convex) and disposition (centralized, decentralized, polycentralized) actually characterize stacks: gridded and clustered. It is a reification of the dictionary definition. An assembly can appear as a pile of buildings through either a gridded or clustered layout of the buildings.

These two major configuration types are proof of the hierarchical nature of the stacks. Through that configuration, the stacks are assemblies that can be separable into hierarchical components as an ascending sort: unit, structure, system, and assembly. In this regard, stacks can be analyzed through the distribution typologies apparent within the structures and systems of hierarchical assemblies. There are major and specific distribution typologies distinguishing stacks, also leading to the determination of spatiality (open courtyard, closed courtyard, semi-open courtyard, orthogonal courtyard, semi-open courtyard, and corridor). This, in fact, results in a particular diversity within the stacks. Due to particular differences in urban conditions, this study divides stacks into four sub-categories.

Serial stacks: The word serial[41] illustrates the strict rules within the hierarchical components of stacks. They demonstrate gridded configuration types in systems. It is mentioned before that the distribution types of units in a structure of an assembly produce the spatiality in structures and systems. Serial stacks include both courtyard and corridor types, consisting of units distributed as either detached or attached. However, the main difference is the serial repetitive distribution within the structures of serial stacks. Another distinguishing feature appears in the street layer. The regular-gridded street pattern constitutes the skeleton of the systems in serial stacks.

[41] The term “serial” is inspired by Caniggia and Maffei who differentiate serial and organic. See in Maffei, G. L., & Caniggia, G. (2017). Interpreting basic buildings. *Interpreting basic buildings*, 1-240.

The units are the residential and industrial apartment buildings, which illustrate the serially repeated micro-size buildings in both plan and elevation. The structure types include mainly detached apartment blocks, varying as perimeter blocks, double blocks, or residential buildings. The structure of serial stacks mainly originated in the early and middle Turkish Republican periods (1930-1960'ies from Jansen Plan to Yücel-Uybadin). Since those periods are products of the morphological approach before the dramatic transition to the functional approach, serial stacks do not reject the landform. In fact, they are distinguished by the expression of landforms through buildings as topography interpretation types.

Instant stacks: The word ***instant*** represents the quick growth pattern of structures in a stack. Instant stacks are composed of gridded configuration of structures as well as in serial stacks. Although both are very similar, the fast growth of structures produces small differences between instant and serial stacks. Differently from serial stacks, the main street network composition is mixed-gridded.

The units of instant stacks are composed of only residential buildings that arose through Yücel-Uybadin. In fact, the products of the prior planning period were planned in a systematic organization regarding morphological compositions. Yet, since the Yücel-Uybadin planning period, the impacts of morphological composition have been reduced to dimensional regulations that disregard spatial variety. Whereas the serial stacks illustrate a sensitivity towards spatiality, instant stacks fall short of spatiality through this reduction. Although the unit distributions in a structure represent courtyard and corridor potentials, those potentials are not utilized to serve the city. The main reason behind this is the topography interpretation that followed.

The prior skeleton of configuration types-which originated in the islands of vineyard house lands (bağ evi) in Jansen period- are disregarded in the fast production. This resulted in the rejection of landforms through more arbitrary building constructions.

Informal stacks: The term "informal" is adopted from the urban form literature. In the literature of urban morphology, the word *informal* used in a phrase called "informal settlement" (Dovey, 2020, p. 1). In general, "informal" used to represent the illegal condition of built urban fabric that was developed under the absence of the building rules and regulations or by disregarding them. However, Dovey (2020) stresses the point that "informal settlement" should be recognized as a verb rather depicting a mode

of production than a phrase. In fact, it is described as “the incremental, unauthorized and self-organized production of new urban neighborhoods that cannot simply be conflated with slum” (Dovey, 2020, p. 1). Dovey's remark opens the door for the term "informal" to be used not only for slum or squatter communities, but also for other urban forms produced by a self-organized mode of production. Consequently, in a city, this mode of production generates a site-specific morphology that could be separated from serial morphological developments.

Ankara has self-organized production in specific areas of the city. This mode of production resulted in distinctive urban tissue/fabric in those areas that reached specified limitations, leading to their classification as assembly in this study. In this regard, this research interprets the term "informal" according to Dovey's concept to highlight the organic aggregation of particular unit types that developed under self-organization. This organic aggregation gives a definable end product exhibiting a comprehensible morphological pattern. In this respect, not only squatter areas are defined as informal stacks, but also some other organic settlements are defined under the category of informal stacks. The comprehensible patterns of end products correspond to the cluster as a configuration type in an informal stack. The similar units constructed without any rule or regulation introduce clusters of arbitrary aggregations which can represent particular distribution and spatiality conditions.

The dimensions of units in an informal stack are smaller than in the other stack types. Any of the structures are the same although the units are repetitive. This is because the main distribution type is organic repetitive in either attached or detached condition. Ottoman settlements and squatter neighborhoods-which majorly appeared since 1980’ies- are the main illustrations of informal stacks.

The street network appears as an irregular-organic composition type. On the other hand, although there is no configurational rule behind the construction of units, they generally follow the isohypse. This illustrates that the topography interpretation is expression of landform.

Fragmented stacks: The term “fragmented” is described as “consisting of several separate parts” in the dictionary of Cambridge.[42] In urban morphology literature, the term "fragmented" is used to characterize urban form in a broad context under specific

[42] Retrieved from https://dictionary.cambridge.org/tr/s%C3%B6zl%C3%BCk/ingilizce/fragmented

characteristics ranging from compactness to urban fabric typologies. However, this study's focus when adopting the term "fragmented" is considerably more on how Ungers use the term, particularly when discussing city form. As previously stated, Ungers' definition of a fragmented city is made up of autonomous yet complementary components based on their typological characteristics (Jacoby, 2013). The emphasis in this description is that, despite each piece's typological independence/separation from the others, there is a certain logic that connects them as episodes/structures of a whole. In this perspective, a "fragmented stack" depicts an aggregative system made up of distinct structural types.

The clustered configuration type constitutes the essence of fragmented stacks. However, those clusters are not similar to those in informal stacks, which are also composed of clustered configurations. Informal stacks are the products of similar clusters that appear at different times. Contrary to informal stacks, the clusters of fragmented stacks arise in individual forms of clusters at different times based on regional plans. In this context, fragmented refers to freestanding clusters of structures or systems that may represent prototype potential for future use in an assembly.

There are identifiable structure and unit types in fragmented stacks. However, they do not repeat in the assembly because there is no particular common construction strategy or rule for each cluster. Instead, those structures or systems stand as individual pieces. Accordingly, fragmented stacks include plenty of unit, structure, and systems types, whereas the other stacks are composed of a few structure types that are also similar to each other. Despite the number of distribution types, the richness of spatiality types that comes with this abundance leads to a discontinuity inside the assembly due to the enormous variability in structures.

The major units of fragmented stacks are residential buildings that have sprung up since the 1980s when a substantial shift in planning approach occurred in Ankara. The inadequacy of the morphological strategy is evident in fragmented stacks. The street network, on the other hand, serves as a connecting/binding element in fragmented stacks. The street network's composition is loop-gridded, indicating significant discontinuity within the assembly.

Because of the wide range of structures, all sorts of topographical interpretations are visible. Due to the lack of a consistent strategy, the constructions either express, reinforce, or reject the landform.

3.2.1.2. Enclaves:

The ***enclave***, as used in the literature, describes locations that are considerably distinct from the surrounding urban structure. In fact, Ungers uses it to illustrate the preserved and disengaged regions that might characterize a city's islands.[43] Enclave, as a term, represents seclusion from the surrounding environment depending on its form. This research, on the other hand, allocates the theme of "***enclaves***" to one typical sort of city form evident in Ankara. This is due to the presence of mega forms dispersed in a field whose border is clearly projected inside the urban environment. Although the buildings are not always neatly assembled, their field holds them together by separating them from the outside assembly. As a result, the essence of enclaves is an isolated configuration. They are segregated from the city as a massive field, regardless of building configuration.

In terms of building density, enclaves are not compact assemblies. Within the field, the buildings are either scattered or object configuration types. As a result, searching for hierarchy within enclaves is impractical, which makes it difficult to assign a distribution and spatiality type as well. They are, in other words, non-hierarchical assemblies. In general, buildings representing hierarchical components make up a modest portion of enclaves. This is because, in enclaves, the void takes precedence over the figure. As a result, it is reasonable to assert that the street network is not as developed as it is in stacks. It is difficult to describe the street network by a major composition of street types. Nonetheless, the pattern of the routes between the buildings represents a loop-organic composition devoid of hierarchy. The topography expression is inconsistent. In fact, enclaves might express, reject, or reinforce the landform. The university campuses, military areas, governmental complex fields, and institutional areas can be classified as enclaves in Ankara.

[43] See in Hertweck, F., & Marot, S. (2013). Critical Edition of Oswald Mathias Ungers, Rem Koolhaas with Peter Riemann, Hans Kollhoff, Arthur Ovaska, The city in the city. Berlin: a Green Archipelago (1977).

Enclaves are not always in completely isolated conditions. In some parts of the city, a few enclaves lie clustered next to each other. In this regard, this study sets two sub-categories for enclaves: ***single enclaves*** and ***composite enclaves.***

Single enclaves: Single enclaves are assemblies that are completely isolated from their surroundings and stand as the only enclaves in the urban environment.

Composite enclaves: Although enclaves are physically isolated, they may be linked to other assemblies via a different binding city form (topography, street network). Under these conditions, they evolve into clusters of isolated buildings, forming composite enclaves.

3.2.1.3. Objects:

Objects mostly depict mega forms that are formally distinct from the surrounding built environment. They introduce strong figurative characteristics that O.M. Ungers stressed in his Grossform definition. Indeed, the term is used to describe the independent mega forms that may become islands in The City in The City: Berlin as a Green Archipelago (Hertweck and Marot, 2013). The notion of object is comparable to Rossi's idea of urban artifacts. The geometric nature of it as an assembly explains the resemblance to both Ungers' and Rossi's conceptions of the term object. They exist as neither aggregative systems nor isolated fields. Their autonomy stems from the individual geometric organizations within the city. Objects are made up of simple geometric components rather than hierarchical components. They are likewise non-hierarchical assemblies in this regard.

Due to objects' formal autonomy, they appear as either isolated or composite configuration types regardless of orientation or disposition types of assembly. Although the objects are self-contained mega forms, they may be joined to other types of assemblies. Objects can exist independently as well as inside a stack or enclaves. Through street and topographical conditions, they may be linked to stacks or other objects. Objects, on the other hand, are not generally dominant in stacks. Within stack assemblies, certain objects behave more like specific pieces. In this situation, the assembly keeps the hierarchical relationships and is referred to as stacks. If, by contrast, objects are dominating in an assembly, the configuration type of the buildings in that assembly becomes composite. Objects as assemblies do appear in composite configuration types since they only exist in this configuration. Topography

interpretation is variable, yet objects, in general, reinforce the landform due to the massiveness they represent in geometry.

The geometry and position types determine the spatiality of objects in the city. Indeed, this study identifies two sub-categories based on geometry: ***singular objects*** and ***composite objects***.

Singular objects: If the buildings as mega forms appear as individual geometries representing autonomously one of the main geometry types (linear, rectangular, or circular), they are named singular objects. The position of singular objects may appear in the periphery, corner, center, middle, or out-middle.

Composite objects: Composite objects should not be confused with an assembly's composite configuration type. The term composite refers to a mega form made up of many geometry types. Because they are composed of more than one geometric form, composite objects are positioned in multi-directional in a city.

3.2.2. Structural Analysis on Three Layers of Current Morphology in Ankara

General structure:

Ankara's fragmenteriness derives from the combination of various assembly types. The general structure of Ankara reveals that three primary assembly types agglomerate in such a way that they impede unification while keeping their autonomy in form. This fact is visible in the assembly sequence on the figure-ground map. Indeed, their placement adjacent to each other emphasizes their imaginary boundaries. This is due to altering planning strategies that do not adhere to previous ones. Monitoring the location and physical aspects of various assemblies in this regard provides knowledge of the formal justifications underpinning the maintenance of assemblies' autonomy in Ankara.

Accordingly, the map of current assemblies demonstrates that there is no balanced distribution of assembly types. Indeed, stacks, which appear as vast aggregative systems, constitute a considerable number of assemblies. Enclaves, on the other hand, also cover a major part of Ankara, although their number is not as great as the stacks'. This is due to the fact that the broad limits of enclaves occupy enormous expanses in the city. Objects make up a minor portion of the city since they are neither aggregative systems nor spread across a large area. However, they set up critical centers of the city

in Ankara (Eskişehir Yolu, Atatürk Bulvarı). It was previously stated that this study isolated 36 assemblies. 22 of such assemblies are visible as stacks in the city structure, while 9 are enclaves. The objects take up the majority of the remaining 5. From now on, we'll look at how such assemblies came to be and what urban conditions they reflect.

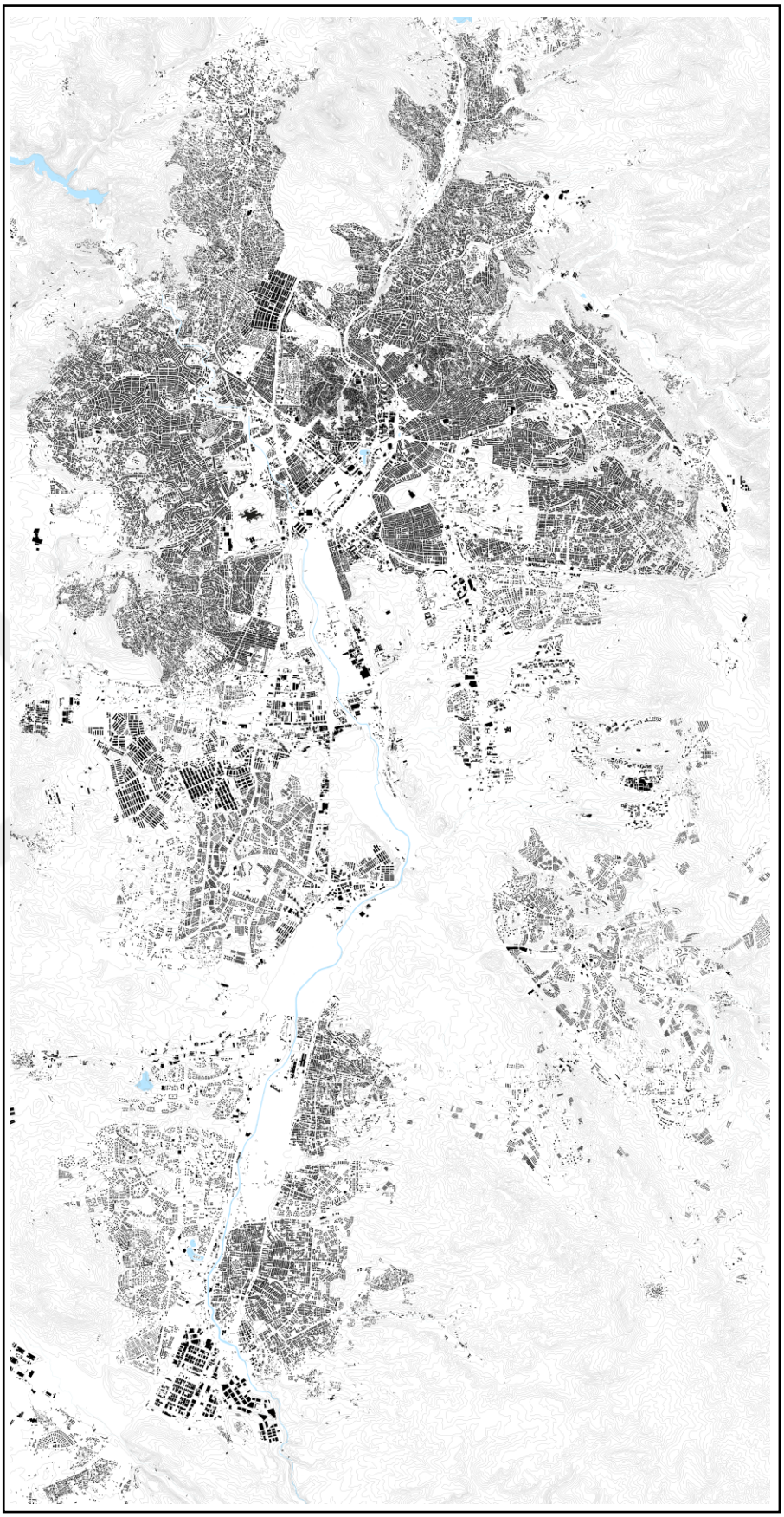

Figure 3. 2. Figure ground map of Ankara (analyzed portion)

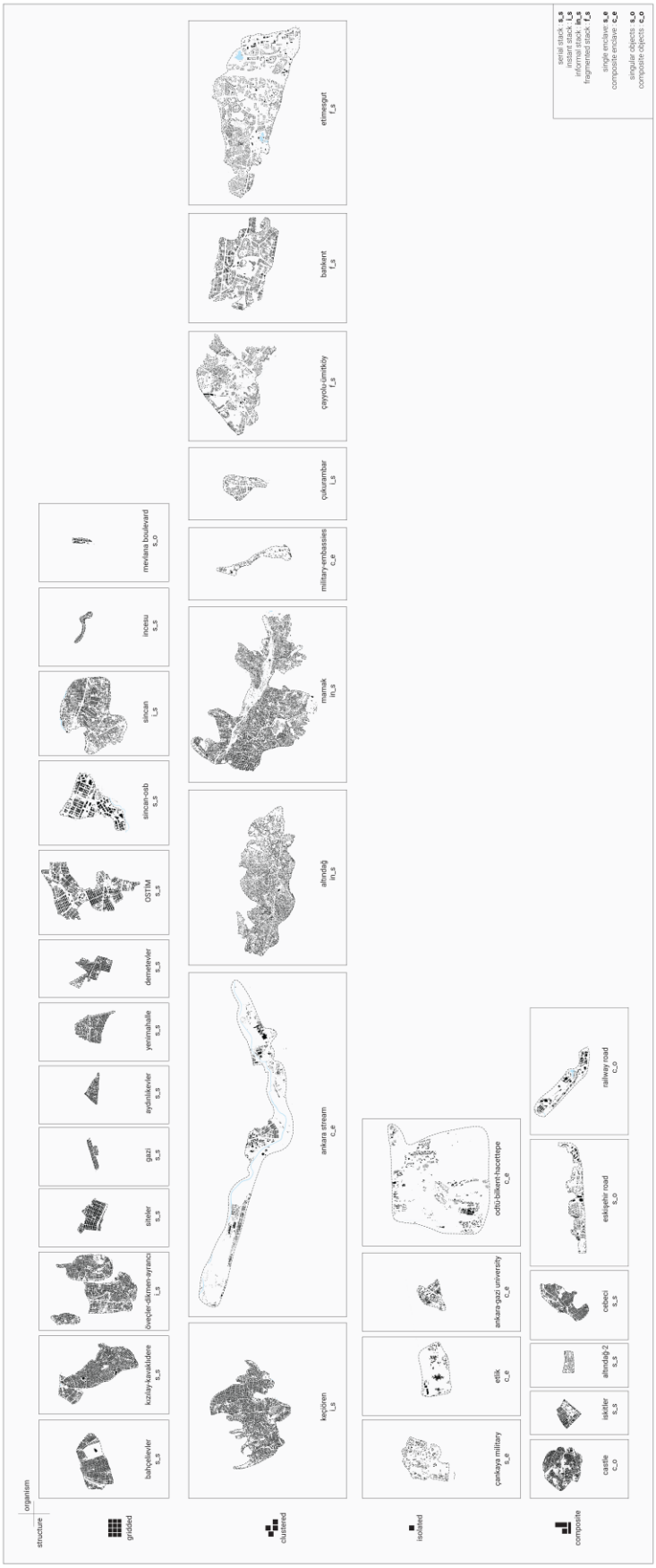

Figure 3. 3. Configuration types of defined assemblie

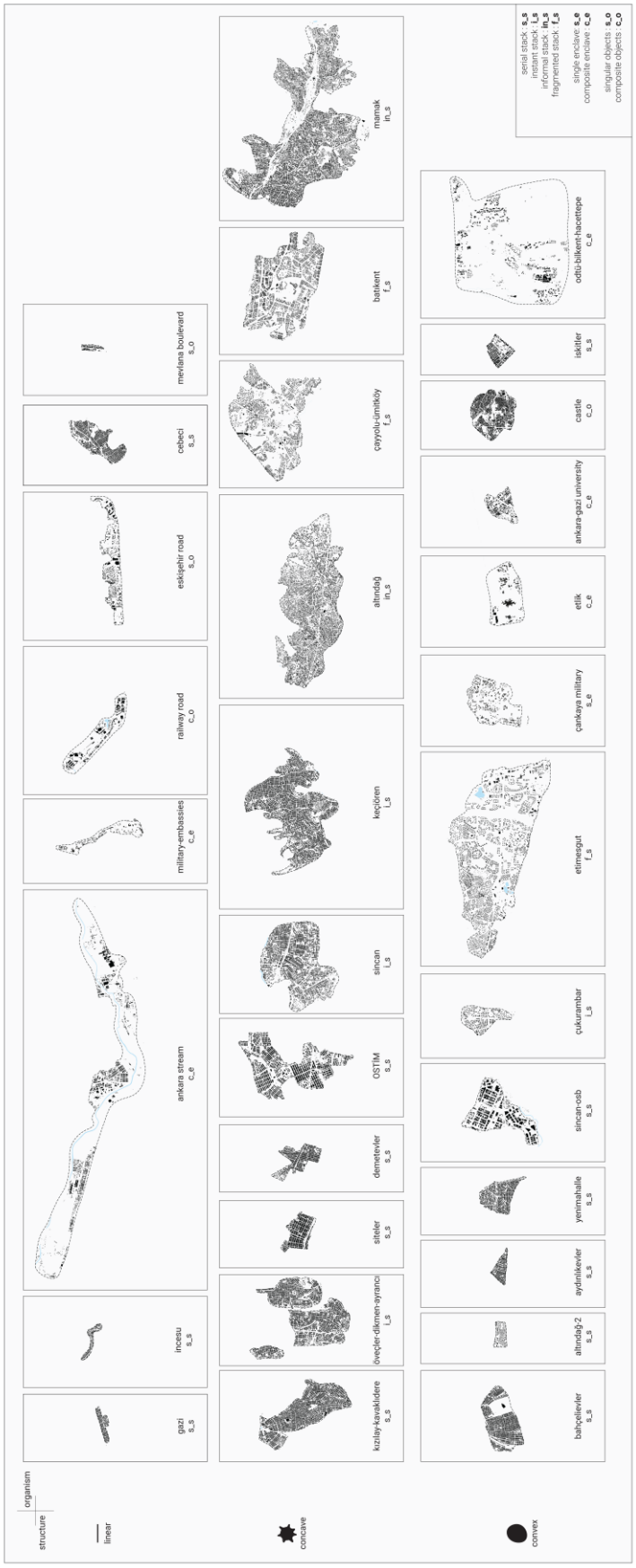

Figure 3. 4. Orientation types of defined assemblie

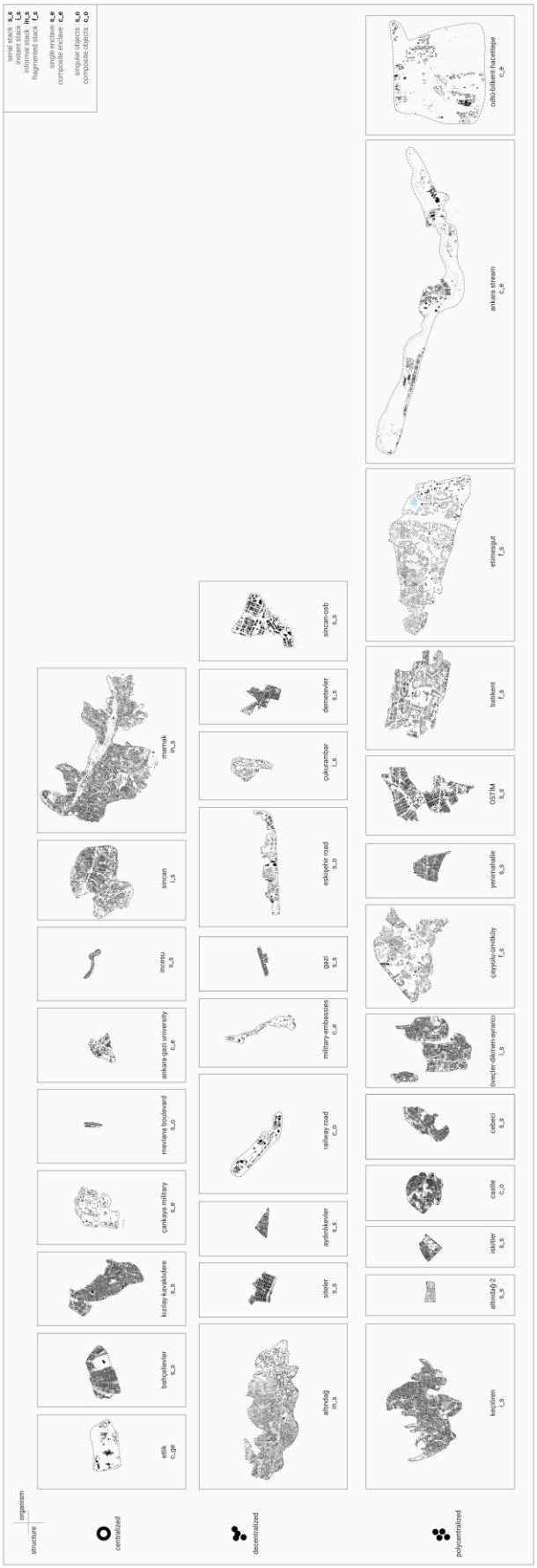

Figure 3. 5. Disposition types of defined assemblies

Figure 3. 6. Street pattern of Ankara

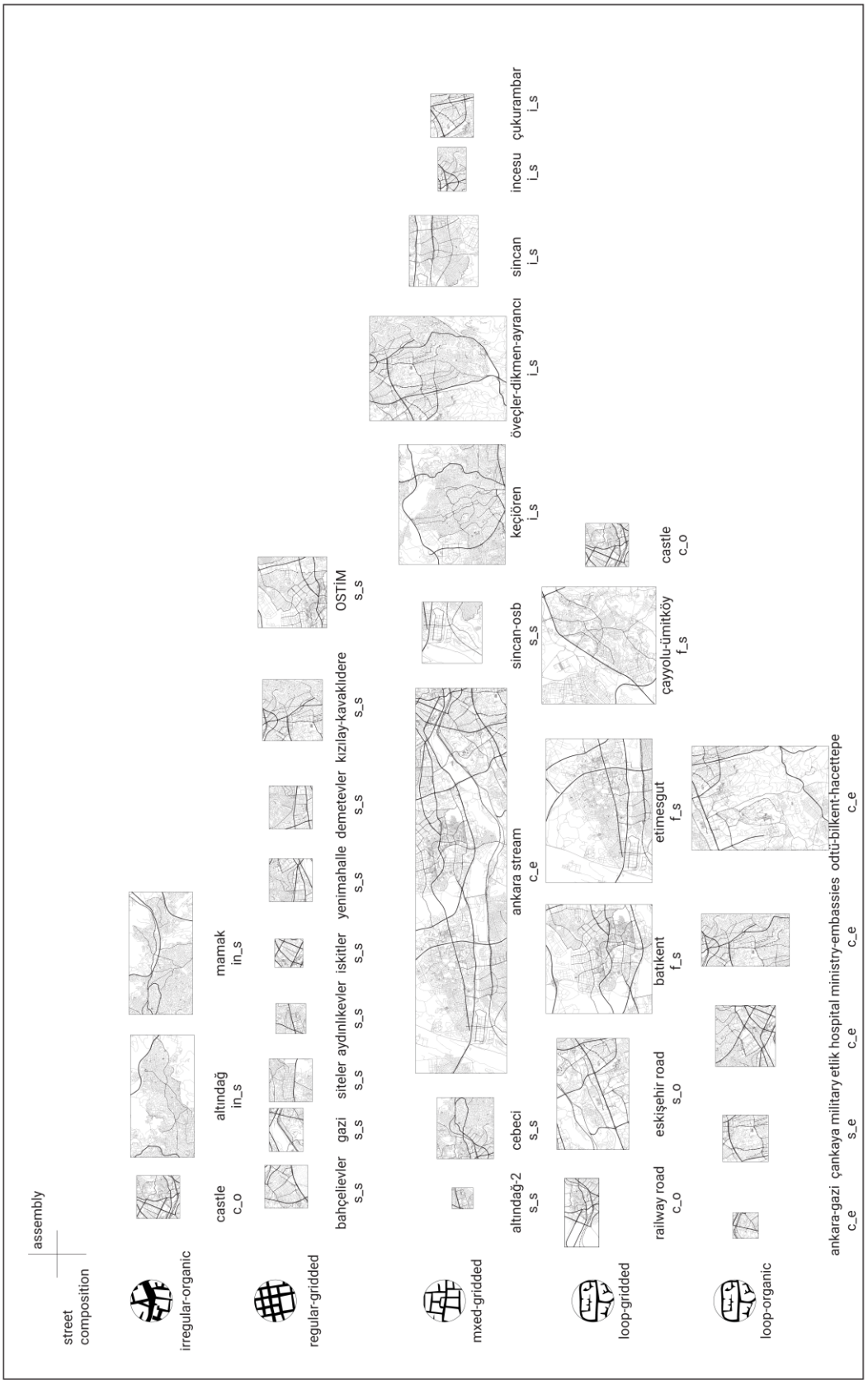

Figure 3. 7. Street composition types of defined assemblies of Ankara

3.2.2.1. Stacks in Ankara:

First of all, it is appropriate to claim that stacks constitute the backbone of Ankara since they are the center of enlarging the city. Before mentioning the urban conditions characterized by stacks in detail in Ankara, their location in the city is critical in terms of assembly sequence in the city. Stacks are located as shown on the map. Although the boundaries of stacks are defined independently from the municipal neighborhood borders, each stack dominates a particular neighborhood. In this respect, this study temporarily entitles each stack based on the neighborhood composing its major portion. The stacks in Ankara are named as follows: Bahçelievler, Kızılay-Kavaklıdere, Siteler, Gazi, Aydınlıkevler, Yenimahalle, Demetevler, OSTİM, Cebeci, Altındağ, Altındağ-2, Mamak, 100.yıl, Dikmen-Ayrancı, Sincan, İncesu, Keçiören, Çukurambar, Çayyolu-Ümitköy, Batıkent, and Etimesgut-Eryaman, SincanOsb. This part of the study will analyze and compare the structural components and urban conditions between the stack types in a sequence as follows: serial stacks, instant stacks, informal stacks, and fragmented stacks.

Serial stacks of Ankara are as follows: Bahçelievler, Kızılay-Kavaklıdere, Siteler, Gazi, Aydınlıkevler, Yenimahalle, Demetevler, OSTİM, Cebeci, Altındağ-2. The main units in the serial stacks consist of two primary building types: apartment buildings and industrial buildings. Whereas industrial buildings as units occupy a fairly limited area and range in height from 2-3 storeys, apartment buildings in general cover a bigger footprint and range in height from 3-5 storeys. According to the structural analysis, Bahçelievler, Kızılay-Kavakldere, Gazi, Aydınlıkkevler, and Cebeci apartment units are comparable in terms of building footprint dimension, however Yenimahalle and Demetevler apartments are smaller in unit footprint size. Yet, Kızlay-Kavaklıdere stack is the highest stack in three dimensions by apartment buildings reaching 8 and 10 storeys. On the other hand, the industrial building footprints are very similar and linear buildings in both OSTİM and Siteler, although Siteler is higher by 3-4 storeys compared to OSTİM having 2-3 storeys industrial buildings.

After mentioning unit types, structure types are also divided into two in terms of distribution conditions in serial stacks. There is either detached serial repetitive or attached serial repetitive unit distribution visible in structures of serial stacks. Whereas

apartment buildings, which are distributed in detached serial type, industrial buildings are distributed in attached serial type in structures. Bahçelievler, Kızılay-Kavakldere, Gazi, Aydınlıkkevler, and Cebeci demonstrate detached serial types while OSTİM and Siteler are composed of attached serial repetitive buildings. Although the apartment buildings are not attached to each other, they generate continuity by serial repetition within the structure, acting as an architectural block in the city. In fact, by detached serial distribution type, the serial stacks of Ankara present their own interpretation of block typology. Accordingly, this study names them as apartment blocks, varying based on the geometry as follows: block, double block, perimeter block, c-block. On the other hand, attached serial buildings in OSTİM and Siteler are already in block typology varying as double block and triple block.

This variety in idiosyncratic block typology, indeed, constitutes the interior spatiality of the structures. In this respect, there are five main spatiality types visible within those structures. In sequence, the perimeter apartment-block generates closed courtyard types, the double apartment-block composes corridor and open courtyard, and the c-apartment-block sets semi-open courtyard spatiality types. However, dependent on the transverse width of the structures, courtyard types and corridors predominate to varying degrees.

The major street composition type of serial stacks is regular-gridded. Correspondingly, all serial stacks are in gridded configuration, yet the grid types vary between curvilinear and orthogonal. Indeed, Bahçelievler, Siteler, OSTİM, and Aydınlıkevler represent orthogonal gridded configuration, while the rest are curvilinear. This difference impacts the structure shapes that result in the appearance of different courtyard types due to the transversal width. In Bahçelievler and Cebeci stacks, for example, corridor and narrow closed and open courtyard (open courtyard-1, open courtyard-3, closed courtyard-1) forms predominate. Furthermore, the corridor type (corridor-1 and corridor-2) alone dominates the Demetevler, Yenimahalle, and Aydnlıkevler stacks. Kızılay-Kavakldere stack, on the other hand, comprises all sorts of courtyards and corridors. Attached serial buildings, nevertheless, do not produce dominantly urban interior spatiality except for the rare corridor type (corridor-1) and niche since double and triple blocks are generally attached to one another.[44] Both

[44] Niche is a unique type here that appear due to the anomalies within the repetition of attached buildings.

OSTİM and Siteler is very similar based on this variety. In terms of the urban interior, the attached double and triple blocks might be classified as non-spatial.

