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Typo-morphological assessment of Ludlow and Famagusta Old Town

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Abstract

In the field of urban morphology, different scholars have developed different approaches. The pioneering approaches are the procedural-typological approach of G. Caniggia and G.L. Maffei and the historico-evolutionary approach of M.R.G. Conzen, which are the focus of this paper. However, it is also worth mentioning J.W.R. Whitehand (1981), who integrated the analysis of changes to the built fabric with the study of the individuals and organizations involved in the various aspects of property development, users, planners, and architects. As well, Kropf (2009) named four distinct approaches – spatial analytical, configurational, process typological, and historico-geographical – for the purpose of determining more explicitly which aspects are included in the different approaches to urban morphology. Based on the theoretical approaches of the above-mentioned scholars, in the scope of this article, the architectural and planning dimensions of urban morphology will be discussed for Ludlow and Famagusta, which carry similar morphological characteristics on the planning level and different typological characteristics on the architectural level. Ludlow is a small market town in the south of Shropshire, England; it is a few miles east of the Welsh border. Famagusta, with its Old Town, is a small market town in the eastern part of Cyprus. This article explores urban morphology based on the two pioneering morphological approaches, and then it sets up a typo-morphological basis for Ludlow and Famagusta through an integrated approach. The belief is that such an integrated approach will drive future interventions, design, and planning policies towards their conservation.

Keywords: urban morphology, historico-geographical approach, procedural-typological approach, Ludlow, Famagusta.

1. Introduction

Morphology (first used in 1885) refers to the study of the history of variations in a comprehensive form and was originally defined by von Goethe as “the study of the physical (or built) fabric of urban form, and the people and processes shaping it” (1952, p. 51). In the field of urban morphology, various scholars developed different approaches; some of the pioneering approaches include the historico-geographical approach of Conzen (1960) and the procedural-typological approach of Muratori (1950) and Caniggia and Maffei (2001). These are used as the basis for theoretical discussion of the cases in this paper.

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Saverio Muratori presented the procedural-typological approach in Italy at the beginning of the 19th century. According to Muratori, procedural typology was a dialectic relationship between complementary and reversible complexities in typological research and in stages of design development (Cataldi, 1998). He also worked on analyzing built-environment concepts at various scales by identifying building constituents; determining the shape, structure, and various uses of buildings; and taking measurements of the scale of clusters, urban organisms, and territories. This approach guided designers and researchers to understand the rules at the root of the structuring of building fabrics, urban organisms, and territorial ranges (Caniggia & Maffei, 2001). Following Muratori, Caniggia and Maffei (2001) developed the dynamics of urban form as shaped by its component types and their evolution throughout historical development. This is called the procedural-typological process. Caniggia and Maffei's main concerns were the historical formations and transformations of these types, as well as the urban fabrics that resulted (Levy, 1997). They searched how typological processes were linked to more general tools of cultural transmission between generations. Caniggia and Maffei's (2001) work focused on the concept of architectural design and composition. They used their philosophy and theory to construct the means by which buildings come together as cities; these are divided into four levels: (a) buildings, (b) building fabrics, (c) cities, and (d) settlements.

In line with the work of Caniggia and Maffei, Conzen worked in the UK on urban morphogenetics and he considered maps of settlements, towns, and various city types throughout the whole region, symbolically showing the complete range of rural to urban settlement forms (Whitehand, 1987). Conzen emphasized that a town plan was a combination of three distinct but integral plan elements that included the streets and their street system, the plots and their plot patterns, and the building arrangements within these patterns. He explained the present structure of a town plan by examining its historical development, which he called evolutionary theory based on the historico-geographical approach (Conzen, 1981).

Together, these two approaches offer an opportunity to integrate two theories and create a common basis for comparative studies of different regions. By comparing these two theoretical frameworks, the study of a built environment becomes a means of regaining what has been lost, or at the least, conserving and preserving admired qualities of towns, cities, and their built fabric. For this approach, we combined Conzen's consideration of the analysis and concepts of urban morphology in three groups: (a) town plan, (b) townscape and (c) fringe belt with Caniggia and Maffei's conceptualization of urban form under three different headings: (a) building, (b) urban tissue, and (c) settlement/urban organism. One of the main aims of this paper was to establish a common theoretical background and common terminologies – with certain integrated commonalities – for analyzing urban form. Secondarily, it aimed to apply these integrated commonalities to a comparison of Ludlow and Famagusta.