Serial stacks represent diverse orientation types. Bahçelievler, Aydınlıkevler, and Yenimahalle reflect a convex orientation, whereas Kızılay-Kavaklıdere, Siteler, Demetevler and OSTİM illustrates a concave shape of expansion. Gazi and Cebeci, differently, demonstrate linear orientation. This knowledge, in fact, provide the inferences on further growth pattern of the assemblies. Indeed, convex orientation can be expressed as an urban condition that stresses the individuality of an assembly. Concave orientation, on the contrary, reflects a more interlocked form with the surrounding assembly types. Linear orientation also stems from a linear binding that maintains elongation of an assembly. In this respect, it is appropriate to claim that Kızılay-Kavaklıdere, Siteler, Demetevler and OSTİM have the potential for more communication with the surrounding assemblies. By contrast, Bahçelievler, Aydınlıkevler, and Yenimahalle are more autonomous assemblies as serial stacks. Gazi and Cebeci are connected with a linear binder.

The disposition type demonstrates the centrality of the assembly interior. Bahçelievler and stacks are centralized, while Siteler, Aydınlıkevler, Demetevler and Gazi are decentralized. Kızılay-Kavaklıdere, Cebeci, OSTİM, and Yenimahalle stacks are polycentralized. What makes Bahçelievler and Kızılay-Kavaklıdere centralized is the major link between matrix route and object. A singular object (Anıtkabir) is encircled by a matrix route in the Bahçelievler stack, which emphasizes the object as the stack's center. The Kızılay-Kavaklıdere and Cebeci stacks include many objects stressed by a matrix route, resulting in a poly-centralized assembly. Instead of the object-matrix route combination, OSTİM and Yenimahalle stacks are polycentralized around specific matrix routes. Siteler, Aydınlıkevler, Demetevler, and Gazi are more decentralized since neither matrix routes nor objects are stressed enough.

Instant stacks of Ankara can be described as a more inconsistent version of serial stacks in terms of urban conditions. Although some of them are very similar to the serial stacks, the inconsistency, in general, stems from the deviation from the initial configuration pattern. Because of the deviation, some stacks are classified as instant stacks, which will be elaborated further. Instant stacks cover the areas, which become

their temporary names, as follows: Öveçler-Dikmen-Ayrancı (ÖDA), Çukurambar, Keçiören, İncesu, Sincan.

The structural analysis demonstrates that apartment buildings are the only unit types of instant stacks. However, the apartment buildings vary based on the building footprint and storey dimensions. In fact, whereas Öveçler-Dikmen-Ayrancı, Keçiören, İnsesu, and Sincan stacks consist of mainly three units which the dimensions are close to each other, larger and higher apartment building units make up Çukurambar stacks. While 4-5 storey height apartment buildings constitute the main structure of the former stacks, Çukurambar's main structure is composed of 10-12 storey height apartment buildings. Indeed, this difference causes a drastic characteristic change in both the structure type and the spatiality of urban interior and exterior.

All structure types consist of detached serial repetitive apartment buildings. However, the different unit types impose a diverse block typology in instant stacks. Except Çukurambar stack, the main apartment-block typology is essentially similar to those that constitute serial stacks. The detached serial apartment buildings generate double and perimeter apartment-block. Based on the block types, the major spatiality types appear as corridor, open courtyard, semi-open courtyard, and closed courtyard. On the other hand, it is difficult to categorize detached serial apartments in Çukurambar. This is related to dimensions of, in sequence, footprint, height, and interval between the repeating apartment buildings. The distance between the detached apartment buildings is too large to be categorized as an apartment-block. Instead, those apartments can be classified as point blocks despite the serial repetition. In this respect, it is difficult to discuss the spatiality of an urban interior. Indeed, they only provide massive gates into the gardens, which do not function as gardens typologically and are not in use of public, between the repeated units.

The main street composition type of instant stacks is mixed-gridded. This is the main reason behind the deviation visible within the instant stacks. The alteration of the grid results in the configuration type of buildings fluctuating between the gridded and clustered types. In fact, despite the fluctuations Öveçler-Dikmen-Ayrancı, İncseu, and Sincan stacks can be classified under the gridded configuration category. However, the configuration of Keçiören stack deviates from the gridded type dependent on the landform, which causes the grid to be distributed along the isohypse as curvilinear.

The clustered condition expresses a better building configuration in Keçiören stack. As it is in serial stacks, courtyard types vary according to the fluctuations. The corridor type (corridor-1/2) is the dominant type in Sincan and Öveçler-Dikmen-Ayrancı stacks, while Keçiören includes all types of corridor and courtyards composed of detached serial buildings. The clustered configuration, indeed, is a result of the varying transversal widths of the courtyards and corridors (open courtyard-1, open courtyard-2, semi-open courtyard, closed courtyard-1/2/3, corridor-1/2) in Keçiören. On the other hand, Çukurambar stack can be classified as a majorly clustered configuration type. The point blocks only generate passages/gates that make it difficult to define them as interior spatiality. In fact, they can be categorized as non-spatial structures in terms of generating an urban interior.

Instant stacks include different orientation conditions as in serial stacks. Öveçler-Dikmen-Ayrancı, Keçiören, and Sincan stacks demonstrate concave formed expansion through their imaginary boundaries. By contrast, the selected borders of Çukurambar stack in more convex orientation. İncesu stack, distinctly, shows a linear orientation. In this regard, Öveçler-Dikmen-Ayrancı, Keçiören, and Sincan stacks introduce much more potential to interconnect with the surrounding assemblies, whereas the convex orientation of Çukurambar stresses disengagement. The orientation of İncesu stack, furthermore, is a confirmation of bindery, which is the river in this case.

The disposition types of serial stacks differ depending on the central matrix routes. Öveçkler-Dikmen-Ayrancı, Keçiören, and Sincan demonstrate polycentralized disposition whereas İncesu represent a centralized condition. This means that while the former three instant stacks are centralized through multiple matrix routes, İncesu stack is centralized around one matrix route, which is indeed İncesu stream as a centralizing axis of the instant stack. On the other hand, it is difficult to mention a centralizing matrix route in Çukurambar stack.

Informal stacks are, in fact, more different than serial stacks and closer to instant stacks based on the urban condition types. Indeed, the number of informal stacks is smaller compared to the serial and instant stacks in Ankara. This is due to the fact that they evolved into a hybrid version through their planning strategies in time. İnformal stacks mainly cover Altındağ, Mamak and the hillside of Ankara Castle. Although the hillside of Ankara Castle is included in the objects as an assembly for particular

reasons, which will be further elaborated, this study explains that part of the Castle as a small stack within an inclusive object stack. In this respect, the informal stacks in Ankara derived from the structural analysis are as follows: Altındağ, Mamak and Castle stacks.

The units of informal stacks are smaller than in serial and instant stacks. Although the areas of informal stacks are also residentials, they are not apartment buildings. In fact, the major unit type is a very small in footprint compared to the apartment building and 2 storeys height. However, Mamak and Altındağ stacks can be named as more hybrid informal stacks, including apartment buildings identical to the ones in serial stacks and instant stacks. The structure of Castle stack, on the other hand, is a pure informal stack where the only unit is the small dwellings. Indeed, it is crucial to distinguish the small dwellings of Castle from the units of Mamak and Altındağ. Although the dimensions of the building footprints and storey height are relatively similar, the units of Castle stacks reflect more architectural elements than the others. Whereas the units of Castle stack are historical buildings derived from Ottoman settlement, the units of the other informal stacks, with the exception of recently erected apartment buildings, are squatters. Despite the architectural differences between the two unit types, this study found a correlation between the two in terms of urban conditions.

The structures of informal stacks are composed of organic repetitive dwellings under either detached or attached distribution types. Because of the organic distribution type, it is not quite possible to describe them as blocks. Rather, it is better to describe them as an ensemble, which evokes the clustered form of buildings without referring to block typology. Yet, determining an ensemble on a figure-ground is not as apparent as defining apartment-blocks in other stack types. It is a more subjective process that spots a potential courtyard evolving inside the organically repeated buildings. Indeed, ensembles are the building clusters that are determined by one’s perception. In this regard, the street network serves as a guiding element in one's perception without being the sole determinant.

The street composition pattern of informal stacks is irregular-organic which reflects the absence of particular rules within the street types. Through the determining of ensembles, the configuration type of informal stacks becomes clustered type. In this regard, they generate corridor and courtyard types, yet in an organic distribution. The

corridor and courtyard types are different in informal stacks than in serial and instant stacks since the units are distributed as organic repetitive. Because transversal width could be utilized as a variable, the courtyard and corridor types through the structures with serial repetitive distribution were classifiable in both serial and instant stacks. In contrast, the geometry and size of the courtyards and corridors are so erratic in informal stacks as a result of organic repetition that it makes it difficult to classify them within themselves, such as courtyard-1 and courtyard-2. Indeed, all courtyards and corridors are unique in their informal stacks.

Both Altındağ and Mamak stacks are in concave orientation, which makes them open to interconnect their surroundings. However, their surroundings are almost devoid of buildings. The only relationship is with the landform. On the other hand, since this study included Castle stack within a different object assembly, its orientation type will be evaluated within that assembly. Both Altındağ and Mamak stacks are decentralized since there is no centralized matrix route visible.

Fragmented stacks are much different than the rest of the stacks. The hierarchy within the serial, instant, and informal stacks could be broken down into common units and structures. Although there is an apparent aggregation that defines them as stacks, it is not possible to indicate common structural components for fragmented stacks in Ankara. Yet, fragmented stacks still represent a hierarchical system since they can be dismantled despite the absence of alikeness between the extracted structures and units. The presence and individual recurrence of structures and units in fragmented stacks, notwithstanding their differences, is what defines these assemblies as stacks. In fact, the structures and systems of these stacks are constructed fragmented in time without a particular strategy in Ankara. This is the main reason behind the existence of structures that cannot be turned into common types. The major areas that appear as fragmented stacks are as following: Batıkent, Etimesgut, and Çayyolu-Ümitköy.

Furthermore, the street composition type is a reflection of deprivation from a strategy in the constitution of fragmented stacks. The fragmented stacks represent loop-gridded street composition. Indeed, this composition illustrates a total deterioration of a gridded composition that is more dramatic than the deviation seen in instant stacks. This condition results in the development of fragmented stacks in the clustered configuration type. However, the clusters of fragmented stacks are not defined through

a method as subjective as the clusters of informal stacks. Instead, each cluster is definite through its individual structure type. In other words, the different structures are the determinants of different clusters.

The main units consist of residential buildings in fragmented stacks. However, in terms of building footprint and height, the unit range is too wide to classify them as unit types. As well as all unit types visible in the other stacks being present, many additional unit types appear in fragmented stacks. The structure type also differs in a wide range of fragmented stacks. It is appropriate to claim that each structure is composed of serially repetitive as either detached or attached distribution of units. However, the pattern of serial repetitive structures is much different than those in serial and instant stacks. The buildings composing structures of both serial and instant stacks were mainly classified as apartment-block typology. Yet, any of the structures in fragmented stacks do not represent an apartment-block typology identical to those in serial and instant stacks. There are typical block types, varying from double block, perimeter block, and point block, as well as small dwellings such as row-houses and villas. All structure typologies appear in all three fragmented stacks in Ankara regardless of any dominance. There is no explicit dominance of any structure typology within those three.

Following this, each individual structure represents a spatiality type in terms of urban interior, yet they appear as the countless courtyard and corridor spatiality type. All the open courtyard, semi-open courtyard, closed courtyard, and corridor types are available typologically. Nonetheless, although most of the structures illustrate great potential for serving as urban interior, almost all of them are not in use of public, rather in use of small communities.

Whereas the orientation of Çayyolu-Ümitköy and Batıkent stacks are in convave form, Etimesgut stack represents a convex orientation type. In this respect, Çayyolu-Ümitköy and Batıkent stacks are open to interconnection with the surrounding, while Etimesgut stack appears as more separated. Moreover, all three fragmented stacks are polycentralized, which is an impact of a series of centralized matrix routes. However, those matrix routes are not as developed as in other stacks. The surrounding structure of the centralized matrix routes is left open to be emphasized.

	detached repetitive	attached repetitive	attached-detached repetitive	attached-detached organic-repetitive
open courtyard-1				
open courtyard-2				
open courtyard-3				
semi-open courtyard				
closed courtyard-1				
closed courtyard-2				
closed courtyard-3				
corridor-1				
corridor-2				
garden				
passage				
niche				
non-spaital-1				
non-spaital-2				
non-spaital-3				
non-spaital-4				

Figure 3. 8. Structure distribution and spatial types in stacks of Ankara

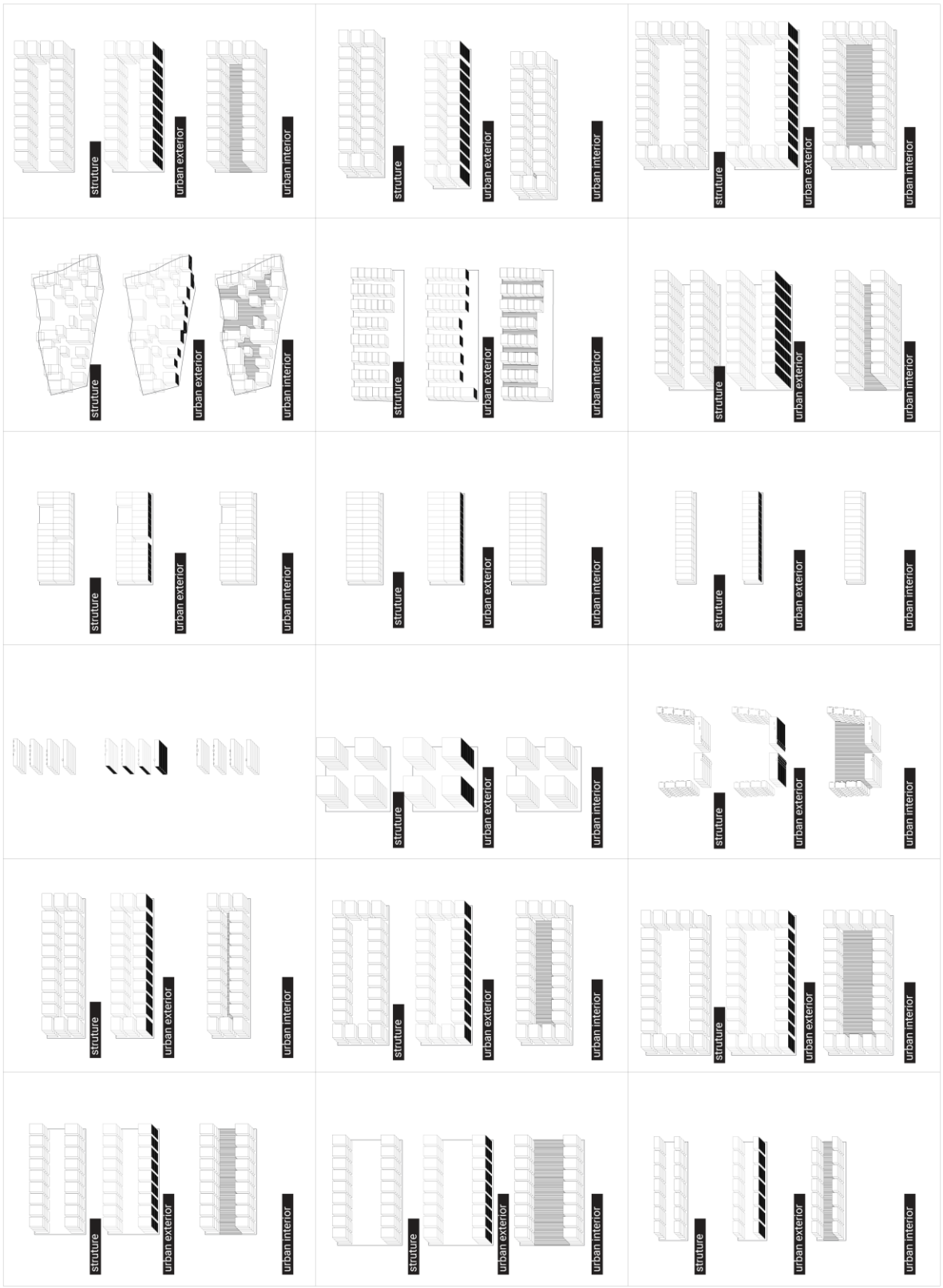

Figure 3. 9. Spatiality types of structures of stacks

Figure 3. 10. Spatiality types of structures of stacks

3.2.2.2. Enclaves in Ankara:

First of all, the most prominent feature of enclaves is the seclusion through gated boundaries from the city. Furthermore, it has previously been stated that enclaves cover large areas of the city, but the void outweighs the building figure. Indeed, enclaves appear as institutional territories that are not in use of public in Ankara. Stacks were defined by imaginary boundaries where the common urban conditions began to disappear. Enclaves, on the other hand, already define their own borders through the official boundaries, including gates, of institutional territories. In this respect, the institutional functions are taken as temporary labels for each enclave to refer to them when discussing urban conditions in them. Following this, the enclaves in Ankara are as follows: Çankaya-Military (area), Turkish Republic Presidency, Çankaya Ministry-Embassies (territory), Gazi-Ankara University (campus), ODTÜ-Bilkent-Hacettepe Universities (Campus), Etlik-Hospital. Yet, there is one more enclave which is difficult to identify through institutional names since it is a miscellaneous, in terms of functions, a strip of adjacent enclaves following majorly Ankara Stream until one point. For that reason, this study will refer to it as the Ankara Stream enclave, which includes different institution types varying from military to agricultural areas.

Following this, enclaves separate into two as single and composite enclaves. The subsequent part is the comparison of those enclaves based on the urban conditions.

Single enclaves are Turkish Republic Presidency and Çankaya-Military areas. In fact, each buildings are the structural units in both enclaves. It is difficult to mention any hierarchical typologies within them. Both stand in a totally isolated configuration within the city. The buildings behave as objects that are dispersed in the field. The orientation of both single enclaves is in a convex form that naturally stresses the separation of both assemblies from the city. The dispositions were related to the matrix route and object hierarchy within the stacks. However, within enclaves, it is not possible to find matrix routes inside the assemblies since they are mostly campus territories. In this respect, their disposition is associated with the building distributions within those territories. Following this, there is no prominent center in both enclaves. The disposition of both is decentralized.

Composite enclaves are composed of an assemblage of multiple enclaves without any interruption between them. In Ankara, some enclaves appear next to one another and cover a major part of the city, resulting in the occurrence of a composite enclave. The composite enclaves in Ankara are as following: Çankaya Ministry-Embassies, Gazi-Ankara University, Ankara stream, ODTÜ-Bilkent-Hacettepe, Etlik Hospitals.

Çankaya Ministry-Embassies enclave is composed of the isolated fields of Turkish Republic Parliement, ministries, and embassies of different countries (USA, German, Italy, Bulgaria, Egypt, France, Hungary, Serbia). Gazi-Ankara University covers the campuses of Gazi University and Ankara University, as is evident from the name. Etlik Hospitals include the new city hospital and military hospital (GATA) next to each other.

All composite enclaves are in a clustered configuration since they appear as a group of multiple enclaves. On the other hand, the orientation of composite enclaves is different due to the clustered configuration. Both Çankaya Ministry-Embassies and Ankara Stream enclaves are linear-oriented assemblies. This means that they are both clustered through a bindery. Whereas the stream is the linear link in the Ankara Stream assembly, Atatürk Boulevard, as a matrix route, is the main connector within Çankaya Ministry-Embassies enclave. Gazi-Ankara University and Etlik Hospitals are in convex forms through their boundaries, emphasizing the isolation from the city. ODTÜ-Bilkent-Hacettepe, in fact, represent both convex and linear orientation. This is because the cluster of enclaves is a result of the elongation on Eskişehir Road, while the areas of the enclaves expand too much towards the south to be considered as a sole linear assembly. The convex form prevails over linearity through this expansion. Because they are clustered assemblies, it is appropriate to classify the disposition of composite enclaves as polycentralized. Furthermore, the street composition of all is loop-organic, expressing the dominance of irregularity within the assembly.

3.2.2.3. Objects in Ankara:

The objects can be described as complementary elements of the backbone of Ankara. It is mentioned before that an object may appear both in a stack and a enclave. In these cases, they become focal points within the assembly. Different from stacks and enclaves, likewise, it is not appropriate to determine an object alone as an assembly since it does not represent any particular area. Rather, objects stand alone as mega

forms, acting as flash points inside the city.[45] However, the reason why this study assumes the objects as assemblies in Ankara is that some parts of the city are dominated by clusters of objects appearing as pools of flashpoints. In this respect, this study attempts to highlight those pools to be able to extract some principles from urban conditions. Stacks and enclaves were mainly labeled by the area that they covered. However, it is difficult to name the object assemblies based on either a neighborhood name or a function since the objects neither cover a major neighborhood nor work under similar functions. They are configured in the city regardless of both, yet there are elements that objects follow to appear in the city. Indeed, the pool of objects is mainly elongated through some road axes and the surrounding of Ankara Castle. Subsequently, the objects assemblies in Ankara are labeled regarding those as follows: Castle, Eskişehir Road, Mevlana Boulevard, Railway (between Kızılay and Ulus).

It is mentioned before that objects are divided into two as singular and composite objects, since they change the spatiality of urban interior and exterior. However, it is not possible to describe those mentioned object assemblies as total singular or composite object assemblies. For that reason, those assemblies are separated based on the dominance of singular and composite objects.

Singular objects in Ankara are Eskişehir Road, Mevlana Boulevard. The units of singular objects are mainly public buildings, which are majorly commercial and institutional buildings. Since objects are non-hierarchical assemblies, the essential urban conditions for them are the geometry and position of the units. Regarding this, the dominant unit geometry is rectangular in both the Eskişehir Road and Mevlana Boulevard assemblies. Yet, there are two objects that are stressed as linear objects in the Eskişehir Road assembly, which are AŞTİ (Ankara Şehirlerarası Terminal İşletmesi) and Armada (Shopping mall). Except for them, all objects are rectangular. Furthermore, most singular objects as units in both assemblies are so high that they can be classified as plinth-towers, plinths, and towers in terms of architectural typology with a few exceptions. Most of the singular objects in Eskişehir Road are positioned in the middle of the land surrounded by streets. Mevlana Boulevard objects are positioned in the center more, yet the middle positioned objects are also present. The architectural typology with its geometry and position reveals the spatiality of objects

[45] Which is very similar with Rossi's autonomous urban artifacts or Ungers' Grossforms.

in terms of the urban interior and exterior. Indeed, singular objects composed of different combinations of plinth and tower do not provide a spatiality as an urban interior. In general, the plinth is the only part that is under public use. However, their typology is mostly closed rectangular boxes that do not provide outside space within the plinth. Because they are positioned in the middle, they only provide the frontal part of the land, which is mostly not defined architecturally enough to be described as an urban interior. In the Eskişehir Road objects, AŞTİ and Armada buildings are the only ones that provide an urban interior spatiality. However, whereas AŞTİ is positioned on the periphery as a linear building that provides a large area defined by the building itself, the current use does not benefit from this typology. Armada, on the other hand, composed of two rectangular buildings positioned on the periphery to generate an open courtyard.

The orientation of both singular objects assembly is linear. They are aligned on a central matrix route that binds all the singular objects. The street composition is loop-gridded which deteriorates from the linear axis.

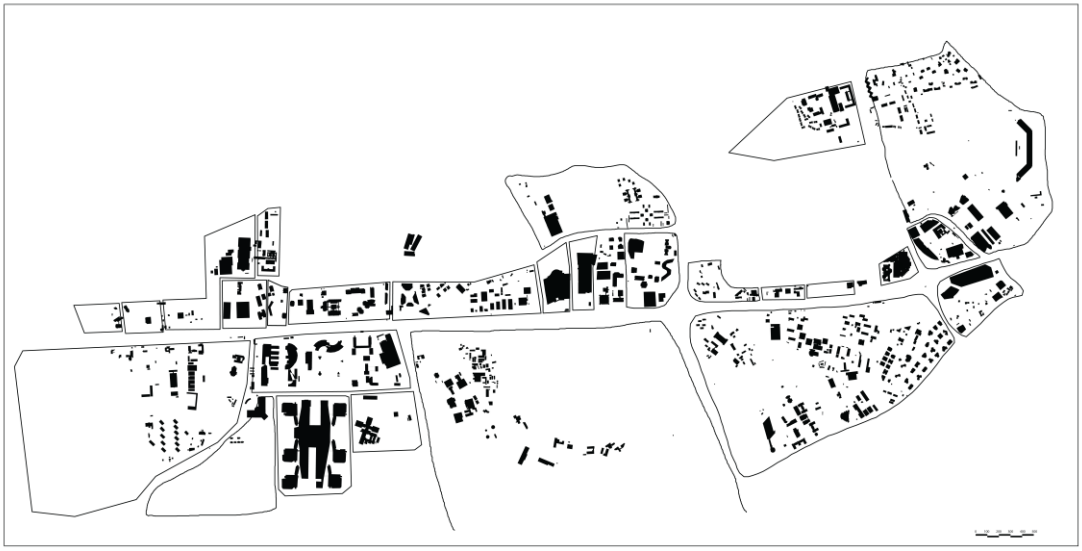

Figure 3. 11. Objects around Eskişehir Road

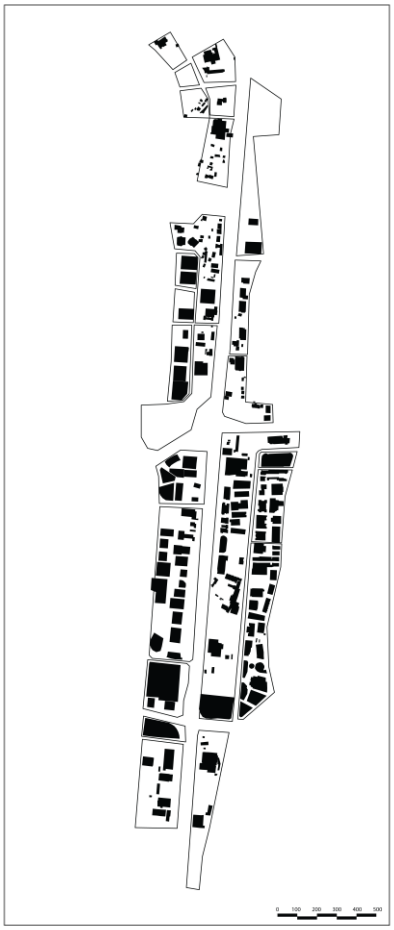

Figure 3. 12. Objects around Mevlana Boulevard

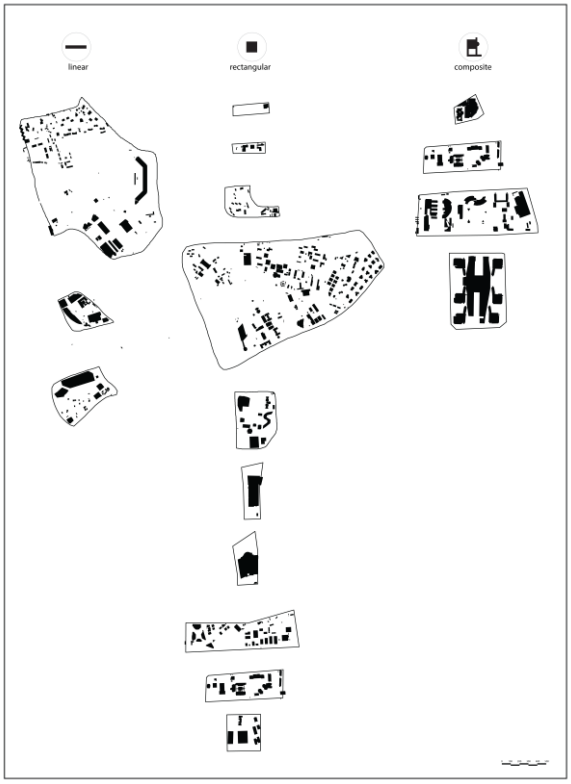

Figure 3. 13. Geometry of objects on Eskişehir Road

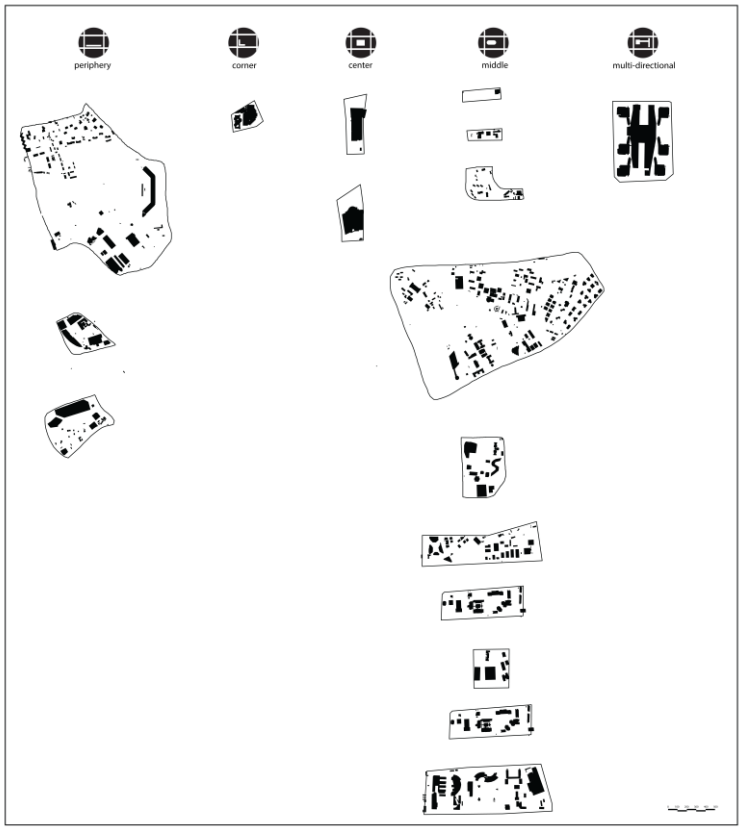

Figure 3. 14. Position of objects on Eskişehir Road

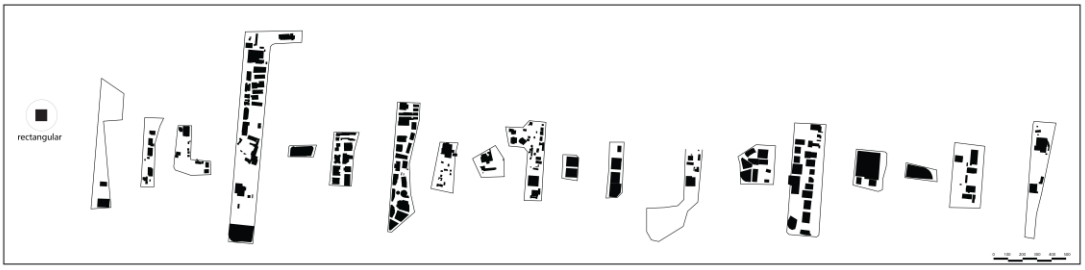

Figure 3. 15. Geometry of objects on Mevlana Boulevard

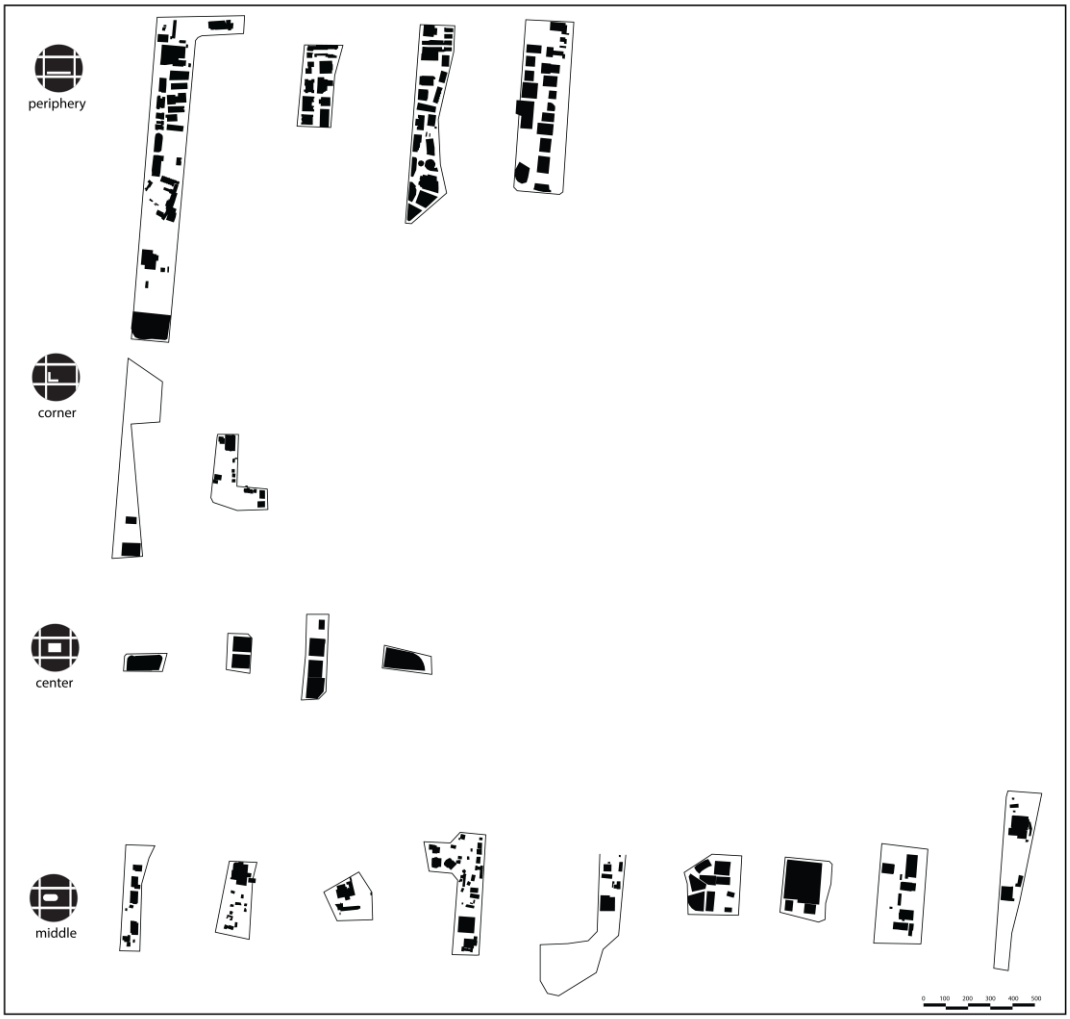

Figure 3. 16. Position of objects on Mevlana Boulevard

Composite objects are the Castle (surrounding) and the Railway (axis between Kızılay and Ulus) assemblies. First of all, the street composition of Castle objects is mixed-gridded whereas Railway objects sit on a loop-gridded street pattern. This difference is more influential in the spatiality of the urban exterior than in the interior. The units of composite objects are mostly institutional buildings rather than commercial buildings as singular objects. Although singular objects are also present, those two assemblies have a rich domain of composite objects. In general, the geometry of object units varies from linear to rectangular. In the Castle assembly, most composite objects are positioned as multi-directional. In fact, the geometric units of composite objects in Castle assembly generate interesting spatiality, serving as both urban interior and exterior. Differently from the singular objects, tower and plinth do not compose the dominant architectural typology. Rather, more complex and unique architectural typologies are present in composite object assemblies. In this respect, they produce courtyard, corridor, and passage spatialities in different geometric combinations. However, those courtyards and corridors are also different from those in the stacks. In this respect, it is not appropriate to analyze their typologies under certain categories. All composite objects are open to architectural analysis that could reveal the unique spatialities in detail.

The orientation of the Castle assembly is convex, whereas the Railway assembly is linear. Indeed, Castle as an assembly that hosts a composite configuration type consisting of informal stacks and objects represents a strong autonomy/individuality. This autonomy reflects itself on the orientation as a convex form, which is a result of accumulation around the half of hill of Ankara Castle. Railway assembly, on the other hand, is a consequence of the railway line acting as an obstacle, blocking the expansion across the line. In this respect, the railway line itself becomes a bindery that leads the expansion linearly. The disposition of the Castle assembly is polycentralized whereas the Railway assembly is decentralized. The Castle assembly is polycentralized since both Atatürk Boulevard, which is a centralized matrix route, and Ankara Castle serve as centers in the assembly. Because of the emphasized linearity, the Railway is a decentralized assembly.

Figure 3. 17. Objects around railway road and next to Castle

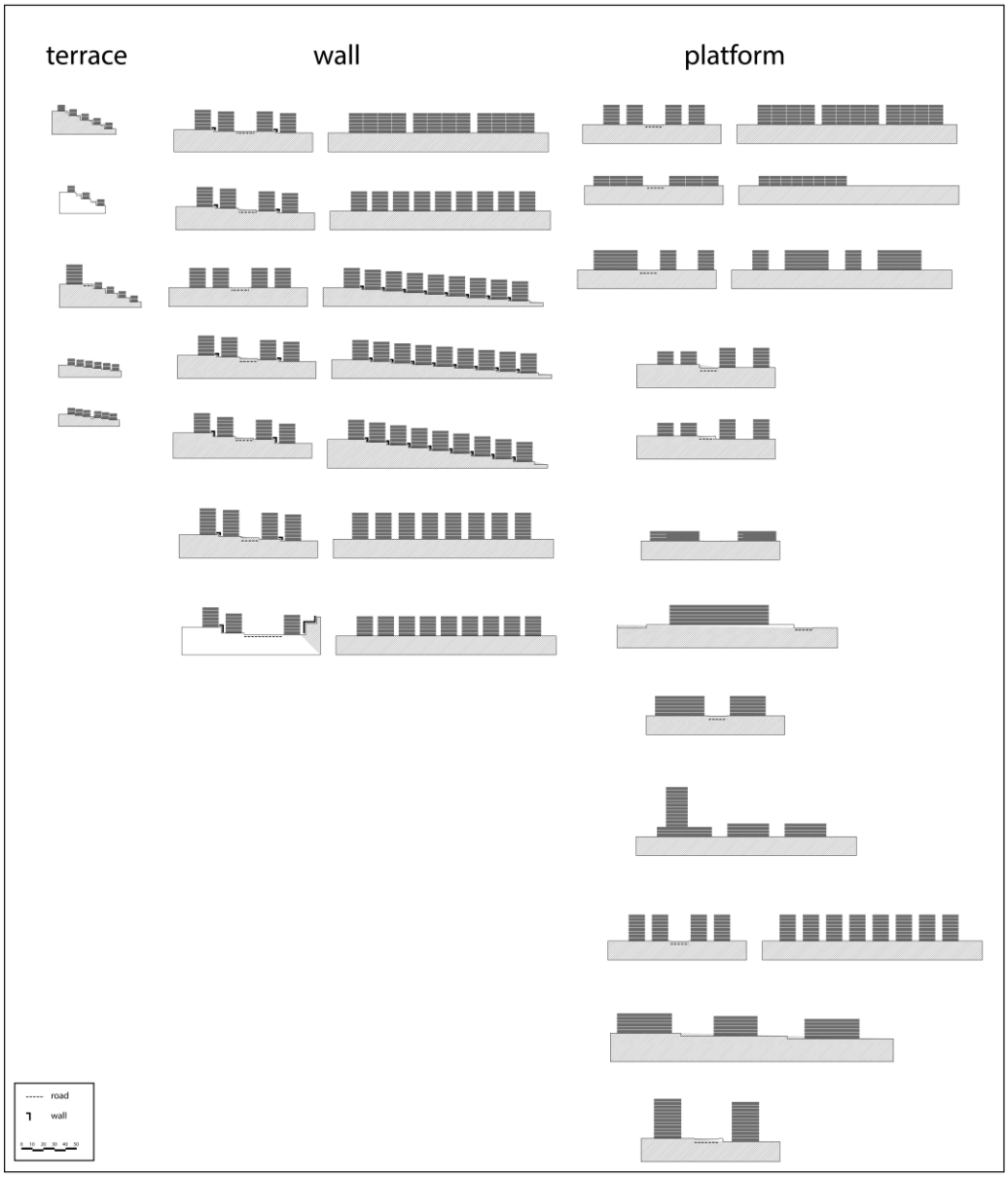

Figure 3. 18. Spatiality of buildings related to topography in assemblies of Ankara

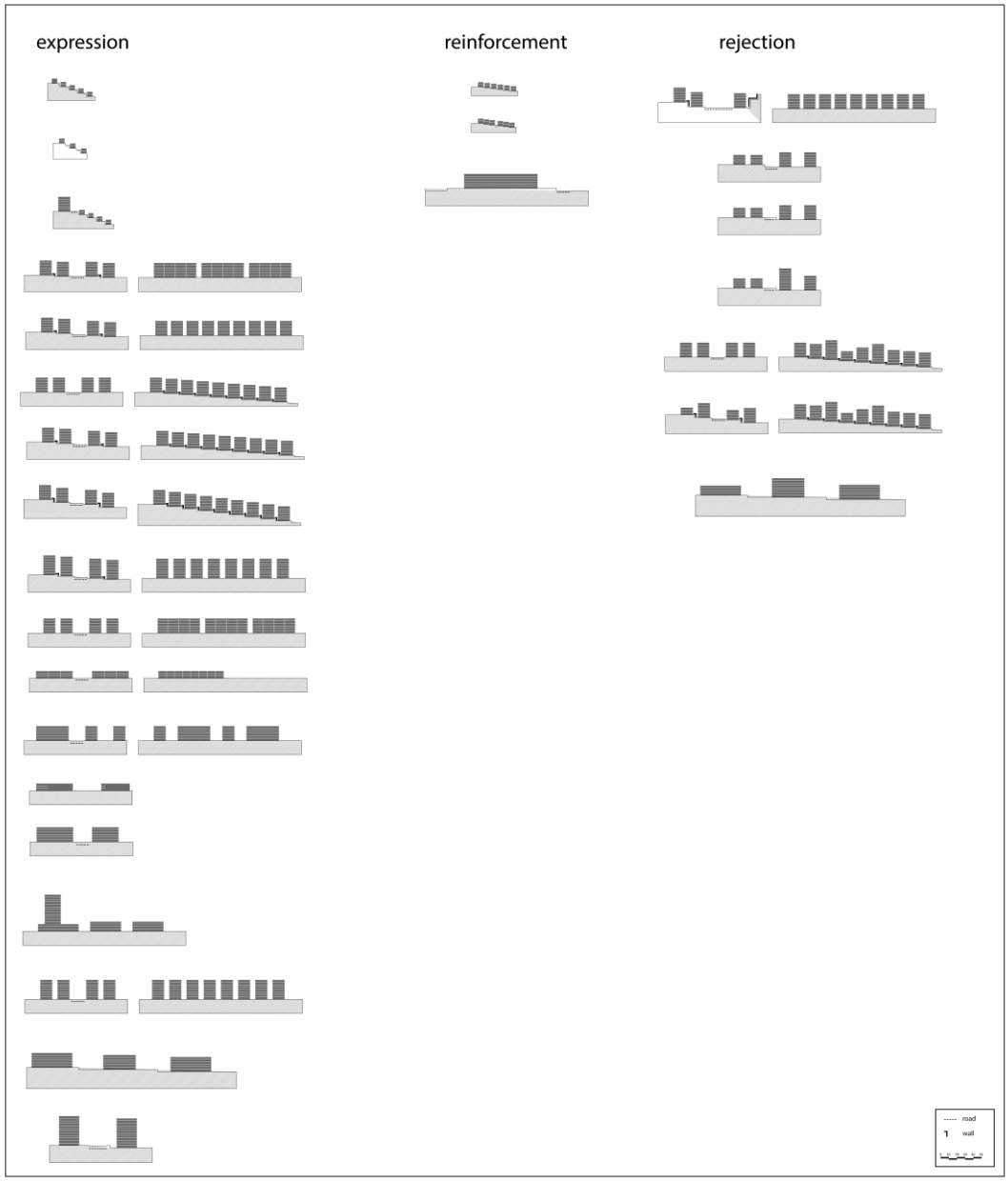

Figure 3. 19. Topograhical expression through buildings in assemblies of Ankara

CHAPTER 4

4. Historical Evolution of Cataloged Assemblies: Planning Periods as Critical Consciousness States

As previously stated, this study used Caniggia's "critical consciousness" term to follow the evolution of present assemblies from a morphological perspective. Ankara, as the new capital of the Turkish Republic founded in 1923, needed a master plan to be a contemporary capital. This demand has persisted as the city has grown rapidly. As a result of this, it was challenging to maintain the “spontaneous consciousness” -which means continuing with the already existing planning strategies- to some extent. These periods correspond to the “critical consciousness” states of Ankara. In this sense, the government and municipality intervened during critical consciousness periods when spontaneous consciousness was insufficient for the city's development. Those actions were to activate the planning strategies and foresee the subsequent critical consciousness periods. Ankara has experienced six different planning periods under those interventions: Jansen, Yücel-Uybadin, AMANPB 1990 Plan, 2015 Structure Plan, 2025 Plan, and 2023 Plan (Çalışkan, 2009).

From this chronological list, considering the visualization strategy of this study, all planning periods except the 2025 plan were monitored by interpreting them through the structural terminology of this study. However, in addition to the previously mentioned planning periods, this analysis includes the 1924 plan as a "critical consciousness period," which was a survey plan before the first master plan of the new capital. The value of all critical consciousness states is explained under each planning category. Nonetheless, it should be noted that the analysis of each planning period is not exactly comparable with each other. This is related to the dramatic modification behind the planning strategies. Considering those strategies, which will be elaborated further, and the scale of the planning areas, it is possible to compare the first three and the last three planning periods with each other. Because of the significant jump in planning scale, the materials of drawing and maps allow for monitoring only limited detail in the subsequent planning periods.

4.1.1924 Plan:

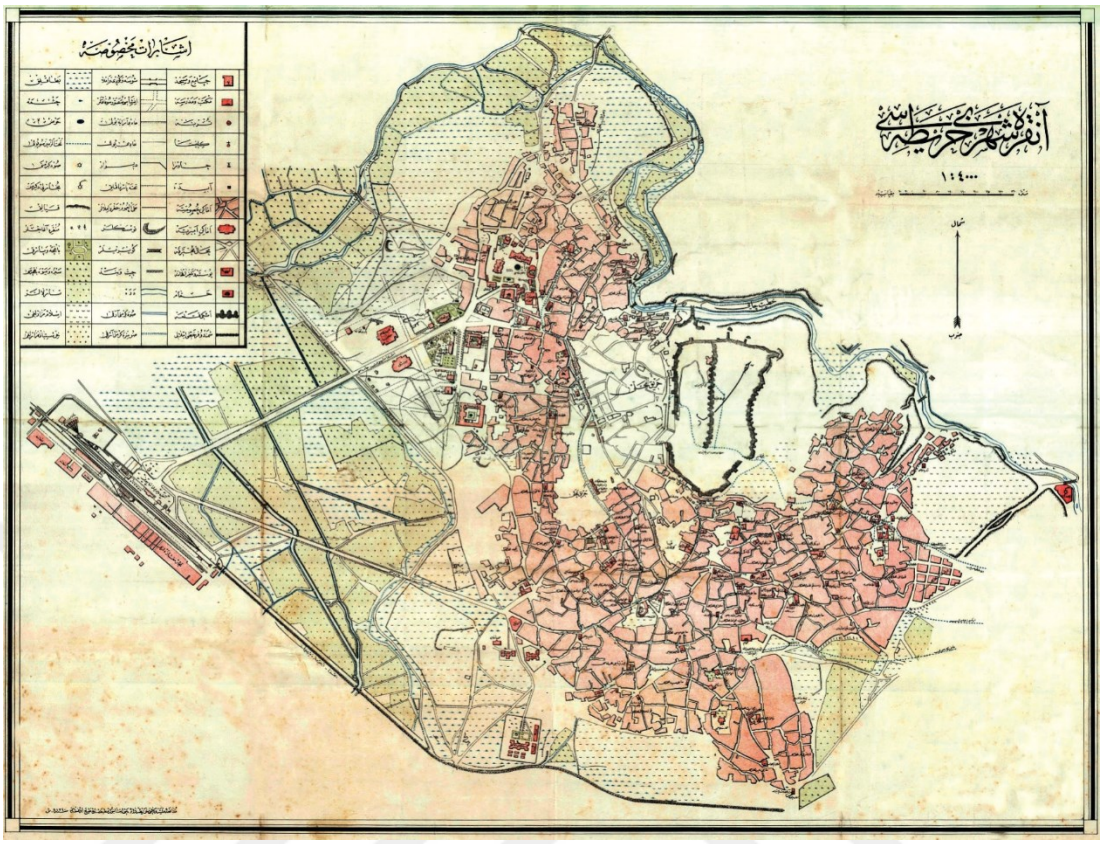

Figure 4. 1. Ankara 1924 map (Source: Günel G. and Kılıcı A. (2015). Ankara Şehri 1924 Haritası: Eski Bir Haritada Ankara'yı Tanımak. Journal of Ankara Studies. 3(1) 80.)

The 1924 Plan is not a real master plan for the city. Rather, right at the beginning of the foundation of the Turkish Republic, the plan was prepared by military cartographers (directed by Von Vinkle) in 1/4000 scale in line with the governmental purposes that targeted the transformation of the city of Ankara into the new modern capital city of the country (Günel and Kılıcı, 2015). The plan was actually a survey. It was produced to document the exact conformation and articulation of the historical city. This is because it was vital to comprehend and evaluate the possible strategies for launching the major parts of the new city before preparing a new master plan.

It mainly introduces waterways, streams, and lakes in blue; the green areas, including agricultural zones, parks, gardens, and vegetable gardens (bağ) in green with the identification of wetland areas; and the residential districts as islands of land with monuments and public buildings in pink (Günel, G., Kılıcı, A., 2015, p. 79). It is evident that the plan is not only the tracing of existing physical conditions but also an introduction to some planning decisions based on the route patterns and land division

(Cengizkan, 2018, p. 21). In this respect, although it is not an official master plan, 1924 Plan is kind of a map monitoring existing spontaneous consciousness and pre-decisions for critical consciousness period to construct new contemporary capital city. For that reason, the 1924 Plan is crucial to following the birth of assemblies in Ankara.

There are several reasons behind the preparation of the 1924 plan. Yet, one of the major reasons is to establish a framework for the future planning interventions, especially covering new route systems with the revitalization of existing route patterns (Cengizkan, 2018, p. 21). In this respect, this plan can be identified as "a transition plan", which, the first time in the history of Ankara, represents the encounter of two different structure systems: gridded and clustered configurational patterns. Indeed, the first encounter is the earliest form of Castle Assembly, which consists of composite objects and informal stacks. The second encounter, on the other hand, is the attachment of the street grid to the railway line, which can be described as the skeleton for Railway composite objects assembly.

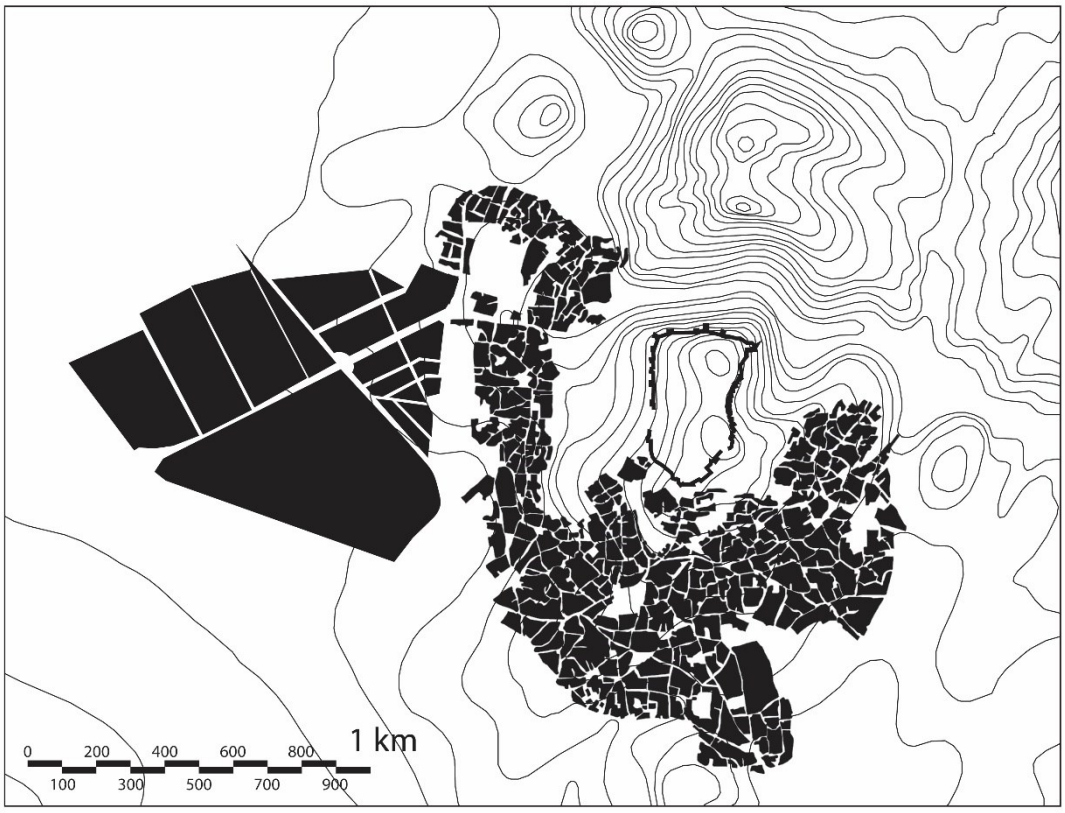

Figure 4. 2. General configuration of assemblies in 1924 plan

4.1.1. Building layer conditions:

First of all, based on the appearance of new routes and land divisions, it is possible to identify three major configurations that are suitable to define the initial version of the Castle and Railway Assemblies (Figure). The first one is the aggregation of the residential neighborhoods within the Ottoman settlement, which identified the very first assembly of the city as an already existing assembly in the period. As it appears in the 1924 Plan, this first assembly was characterized by a clustered configuration. The other two configuration types can be described as a scheme and a structure layout to support the arrangement of composite objects that become the symbols of the newly designed capital. Indeed, the first objects (TBMM, etc.) appear along the proposed gridded configuration around the castle. The grid extended to the railway, furthermore, suggests a larger composite configuration compared to the other grids. The railway station itself is the only object within the composite configuration through the street divisions as it is depicted in the 1924 map. Although the two of them are just stated as schemes, they are regarded as *configuration* types in this research since they reflect almost the same layout as the existing Ankara urban form. Although these two were agricultural land (vegetable gardens and plantation lands), the main gridded division on the land, where objects dominated today, is still readable on the Castle assembly.

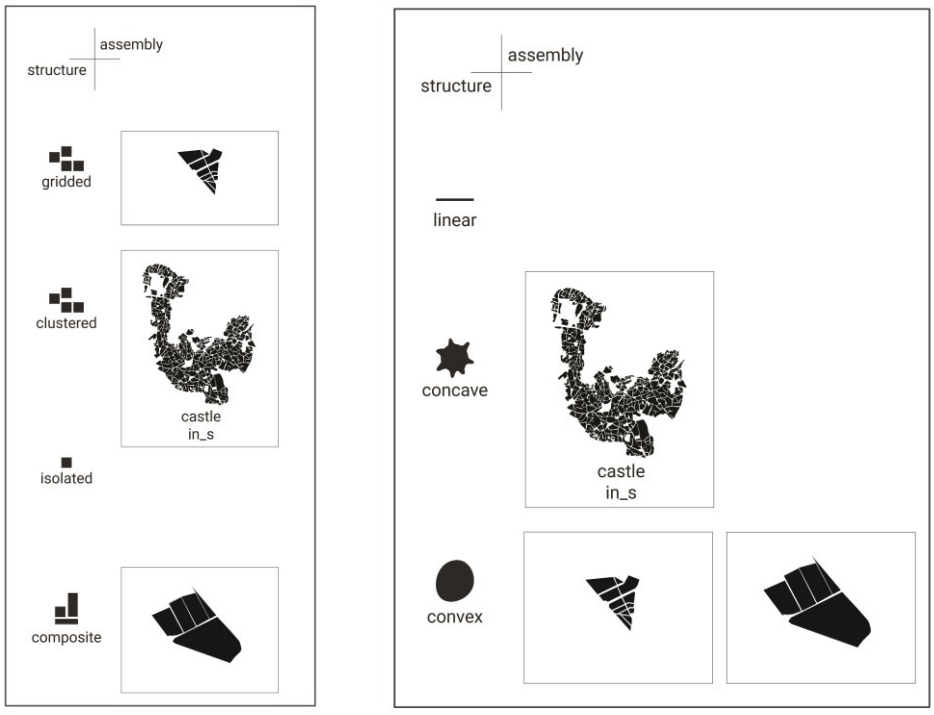

Figure 4. 3. Configuration and orientation types of assemblies in 1924 plan

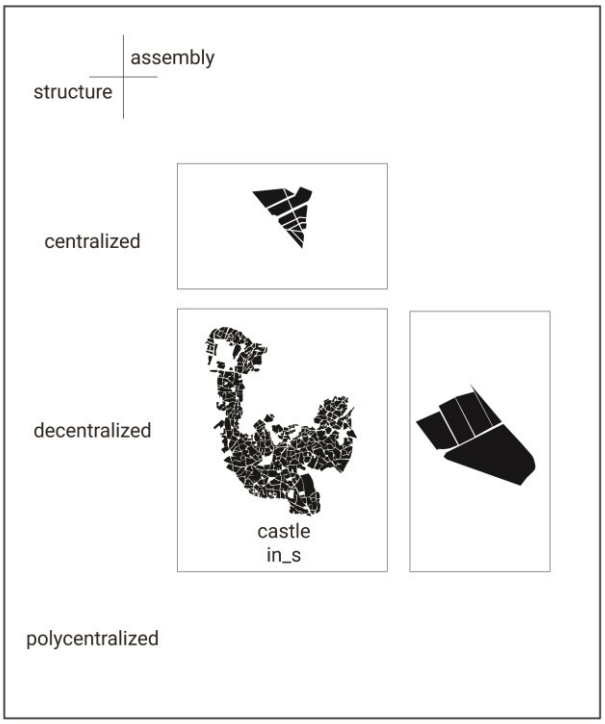

Figure 4. 4. Configuration and disposition types of assemblies in 1924 plan

The first forms of informal stacks surrounding Ankara Castle consisted of one or two storey structures surrounded by high walls (Günel and Kılıcı, 2015, p. 92) as units of a structure, which are almost identical to the current forms. According to the 1924 Plan, most organic repetitive structures of the Castle informal stack are composed of units clustered around public buildings (religious buildings such as camii, mescid, türbe, havra, kilise, the others as hamam, mektep ve medrese, posta ve telgrafhane) or monuments from Ottoman settlements (Günel and Kılıcı, 2015, p. 81). Indeed, those public buildings and monuments can be described as singular objects, as megaforms of their time. Their apparent arbitrary configuration was actually the typical layout of an ottoman urban settlement: position of houses and buildings dictated by local circumstances and by the presence of former constructions, and street layout as a direct consequence of building arrangement. It was not a regular links grid but an organic cluster. Instead, those objects were the points that constructed the clusters. Some objects within this settlement are still present, yet they are no longer classifiable as objects compared to the structure of a contemporary city. However, analyzing what smaller objects introduce in terms of urban interior and exterior is still valuable.

Accordingly, the formal features of the early stack of the Castle form of Castle stack enabled/produced/displayed a rich texture in the urban interior and exterior sequence.

The focus of the 1924 map does not provide details of the distribution of single units/buildings in detail; instead, it represents only the clusters in the form of small objects. Nonetheless, this study attempted to identify the spatiality of those objects linked to the clusters of informal stacks. The small objects are attached to the clusters in the form of providing either a core or niche. The Castle informal stack of this period includes small “meydan”s, open areas of a medium/large entity leftover among buildings that assume the role and the appearance of squares, which means square in architectural context but not in a geometrical manner since they are not always in the form of a square. Each square includes small objects that depict their geometrical center. Those buildings constitute the core of meydans as an urban interior. On the other hand, the niche illustrates the condition when each small object mainly appears as a niche on the edge of a cluster, structure system. However, the urban interior and exterior as a product of spontaneous arrangements -descended from Ottoman settlements- lost their value in the contemporary structure of Ankara. On the other hand, the 1924 plan provides the first clues about the Railway assembly with the Railway station buildings as the only object included in the Railway assembly.

Furthermore, the orientation of existing structures in the 1924 map illustrates a preparation for the evolution of the Castle assembly. The informal stacks surrounding the castle are in concave orientation. The concave form provides the interconnectivity essential to later connect with the objects that produce the present composite configuration of the Castle assembly. The grid attached to the Railway line represents a concave orientation, which suggests an individuality already in 1924. The gridded piece's disposition is centralized, which no longer exists in the current form of Ankara. The other two pieces represent a *decentralized decomposition* since they were eventually not able to provide a strong center. The other two pieces are decentralized since they were not developed enough to illustrate a specific center.

4.1.2. Street layer conditions:

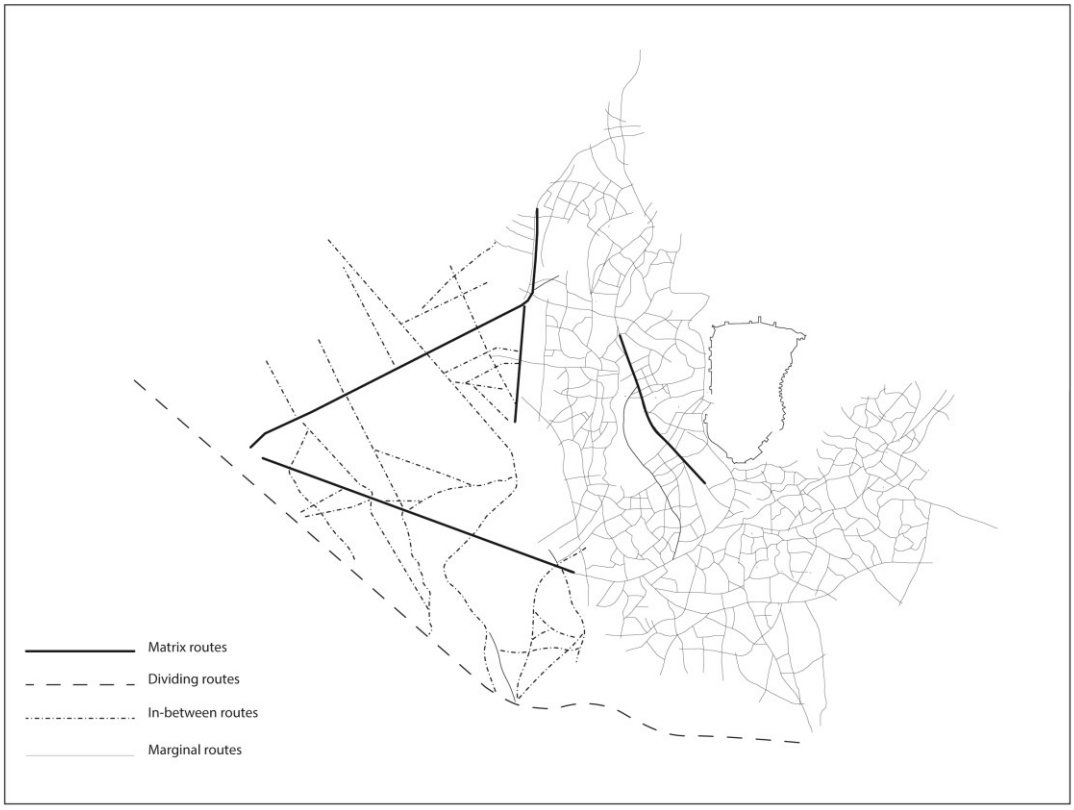

Figure 4. 5. General street pattern of Ankara based on 1924 plan

It was mentioned before that the main street composition type of Castle informal stacks is irregular-organic. Within the irregular-organic street patterns, it is difficult to define a centralized matrix route. Although the aggregation of those clusters does not reveal a hierarchy within routes, there appears to be some differentiation in routes' geometry, such as an evident linearity that would be described as a matrix route. There is a central commercial axis which is still an active route in the area of Castle informal stack. The axis follows a continuity through the commercial centers of that period, terminating in Hacı Bayram Camii. The commercial centers are, in order from South to North as follows: Uzun Çarşı (Çıkrıkçılar Çarşısı, Tahtakale, Karaoğlan Çarşısı. There are other commercial streets maintaining traditional trade, yet they are short routes mainly connected to the mentioned matrix route. Regarding this matrix route, the structural analysis of the 1924 map provides a potential for the urban exterior spatiality in Castle's informal stack. The alignment of clusters provides a continuous wall on the matrix route. The clusters aligned through this assembly's matrix route constitute a sense of wall. What strengthens the perception is the expanded linearity through the repetition of the structure systems along the matrix route that is mentioned. Although

the units of that period and current condition are considerably different by various means (height, dimension of footprints, and elevation), the layout of the units has been similar in terms of configurational geometry that characterizes an elevation structure as a “wall”.

On the other hand, the new street composition appearing next to Castle informal stacks in the 1924 map can be classified as regular-gridded contrary to the current composition (mixed-gridded). The structural analysis of the 1924 plan shows that the regular-gridded street pattern proposes two certain matrix routes. Both matrix routes terminate in the railway station building. One of them is the axis of the first and second parliament buildings of the Turkish Republic. The other one is the early version of the matrix route (connecting to Talatpaşa Boulevard) on the Railway assembly.

4.1.3. Topographical form:

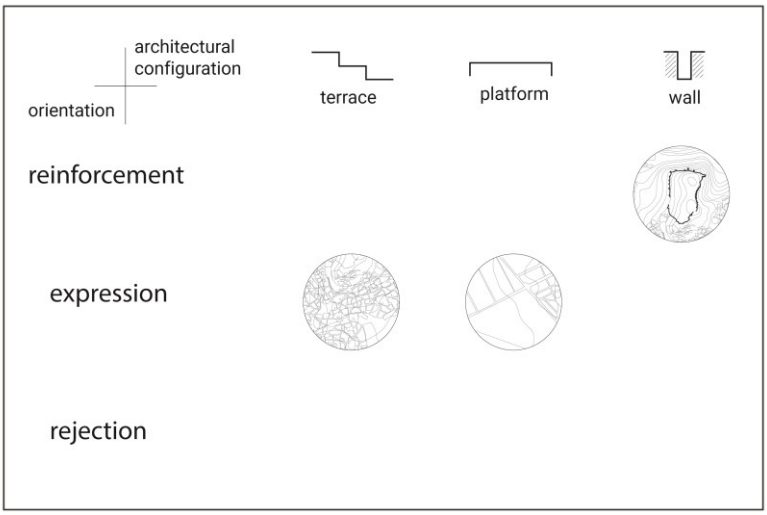

Figure 4. 6. Topographic interpretation of assemblies based on 1924 plan

The architectonic condition follows the form of the terrain. The form of the terrain is classified based on the *orientation* of the projection of its *elevation*. The whole assembly occupies a steep hill that goes downside towards the west, east, and south foothills (Günel, G., Kılıcı, A., 2015, p. 92). In this respect, the orientation of the projected elevation represents an “extrovert” form. The layout of the Ottoman city and the emergence of the Ankara castle walls gained a strong visual character, becoming a recognizable landmark visible from all directions within the city (Günel, G., Kılıcı, A., 2015, p. 92). Indeed, based on the extrovert form, this organism reveals two types of spatiality: terrace and wall. The clustered configuration of informal stack is originated in the steep slope of the terrain. The two storey buildings as units express the extrovert

characteristics of the hill and establish a terrace system through the organic pattern of structure systems. Accordingly, the high walls of Ankara castle reinforce this perception as spatial interruption. This interruption caused the assembly to be interpreted in two ways: bottom face (aşağı yüz) and top face (yukarı yüz) (Günel, G., Kılıcı, A., 2015, p. 92). On the other hand, the north side of Ankara Castle introduces a *wall* spatiality through the Castle's wall that emphasizes the steep slope of the northern side. Since the wall increases the effect of topographical *elevation* (extrovert), the Castle's walls *reinforce* the spatial impact of the landform.