2. Theoretical Framework of Integrated Methodology

Examination of the studies of Conzen, Caniggia, and Maffei revealed that their methodologies show some similarities; Conzen (1960) mostly considered town-plan analysis as an evolutionary method. The approach is historical and evolutionary in that it considers the form of the town resulting from the sequence of events during its formation. Conzen's (1960) work established a framework of concepts, terminology, and procedures for analyzing the town plan in an effort to explain the physical form of the town itself. One of the major contributions of his method is the systematic inclusion of plots as a primary element of analysis.

On the other hand, Caniggia and Maffei (2001) used the procedural-typological approach to study shifts in architecture and urban design. They worked on a proper basis for design through their knowledge of buildings. Their concern was the process of formation and transformation of the built environment and the immediate needs it accommodates rather than an abstract social or political program.

Conzen took, as his primary object of analysis, English towns of medieval origin, whereas Caniggia and Maffei focused on Italian towns, studying those that grew and were substantially transformed in the medieval period, but were, in many cases, of Roman origin. In both approaches, the researchers examined medieval towns of Europe, which present a great degree of similarity.

For Conzen (1960) and Caniggia and Maffei (2001), this period–from the Middle Ages to the end of the eighteenth century–was seen as having one tradition—a tradition now lost to modern society. They admired the traditional town and sought to understand how it came to be. Their admiration of traditional characteristics did not exclude examination of modern forms; rather, to understand the traditional town it is necessary to start with the town, as it is known today. Indeed, within the current town are the traces of everything that came before.

In addition, for Conzen, a geographer, examination of towns led to an explanation of the present form of the town as well as suggestions for conservation or preservation policies. Caniggia and Maffei took their study beyond explanations and policies; they attempted to use the lessons embodied in the towns as bases for design proposals.

In the conception of a town plan, these three researchers shared a fundamental assumption: the key to understanding the current town was understanding the town, as it was in history. According to Conzen, “Towns have a life history. Their development together with the cultural history of the region in which they lie, is written deeply into the outline and fabric of their built-up areas” (1960, 76 #). Moreover, he said, “An evolutionary approach, tracing existing forms back to the underlying formative process and interpreting them accordingly would seem to provide the rational method of analysis” (1960, p. 48.)

For Caniggia and Maffei (2001), there is “substantial correspondence between structure and history, a characteristic proper to all things which derive from a process of formation. Further, to understand the building structure is to read the urban organism a spatial realm using to understand the components as a part to whole together by starting to search from room as a part to whole” (p. 18)

As can be understood from these quotations, it is evident that the similarity in their views is found not only in the idea of history as the key to understanding the structure of towns. They all saw the town as the result of a formative process. They identified similar components and properties in the process and they identified differential rates of change between smaller elements, such as individual buildings, and larger elements, such as patterns of streets and blocks (Conzen, 1960; Caniggia & Maffei, 1984). Still Caniggia and Maffei posited a general mechanism for the evolutionary process, but Conzen did not.

Their conceptions imply a direct correlation between forms and the purpose and activities that the forms accommodate, as well as social and economic conditions under which they were formed — an implication made explicit by all three theorists. They also identified periods or phases in the process of the development and transformation of the built environment. In addition, with these common objectives and purposes and given the similarities in their overall view, they shared a desire to understand the physical form of towns.

In contrast, Conzen focused on buildings and their structure, plots and their components, and street patterns. He treated buildings, plots, and streets equally and overlaid them together to find the town-plan structure, whereas Caniggia and Maffei deeply researched buildings by focusing on building components (e.g. doors, windows, rooms), building materials (e.g. wood, stone, brick), and aggregates (e.g. concrete, sand). The latter urban theorists applied importance at the building scale first followed by block, route, town plan, and urban issues. They considered buildings important elements of a town plan, and for this reason, believed buildings should be analyzed thoroughly.

Relatedly, Conzen's plot and Caniggia and Maffei's lot, which refer to the same thing, are perhaps more direct, if vague, examples of urban tissues, of which the lot is the module demonstrating the similarity. The graphic similarity, while encouraging, is too vague to be a basis of comparison. Conzen identified two main types of entities: the plot and the block and plot series. He further specified plot heads and plot tails as subdivisions of the plot. In defining urban tissue, Caniggia and Maffei identified three main entities: the lot–made up of the built area and the pertinent area; the pertinent strip–made up of lots; and the built route–made up of the route and the pertinent strip. The block is mentioned but Caniggia and Maffei considered it equivocal.