4.2.Jansen Plan (1923-1957):

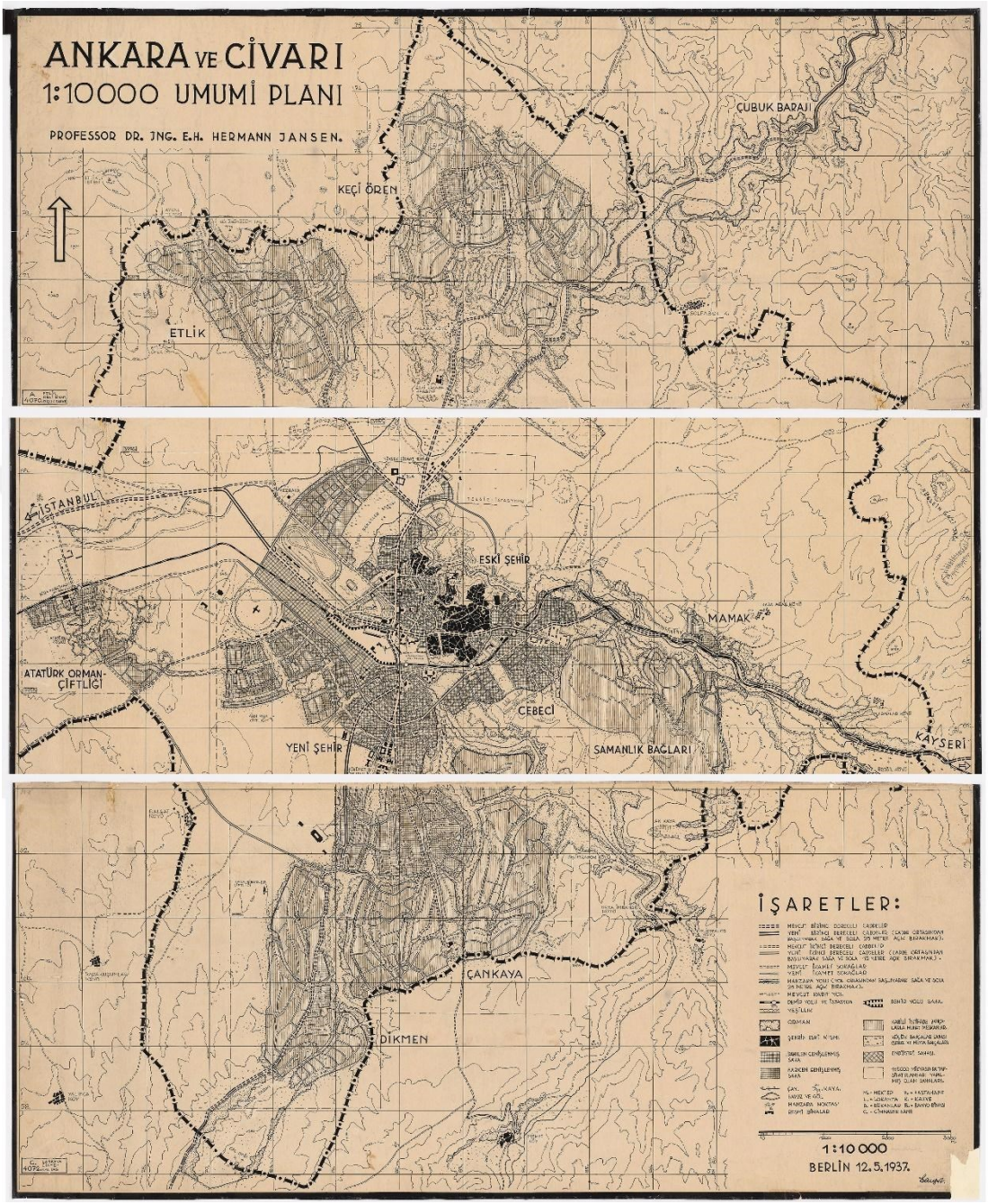

Figure 4. 7. Combined drawings of Jansen Plan of Ankara on 1/10000 (Source:TU Berlin Data Collection Retrieved from https://architekturmuseum.ub.tu-berlin.de/index.php?p=18)

4.2.1. General Structure:

The Jansen Plan was the first plan that was implemented for the construction of the contemporary capital city of Ankara.[46] Among the six critical consciousness periods

[46] There was Lörcher plan which was not put into practice from several reasons. There are detailed studies on Lörcher plan. Indeed, Lörcher plan has a considerable impact on Jansen Plan. Yet, this study did not include Lörcher plan since the main aim is to comprehend the structrual impacts of planning periods on the consructed city. For more information about Lörcher Plan and the similarities of Jansen

that this study analyzed, Jansen plan was very effective for the city form since it fixed and addressed a series of strong elements that became the main components even in later plans and developments. The major part of the structural organization (the *distribution* type of units) and the assembly types (serial stacks, objects) still keep their foundation. The structural analysis of the Jansen plan reveals that there were eleven differentiated assemblies, which are readable on the master plan (Figure). Although the eleven assemblies have transformed dramatically in terms of unit types, structure, and street composition, the structure systems and the visible borders of those assemblies maintained their importance throughout the subsequent planning periods. Indeed, it is appropriate to say that the Jansen plan, by means of the schemes of those eleven assemblies, became a skeleton for the future city of Ankara. Each of them differs in the types of units, structure, structure systems, and route types by various means. Yet, some commonalities foster the ability to categorize them under the same types of assembly despite their differences. In this respect, two main assembly types- stacks and objects- appear in the Jansen plan. Eventually, they set a dynamic, flexible scheme that was able to be transformed and adapted in time.

plan with it, see Cengizkan, A. (2004). *Ankara'nın ilk planı: 1924-25 Lörcher planı, kentsel mekan özellikleri, 1932 Jansen Planı'na ve bugüne katkıları, etki ve kalıntıları*. Ankara Enstitüsü Vakfı.

4.2.2. Building Layer Conditions:

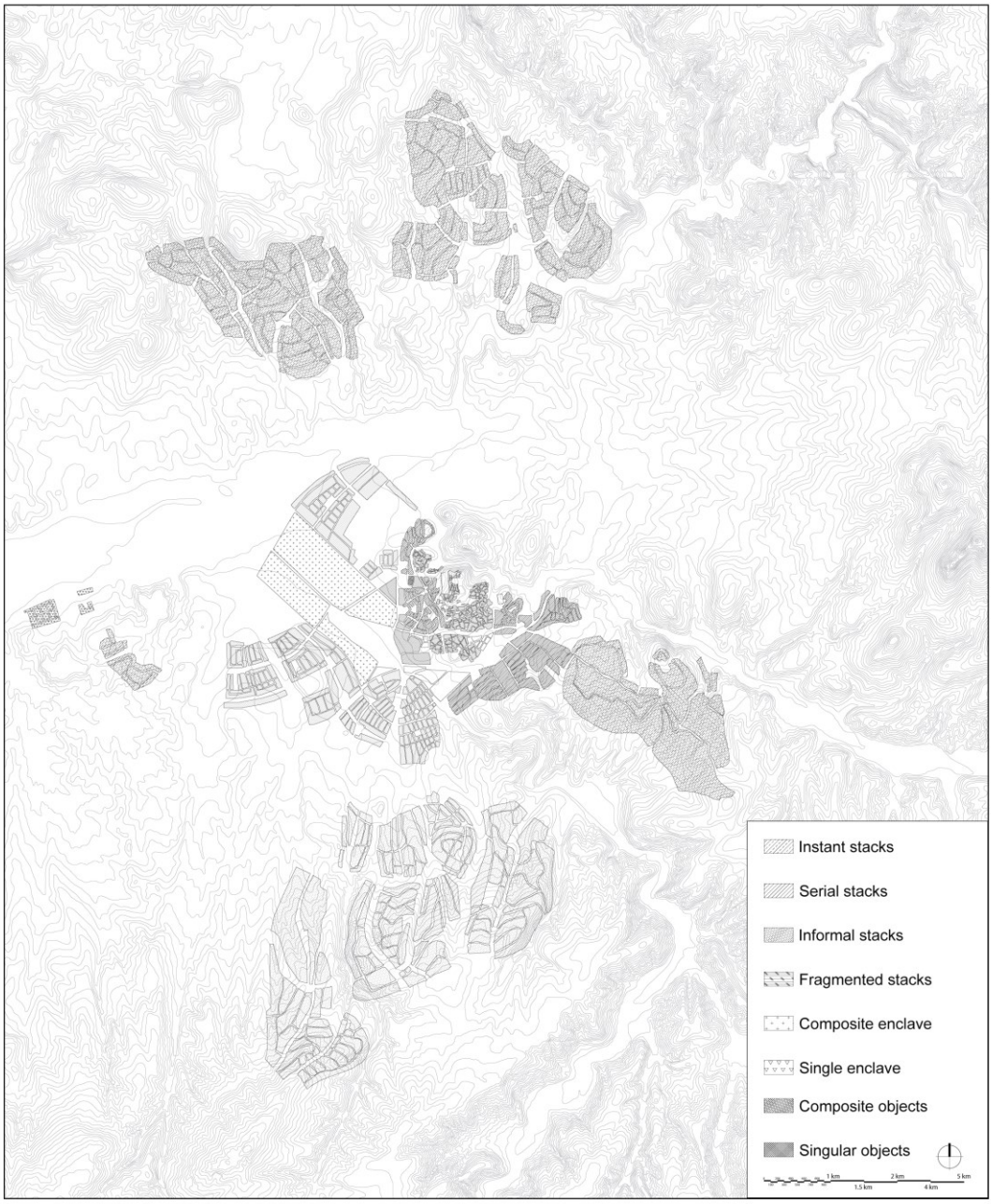

Figure 4. 8. Assembly types visible in Jansen Plan

As a demonstration of the fact that the Jansen plan provided a convincing structure for the future development of the city, the structural diagrams display how serial, instant, and informal stacks begin to develop. The apparent serial stacks are Bahçelievler, Kızılay-Kavaklıdere, Cebeci, Gazi, and İskitler stacks. Although there is no structural distribution for instant stacks, the Jansen plan suggests a scheme by means of street

divisions respecting the Vineyard garden areas.[47] According to this scheme, the emerging instant stacks are Keçiören and Dikmen. As an informal stack, it is possible to recognize still the assembly of the castle area that was already visible in the 1924 Plan. Moreover, the plan also offers some indications about the street composition of the Mamak district , although it is not possible to talk about Mamak as an informal stack composed of structures and units in the period.

Before mentioning the structural components of apparent stacks, it is better to explain their configuration, distribution, and disposition. The current gridded configuration of serial stacks is bound mostly to the emerging gridded configuration in the Jansen plan. Instant stacks such as Keçiören and Dikmen display strong deviations from the Jansen grid which was traced more in a consistent fashion with the landform, and was quite literally arranged after the isohypse. On the other hand, the plan envisioned the possibility of a new emerging stack that was never implemented. Jansen's design proposed a gridded structure that would convert half of Castle's informal stack into a serial stack. With Jansen's contribution, Castle stack began to look like a composite configuration of an informal and a serial stack quite different from the *objects* that dominated the area today.

The concave orientation of instant stacks already appears in the Jansen plan, while the linearity of Railway objects' assembly begins to form according to a linear orientation. Bahçelievler and Kızılay-Kavaklıdere stacks appear in a convex orientation. In terms of distribution type, some assemblies differ from the current condition type. Kızılay-Kavaklıdere is a centralized stack since its portion on the Jansen plan is a very small initial part. Atatürk Boulevard, the main north-south axis proposed by the plan Jansen plan proposed, becomes the matrix route centralizing the Kızılay-Kavaklıdere stack. Bahçelievler and İskitler stacks are also centralized. The scheme of Keçiören, Cebeci, Castle, and Dikmen stacks already demonstrates a poly-centralized disposition since their clustered configuration was consistently stressed in this scheme. The frame of Railway objects assembly, Gazi stack, and Mamak suggests a decentralized disposition that is evident still today.

[47] Those vineyard gardens were located as following:Dikmen, Ayrancı, Küçükesat Bağları on the south, Samanlık Bağları on the east, Asayvalı, Eğlence, İncirli, Etlik, Kurdini, Asincirli Bağları on the north-west, and Deliktaş, Güllükaya, Cevizlik, Çoraklık, Keçiören, Kubbeli, Toklu, Mecidiye Bağları ın the north as part of today’s Dikmen, Ayrancı, Esat, Altındağ, Etlik and Keçiören in order.

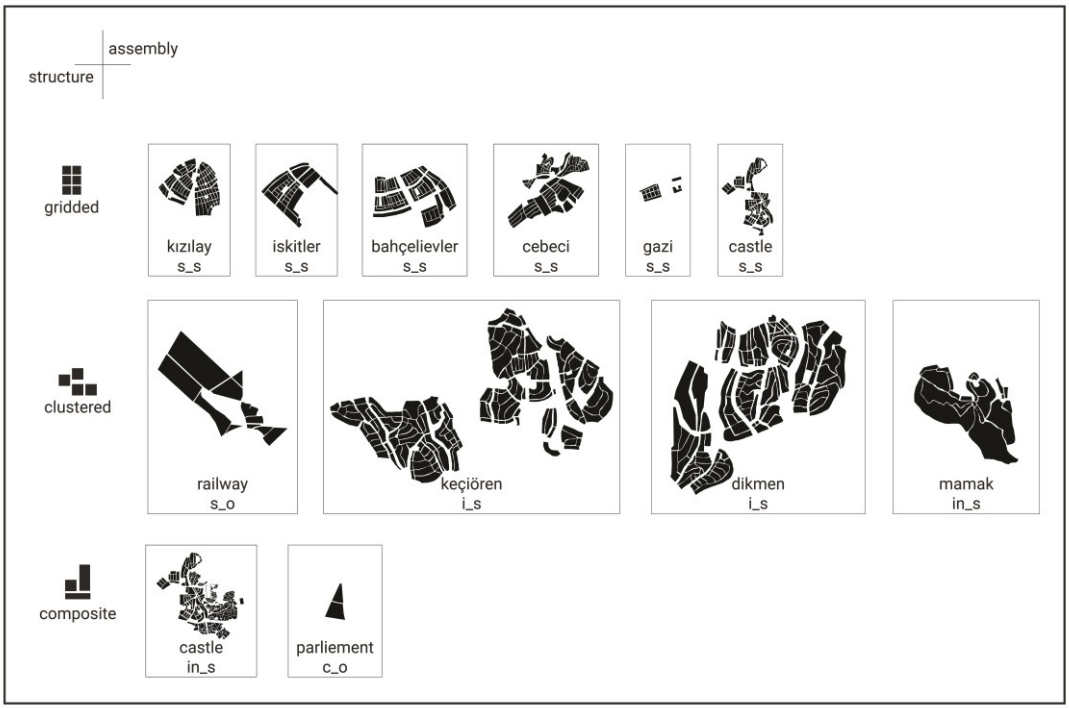

Figure 4. 9. Configuration types of assemblies in Jansen plan

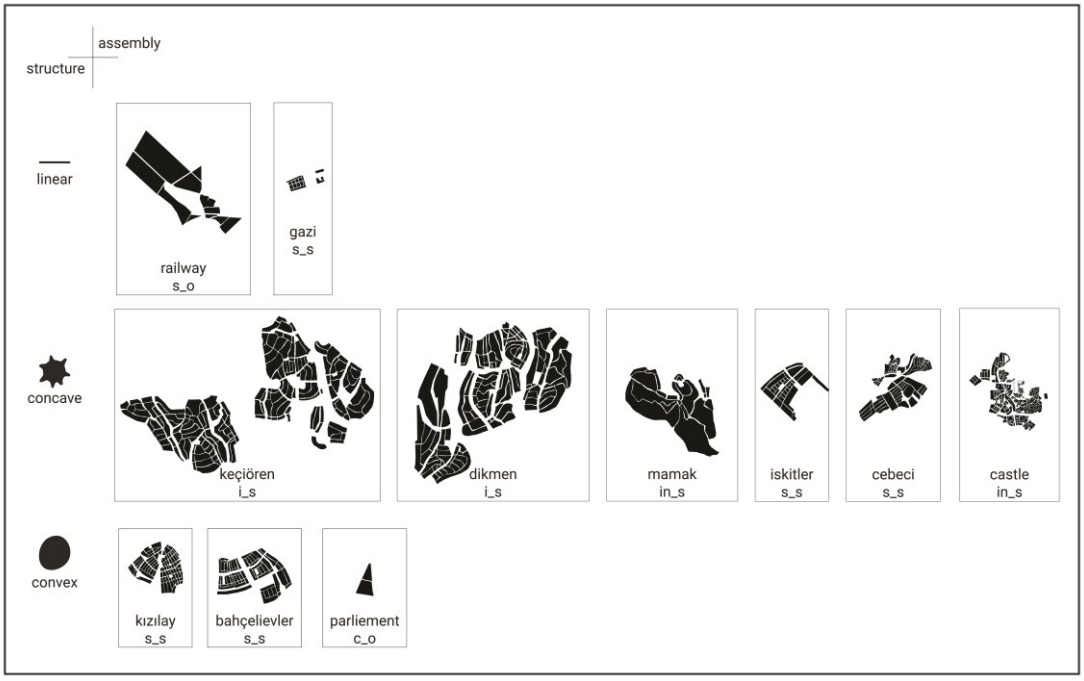

Figure 4. 10. Orientation types of assemblies in Jansen plan

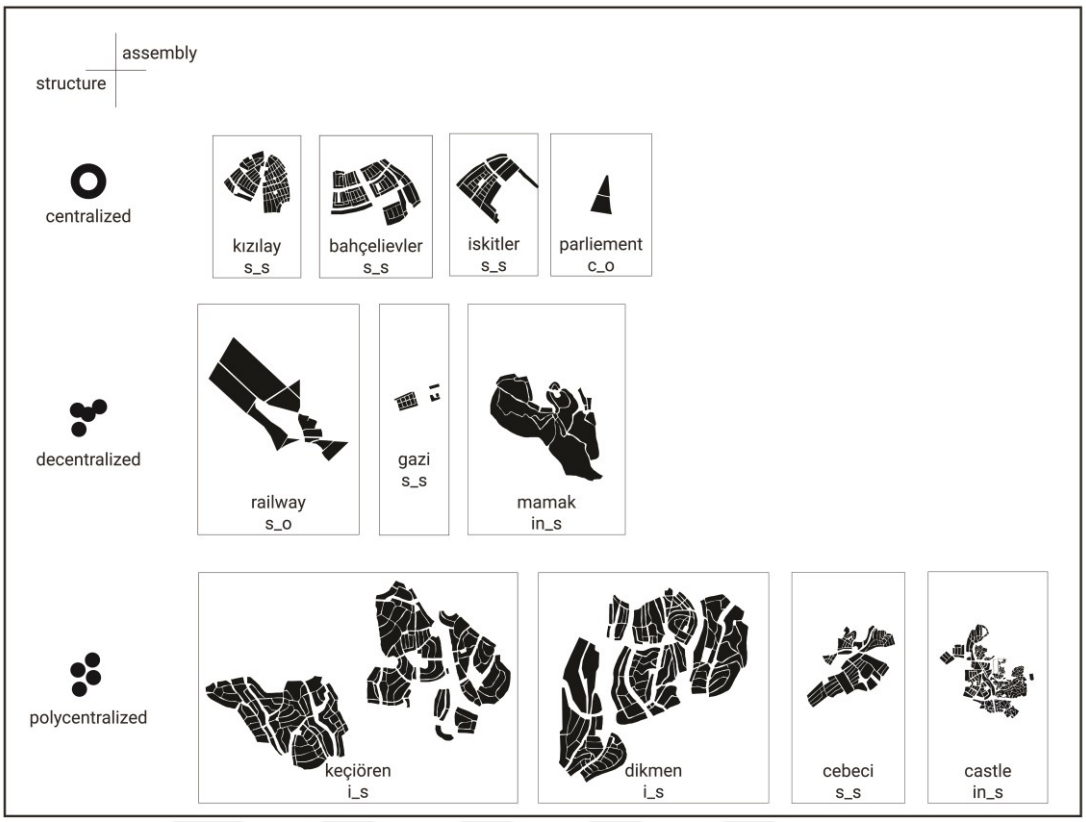

Figure 4. 11. Disposition types of assemblies visible in Jansen plan

In general, the units and structures proposed by the Jansen plan are quite different from today. First of all, four types of units are apparent within the serial stacks from Jansen's revised master plan in 1937. Although those units were either destroyed or not developed at a later time, the systematic organization of structure system type has remained nearly the same, just with some extensions on specific parts. Despite the fact that those units no longer exist, it is significant to describe their typology since it reveals a background that supports the formal identity of those assemblies.

The major parts of the serial stacks and some instant stacks that appear in the plan were developed through cooperative housing districts designed by Hermann Jansen in the period between the 1930'ies and 1940'ies (Cengizkan, 2000). Those cooperative housing include Bahçelievler, Keçören Emlak Bankası. In general, they included three different housing types: urban garden houses (bahçeli ev-villa), apartment buildings (apartman), workers' block (işçi bloğu) (Tankut, 1990). The garden house units, devoted to the wealthy citizen of the new capital (burocrats and officers), were designed as one or two-storey single family urban villas containing a large backyard (Tankut, 1990, pg.) and a more modest frontyard. Apartment units were mainly characterized by linear two-three storey blocks, which is very different from the

current apartment buildings.[48] The current apartment Workers block were conceived as even longer linear blocks of two or three storeys. Additionally, the fourth unit type of this period can be named as an apartment block that generates a spatial edge. Garden houses, apartments, and worker houses were mainly proposed for Bahçelievler and Keçiören stacks. However, there are some garden house proposals for Kızılay-Kavaklıdere assembly as well. Apartment and worker house units are also suggested for İskitler stack. The apartment block is also visible in Jansen's sketches for Cebeci. Indeed, although the building units suggested by the Jansen Plan are dramatically different from the current units within those mentioned stacks, the distribution type of the similar units in serial and instant stacks still persists.

It is possible to detect seven different structure system types that Jansen proposed through sketches. Six of them are components of serial stacks, while the other-the informal stack- represented by the former ottoman district. The structures of both serial and instant stacks are the main components that still keep/manifest the original intention today. The distribution types of the units are mainly detached, serial, and repetitive, the same that still dominate the contemporary urban tissue. Whereas, the same cannot be said for the proposed structures, that are today replaced by the apartment-block type in the serial and instant stacks. Nevertheless, their serial repetition constitutes the first case of serial courtyards, in terms of urban interior spatiality, in Ankara. There is no corridor type among the proposed structures due to the generous spaces between the buildings. This is due to the scale and density difference between the units of the Jansen Plan and those of today. However, most courtyard types have evolved into corridor types as a result of consistent densification over time. The apartment blocks today distributed on the similar structure scheme of the Jansen plan generate corridors since their dimensions in the plan are far too wide to enable the formation of a courtyard in the same plot. All courtyards are open courtyards in structures of serial and instant stacks. In terms of the urban exterior, the passage wall appears through those detached serial repetitive structures. On the other hand, transversal serial repetition of apartment units generates gardens as the urban interior. They, furthermore, represent rooms as the urban exterior in the city.

[48] The current apartment building units are rather in rectangular form relatively bigger in footprint size and in four-five storey buildings.

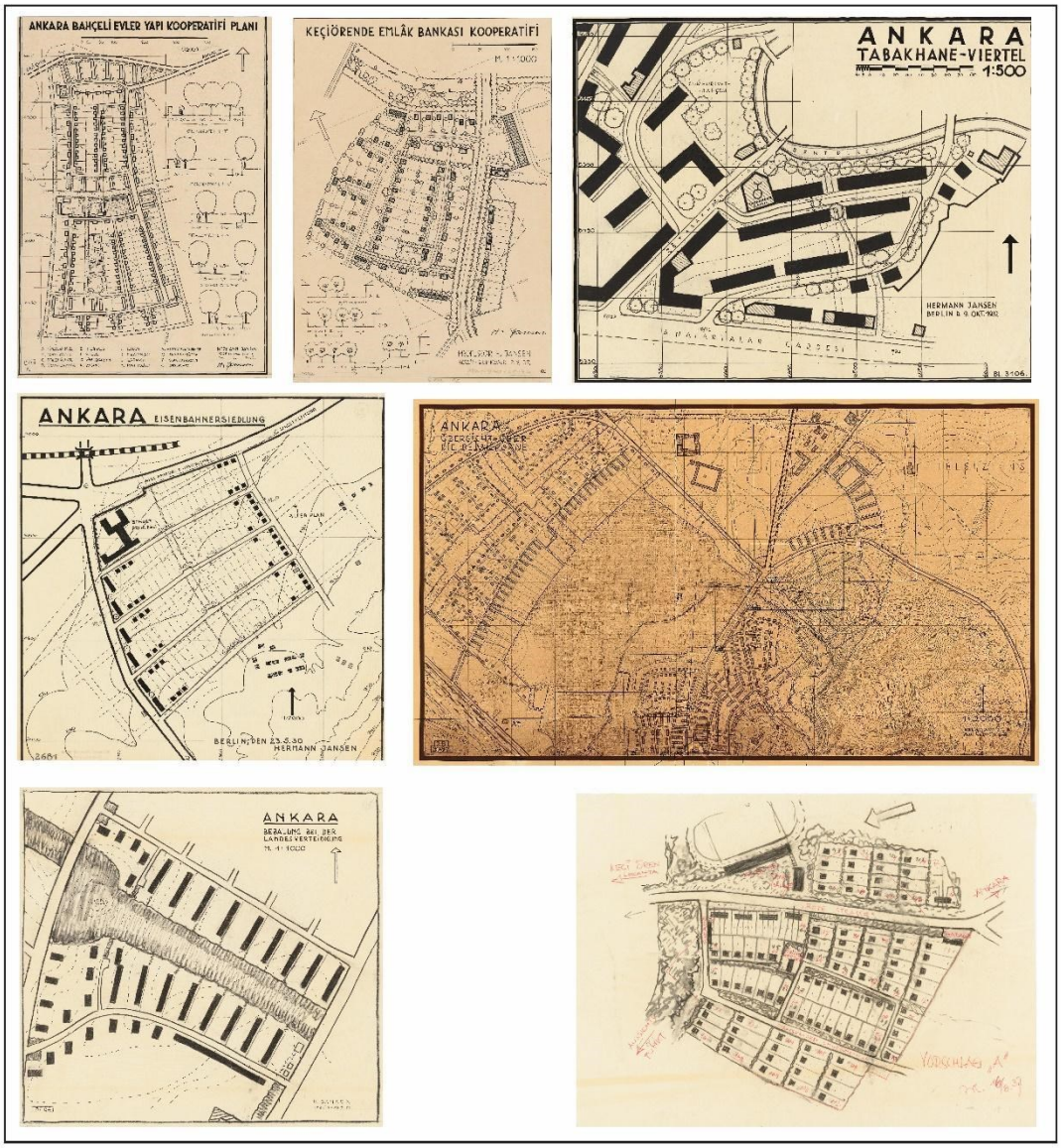

Figure 4. 12. Jansen's proposal drawings for different settlements in Ankara (Source:TU Berlin Data Collection Retrieved from https://architekturmuseum.ub.tu-berlin.de/index.php?p=18)

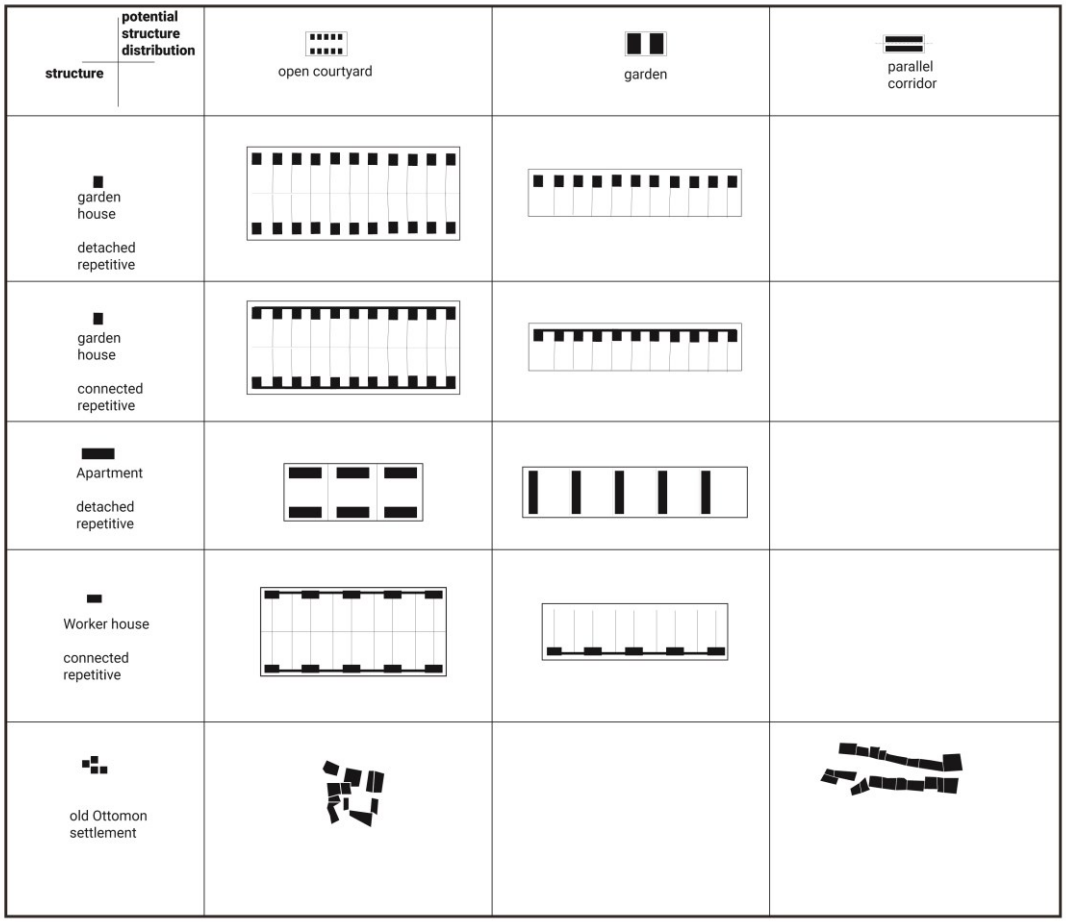

Figure 4. 13. Structure distribution types in Jansen Plan period

Nonetheless, there is a structure type in Jansen's proposals, which disappeared totally in time. According to Jansen's drawing for Bahçelievler and Kızılay-Kavaklıdere serial stacks, the garden house and worker house constitute structures connected to each other through high walls rather than being detached. The units are still serial repetitive, yet in connected distribution. This structure alters the urban exterior. The connected units represent a barrier wall spatiality as an urban exterior. The period's barrier wall type also depicts three distinct versions with the connected repetitive garden house and worker's house.

The Castle stack, in general, keeps half of its clustered organic repetitive structures in Jansen's proposal. Jansen suggests a gridded structure for the west side of the Castle stack. However, it was not implemented to a large extent. The only proposed part able to survive is the linear commercial matrix route that was already evident in the structural analysis of the 1924 plan.[49] Although the structure of this gridded part was

[49] See in Figure 4.5

never constructed, it is worthwhile to understand it for further generative processes. Jansen's sketches on this gridded part suggest long c-shape blocks as units. In fact, those units are large enough to support the structure itself without any repetition. While the c-shape blocks generate a barrier wall as an urban exterior, they also provide semi-open courtyards as an urban interior spatiality.

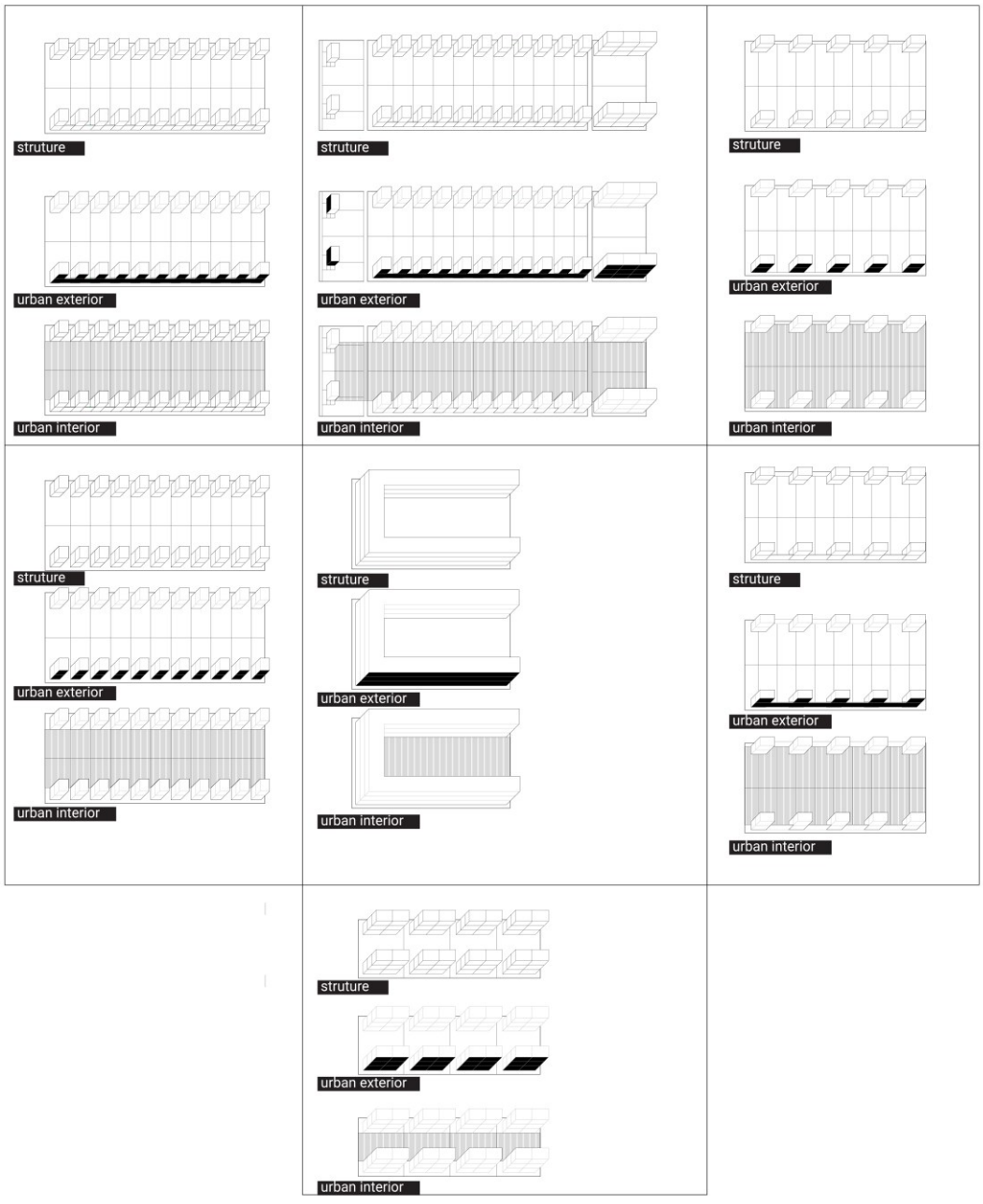

Figure 4. 14. 3D models of structures, interior and exterior spatiality proposed in Jansen plan period

It is difficult in this period to mention objects assemblies. However, Jansen's plan constitutes the first framework for both the distribution and the types of objects in the planning history of Ankara. This framework is more of a linear orientation and introduces a centralized disposition through matrix routes. Indeed, Jansen concentrates the objects along the main boulevards (Atatütk Boulevard, Railway road, Talatpaşa Boulevard), which correspond to the matrix routes of the period. Especially along the Atatürk Boulevard on the north-south axis, the mega forms enrich the spatiality of this matrix route. Through this elongation, the Castle and Railway assemblies begin to appear.