While Conzen (1960) defined his plot as a parcel that is reduced to a parcel of land defined by boundaries on the ground, Caniggia and Maffei's (2001) definition of lot remained unchanged as "the area built upon together with the pertinent area" (46.). In both cases, the plot or lot is considered an area of land. At its most basic, these labels assert that the ground or surface of the earth is divisible; any one continuous division begins in an area in opposition to the limits of another continuous division. The dividing lines are the boundaries of the areas. The pertinent characteristics defining the areas are thus the spatial relationship on a two-dimensional surface with boundary lines. It is in these terms that Conzen's plot and Caniggia and Maffei's lot can be considered the same thing.

As Kropf (1993) noted, there is a similarity in outline–that is, the configuration of the boundary on the ground plane, and a similarity in the division and location of component parts–the built and unbuilt areas. Moreover, there is similarity in orientation to the street or route. The quotations also imply that a building is located within the plot in a similar relative position. Given these similarities, Conzen' plot and Caniggia and Maffei's lot refer to a similar set of characteristics and so may refer to the same or similar class of object, at least within the specified restricted areas.

Having confirmed the distinction between plot and building, or more strictly the distinction between two levels of form in the hierarchy occupied by buildings, respectively, the comparison of the level corresponding to the building can be addressed. The comparison is complicated by Conzen's distinction between town plan and building fabric. As a plan element in the town plan, building or block plan refers to the two-dimensional trace of a three-dimensional object. Though Conzen did not specifically define the building as an entity in his approach, his plan, section, elevation, and axonometric or isometric drawings are generally similar to those used by Caniggia and Maffei to illustrate building types. Given the lack of a specific definition of building on the part of Conzen, the definition of the plot as containing the building and the graphic similarities are the primary bases for establishing a correspondence between Conzen's building-building fabric and Caniggia and Maffei's building type.

Whereas Conzen only gave specifications about structure, material, building types, and building period, contrarily, Caniggia and Maffei's building type was deeply analyzed according to its material characteristics, structure, openings, and types. Caniggia and Maffei went on to define the parts of buildings, identifying three levels of form under the building level, namely rooms, structures, and materials. Although both approaches consider building as an important town element, their priorities for building components differ from each other.

Regarding the first issue, Conzen's geographical perspective meant he saw the town, or more specifically the form complexes and element complexes, in terms of discrete elements and their distribution patterns. Conzen, thus, identified elements and element complexes. Having identified distinct types of form–the building, plot, and street, he conceives the combination of any one type of element as the pattern of that one type throughout the entire town. Within each pattern, he then distinguishes different specific types of each element.

In contrast, Caniggia and Maffei saw the combination of a given element as another distinct type of object of which there may be many different types in the area of the town. For example, a combination of plots is not the plot pattern of the entire town but a single tissue, which is another

type of element. A combination of tissues may then be a town or part of a town. For Caniggia and Maffei, the pattern of any one element over the whole town was not an entity but an analytical tool. In their attempt to conceive of the town as it was built, the pattern of a given element in the whole town plays no direct part. Ultimately, Conzen, Caniggia, and Maffei used the pattern of single elements over the whole town to distinguish types.

For Conzen, it was not the pattern as a whole that contributed to the explanation of the town, but types distinguished within the patterns and their inclusion in plan-units. The types form each complex in and of themselves, and together in plan units, they are the entities used in explanation. The difference between Conzen's and the Caniggia-Maffei approach, in this respect, is more about specific procedures than the content.

Moreover, Caniggia and Maffei conceived the form in a way similar to that of Conzen. In the defining of plan units and plan divisions, a plan unit is a combination of buildings, plots, and streets in the same way that a tissue is a combination of buildings, lots, and patterns of a single element over the whole town. These are used for the analytical purpose of identifying the types themselves, distinguishing types from each other, and combining or arranging types to form objects of the next higher level of complexity. In terms of the general conception of form, this puts the emphasis, as Caniggia and Maffei did, on the specific types of form as constituents of a given town or urban area. The pattern of the forms of a single level was seen as a particular view of the town to be used for the purposes of analysis.

Assuming this conception, Conzen's building fabric, block and building pattern, and plot and plot pattern along with Caniggia and Maffei's materials, structures, rooms, buildings, and lots have been accounted for within the five levels adopted so far. It remains to determine the elements above the level of plot.

In addition to all of the above, these urban morphology pioneers focused on town form in their different approaches. They tried to figure out which town. For which Conzen was more interested in plot, street, and building that he overlaid to discover the relations of their functional patterns and form patterns. Ultimately, he focused on town development in detail. On the other hand, Caniggia and Maffei focused on figuring out the building form according to materials, organization of rooms, aggregates, and structure. From these, they identified the general typologies of buildings in each town, which led to detection of urban tissues according to block and route form. Finally, they combined all of these together to recognize the town form as a whole.