Whereas Atatürk Boulevard was dominated by burgeoning *composite objects* and became an *object assembly,* the Railway and Talatpaşa Boulevard lines were the only schemes for the subsequent *object assemblies*. Despite the appearance of those larger objects in this period, the small objects within the Castle stack are still readable as cores. In terms of geometry, the Jansen plan proposes more linear objects instead of rectangular and circular objects. In fact, circular objects rarely appear, as emphasized by the stadiums in the plan. The proposed linear objects are mostly positioned on the periphery. In terms of the urban exterior, this is a strategical proposal that Jansen stresses the edge spatiality through the alignment of linear buildings on the periphery. By composite objects, on the other hand, open, semi-open, and closed courtyards appear via different combinations of linear units along the Atatürk Boulevard. Furthermore, the circular stadiums provide mega closed courtyards that are positioned as central, serving as cores in the city. In addition to all, the parliament building was not designed in a gated field. Rather, it was presented as a composite object as part of a multi-directional arrangement that generates open, semi-open, and closed courtyards available for public use. However, most of the proposals were not implemented in the city.

Figure 4. 15. Objects on Atatürk Boulevard based on Jansen Plan

4.2.3. Street Layer Conditions:

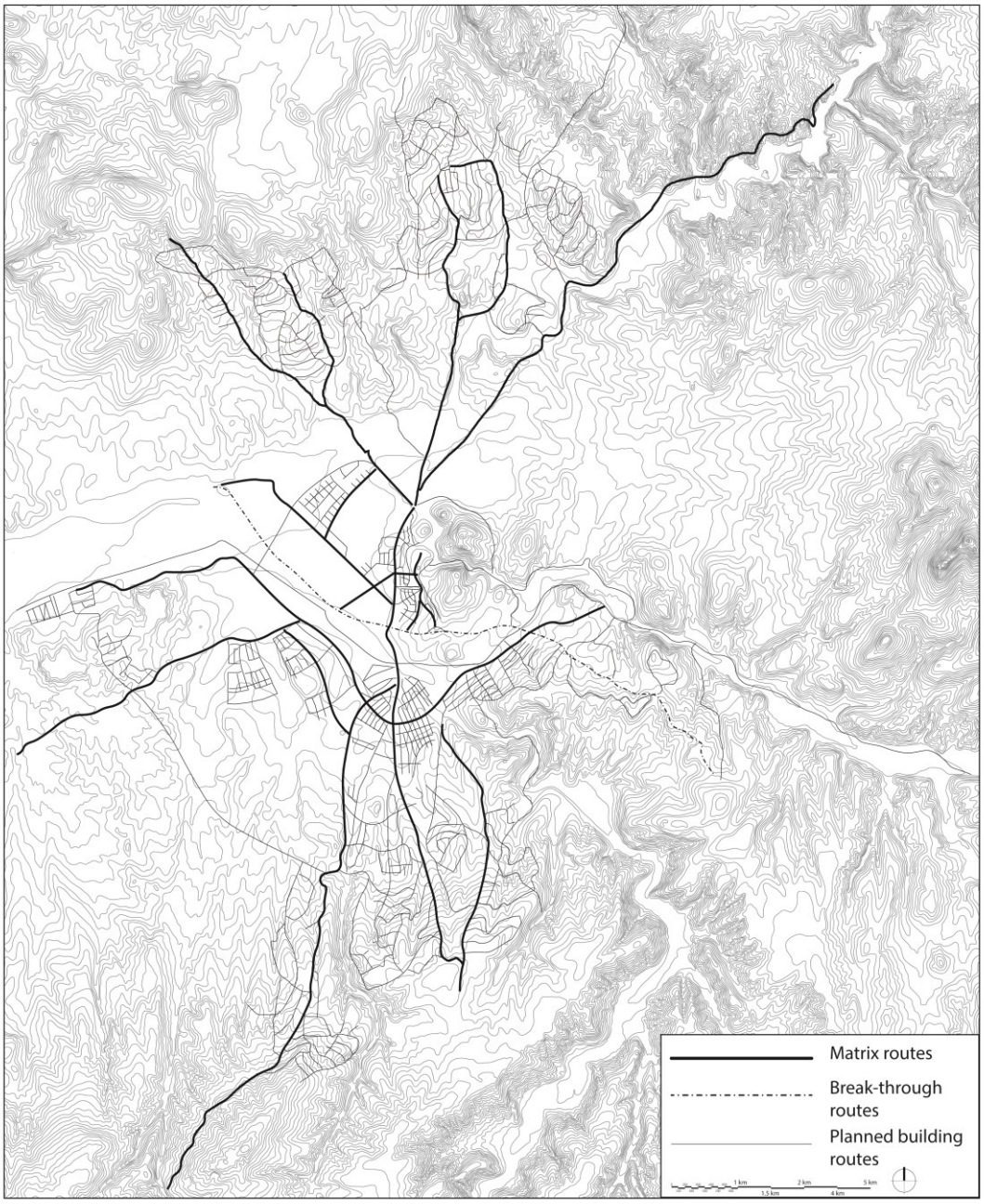

Figure 4. 16. Street pattern in Jansen's plan proposal

The three street composition types appear in Jansen's proposal. The arising serial stacks are in regular-gridded composition. The scheme of instant stacks, on the other hand, can be classified as a mixed-gridded street pattern since it appears as a trace of isohypse more than a regular-grid. Yet, what is more crucial than the street compositions in this period is the evolution of a hierarchy within the street network, which was absent in the 1924 plan. The Jansen plan provides this hierarchy via proposals for first and second-degree roads (birinci ve ikinci dereceli caddeler). This

classification facilitates determining which routes are matrix and planned building routes in this period. Indeed, the matrix routes constitute the backbones (Altaban, 2006, p. 72) of the city that kept its priority on the transformation of assemblies until today.

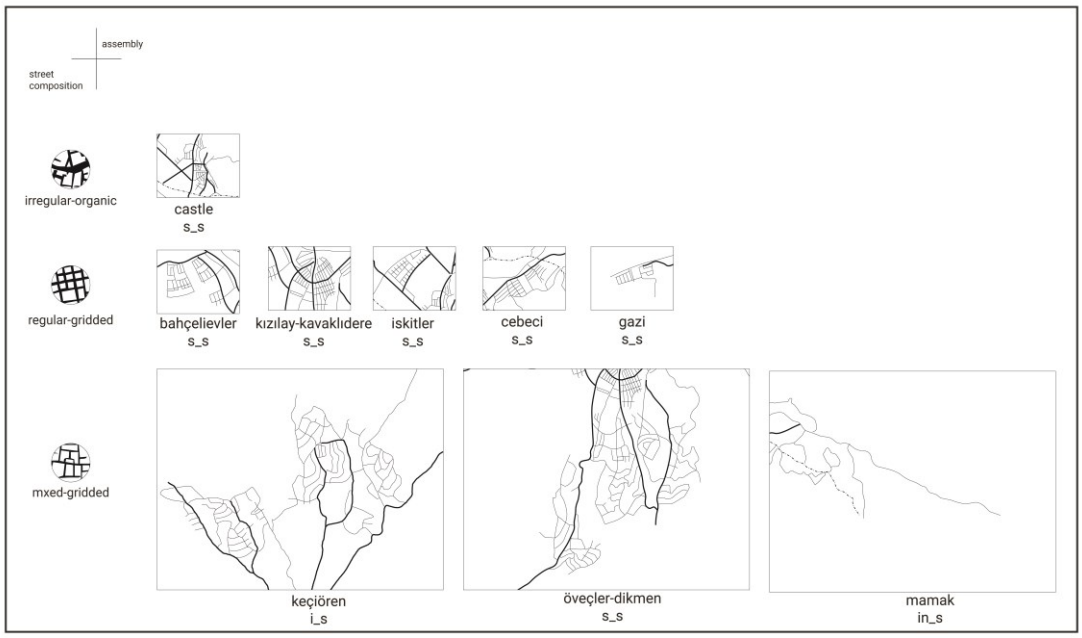

Figure 4. 17. Street composition types of visible assemblies in Jansen Plan

According to the Jansen plan's route analysis, today's specified matrix routes were primarily developed by two major urban concepts: boulevard and green corridor. Jansen plan suggested two main boulevards that divide the city into two both on north-south and east-west axes. A configuration is still evident today. One of them is Atatürk Boulevard, which is extended along the north-south axis and divides the city on the east and west into two consistent portions. In fact, as a route, Atatürk Boulevard centralizes the Kızılay-Kavaklıdere stack and Castle composite objects' assembly as a corridor that collects landmarks as *objects* in itself. On the other hand, it also serves as a bindery of Çankaya Ministry-Assemblies enclave today, although, in the Jansen plan, the parliament building was present as an object instead of a enclave. In spite of that, the other intended backbones were the alignment of the two streets as Gazi Mustafa Kemal and Ziya Gökalp matrix routes on the east and west axis, and the railway road that follows the two dividing streams-Ankara and Hatip- between the east and west of the city. Furthermore, the matrix routes in all stacks that become centralizing axes within them are traces of first-degree roads apparent in the Jansen plan. The matrix routes of instant stacks follow the ridge lines over the fluctuating topography. On the

north, Etlik Caddesi, Fatih Caddesi, and Kızlarpınarı Caddesi, on the south Dikmen Caddesi, Esat Caddesi.

Moreover, the Jansen plan illustrates both proposed and already existing roads. This also makes it easy to follow break-through routes[50] within the planning periods. The most critical break-through route in the Jansen plan is Talatpaşa Boulevard of today, which serves as a second bindery for Railway composite objects assembly today.

4.2.4. Topographical Conditions:

The topographical analysis included in the Jansen plan provides four topography spatiality: terrace, platform, corridor, and wall. In each of the eleven assemblies, there are noteworthy concepts that may be recognized. In general, serial stacks reflect platform condition since they are located on relatively flat plains on lower (900-1000m) or higher plazas (900-). Following that, terrace concepts take precedence over platform concepts in informal stacks. The structure system of informal stacks encourages the expression of topography as interpretation. The two-story Old-Ottoman is arranged in a fragmented arrangement on the hillside isohypse.

Other notable aspects that contribute to the spatiality of the terrain are the institutional, educational, and governmental objects. It is accurate to state that the linearly oriented three-story buildings were the proposed objects. The distribution of those objects on the terrain every 10 meters exemplifies topographical expression with terrace spatiality.

In contrast, there is no obvious metaphorical idea when contemplating the relationship between topography and architecture in instant stacks due to the absence of a particular structure. However, Hermann Jansen takes advantage of valley and basin floors by generating green corridors. Green corridors also define the edges of these fragments. Based on the valley floors' expanding on the north-south axis on terrain, they-in very long and wide dimensions reaching 100 meters-encapsulate the city fabric and generate an effect of serial splits within the city on the east-west axis. Subsequently, there appears to be an already fragmented system consisting of dwellings, vineyards, old settlements, and public buildings. From this point of view, these corridors can be defined as the main topography spatiality proposed in the Jansen plan.

[50] See Figure 4.7

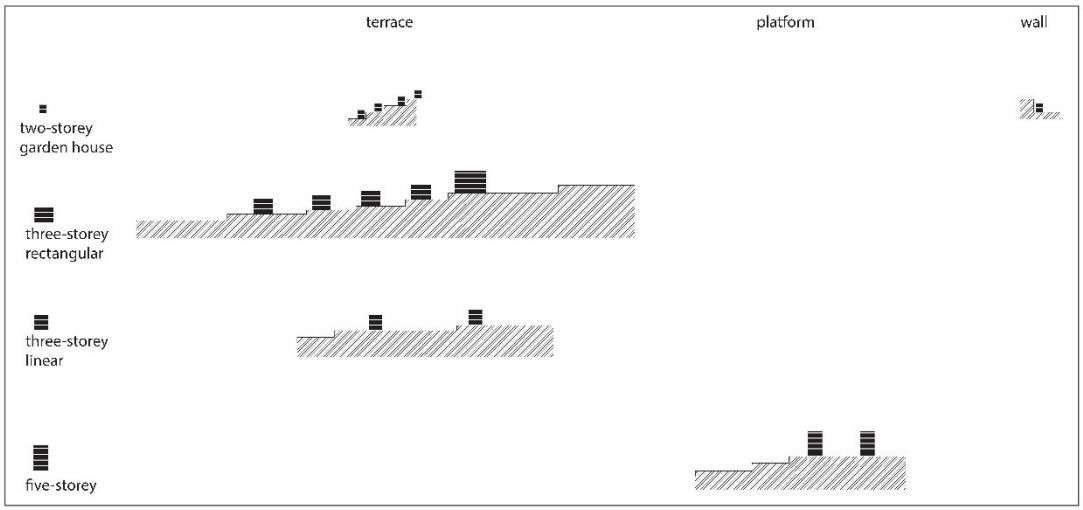

Figure 4. 18. Spatial conditions on topography based on the drawings from Jansen plan

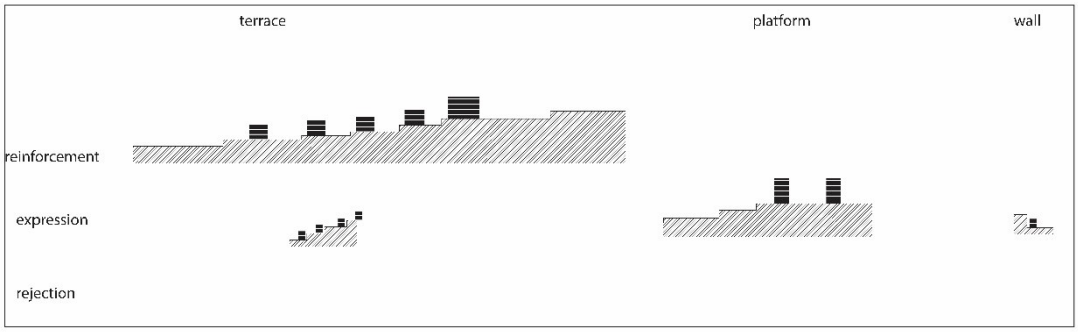

Figure 4. 19. Topographical interpretation based on the drawings from Jansen plan

4.3.Yücel-Uybadin Plan (1957-1969):

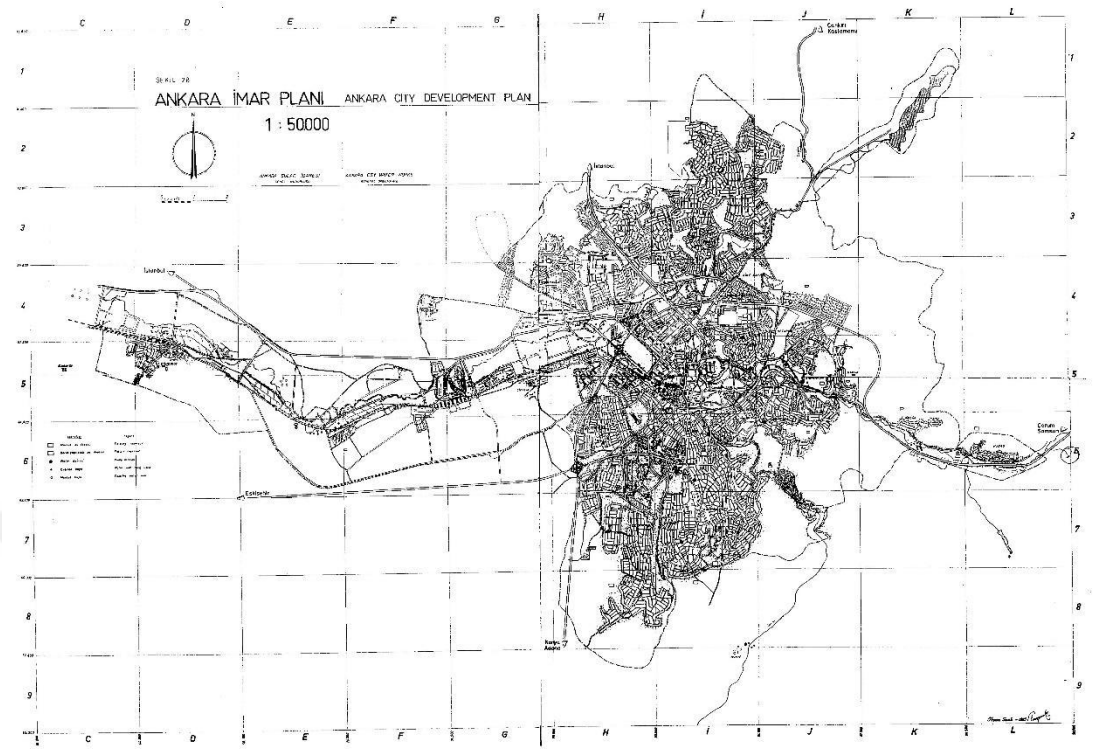

Figure 4. 20. Yücel-Uybadin plan (Source: METU Maps and Plans Archive)

4.3.1. General Structure:

It is evident through the structural analysis that Yücel-Uybadin's plan modifies the urban tissue dramatically on mainly three aspects: pattern of structure systems elevation and density of urban fabric. If, from one side, the Jansen plan was mentioned as the skeleton of the subsequent periods, Yücel-Uybadin's plan became a static framework for the boundaries of assemblies that emerged in that period. The systems of Jansen's skeleton reached nearly their utmost limitations with additional infills. The subsequent periods' only option for planning strategy was to enlarge the city. Accordingly, based on the structural analysis of Yücel-Uybadin's plan, the number of readable assemblies increased to 23 from 11 over the nearly 20-year period since the early republic (Jansen's plan). While reaching the limits of Jansen's skeleton through the Yücel Uybadin plan, two different assembly types appeared for the first time in that period: single and composite enclaves. However, stack assemblies are still the major type of structure within the city. In fact, fifteen of those assemblies appear as stacks, whereas five of them are enclaves and three are composite enclaves.

Figure 4. 21. Assembly types visible in Yücel-Uybadin plan

4.3.2. Building Layer Conditions:

Stacks, which were majorly composed of residential settlements, dominated the urban fabric of this period. Despite this dominance, Yücel-Uybadin's plan does not offer unit typologies as much as Jansen's plan did. Instead, the decisions on residential buildings and structures remained limited, with height and setback distances densifying the urban tissue within stacks (Cengizkan, 2005). On the other hand, the variety within the stacks observed in that period originated from cooperative housing that began in Jansen's plan period via Bahçelievler. Although not the entire cooperative housing reached a repeated structure because of the speculative dimension of urbanization, some of them managed to constitute a certain structure of an assembly. The rest of the stack structure, a major part of the stack assemblies, depended on the distance regulations set by Yücel-Uybadin. The subsequent periods followed those regulations (Cengizkan, 2005) that caused a dramatic reduction in the unit and structure typologies.

First of all, the framework of most serial and instant stacks developed in this period according to the densification of the city. The apparent serial stacks in the Yücel-Uybadin plan are as follows: Bahçelievler, Kızılay-Kavaklıdere, İskitler, Yenimahalle, Demetevler, Siteler, Aydınlıkevler, Altindağ-2, Cebeci, Gazi. Actually, these are more or less the same assembly areas of today. For example, Keçiören and Öveçlar-Dikmen-Çankaya instant stacks were under development in this period according to the indications included in the Yücel Uybadin plan. The structural components of instant stacks, in fact, changed dramatically compared to Jansen plan period, although they did not reach today's borders. The only informal stack was still Castle stack which did not lose half of its urban fabric. This shows that the emerging serial stack, which Jansen proposed previously to transform the western side of the Castle stack was not implemented.

The configuration of visible serial stacks displays a grid pattern in a similar fashion as today. On the other hand, the two apparent instant stacks differ in configuration. Whereas Öveçler-Dikmen-Ayrancı stack can be classified as gridded clusters, due to the fragmented division of systems, in contrast to today's configuration type (clustered), Keçiören stack illustrates already a clustered configuration in Yücel-

Uybadin plan. The gridded configuration of Öveçler-Dİkmen-Ayrancı stack in Yücel-Uybadin period brings forward a different potential. The gridded structures are fragmented into clusters because of the dividing wide green corridors that follow the linear valley floors. This is a demonstration of the loyalty of Yücel and Uybadin to the structure defined by Jansen. It is a clever strategy where the green and urban fabric is integrated within a coherent system that today is partially lost. The Castle informal stack is also clustered as it was in the Jansen plan.

The serial stacks that did not reach their borders yet illustrate concave orientation in Yücel-Uybadin plan. On the other hand, Bahçelievler, Aydınlıkevler, Altındağ-2, Siteler, and İskitler represent a convex orientation. The only changing orientation in time is visible in the Siteler stack that transformed into a concave form today. Kızılay-Kavaklıdere, Yenimahalle, Cebeci serial stacks demonstrate a concave orientation that stresses their interconnective nature at the moment in the Yücel-Uyabdin plan. Different from today's orientation, Demetevler appears in a more linear form. This linearity disappeared in time and evolved into a concave orientation, proving that the linearity was not a consequence of a bindery but rather arbitrary and is still open to expansion as a stack. Gazi serial stack is also linear, yet despite this linear orientation, it did not expand that much until today. In particular, today, this is also due to the surrounding enclaves. Keçiören and Öveçler-Dikmen-Ayrancı instant stacks in concave orientation are proof of the fact that their border was open to expansion.

The disposition of stacks is nearly the same. This means that the centers of stacks took form in this period, although not all of them reached the approximate borders of today. In this respect, it is appropriate to claim that centralized matrix routes, which stress the centers of stacks, became prominent in the Yücel-Uybadin plan. Bahçelievler, İskitler, and Yenimahalle are centralized. Siteler, Aydınlıevler, Altındağ-2, Gazi stacks are decentralized. Keçiören, Öveçler-Dikmen-Ayrancı, Cebeci, and Kızılay-Kavaklıdere stacks are polycentralized in this period. This represents the expansion of Kızılay-Kavaklıdere stack towards the south through new centers via the object matrix route link. Yenimahalle stack, on the other side has one center in that period on the contrary to the current form.

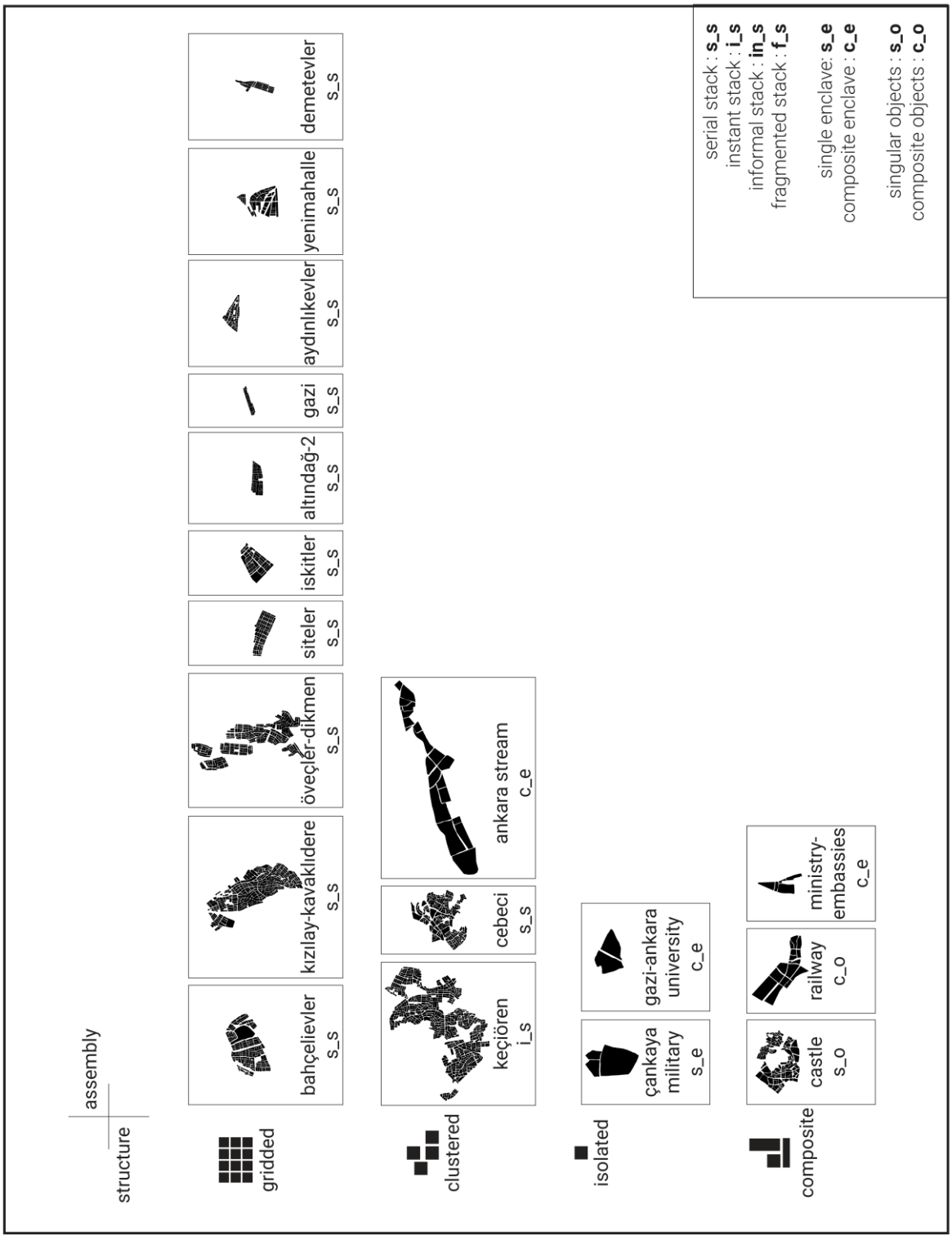

Figure 4. 22. Configuration types of visible assemblies in Yücel-Uybadin plan

Figure 4. 23. Orientation types of visible assemblies in Yücel-Uybadin plan

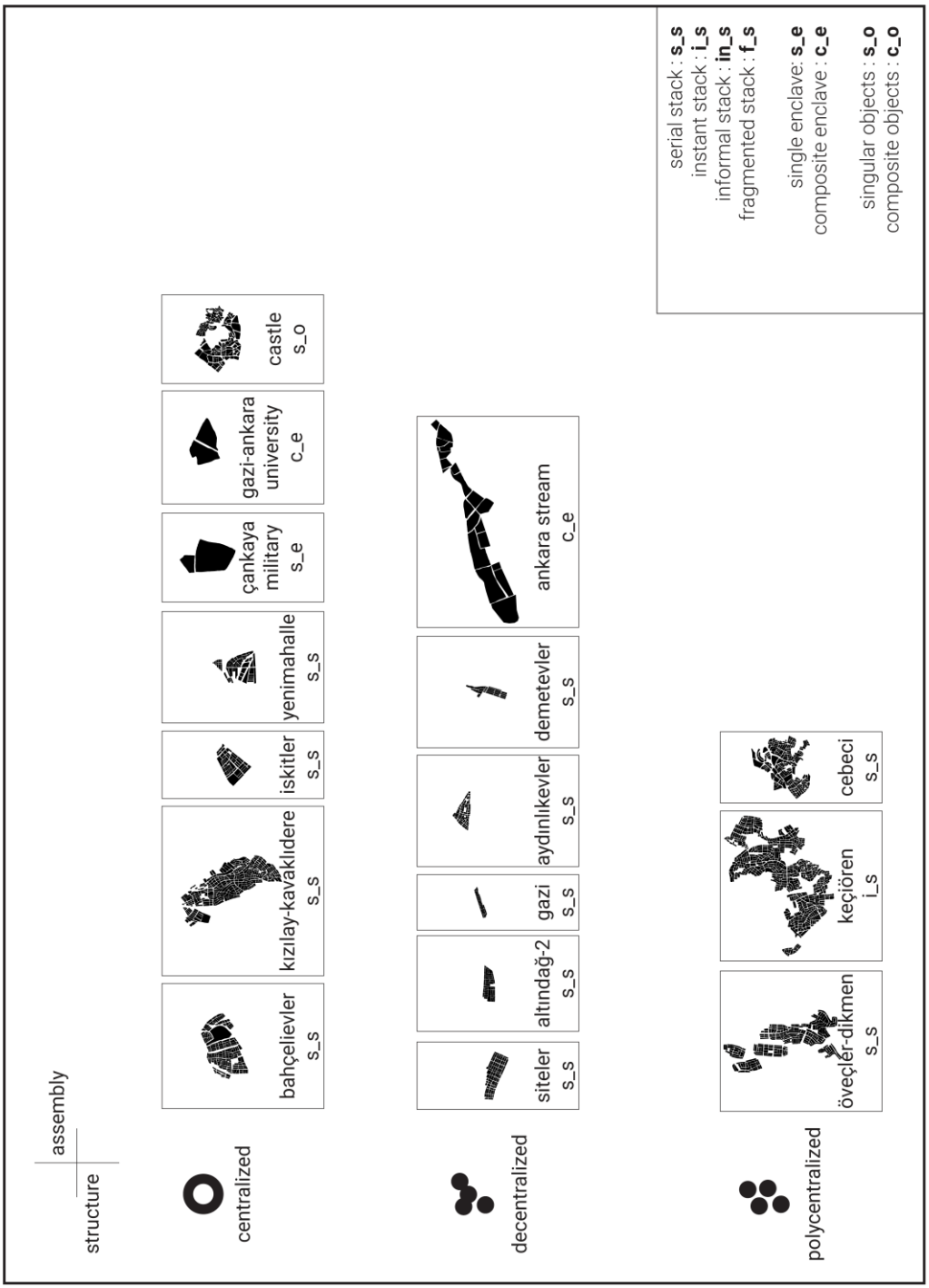

Figure 4. 24. Disposition types of visible assemblies in Yücel-Uybadin plan

After revealing the urban conditions on a macro scale, the structural components, and the urban conditions on a mezzo scale are the ones that challenge Jansen's proposals dramatically.

Yücel-Uybadin plan illustrates the already existing building areas and development areas on the map. Accordingly, as a diagram, it facilitates the differentiation of already existing and proposed structures with some cooperative housing information[51] that was not apparent in the map. In this regard, there are six different unit types, which this study classified as already existing cooperative housing structures, varying in size. Those unit types differ in terms of footprint dimension. According to the structural analysis, the dominating unit types-as already existing units- were apparent in different stacks as follows: unit-1 and unit-5 in Bahçelievler; unit-2 in Kızılay-Kavaklıdere, unit-3 in Gazi, unit-4 in Yenimahalle.[52] On the other side, Siteler serial stack is visible on Yücel-Uybadin plan although it is not possible to understand the structure type in that period.

We are able to observe six different structures that compose ten various structure systems via those mentioned units. The structure composition illustrates three main distributions: detached serial repetitive, attached serial repetitive, and detached organic repetitive. Indeed, five major spatialities within the urban interior are apparent in the residential stacks on Yücel-Uybadin's plan. In terms of urban interior, they generate spatiality as follows: semi-open courtyard, open courtyard through parallel structures, closed courtyard, a corridor through parallel structures, and a garden. Indeed, each stack was representing different courtyard type depending on the varying unit type.

[51] See in Cengizkan, A. (2000). Discursive formations in Turkish residential architecture Ankara: 1948-1962.

[52] See Cengizkan Cengizkan, A. (2000). Discursive formations in Turkish residential architecture Ankara: 1948-1962.

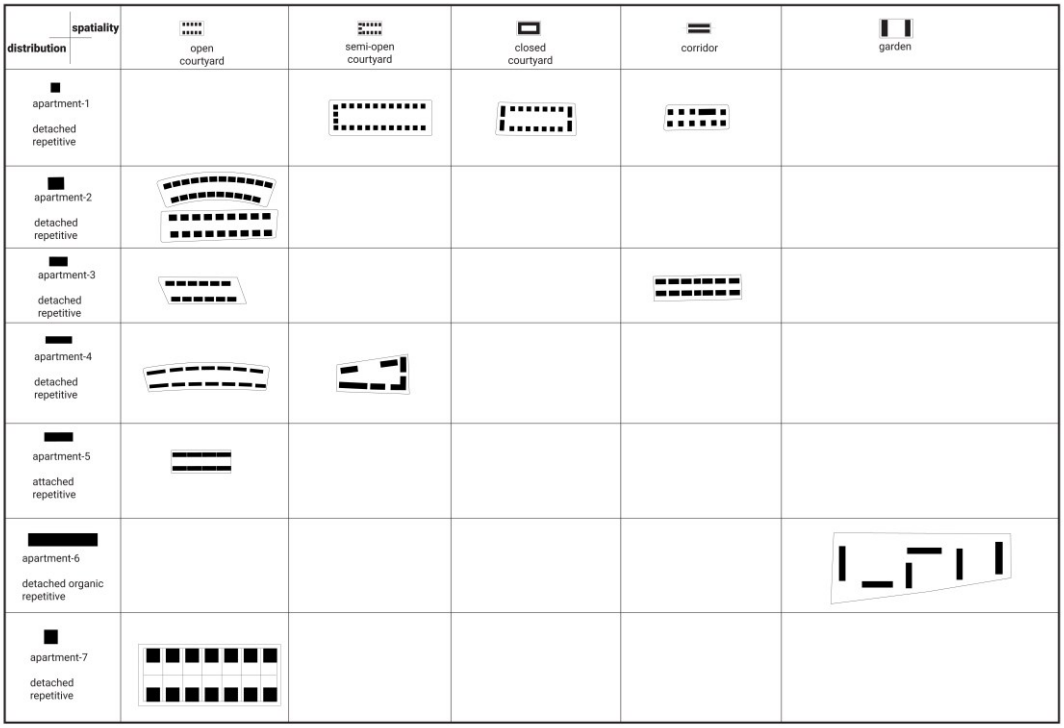

Figure 4. 25. Structure types in Yücel-Uybadin planning period

On the other hand, there is only one unit type for the stacks based on the setbacks of lots originated by Yücel-Uybadin's proposals. Nevertheless, unlike Jansen or cooperative housing, the Yücel-Uybadin model does not offer typological variation through units. Based on the proposals of Yücel-Uybadin, the footprint dimensions of units are determined based on the setback distances within the plot and according to the distance between the building in the adjacent plot and the front street (Cengizkan, 2005). Prior to this concept, there was the potential for cooperative dwelling structures to form common structures like today's serial and instant stacks. However, the decision on building typology diminished this potential and caused a dramatic reduction in unit and structure variations. Yet, this choice laid the groundwork for the apartment-block typology that now dominates serial and instant stacks. In general, the detached serial repetitive structure units are the products of this period. Through this decision, the corridor emerges as an urban interior spatiality. According to the plan, the proposal involved all existing serial and instant stacks except Siteler (Bahçelievler, Kızılay-Kavaklıdere, İskitler, Yenimahalle, Demetevler, Aydınlıkevler, Altindağ-2, Cebeci, Gazi, Keçiören, Öveçler-Dikmen-Ayrancı).

Nonetheless, there were some decisions on the heights varying according to the neighborhoods. This decision was more influential on the urban exterior than the urban

interior spatiality, although it was insufficient to produce a rich typological variety. In fact, there are only two structure types in three dimensions based on this proposal: 3-4 storey or 6-8 storey buildings (Cengizkan, 2005). What Yücel-Uybadin contributed as urban exterior spatiality lies behind the definition of building typology alongside the main boulevards. The proposal depicts an edge as an urban exterior composed of attached and roughly 10-story-high (Cengizkan, 2005) structures depending on the width of the boulevard. This might be viewed as a continuation of Jansen's attempt to create edges on boulevards.

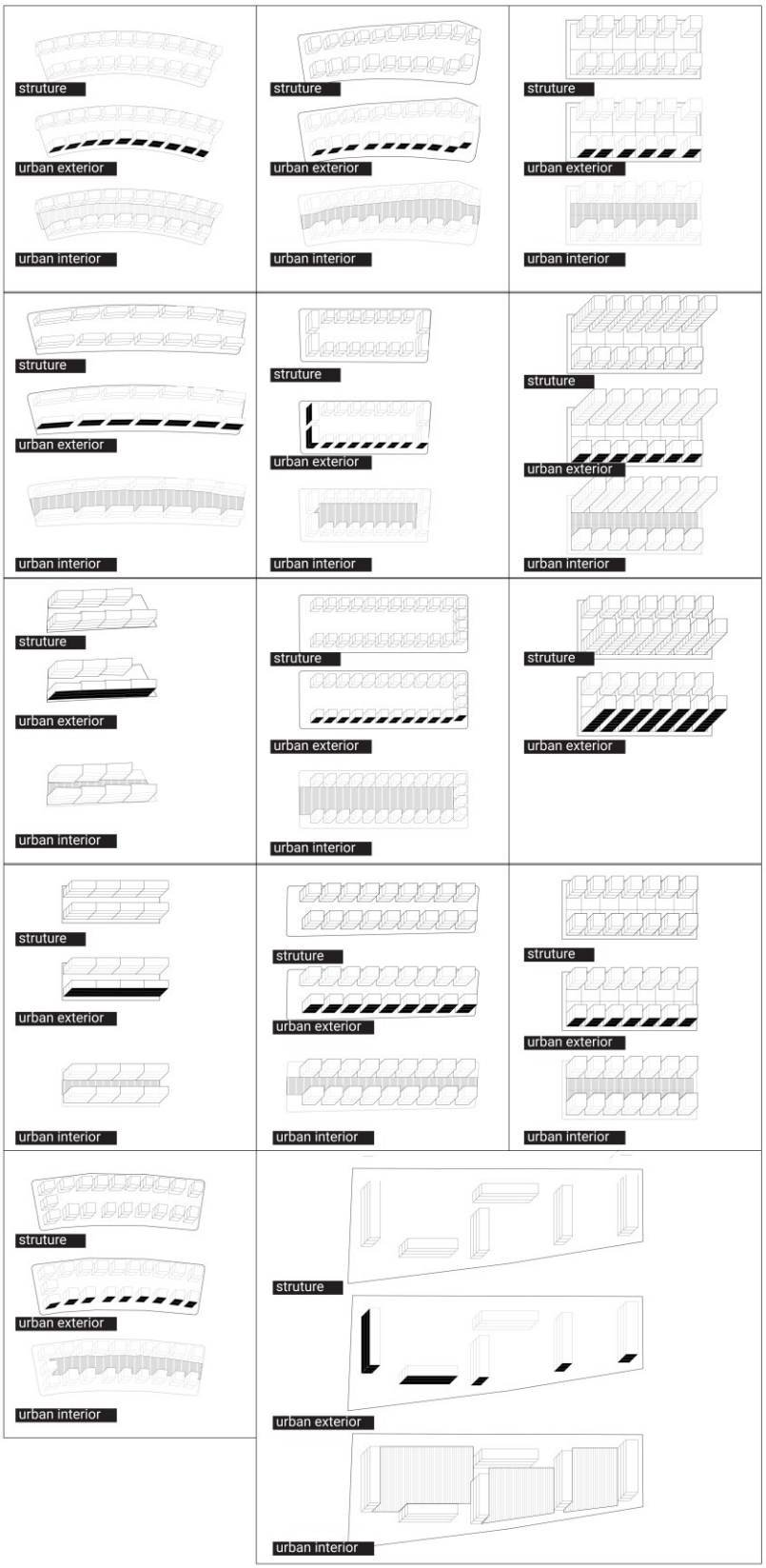

Figure 4. 26. 3D Models of urban interior and exterior spatiality in structures of Yücel-Uybadin planning period

One of the major contributions of this period to the urban tissue is the development of enclaves. Indeed, the city is under expansion, started to be implemented through the development and design of campus structures such as military bases, universities, governmental, industrial, and institutional compounds. In a totally different fashion to the indications for residential units, Yücel-Uybadin's plan conceived several key decisions addressing the development of campus building typologies. Although many of those typologies no longer exist, the campus borders have remained nearly unchanged. Indeed, it is appropriate to claim that this period set the groundwork for today's enclaves through the specific delineation of campus borders. The existing enclaves are Çankaya Military, Ankara-Gazi University, Çankaya Ministry-Embassies and Ankara Stream assemblies. Çankaya Military enclave appears as a single enclave as it is now. The rest are composite enclaves, but some of them did not reach today's layout/limits since they were clustered in time. In particular, Ankara's stream enclave just enlarged a bit in linear orientation compared to the Jansen period. Also, it is possible to claim that Çankaya Ministry-Embassy assembly was under development/enlargement to become a composite enclave with additions next to the parliament building alongside Atatürk Boulevard. Ankara-Gazi University and Çankaya Military enclaves are illustrated as having almost the same borders with today. In this respect, the orientation and disposition of all enclaves emerging in this period were also the same. This situation explains their static structure.

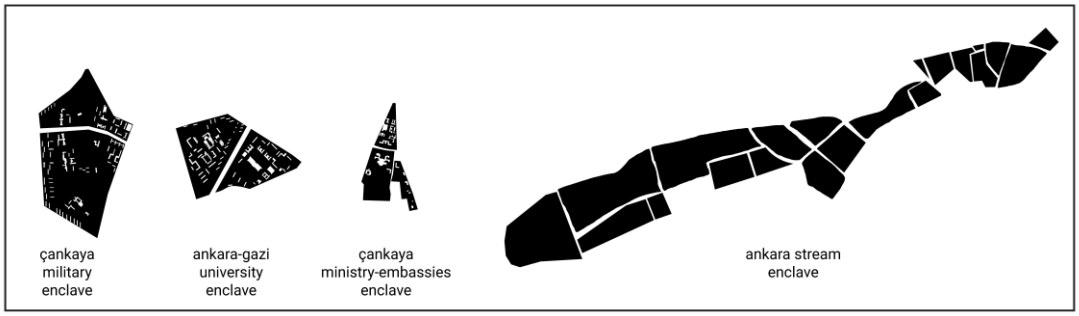

Figure 4. 27. Enclaves visible in Yücel-Uybadin plan

In general, they do not suggest a systematic structure within the enclaves, as seen in other types. This unsystematic arrangement manifests itself as a result of alienation from the city. In fact, this arrangement strengthens the isolated configuration of enclaves. Prior to the physical gates, it is the ambiguity in the organization of the buildings that separate those aggregations from the rest of the city. The ambiguity here illustrates the absence of hierarchical order, which is strongly/clearly visible on stack

assemblies. The arrangement of buildings represents similarities with the objects. Instead, objects are not isolated from their surroundings. Yet, the defined borders of enclaves cause isolation in the city.

There is no readable structure type within the enclaves. Instead, either a composite configuration of object-like mega forms or scattered mega forms exist inside a diffused ground. In fact, the major part of enclaves consists of the mega forms that were diffused in a wide green ground in Ankara. This condition mainly appears in Çankaya Military, Ankara-Gazi University.

Yücel-Uybadin's plan proposes certain typologies for institutional buildings that are mainly located within enclaves. However, we are able to understand from the subsequent period's drawings that those typologies were not implemented. Yet, they are worth to discuss in order to understand how the enclaves first developed. The proposed typologies are linear long block building types. However, they do not generate edge spatiality as Jansen's linear buildings did. Instead, they constitute campus structures. In general, the plan makes a proposal that tries to complete the previous campus structures (university, military, and government), which have already introduced spatiality in the past. However, the proposed linear blocks do not provide as much spatial variation as precedent campus structures. Instead, the arrangement of such structures is insufficient to constitute a recognizable order inside the assembly. In this regard, the proposed building configuration resembles a dispersed situation. This dispersed state, which can be classified as non-spatial as an urban interior- is what permits the buildings to be diffused over a certain ground, which in this case is green. On the other hand, it is already impossible to discuss the urban interior within the enclaves even in this period because of the borders.

The borders of stack assemblies are mainly shaped by the structure systems, which are a series of buildings in essence. It was mentioned before that the official boundaries establish the selection of enclaves. However, what is important here is that the borders of enclaves do not provide sufficient spatiality as an urban exterior, although they are isolated from the city. Indeed, it is appropriate to say that the general shape, which constitutes the urban exterior, is static and deprived of building confrontation. There is a disregard for the urban exterior in the proposals of enclaves. In general, the only attempt to generate an urban exterior was the serial repetition of greenery and the linear

blocks as either perpendicular to the border or parallel yet repeating over a too wide distance to generate an edge. The analysis of the current structure shows that even this attempt was implemented in minor parts of the enclave.

The apparent objects mainly date back to Jansen's plan period, except for the occurrence of some significant objects on Atatürk Boulevard. Yücel-Uybadin's plan illustrates some proposals on the typology of mega forms, which are described as objects in this study, yet they are not so different from suggested building typologies for enclaves. The object proposals were also either linear blocks or campus combinations of linear blocks. Indeed, in terms of geometry, there was no variety within the object proposals of Yücel-Uybadin as there was in the building typologies within the stacks. In any case, the proposals were not implied to a large extent.

On the other hand, it is convenient to state that during this era, both the clusters and borders of object assemblies, Castle and Railway objects, became clearer. This relates to the upcoming enclaves. The Yücel-Uybadin plan shows that the enclaves surrounded the clusters of objects, hence the expansion of the objects was automatically restricted/limited by the enclaves. Since the objects assemblies apparent in this period was bordered by the surrounding enclaves, their orientation and disposition did not change much in time. In addition to that, central objects within the stacks were more emphasized via the expansion of serial stacks, Cebeci (Cebeci stadium, Ankara Law Faculty), Kızılay-Kavaklıdere, and Bahçelievler (Anıtkabir).

Moreover, the Yücel-Uybadin plan suggests a new edge of objects such as Atatürk Boulevard. The plan provides the potential to transform the southeast of today's İskitler stack, alongside Kazım-Karabekir Road, into an edge consisting of objects. In the Yücel-Uybadin plan, the linear blocks as objects positioned on the periphery provide the edge spatiality as an urban exterior on the road. Nonetheless, the existing structure shows that this was not implemented and the area lost the chance to evolve into another object assembly.

Figure 4. 28. Objects and part of enclaves based on Yücel-Uybadin plan

4.3.3. Street Layer Conditions:

The street composition visible in this period is more or less similar to the current street composition. The proposed planned-buildings routes as gridded in emerging stacks (Siteler, Aydınlıkevler, Altındağ-2, Yenimahalle, Demetevler) of this period, maintained the same street composition until today. This stability of the gridded composition originated from the flat terrain of those stacks. The flatness of the terrain provided the persistence of gridded composition. In this regard, the planned-building route suggestion was capable of serving for many years.

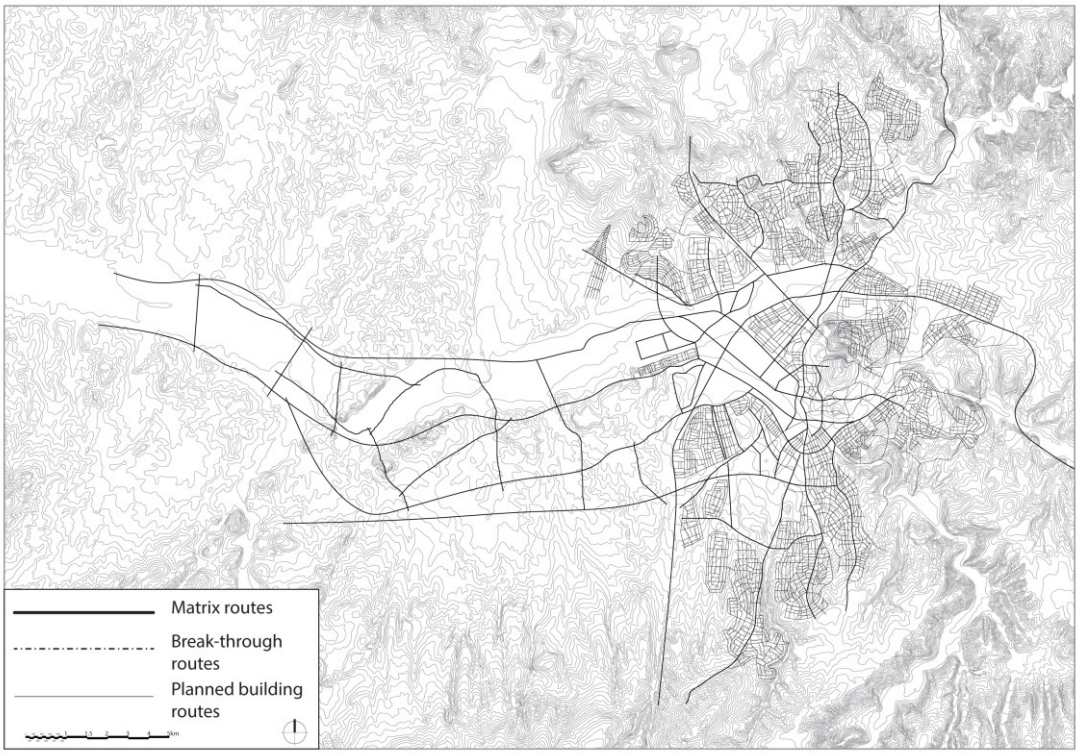

Figure 4. 29. Street pattern based on Yücel-Uybadin plan

The matrix routes emerging in this period were also directed at the appearance of current assemblies. However, it is appropriate to claim that the Yücel-Uybadin plan remained incapable of producing centralizing matrix routes to generate connected assemblies. The matrix routes have been active up to the present and have shaped the main centers of developing stacks. However, the Yücel-Uybadin plan demonstrated that they have more naturally appeared matrix routes rather than proposals.

Some of the new matrix routes, on the other hand, transformed the city's double-sided development into multi-direction expansion. During this time, the main highways, the Istanbul Road and the Eskişehir Road, emerged to the west and south-west. There are also a few matrix routes that connect the two highways. In addition, the Konya-Adana road appears to the south. They eventually became the city's major growth axis, however they served as a separator rather than a connector. Furthermore, no *planned building routes* between the highways were envisaged for future towns. This demonstrates that such roads were not envisioned as future settlements. However, they evolved into centralized matrix routes that were unimaginable in this role. Because they were not imagined as future settlements in this period, the matrix routes of this period were incapable in terms of enabling a continuity. Indeed, the subsequent assemblies alongside those highways (Eskişehir and İstanbul Road) of Ankara are so

disconneted from each other today. For example, objects are elongated along Eskişehir Road, but they do not represent a consistent linearity. Also, fragmented stacks and enclaves located around İstanbul road are disconnected from each other. Also, this ultimately led to the formation of loop-gridded street compositions constituting fragmented stacks and clusters of objects. Indeed, this is one of the increasing effects of urbanization that benefits from infrastructural growth.

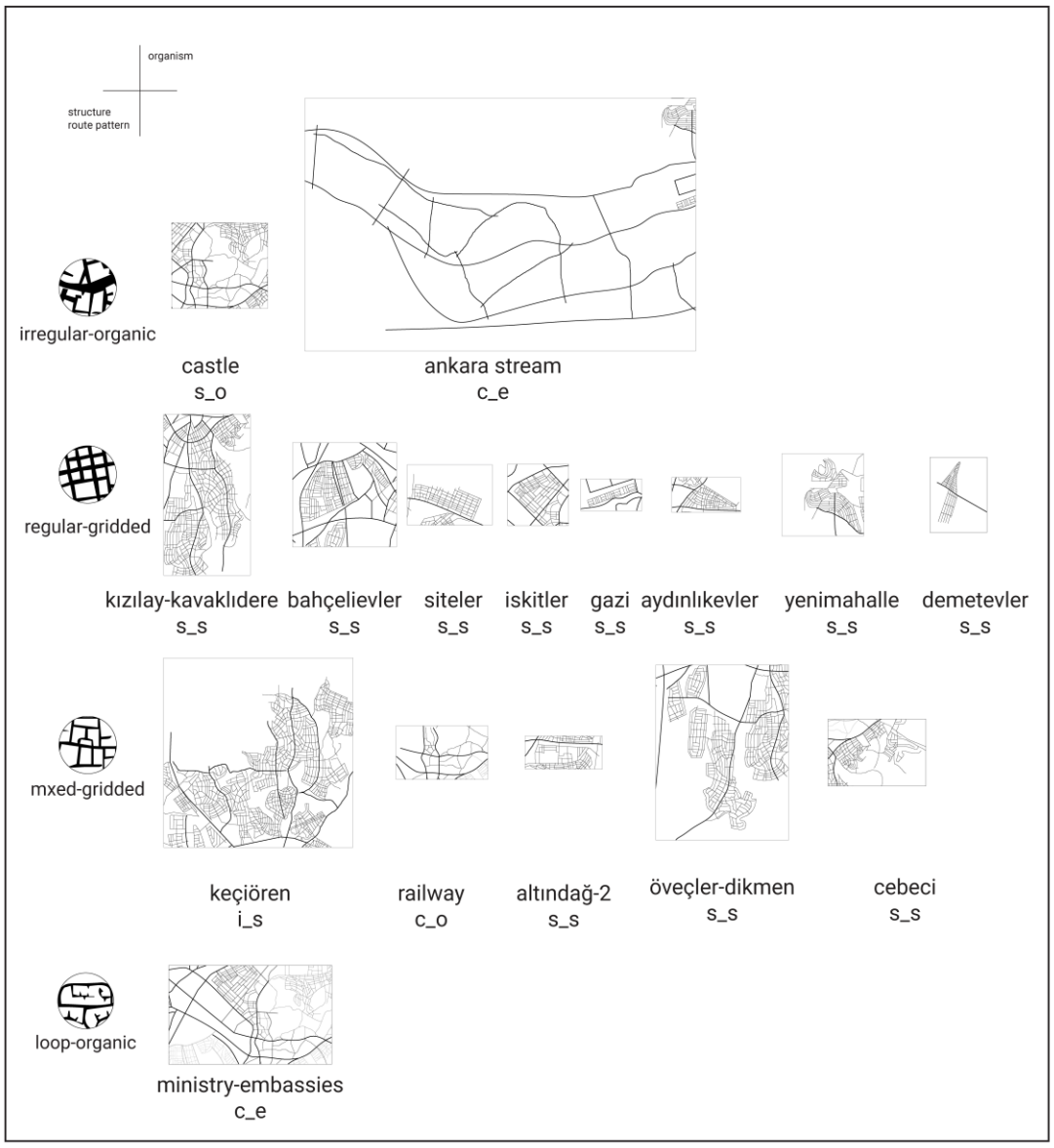

Figure 4. 30. Street composition types of visible assemblies in Yücel-Uybadin plan

4.4.Ankara AMANPB 1990 Plan (1969-1984)

Figure 4. 31. AMANPB 1990 Plan (Source: METU Maps and Plans Archive)

In 1969, an organization called AMNPB (Ankara Metropolitan Nazım Planlama Bürosu) was founded in order to carry out analytical urban research and make planning decisions accordingly (Tekeli, 1987). The 1990 Plan was a plan schema developed by the group of AMNPB as a result of fifteen years(1970-1985) of work of analysis and research (Altaban, 2002). According to the results of the research and analysis, the 1990 Plan of Ankara was described as a structural framework that could lead and bring the new strategy into the agenda of the period (Altaban, 2002, p. 37). Indeed, the 1990 Plan marks a radical transition/a dramatic shift with respect to the former planning periods in terms of morphological approach. Even the fact that the plan was defined as a structural framework (yapısal plan) instead of a master plan (nazım planı) emphasized this shift in the planning approach. Yet, this does not mean that urban morphology was not a concern in the 1990 plan. However, after the Yücel-Uybadin planning period, the city expanded dramatically in a way that was nearly impossible to control and direct further development by a holistic master-plan with a particular focus on urban morphology. In this regard, the group of the organization conducted regional planning strategies in addition to the whole structure framework of the city in fifteen years.

This is not a negative strategy in terms of morphological planning for/in Ankara. In fact, if Jansen and Yücel-Uybadin plan counted as the periods forming the half of Ankara, 1990 Plan can be regarded as a framework composing the other half of the current morphology in Ankara to a great extent. However, this approach made it difficult to monitor typological and morphological transformation processes at a micro scale. The whole 1990 plan represents more of a functional structure rather than a morphological one. The regional plans, on the other hand, illustrate the system of the evolving assemblies rather than the units and structures.

4.4.1. General Structure:

The structural framework of the 1990 plan shows that mostly enclaves and fragmented stacks emerged in this period. It is known that there were several strategies proposed by the group of AMANPB for the development of the city.[53] However, the approved current strategy focused on the decentralization (Çalışkan, 2003) of the city along the two matrix routes, which are İstanbul Road as a west corridor and Eskişehir Road as a south-west corridor, which appeared in the previous period. Indeed, it is appropriate to claim that all current assemblies achieved the major framework in this period. Accordingly, the new emerging assemblies in this period are as following:

- *Enclaves:* ODTÜ-Bilkent-Hacettepe University, Ankara Stream, Etimesgut Military, Etlik Hospital
- *Stacks:* Batıkent, Etimesgut, Sincan, Çayyolu-Ümitköy, OSTİM, Sincan-2, Altındağ, Mamak
- *Objects:* Eskişehir Road, Mevlana Boulevard

[53] See Çalışkan, O. *Urban compactness: a study of Ankara urban form* (Master's thesis, Middle East Technical University).

Figure 4. 32. Assembly types based on 1990 Plan

4.4.2. Building Layer Conditions:

Although the 1990 plan represents the functional areas rather than the typological structures, it is possible to discern roughly the borders of assemblies. In fact, AMNPB's fundamental approach of decentralization (Tekeli, 1987) allowed the differentiation of each assembly all throughout the 1990 plan. When compared to the present assembly diagrams, the partial organization of functions actually depicts the layout of assemblies. This is evidence of the morphological intentions behind the functional organization in the 1990 Plan. Most of the assemblies' orientation seems similar to today based on the 1990 plan. However, there are some differences.

The main focus of this period was also the residential settlements. Yücel-Uybadin plan caused the serial and instant stacks to achieve their limitations through the superficial typological regulations foreseeing excessive densification. In contrast to the Yücel-Uybadin planning period, the main strategy was to generate secondary centers via alternative residential settlements to the inadequate housing stock that the city was experiencing severely at the moment. In this regard, most regional plans are concentrated on producing residential aggregations. The regional plans as solutions to the problem of housing stock was, in general, defining the location of cooperative housing on the contrary to the regulations of the Yücel-Uybadin plan. In fact, this solution was the reason why the regional plans do not illustrate the units and structures. Cooperative housing does not propose a common unit and structure type, but rather suggests independent structures that make up the fragmented stacks.

The regional plans[54] of current fragmented stacks-Batıkent, Çayyolu-Ümitköy, and Etimesgut-was already suggesting a clustered configuration based on the defined location of cooperative housing. It is appropriate to claim that those plans were not implemented to a great extent compared to the previous planning periods. Yet, the orientation and disposition of the fragmented stacks are very similar to the proposed ones. The structural analysis of the regional plans demonstrates that all fragmented stacks were in concave orientation and polycentralized disposition.

Also, understanding the spatiality of the fragmented stacks-proposed in regional plans-requires the information about units and structures through each plan of cooperative

[54] They were not all planned by the same team of 1990 Plan. However, regional plans are still valuable to understand how 1990 plan worked furtherly.

housing. However, the regional plans of those three fragmented stacks suggest distinct organization of figure and void regardless of the unit and structure. Firstly, independent of the present cooperative structures, the allotted areas for building development elicit many potentials. For example, the Batıkent fragmented stack was designed as a polycentralized assembly using matrix routes that connected to a central looping matrix route in the regional plan of Turgay Ateş's team. On such separated matrix routes, there is the possibility of generating edges as an urban exterior. In addition, the Çayyolu-Ümitköy assembly was organized using multiple matrix routes that connected to a main one. These linked routes also have edge potential. Furthermore, unlike the other two, the Eryaman plan (called Sincan-Ankara Yeni Yerleşim Alanlar) evokes courtyards as spatiality. The proposed building lands are a network of courtyards encircled by buildings.

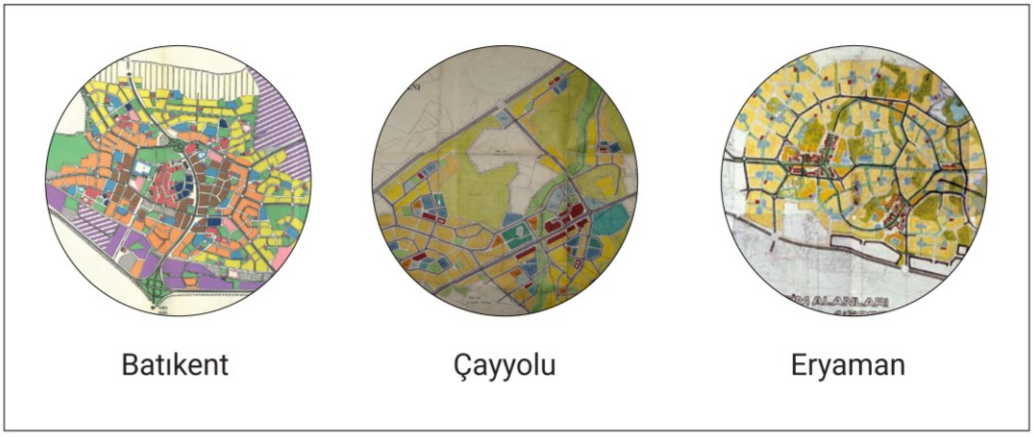

Figure 4. 33. Regional plans (sources: Cengizkan, A., Keskinok, H. Ç., Özgünel, A. C., Alataban, Ö., Özçakır, Ö., Özgönül, N., ... & Erder, C. (2013). Obituaries/Anma: Emre Madran Haluk Alatan. Celep, S. (2009). *Assessment of sub-center development: BatIkent, Ankara* (Master's thesis, Middle East Technical University). Aras, M. Ö. (2008). Metropoliten Çevreye Yayılım Sürecinde Mevzi İmar Planları ve Plan Değişikliklerinin Kentsel Mekân ve Kentsel Rant Etkileri Ankara Çayyolu Örneği. *Yayımlanmış Yüksek Lisans Tezi, Ankara Haziran*.)

On the other hand, the informal stacks of this period-Mamak and Altındağ-emerged as a result of the inadequate housing stock in the city. In contrast to the fragmented stacks, they were not the product of a regional plan. Rather, the informal stacks arose organically via squatter settlements (gecekondu) grown in the unplanned areas in the east of the city. Throughout this study, it was only possible to access the partial plan drawings of both informal stacks. Those partial drawings demonstrate that the building units and structure represent similar urban conditions with the Castle informal stack. They are all in a clustered configuration. In addition, it is possible to comprehend roughly the border forms of existing informal stacks through the 1990 plan. In this

respect, the informal stacks have already emerged in concave orientation and polycentralized disposition. The polycentralized disposition is a consequence of the clustered configuration.

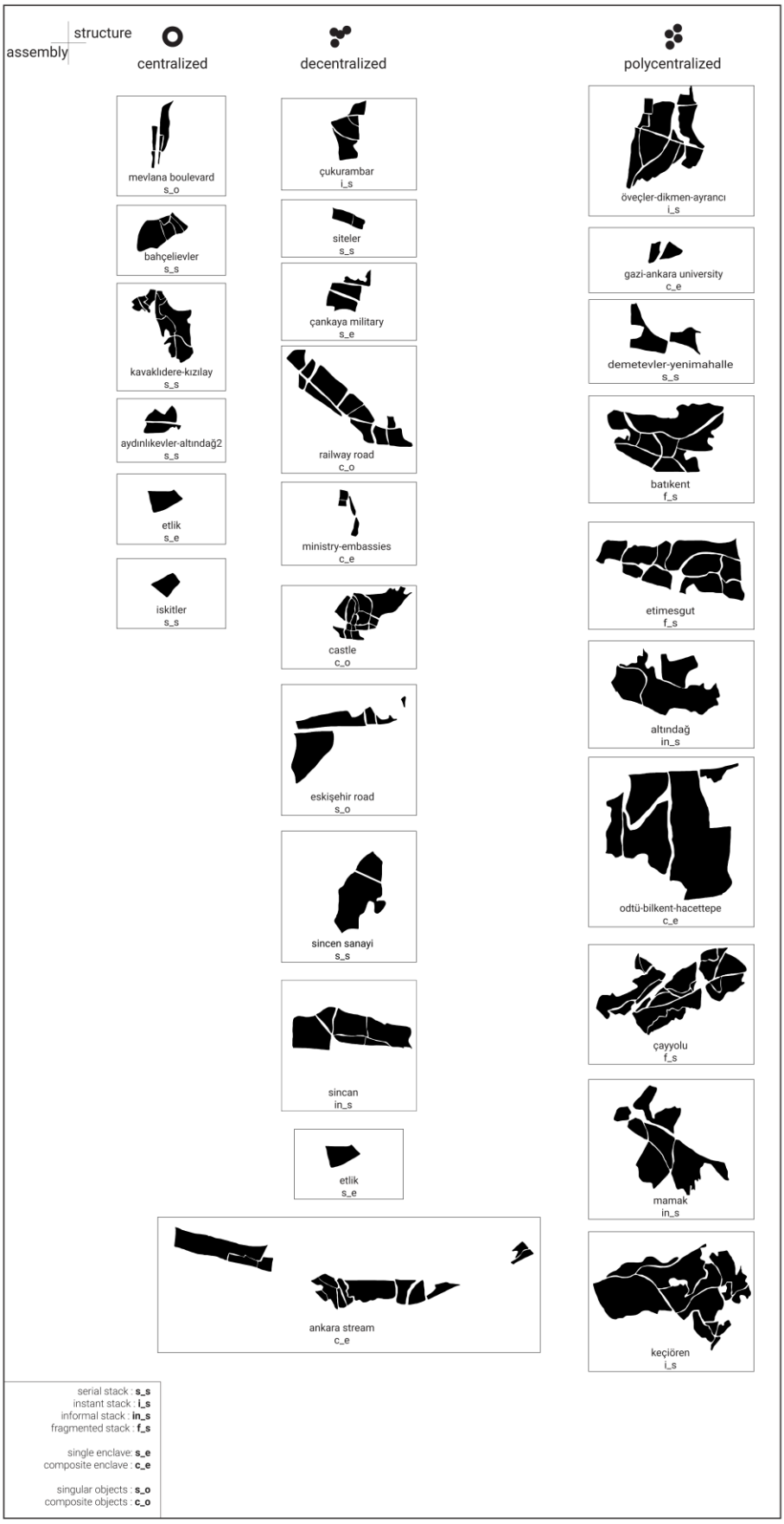

Figure 4. 34. Disposition types of visible assemblies in 1990 Plan

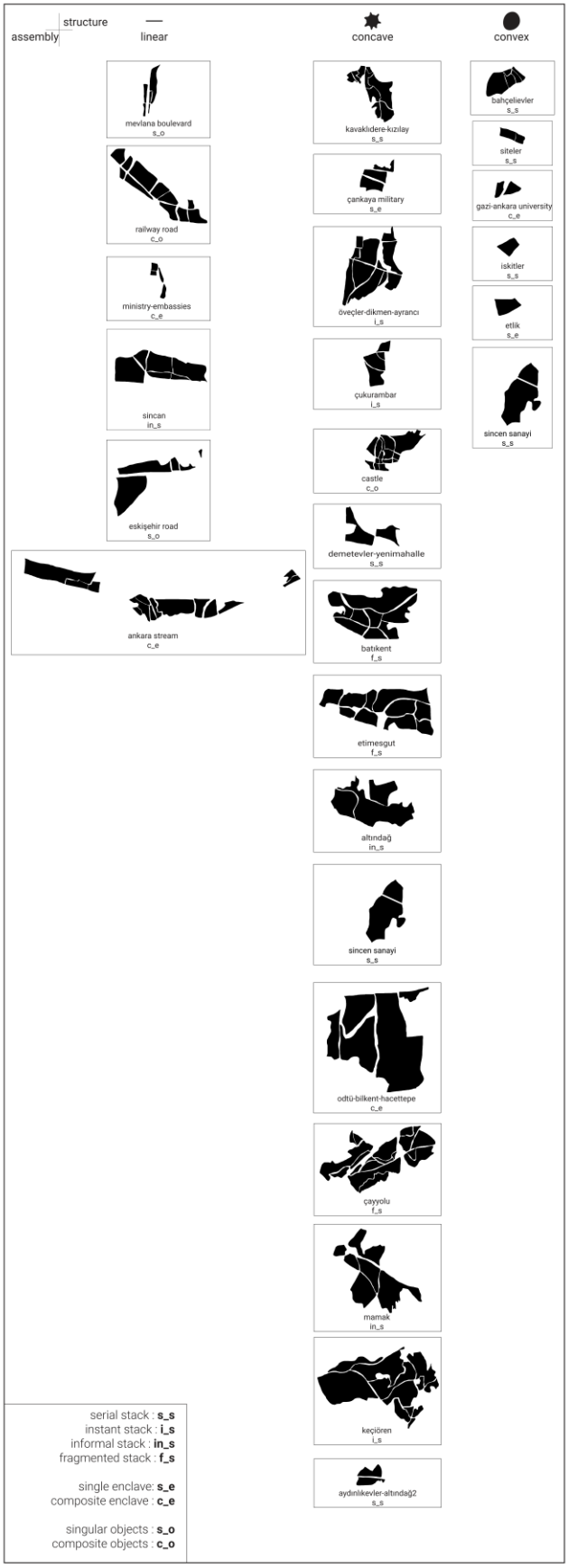

Figure 4. 35. Orientation types of visible assemblies in 1990 Plan

4.4.3. Street Layer Condition:

Due to the planning approach and the representation technique, it is difficult to detect the street composition of all assemblies seen in the 1990 plan. However, the centralized matrix routes and dividing routes that created the centers and limits of assemblies may still be read. Indeed, matrix routes, particularly in fragmented stacks, were clearly delineated by regional plans. As a result, the matrix routes have retained their significance even though the surrounding prescribed structure was not fully executed in accordance with the proposal.

Furthermore, regional plans provide an image of street composition in fragmented stacks. The street structure of fragmented stacks already reveals a loop-gridded composition based on regional plans, which forms the key characteristics of such stacks.

4.5.2015 Structure Plan:

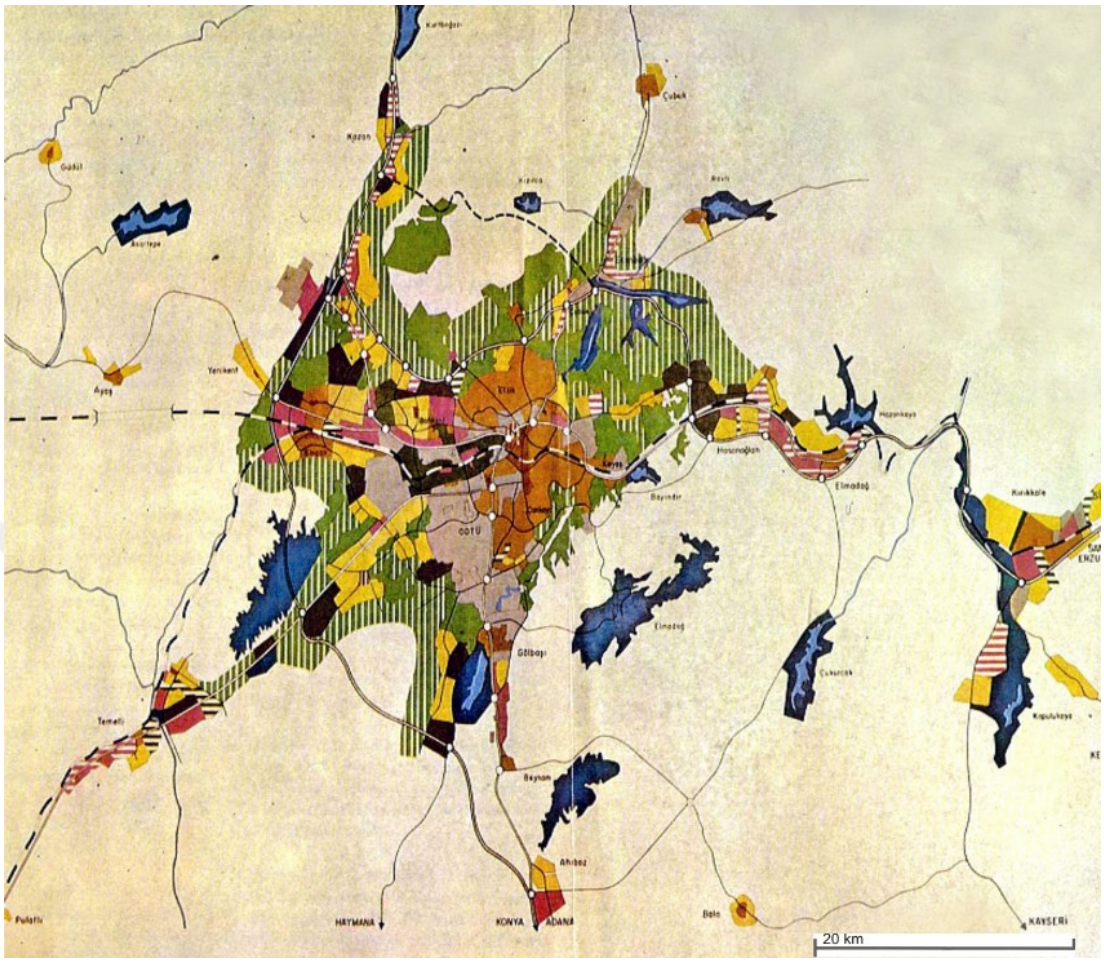

Figure 4. 36. 2015 Structure Plan Tekeli, İ. (1987). *Ankara, 1985'den 2015'e*. Ankara Büyükşehir Belediyesi, EGO Genel Mürdürlüğü.

The 2015 Structure[55] Plan exemplifies a significant shift in Ankara's planning history from city design to urbanization. The proposal is described by the group as a structure plan (yapısal plan) of Ankara, which is a metropolitan area rather than a city. By the increased bounds, the metropolitan area here represents the municipal regions of the city of Ankara. Through this description, the structural plan also covers the city's peripheral districts (ilçe). Indeed, the 2015 structure plan does not envision much of the current assemblies of Ankara in the catalog of this research. Rather, it suggests more about the potential extension of the current assemblies or constructs possible form strategies for producing new assemblies on the periphery. Those potentials have never settled down since the plan evolved into a paradigm that was hardly realized.

[55] The word "structure", which corresponds to "yapısal" in Turkish, here depicts a different meaning from the structure used in this study to analyze the assemblies. It, indeed, describes a framework for the organization of the city in macro scale.

Nonetheless, the 2015 structure plan has a substantial significance to be considered because of its undiscovered paths for future Ankara assemblies. The prior planning periods served as the foundation for the present Ankara assemblies. Accordingly, this study identifies the 2015 Structure Plan as a future form framework that should be rediscovered for the evolution of present assemblies and predictions for emerging assemblies on the periphery.

The 2015 Structure Plan decisions were articulated as a set of macro policies for Ankara (Tekeli, 1987). In fact, the macro policies depict eight strategies (Tekeli, 1987) for the growth of Ankara as a metropolitan area. The decisions were also displayed on a map of the 2015 Structure plan. However, due to its macro scale, it is not feasible to grasp the urban conditions in the same way that this study did for the past planning periods. As a result, this study plots an analysis path that is different from the previous planning period investigations. It is an explanation of eight macro policies through the related structural terminologies of this study adopted.

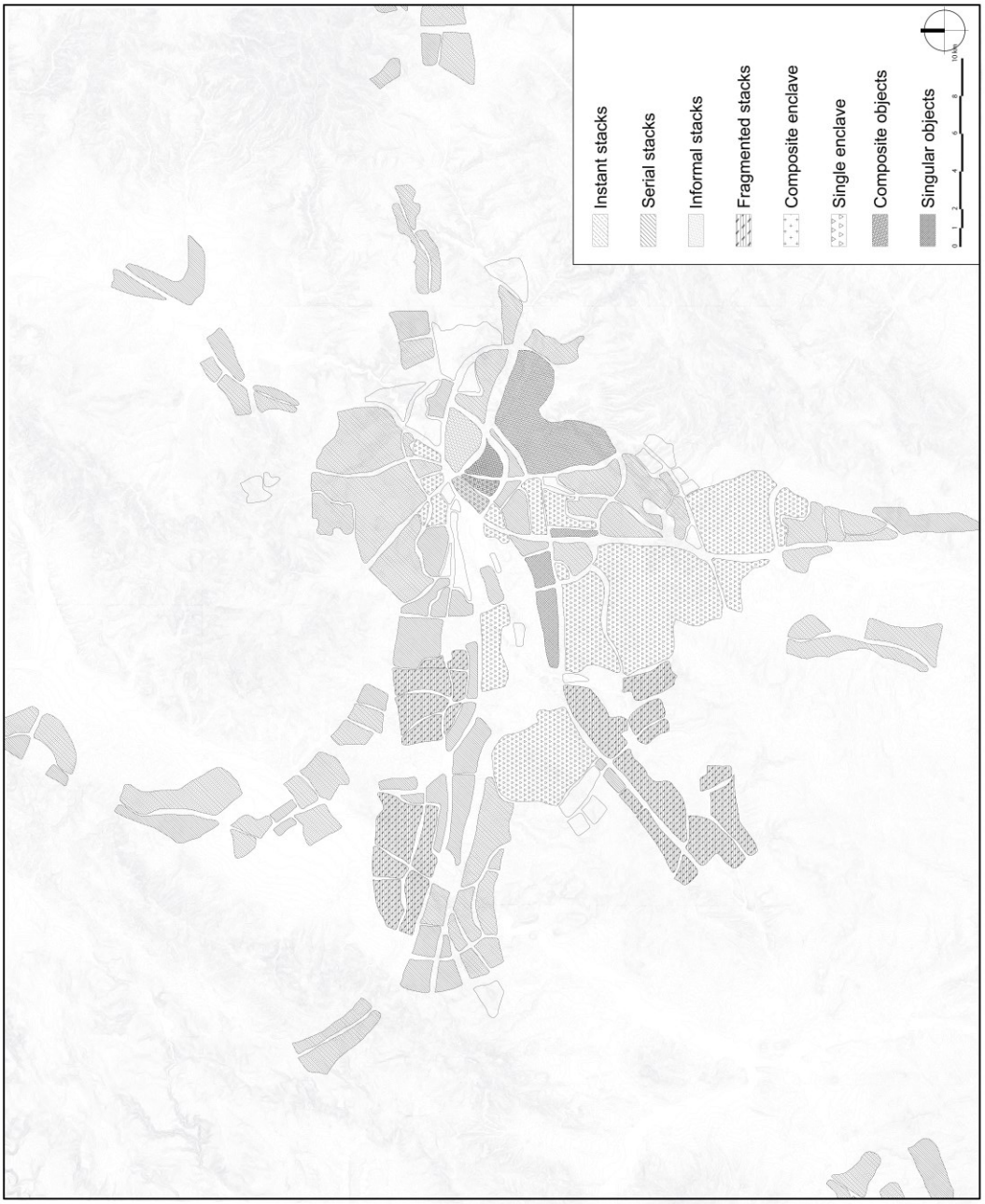

Figure 4. 37. Assembly types based on 2015 Structure Plan

4.5.1. General Structure:

First, the macro policies were constructed based on the decentralization strategy adopted from the 1990 Plan (Tekeli, 1987). The eight decisions and their interpretations are as follows:

i) Dispersing the metropolitan area to the new calyxes of the topography on the periphery

ii) Decreasing the density of the new aggregations on the periphery in terms of population

iii) Either producing new aggregative systems or strengthening evolving aggregations around the appearing settlements on the periphery within 35-40 km radius from the center of Ankara

Embracing the decentralization of the 1990 Plan, these three objectives suggest producing new assemblies on the periphery of the city, instead of transforming the current assemblies. Considering the topography, they propose building the new assemblies on the introvert landforms that facilitate the evolution of the aggregations. In this respect, the three strategies suggest increasing the fragmentariness of the city, which could strengthen the form of an archipelago left from the preceding periods. However, those emerging assemblies' structural components (unit, structure, and system) are not clarified. This is due to the fact that those clarifications are left to further regional plans.

iv) Decentralized aggregations should be designed for mixed-use in terms of function (industrial estates and residentials)

v) Distribution of employment equal to the emerging areas

Based on the additional explanations for those two policies, it was proposed to follow the already existing forms in the city as a potential decentralization strategy for new assemblies. Those forms that enable the decentralization were illustrated as follows: large institutional fields (which compose currently enclaves), industrial estates (part of serial stacks today), and cooperative housing (generating fragmented stacks configuration). In this regard, the visual map suggests a composite stack consisting of fragmented and serial stacks on a linear orientation for the new assemblies as well as enclaves.

Industrial estates, which correspond to the serial stacks in that composition, were strong assemblies to maintain the fragmentation. The group's strength of already existing industrial estates was related to the ability to develop and settle down to some extent in a consistent way as a radical expansion strategy of the city. In fact, this is proof of the fact that serial stacks are persistent forms in the city.

According to macro policy details, the combination of serial stacks and fragmented stacks might minimize extreme deviation caused by structural transformations in current assemblies by offering new settlement places and employment at the same time. This novel composition anticipates/envisages a composite assembly (a collaboration of fragmented and serial stacks) as another autonomous form that would retain persistence in the future.

vi) *There should not be suburbanization, instead linear roads should be constructed as a connecter from the center of the city to the periphery in a starfish form*

The 2015 structure plan proposes matrix routes extending to the peripheries from the center of the city in a starfish form. Those matrix routes appear as linear highways that connect the periphery districts (Kazan, Çubuk, Elmadağ, Ahıboz, Temelli, Ayaş) to the center of the map. On this map, the plan envisions linearly oriented composite stacks as centralized by those matrix routes. However, because of the scale of the map, there is no particular street composition type.

vii) *Preventing the destroy-construct (yık-yap) process through decentralization by providing a rich domain of potentials via the starfish form*

The proposed location of composite stacks alongside the six linear matrix routes provides multiple directions to place residents and workers. This provides an opportunity to increase the number of assemblies instead of transforming already existing ones. Yet, it does not suggest any formal variety regarding the assembly interior.

viii) *Green belts, in 8-9 km width, policies should be taken to be realized extended to the city center*

Green belts wrapping around the starfish form of the potential assemblies, in fact, were suggesting a very similar attitude The City in The City: Berlin as a Green Archipelago. In The City in The City, greenery was described as a definitive ground limiting the borders of the islands so that it could strengthen their autonomy. If the design policies for those green belts were clarified subsequently, as the 2015 Structure plan group suggested, they could be turned into a definitive ground of the current assemblies today as well as characterized in Berlin as a Green Archipelago.

Only green belts suggest a new assembly type, through the argument of providing greenbelts through the revitalization of public and private land on the periphery.

4.6.2023 Plan of Ankara (2007-2022)

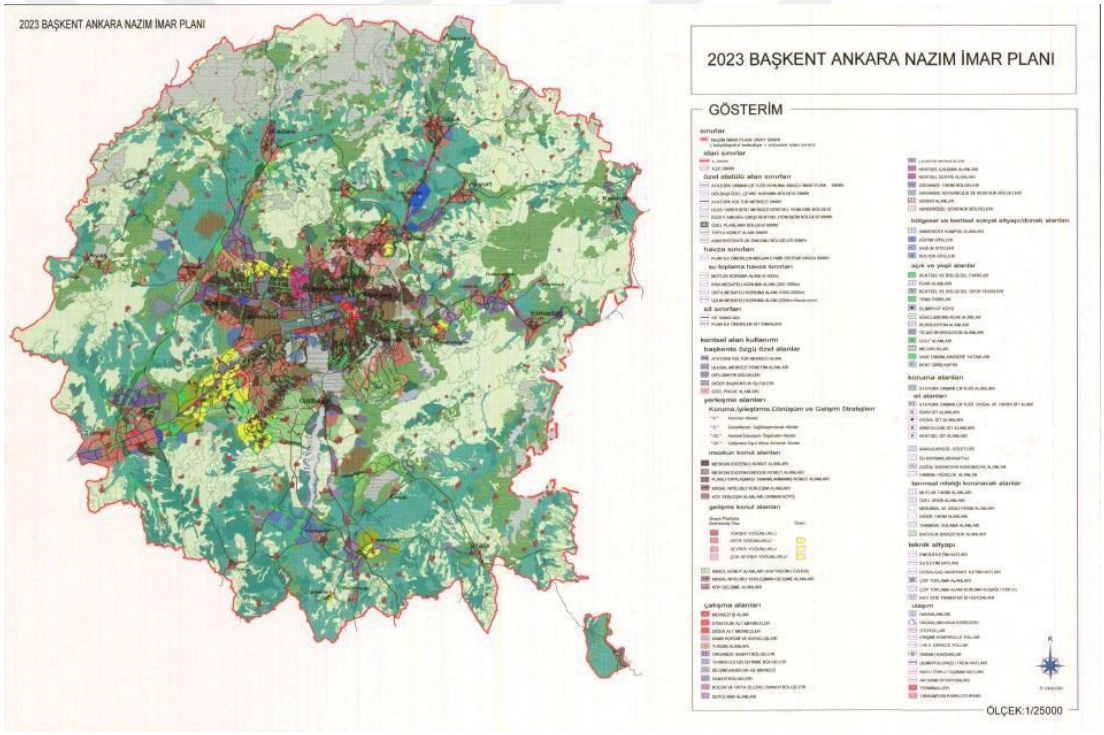

Figure 4. 38. 2023 Plan of Ankara (Source: METU Maps and Plans Archive)

The 2023 Plan of Ankara can be counted as the confirmation of disregarding typological parameters on a macro scale because of the urbanization process and policies. Indeed, the report of the plan demonstrates that the planning decisions made until the 1990 Plan formed the persistent forms of the city. This was explicitly expressed in the proposed development strategies of particular areas. What the 2023 Plan of Ankara focused on is, in general, the detection and improvement of deteriorated forms and areas under development for the management of the

metropolitan area's expansion (Gökçe, 2012). It is debatable how many of the strategies were implemented until today, or how much of the report was manipulated to serve the bad-infinity of urbanization under market-demand. However, the 2023 Plan is worth addressing in terms of planning approach and monitoring the closest expression of the city of Ankara.

The planning report is mostly composed of macro policies that should be followed further (Gökçe, 2012). From this perspective, the 2023 plan shares strategic similarities with the 2015 Structure Plan. These policies, however, do not appear as wholistic scenarios. Rather, the 2023 Plan departs from prior planning periods by separating the metropolitan area into six sub-regions (Çalışkan, 2009, p. 44) to be planned. It is appropriate to claim that those six sub-regions (North, South, Southwest, East, West, and Center) determined under the influence of the 2015 Structure Plan, which proposed the five linear corridors connecting to the center of the city. Those six sub-regions are also divided into sections -which will be elaborated further- based on mainly the functions and municipal neighborhoods (Gökçe, 2012). Indeed, this is the first attempt to generate a master plan from part to whole in the planning history of Ankara. Although it was an important step to plan the city in relation to the part-whole conjunction-which is analogical to the central approach of this study- it is difficult to find formal concerns in the report of the 2023 Plan. Accordingly, this study identifies the 2023 Plan as evidence of the need to revitalize Ankara considering its fragmanteriness, or part-whole conjunction, in other words, as a contemporary city.

It is not possible to mention all aspects of the 2023 Plan here since its content is much more related to the other parameters of the city than the typology and morphology. Also, the implementation strategies require an investigation into the municipal regulations (Gökçe, 2012). In this regard, this study focuses more on the formal details of six sub-regions. Accordingly, those details are interpreted based on the structural terminology of this study as it was done before for the 2015 Structure Plan period.

4.6.1. General Structure:

First of all, the planning regions are as follows:

i) *Center Planning Region*
    a. *Center core*
    b. *Proximity of center*

ii) West Planning Region

iii) South-West Planning Region

iv) South Planning Region

v) East Planning Region

vi) North Planning Region

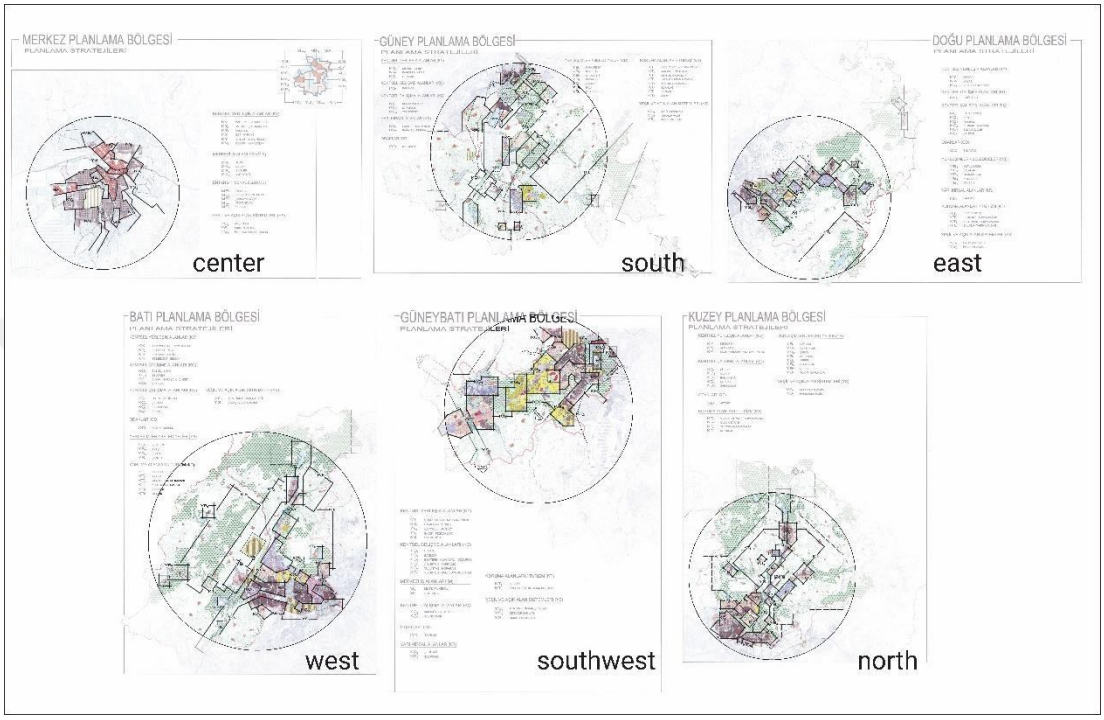

Figure 4. 39. Regional Plans in 2023 Plan of Ankara (source: Gökçe B. (2012). *2023 BAŞKENT Ankara Nazım Imar Planı açıklama Raporu: Etüdler ve Müdahale Biçimleri*. Ankara Büyükşehir Belediyesi.)

Additionally, each region is classified based on the function and potential development strategies as follows: urban settlement area (kentsel yerleşme alanı-KY), urban development area (kentsel gelişme alanı-KG), urban labour area (kentsel çalışma alanı-KÇ), focal areas (odaklar-O), conservation and tourism areas (koruma ve turizm alanı-KT), intensive centers (entansif merkezler-ME), central business areas (merkezi iş alanları-MİA), and semi-agricultural areas (yarı kırsal alanlar-KR), open and green area systems (Yeşil ve açık alanlar sistemi-YS) (Gökçe, 2012). This classification within each region facilitates the monitoring of the areas under development and possible transformation districts.

The defined **urban settlement areas** within the six sub-regions in the 2023 Plan include the **serial, instant,** and **fragmented stacks** of today. They all are pretended as morphologically and infrastructurally matured areas in the 2023 Plan. For that reason,

the 2023 Plan does not require significant transformations in the morphology of those stacks. Indeed, the 2023 Plan adopts and approves the regulatory decisions-which achieved in its last version until the 2015 structure plan- on the evolution of already existing structures of serial, fragmented, and instant stacks.

The sole morphological judgments made on such stacks, on the other hand, are to improve the silhouette of the stacks positioned alongside significant matrix routes, which are highways marking the entrances to Ankara, such as the Eryaman Fragmented stack on Istanbul Road. However, the primary strategy for improving the silhouettes on main axes is nothing more than the construction of prestige buildings (Gökçe, 2013) that are neither typologically nor morphologically specified. Despite the 2023 plan's part-whole objective, this decision is incapable of recognizing the parts as finite forms as well as the whole. However, in terms of autonomy, this decision raises the issue, "How can the borders of assemblies be improved to ensure their persistence?" Furthermore, the approval of pre-existing versions of those stacks demonstrates that serial, instant, and fragmented stacks have virtually reached their autonomous forms in Ankara.

The original structure of **informal stacks**, which are largely squatter areas, with the exception of the Castle informal stack, is classified as reclamation sites in the city. This indicates that the group does not recognize informal stacks as either permanent or autonomous forms in the city. The grounds for this assumption are the infrastructural and sociopolitical issues that are outside this study's focus. The execution of reclamation schemes as urban transformation is suggested for those informal stacks. The new proposal, however, does not produce a new typology but continues the development of apartment-block typology -structures of serial stacks- superimposing a contradictory assembly system of informal stacks. Whereas Castle informal stack was under preservation because of its historical value, the other informal stacks were under reconstruction. Indeed, in terms of morphology, there is a denial of autonomy and the persistence of informal stack assemblies in Ankara. In this respect, the analysis 2023 Plan raises another issue: potential typological transformations of already existing assemblies.

In the 2023 Plan, **urban development areas** can be classified as **emerging assemblies** that have not reached a certain theme to be described as an assembly or to include an

existing assembly in Ankara. Those places, in fact, emerged on the outskirts of preexisting assemblies during that period. The plan for 2023 provides development initiatives for those areas. The strategies evoke the evolution of stack structures. The proposal recommends building residential settlements through stage development rather than parcel development for emerging assemblies. This technique includes a typological intent that anticipates the formation of a system in developing assemblies. Ankara's current situation shows that this technique led to the extension of previously existent **fragmented stacks** at the time. The stage development resulted in the appearance of clustered configuration which resembles the fragmented stacks configuration. Consequently, the areas under development have been affected by the adjacent fragmented stacks through their concave orientation in time.

Urban labour areas, on the other hand, cover either existing or evolving industrial estates, corresponding to a part of **serial stacks** in general. The strategies for these areas are not much related to the morphology. The only morphological decision is as follows: “Before the existing parcels of industrial estates reach a particular occupancy, any new or additional industrial estate cannot be produced." This, in fact, serves to maintain and strengthen the existing block typology of structures in serial stacks in terms of morphology, although the main reason behind this decision was not related to morphology.[56] The other strategy is the removal of industrial estates from residential areas due to the possible environmental damage risks that they may cause in the settlements (Gökçe, 2013, p. 533). This also contributes to the independence of industrial estates as serial stacks differ from serial stacks composed of residential buildings. Indeed, those strategies demonstrate how the industrial estates as serial stacks became persistent in time and achieved autonomy.

Central business areas majorly cover the current **objects** assemblies and some **enclaves** in Ankara. However, the report of the 2023 plan shows that there is no particular typological or morphological decisions for those areas. The deprivation from typological decisions increased the individuality of the buildings, transforming them into objects.

[56] The main reason was to conver the parcels into investments serving to the industrial production (Gökçe, 2013, p. 550)

Focal areas are far from being classified as any assembly within the bounds of Ankara considered in this research. Because of their distance, it is even more difficult to connect those areas with the present assemblies for future combinations. The remaining categories, which include conservation-tourism, open air-green, and semi agricultural areas, offer a backdrop for Ankara's assemblies. Indeed, the determination of those areas expresses the landforms where any assembly should not appear. This is because they are primarily characterized as areas under protection in the 2023 Plan. Indeed, those areas are also described as threshold areas, which become the limitation against construction. Some open air-green areas were descended from the very early plans of Ankara, which were Jansen and Yücel-Uybadin. Since those planning phases, encapsulation of the assemblies by green spaces has resulted in the clarity of assembly borders and the reinforcement of the fragmentary.

CHAPTER 5

5. Synthesis of Process and Theme: Constructing Generated Matrices

5.1. Synthesis of the Planning Period and Current Typologies

The adopted hybrid morphological framework, first, facilitated identifying the site-specific urban form of the city- which are the assemblies-. The framework is a dominant composition of process-based typology and typological theme. All the description processes via cataloging serve one main objective: constructing a generative matrix. Yet, constructing a generative matrix requires recognizing certain lost formative possibilities in the process beforehand.

Subsequently, this study attempted to accomplish the formal potentials that were either neglected or reduced in time via varied interventions during the six distinct planning periods of Ankara. The synthesis of the knowledge handed through the analyses of planning periods and current assemblies is the reveal of those lost and feature potentials caught in the assemblies, which are persistent urban form of Ankara. It should be acknowledged that it is neither a radical discovery of poor formal interventions nor an imposition of favorable strategies. Rather, it is an attempt to conceive the urban forms as a domain of spatial potentials that enable the construction of multiple visions and prospects for the future development of a city. Consequently, this research strives to demystify prospective formative projections by synthesizing the planning periods and present typologies.

The synthesis process covers a comparison of the present urban form with their models in planning periods and their potential evolutions until today. Formative projections, on the other hand, are constituted by the dominant urban conditions of site-specific assembly types in Ankara.

Following this, it is possible to present formative projectives as a list categorized under assembly titles.

5.1.1. Formative Projections:

Formative projection is an exploration of formal capacities and possible variations of the identified assemblies. Based on this, one of the objectives is to reveal unexplored formative features of the evolved assemblies through a thematic typological perspective. To achieve the unexplored features, formative projections present a list of obstacles/problems abolishing the formal potential. In this regard, the formative projections concentrate on the particular traits of the assemblies that cause those problems. However, the number of those traits may be extended via the use of various perspectives. As a result, it should be recognized that such projections are an interpretation of this study as a result of the structural terminology embraced.

Standardization of structures :

Standardization of structures is a bilateral phrase to describe two situations observed in serial and instant stacks. The first is the homogenization of the form of the structures within the stacks. The form here corresponds to the unit and unit distribution types constituting a structure. The apartment-block became the only structure type that had both serial and instant stacks. Although there are small variations in unit and distribution types, there is no major distinction between the structures that enables them to be defined as different structure types.

The serial and instant stacks cover a major area as city forms of Ankara. Yet, the structural analysis demonstrated that the structures were not always the same. In the evolution period dating back to Jansen Plan, the different structure types appeared through both Jansen's plan strategies and different cooperative housing until the Yücel-Uybadin plan. Despite the existing variety at that moment, the apartment-block type for which the Yücel-Uybadin plan laid the foundation and dominated all the serial and instant stacks because of the speculative dimension of urbanization. Subsequently, the other structure types' spatial persistence is reduced in time. Consequently, the structures of the serial and instant stacks became standardized in form by apartment-blocks and the chance of variety was lost in those assemblies. However, it should be recognized that homogenization is not described as a poor intervention. Rather, standardization is perceived as losing the opportunity for formal variety.

The second meaning of standardization represents the deficiency in utilizing the only structure types of the serial and instant stacks to generate different spatiality

conditions. The structural analysis reveals that the urban transformation plans adhered to the apartment-block typology but missed diversity in order to capitalize on their potential spatiality. The geometric organization and distribution of units in this structure type could be utilized to provide a variety of urban interior and exterior. The standardization of structures here illustrates the homogeneity of the spatiality conditions as well as the structures themselves. This is due to disregarding the spatial potential that could be achieved through diversification via utilizing different apartment-blocks' interior and exterior. In fact, this is a deprivation of themes in the city. The apartment-blocks, which are the core elements of both serial and instant stacks, are devoid of themes that may reinforce the autonomy of those assemblies.

There were different possibilities for utilizing the apartment-block. The building-topography intervention, utilizing the courtyard and corridor spatiality conditions of apartment-blocks, providing a unit variation in apartment-blocks to modify either interior or exterior spatiality conditions of apartment-blocks are some of the strategies that can construct a beginning of a long matrix.

High Discrepancy of Structures:

On the contrary to the serial and instant stacks, fragmented stacks represent high variety in structure types. As previously stated, this makes identifying a common structure typology to utilize particular elements of fragmented stacks for further interventions problematic. As a consequence of the huge amount of structural variety, the spatiality conditions of structures offer a huge domain of urban exterior and interior. However, the abundance of this domain brings the inconsistencies together with it. This is due to the increasing number of structures resulting in decreased interconnection between the structures due to the dissimilarity between them. For example, alongside a continuous axis, which might be a matrix route in this case, those diverse structures' exterior spatiality reduces the spatial continuity of that axis. In this regard, "high discrepancy of structures" is a phrase to express the inconsistencies that arise as a result of an assembly's excessive diversity of structure types.

This problem addresses the necessity of certain common structure typologies in stacks to strengthen the persistence of those assemblies. Indeed, if the borders of structures, which are distribution of cooperative housing units on a reserved land, were not identified through the regional plans after 1990 plan, it would be even difficult to

identify them as stacks or an assembly. What formally binds those structures, cooperative housing, to compose an assembly is the geometry and the topographical features of those reserved lands. All of the land has similar geometries and covers comparable areas. Indeed, the dominance of particular structure types within today's vast domain of structures might avoid this disparity.

Rejection of Persistency:

Differently from the rest of the stacks, we are able to recognize that the structures of informal stacks -except Castle's informal stack- were disregarded due to the other determinants (political, economic, and sociological). Indeed, the strategies to transform the structures of informal stacks were only about modification of those structures as either apartment-blocks or point blocks superimposed on the existing structures. As with other stacks, the standardization of structures was also applied to informal stacks, but with the apartment block, which was completely different from the existing structure type. As a result, this generated an overlapping view of informal stack structures (consisting of squatters) with the apartment-blocks outweighing the former. This overlap view became a misguiding element for the characterization of informal stacks.

Rejection of persistency represents a resistance against the formal persistence of informal stacks. This persistence not only appears in the maintained structures of informal stacks but also in the street composition following those structures. The rejection of the form covers many issues related to the urban conditions on three layers-building, street, and topography-. For example, the already existing street composition appears as an expression of topography on the contrary to the transformed areas in informal stacks. Although the topography interpretation was not well developed to be called as expression, there is a potential to transform the structures into a reinforcement of topography. However, those potentials were disregarded through the planning periods that strived to replace the already existing structures with the apartment-block typology.

Indeed, both the distribution of building units composing a structure and street composition could suggest different transformation strategies with respect to the persistence of informal stack structures.

Inconsistent Linearity:

The structural analysis of the assemblies in Ankara demonstrates that some assembly types are in linear orientation through particular binderies (streams, matrix routes as boulevards and highways, railway roads). However, the consistency of spatiality conditions throughout those binderies is open to inquiry. The major objects and enclaves are elongated through linear binderies.

As a phrase, inconsistent linearity represents twofold problematics in linear oriented assemblies. The first is related to the layout of all objects along a linear bindery. It was mentioned before that both objects and enclaves are isolated assemblies. The isolated configuration enhances their autonomy within the city. Yet, the inconsistent linearity does not originate from their autonomous nature. Rather, it is the deficiency of an organized layout that could collect these independent assemblies in a consistent way. For example, even though the structures of stacks were not diversified in time, their layout (street composition, unit distribution in serial and instant stacks) was proposed to provide a consistency between the structures. Instead, layouts of linear assemblies - which emerged after the Yücel Uybadin plan and were formed mainly in the 1990 plan (Eskişehir Road, Railway Road, Mevlana Boulevard, Ankara stream)- remained unclear about the arrangement of objects compared to other assemblies. This uncertainty caused the objects to be placed in different positions (periphery, center, and middle, multi-directional) within the assembly, which interrupted their spatial continuity.

Considering the planning periods, it is seen that Jansen's plan is consistent in linear layout. The Jansen plan positioned all the objects in such a way as to create an edge continuity on the boulevard. This approach is not seen in other plans. Instead, in later planning periods, objects placed at different widths on the developing boulevards or highways were usually located in the center or in the middle. The division of the land adjacent to the matrix route obtained by more street composition and land ownership with different intervals also caused this problem. This has weakened the continuity of the matrix routes, which are linear connectors.

The second problem is related to the variety of object types. While the objects that emerged during the Jansen plan period had different geometries from each other, it is observed that the objects after this period became more generic. "Generic" here means

that the geometry of the objects is almost the same, which results in the occurrence of proliferating geometries as monotypes. For example, Eskişehir Road and Mevlana Boulevard object assemblies include only the rectangular objects that are mostly composed of towers and plinths. Monotype objects do not offer different spatial experiences along the linear line. This causes the linear orientation to become weak because it cannot offer different spatialities. Also, the fact that these objects do not provide spatial continuity due to their placement causes spatial linearity to be totally lost in such assemblies. Eskişehir Road, Ankara Stream, and Mevlana Boulevard assemblies are the best examples of this problem.

Such problems could be solved by concentrating on particular steps: improving the street composition along the linear connectors, diversifying the object types and positions of the objects; and the alignment of the object considering them as connected elements instead of independent objects.

Ambiguous Boundary:

Object assemblies' borders are established by the objects themselves. The stacks' structures, on the other hand, come together and determine their spatial bounds. The limits of enclaves, on the other hand, are not delineated spatially by any structure, unit, or natural topography. As mentioned earlier, the boundaries of enclaves are determined by official institutional boundaries and cover large areas within the city. Although the boundaries of these assemblies are determined officially, they cause uncertainty in the city spatially as their boundaries are not defined by the building or street-street pattern. Instead, buildings and street layouts are, in general, located within enclaves in a very small area compared to the whole field, usually located in the middle of the assembly. In another case, the buildings are located in the assembly in such a dispersed manner that they cannot form any perimeter spatially.

In this regard, the term "ambiguous boundary" refers to the ambiguity that exists between assemblies that have an imagined border but are also incapable of being physically defined. Besides, this is not only about the spatiality of the border. Because of their extensive coverage of the city, the ambiguous boundaries of the enclaves produce enormous regions of spatial uncertainty and disruption. For example, ODTÜ-Bilkent-Hacettepe University and Ankara stream enclaves cause a very long linear interruption in the city. Majorly, the decentralization practices –which begun with the

1990 plan- envisaged the institutional fields, which are part of the enclaves, as important sub-centers for the expansion of the city. However, the configuration of the buildings within these large fields caused enclaves to be turned into mini-cities neither having spatially clear separation nor apparent boundaries in the city of Ankara.

This perspective accepts the isolated condition of enclaves regardless of a positive or negative spatial impact on the city. However, it also endeavors to offer a spatial reality of the boundaries that may serve the public in the city while maintaining its own community inside the enclaves. Accordingly, this study envisions a spatial edge production that could reinforce the boundaries of enclaves without interruptions in the city.

Distant Dispersion:

It has already been mentioned that enclaves are assemblies that are legally isolated from the city. Contrary to the previous projection, this study also imagines such large areas not isolated from the city by official borders and open to the public regardless of the sociological or political consequences. This time, the boundaries of enclaves are viewed as the primary cause of spatial segregation in the city. However, simply removing the borders of enclaves will not suffice to rectify the issues.

As it was mentioned before, enclaves differ from other assembly types in the city not only by their boundaries but also by their building configurations. Without the boundaries, the buildings would resemble the object groups scattered at a considerable distance from the other assemblies. Accordingly, the term “distant dispersion” addresses the isolated condition not only with a boundary but also through the building configuration. These object groups could have been diffused throughout the area rather than being dispersed at a distance from other assemblies. This insight opens up the possibility of producing/transforming multiple kinds of assemblies that can occupy the same area as other enclaves.

5.2. From Formative Projections to Archetypes: Generative Matrix through Case Projects

The formative projections point out different potentials considering the problematics causing other formal potentials to disappear. However, those problems should not be considered solely as undesirable practices. As previously stated, these issues are

viewed as such since they rule out many formal options. The fundamental objective of this thesis, as indicated previously, is to arrive at a generative matrix within the framework of the many formal possibilities and hybrid morphological perspectives described. To establish a formally generative framework, the various morphological theories adopted basically follow two paths: to *build analogies* and to *develop archetypes*. In addition to these two primary approaches, Ungers' typological themes enhance archetypal definitions. Based on these principles, this thesis attempts to synthesize these two methods in order to construct a generative matrix. Yet, instead of producing the new models, the generative matrix is composed of case projects formally analogous to the selected assemblies.

The generative matrix diagram is built in three phases in this direction:

i) *identifying transformational themes for the acquired formative projections*
ii) *producing sequence diagrams illustrating transformational themes related to analogous assemblies*
iii) *building a matrix that can combine the transformational themes with different transformation typologies*

Accordingly, this study proposes four main transformative themes under the lights of formative projections: **diffusion, condensation, stretching**, and **similarity**.[57] It should be recognized that the number or strategy of those proposals can be increased or transformed based on different formative projections. The main emphasis behind proposing the four transformational themes is to explore different formal visions that this study attempted to reveal. On the other hand, when developing a sample sequence diagram, this study visualizes archetypes through a series of case projects that are analogical in form to the existing assemblies. Accordingly, the sequence diagram of transformative themes should be clarified before mentioning the example generative matrix.

The sequence diagram is an interpretation of the "*morphological sequences*" matrix of O.M. Ungers. Based on this, the sequence diagram shows the case projects as a result of possible combinations of assembly and their structural components. In this context,

[57] The terms in Ungers' "City as Metaphors" are the main inspiration behind the appearance of these themes. Indeed, 'condensation', 'strecthing', and 'similarity' are the terms that were also mentioned by Ungers in that book to illustrate the metaphorical potentials of the city forms. Those terms are interpreted to propose different potantials of formal relations.

depending on the transformational theme, the sequence diagram is composed of serial drawings, which are components (structure, street, topography) of an assembly to be transformed and case project as an archetype. The main intention behind the sequence diagram is to construct an analogy between the case project and the existing form of an assembly. Those case projects, however, are not used in the sequence diagram to suggest a radical transformation of already existing assemblies that are analogous to the case projects. Instead, such case projects are included in the sequence diagram to investigate what may have occurred if the aforementioned formative projections had been taken into account throughout the development of current assemblies. Furthermore, producing this sort of diagram may lead to other formative strategies via different case projects or models/archetypes that were not included in this study. In this regard, the transformational themes that are used to constitute the sequence diagrams are as follows:

Similarity: This theme is proposed based on the three formative projections, which are standardized structures, the high discrepancy of structures, and rejection of persistency. Indeed, this proposal aims to save the concept of similarity from the effects of standardizing or rejecting persistence of structure, and to reach a spatiality that can create diversity within the framework of urban interior and exterior. The major objective of the similarity theme in this case is to convert the characteristics of identical structures into an opposing impact, an effect that produces variety by constructing analogies with selected case projects.

Three cases indicate how structural similarities struggle to realize their potential. In the first instance, identical structures cannot create spatial variation. The second, because it rejects the existence of existing structures, attempts to create a structure that is totally independent of them. Due to the abundance of structure variation, the similarity of the existing layout totally dissipated in the last one. Using the concept of similarity, it aims to build alternative archetypes for these three circumstances.

Condensation: As a transformational theme, condensation aims to transform the structure type of an assembly by keeping an existing system geometry, making the form more condensed. Based on the case projects selected, the condensation may result in the transformation of a stack into an object as well as the modification of merely the structure of the stack. In this respect, this study investigates the prospect of a

previously recognized assembly structure being condensed into a new distinct assembly type. In other words, by deepening formal analogies, it seeks to build new potential archetypes that could have developed during the evolution of an assembly. By this perspective, the theme of condensation attempt to foresee or propose a formative strategy for a possible densification.

Stretching: Stretching aims to emphasize the linear orientation of an assembly and strengthen it spatially. Although some existing assemblies show linear orientations, it seems that they are not utilized efficiently by a formative perspective. Indeed, this theme is a reaction to the inconsistent linearity in formative projections. Stretching seeks to strengthen the spatial continuity of an assembly in a linear orientation by stretching it with different formal strategies. The search of formal strategies constructs new archetypes that could fulfill the consistency of the linearity.

Diffusion: This theme is proposed considering the distant dispersal and ambiguous boundaries, which are more related to the transformation of enclaves in formative projections. Diffusion here illustrates an attempt to imagine the form of enclaves composed of more diffused archetypes that could serve the rest of the city. However, diffusion as a term should not be confused with the diffusion of an existing enclave with the city, purifying it of its differences. On the contrary, the diffusion theme envisages concretizing the potential formative strategies that can be followed within an enclave itself in order to increase it spatial distinguishment (urban exterior and interior). It aims to clarify the boundaries of the enclaves, whose boundaries are vaguely existing, by the canonical diffusion of building typologies over the land. By this perspective, the proposal of diffusion is an attempt to explore the possibility of urban interior and exterior composed of particular formative rules.

On the other hand, this study foresees that each assembly has a potential to transform into a different assembly type. This potential lies behind the formal analogies. For example, while an assembly is defined as a *stack (such as Siteler or Gazi)* in a gridded and concave form, the total stack may turn into a big *object (a mega form)* having similar interior organization. In this regard, whereas an assembly is a hierarchical assembly, such as a serial stack, it may completely transform into a non-hierarchical assembly, such as an object. In another case, the structure of an assembly (such as Altındağ informal stack) in an organic clustered form can be modified as an *object,*

maintaining the organicity within the interior as well. Accordingly, a stack assembly may have new centers through modifications of structures into objects. In this regard, the variety of assembly types can be increased by such transformation strategies.

Based on the abovementioned concepts, the generative matrix of this study accepts the transformational themes and the potential assembly type-a possible end product- as the two determinants in the matrix table. In this regard, transformational themes compose the columns while the potential assembly types constitute the lines of the matrix diagram.

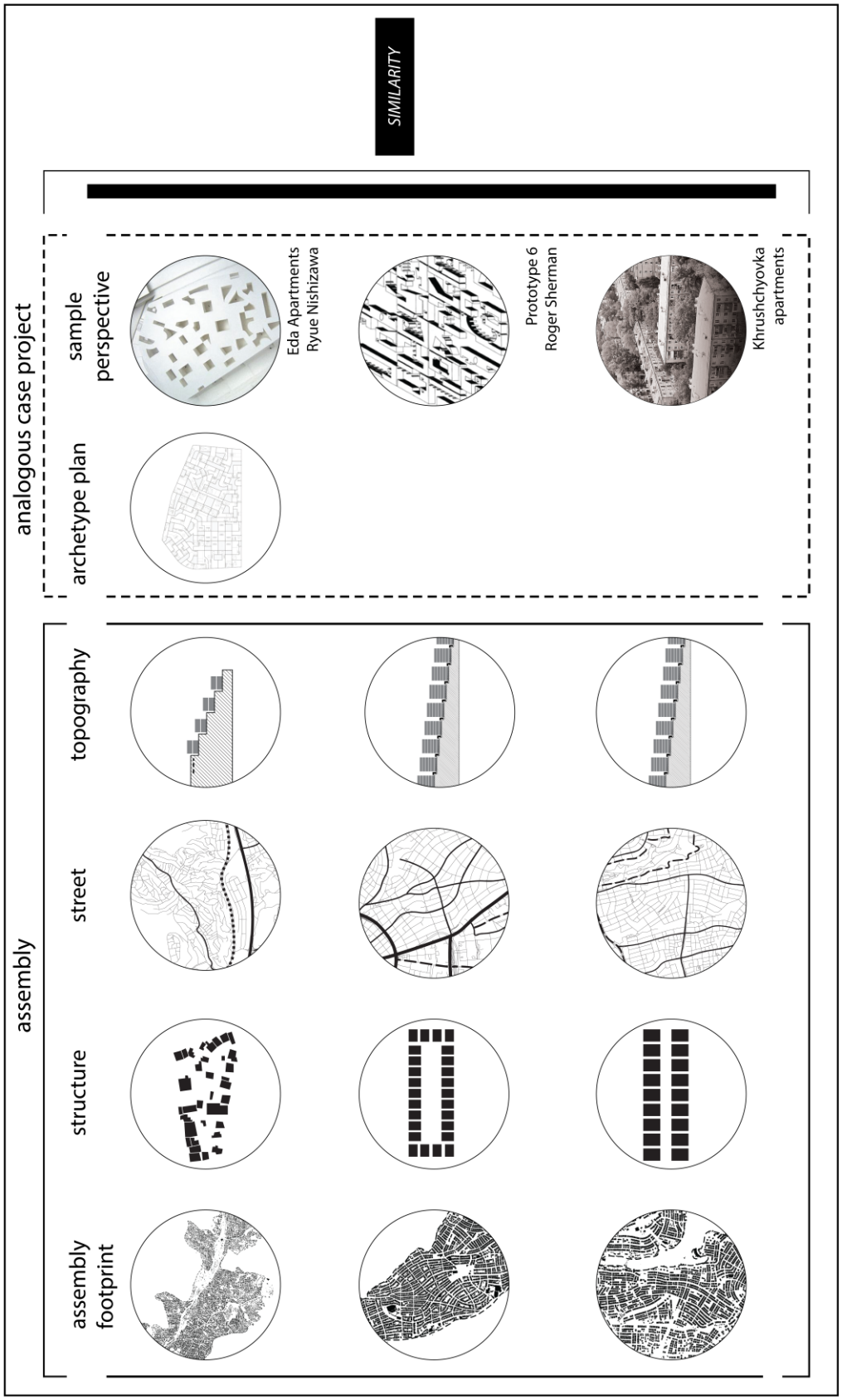

Figure 5. 1. Sequence diagram sample for *similarity*

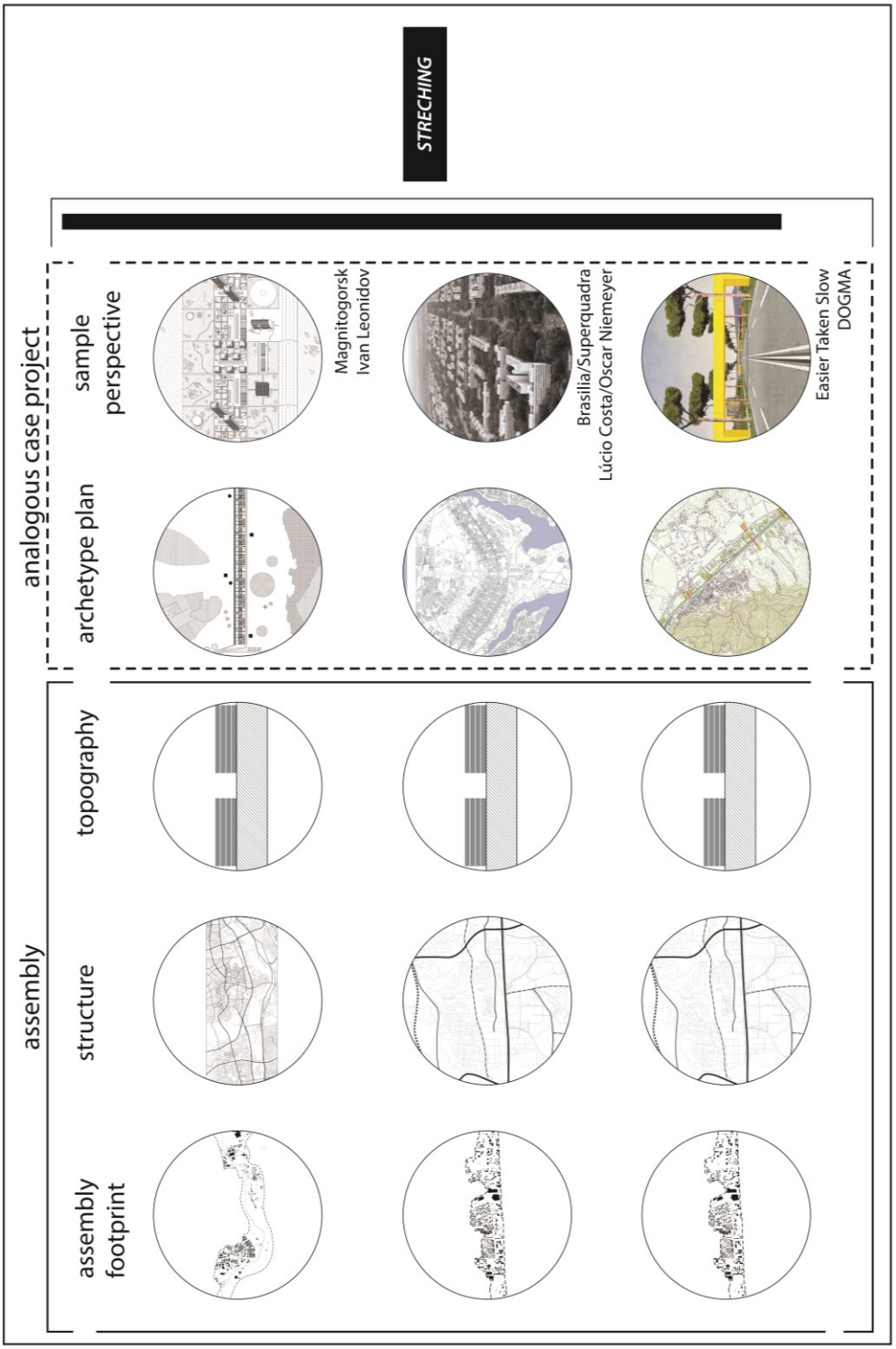

Figure 5. 2. Sequence diagram sample for *stretching*

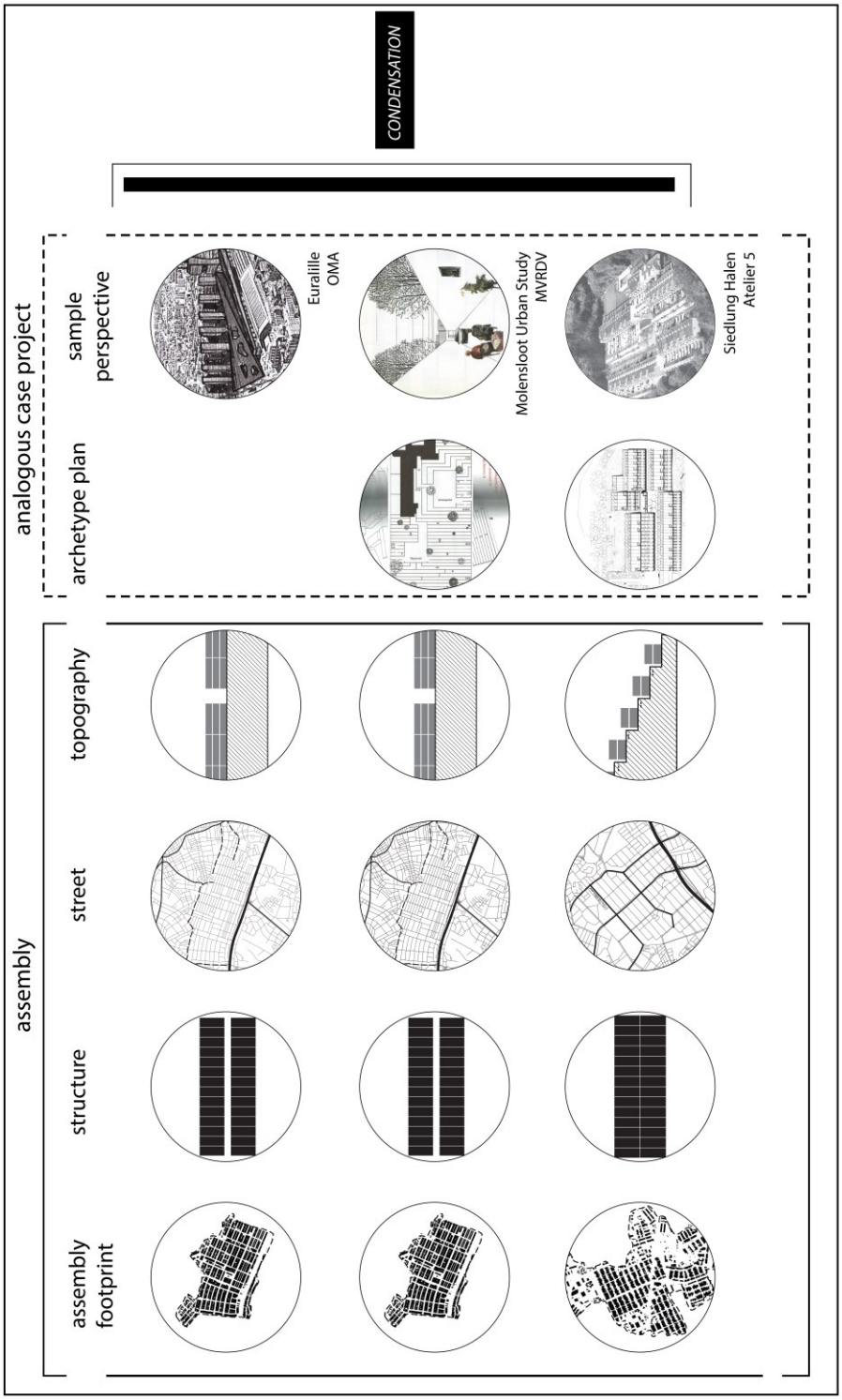

Figure 5. 3. Sequence diagram sample for *condensation*

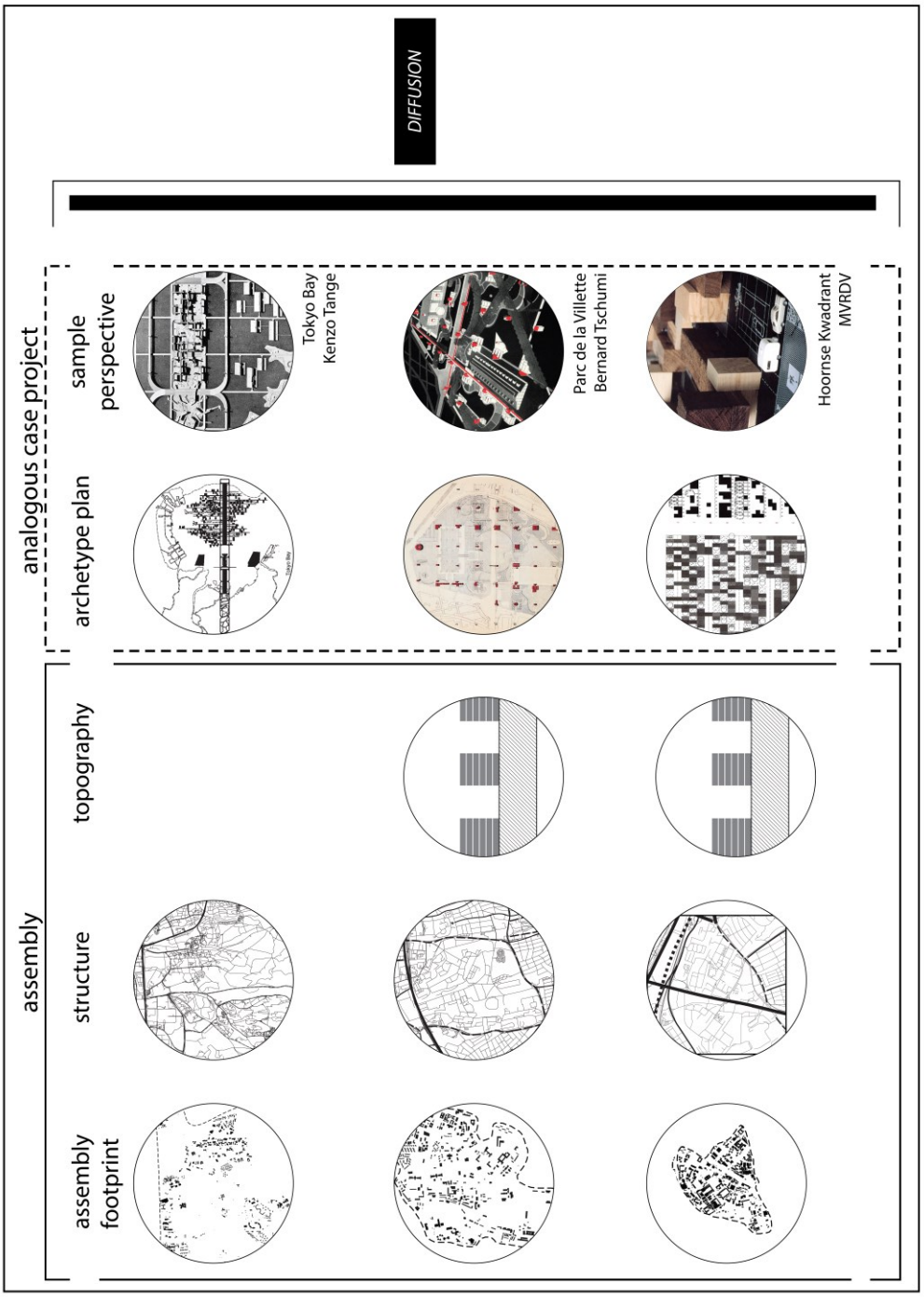

Figure 5. 4. Sequence diagram sample for *diffusion*

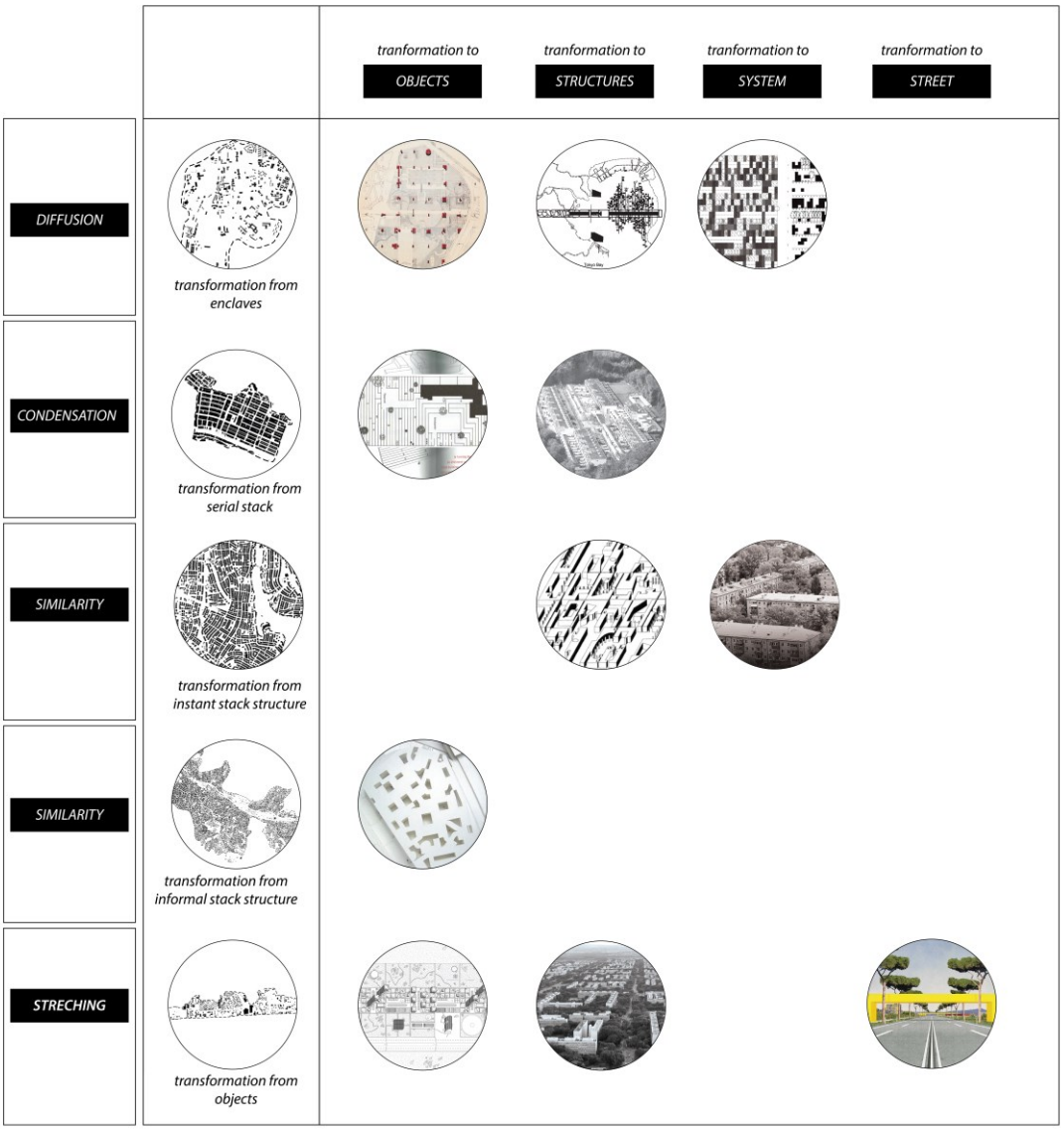

Figure 5. 5. Generative matrix through case projects

CHAPTER 6

6. Conclusion

The research attempts to construct a critical perspective by considering the formative dichotomy (Aureli, 2011) between the terms city and urbanization. This formative dichotomy includes diverse conflicts that originate from strategies of architectonic production. In the context of urban morphology, the contemporary city is an encounter of the spatial contradictions (*polarization-unification, poly-nuclear-anucleate, transparency-non transparency, generative geometry-proliferating geometry, compound shape-fractal, historical-non historical*) between the features of the city and urbanization. Based on these problems, this thesis first introduces a formative framework's potential as an analytical and generative tool to explore the undiscovered potentials of architectonic conditions. As mentioned earlier, to reveal the formative conditions behind architectural production, the critical perspective adopted in this research was established on a formal framework isolated from the city's other disciplines. In this respect, this study strives to construct a hybrid morphological framework for monitoring the position of the contemporary city between the city and urbanization dichotomy. Through adopting different parameters of typological theories to generate this hybrid morphological framework, the main impetus of this research is to achieve an alternative architectonic model production and analysis method for the contemporary city.

Based on the aforementioned framework, this study portrays Ankara, the Turkish Republic's capital, as a contemporary city facing a serious encounter with formative contradictions. This research indicates, as a research gap, the insufficiency of a conceptual approach that could monitor those contradictions to conduct the morphological characterization of Ankara. To address and sustain a conceptual approach, this study adopted the concept of "*archipelago*", which was associated with the city as a term confronting urbanization by Aureli (2011), to the hybrid morphological framework composed for Ankara. In this regard, this research aimed to accomplish a visual narrative as a catalog of urban form in Ankara. "*Archipelago*" became an initiative concept that could elude the urban form from the contradictions

and reveal the autonomous forms (Rossi, 1984) corresponding to the islands of an archipelago.

Based on the scope of the research mentioned above, firstly, this study constituted its own hybrid morphological framework in order to conduct a morphological characterization of Ankara. This framework was primarily a composition of the *process-based typology of Caniggia (Caniggia and Maffei, 2017)* and the *typological theme of Ungers (Jacoby, 2013),* supported by the secondary concepts (street patterns (Marshall, 2004), landforms (Kurt, 1966). In this regard, the building, street, and topography typologies were the main objects of the analytical reading.

Accordingly, this study constituted a visual narrative through a series of multi-scalar diagrams, as comparative matrices of different planning periods in Ankara. As a result of the visual catalog, this research determined a considerable number of fragments, which are called as "*assembly".* Through the visual catalog, this study concentrated on discovering common typologies (unit, structure, system, street composition...) within an assembly to be able to categorize them under certain definitions (*stacks, objects, enclaves*).

From this perspective, this visual narrative contributed to the literature by proposing a site-specific taxonomy under the influence of a *typological theme*. In this context, the multi-scalar diagram of both the present condition and planning periods of Ankara demonstrated that Ankara is comprised of a rich urban fabric *(serial stack, instant stack, informal stack, fragmented stack, single enclaves, composite enclaves, singular objects, and composite objects)* varying under the three categories. At the same time, benefiting from the *process-based* approach, the multi-scalar diagram enables us to illustrate the lost formative spatial potentials of Ankara since the founding of the Turkish Republic. Those potentials are identified as *formative projections* using specific definitions of the problems that cause various spatial formations to vanish. In line with this, *formative projections* point out six different issues (*standardization of structures, high discrepancy of structures, rejection of persistency, inconsistent linearity, ambiguous boundary, distant dispersion*) that could transform the current formation of cataloged assemblies.

Besides different contributions to the morphological framework for Ankara, this study also brings different subjects into question for further studies. Firstly, due to the conceptual nature of this study, the parameters-urban conditions- proposed to catalog the different assemblies of Ankara can be expanded or transformed.

On the other hand, the proposed assemblies do not always project common types for all structural components. As a result of the analysis, it was difficult to designate a common unit or structure type for some assemblies. *Fragmented stacks*, *enclaves,* and *objects* can be identified as such assemblies. Formative projections point out this problematic under certain headings, such as "*high discrepancy of structures*" and "*inconsistent linearity*". Those problems and spatial potentials of the cataloged assemblies can be discovered further through detailed analysis concentrating on the structural organization of one assembly.

In addition, based on the formative projections, this study proposed specific themes- *diffusion, stretching, similarity, condensation*- to reactivate the lost spatial potentials of cataloged assemblies. In line with these themes, a sample generative matrix which attempts to suggest exemplary projects for different combinations of structural components was proposed. The analogy of abstracted form was influential on the selection of the exemplary projects to put in this matrix. The method of analogy is an interpretation of adopted morphological theories (mainly typological theme) focusing on the autonomy of form. However, this generative matrix does not propose hypothetical projects. Rather, it founds an analogy between an already existing architectural project and the possible combinations of structural components. From this point of view, despite its transformative potential, this matrix does not serve its initial objective, which is to generate hypothetical forms matching the structural combinations. Therefore, the generative matrix can be developed further through architectural visualization by producing imaginary forms under the influence of exemplary projects. Through this way, multiple models for potential transformations of urban form-assemblies in this case- can be produced as a diagram. This is a return to the term "*model*" by Durand, who initiated the concept of autonomous form. Lastly, the number of transformative themes (*diffusion, stretching, similarity, condensation*) can be increased by using different analogies.

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