Altogether, for their block definition, the distinctive feature, relative to the plot series, is that the block is surrounded by streets. Caniggia and Maffei asserted that the block is a combination of pertinent strips – the result of the fusion of serial-built routes. One of the fundamental premises of the procedural-typological method is that attempts to reconstruct a town are performed according to the conception by which it was built. Additionally, Conzen defined the block similar to Caniggia and Maffei, claiming that the block is a combination of plot, street system, and buildings. They all maintained that without buildings blocks are only two-dimensional areas. When buildings are added to blocks, they start to transform into three-dimensional forms.

Caniggia and Maffei's definition of tissue included the street as a constituent part, as did most of the plan units identified by Conzen. It was possible to proceed this far without discussing the route because it is not internal to the forms that have been examined. Caniggia and Maffei (2001) defined route as the structure that allows a place to be reached. This definition gives no indication of the physical nature of the street except arrangement of materials. Within the suggested framework of elements, it would then occupy the primary position between that of materials and that of rooms. By extension, the street could then be considered to occupy successively the levels corresponding to buildings, plots, and tissue or plan units. As Caniggia and Maffei (2001) noted, a building cannot exist without a route nd they added that the route is perhaps one of the most fundamental and necessary structures created by man. In many cases, however, knowledge of

points of access to and from routes is essential in the explanation of forms. Access and movement to and through forms in the built environment are fundamental aspects of the way in which the forms accommodate human intentions and uses.

Returning to Conzen's view of the street, he did, in a sense, include both the street and block in his definition of the street system. He explicitly names the street as the element but the actual object determined by the definition is, in effect, the block. He does not refer to the street as a material object which can be outlined but as a space between blocks. It is possible, however, to define the street as a distinct object, as suggested by Caniggia and Maffei. As a structure, it is a composition of materials oriented horizontally and usually level with the ground with parallel sides at such and such a width and such a length.

Caniggia and Maffei stated that routes give the characteristics to urban tissues and each route hosts its own characteristics with buildings and its surroundings. Conzen agreed with this statement but added that street defines a space and space is a volume or area within particular boundaries.

Conzen's townscape and Caniggia and Maffei's urban tissue show some similarities to each other, but in detail, they show some differences. According to Caniggia and Maffei, tissue deals with the objects as types and covers the pertinent characteristics of connections to other objects in a typological process. It is a town or part of a town process that carries dynamic values of the components of tissues. Alternately, Conzen sought to determine the townscape with plan units by analyzing the building types and plot relations, making connections with street lines as well as building activity and building history.

When these three scholars considered the town's patterns in general, they agreed that two-dimensional elements and three-dimensional elements come together and form the urban tissue or townscape. Nevertheless, in detail, some of their components differed from each other. Tissue is mostly composed of buildings and their components, route types, blocks types, pertinent characteristics and such things, wherein building functions and unit characteristics are not important. Conzen, on the other hand, attributed importance to land utilization patterns and plan-unit patterns. Thus, the main difference between their perspectives was how they considered the functions of towns and buildings.

Caniggia and Maffei's urban organism and Conzen's morphological regions are at the higher level of town development analysis. Both of these analyses of town occur at the macro level. Caniggia and Maffei described urban organisms using analysis of the town, where the building is an element, the structure of elements is the urban tissue, and arrangement of tissues form regions or districts that together form the organism of the entire town. Caniggia and Maffei's urban organisms relate to arrangements or combinations of tissues. Such combinations are the plan divisions of urban organisms. An urban organism is a general class according to the typological process. The examination of this derivation or correlation was their attempt to find the basis for the built form created in a specific era. They observed that every era produces different types of dwellings. As such, the urban organism is modified according to changing social and economic conditions, revealing the typological process.

In contrast, Conzen defined his town plan as the topographical arrangement of an urban built-up area with all its manmade features. Combinations of town plan, building fabric, land utilization pattern, and the site form his morphological regions (Conzen, 1975). A morphological region represents a phase in the development of the town, which created distinctive material forms in the cultural landscape to suit the particular socio-economic needs of the society.

Caniggia and Maffei's urban organisms and Conzen's morphological regions exhibit some similarities to each other in their general context, but within their distinct approaches, their ways of analyzing towns are different. Based on their similarities, they can be placed in the same classification. The only difference is their components. For instance, in urban organisms, town is

the combination of buildings, tissues, regions, and districts in the context of economic and social changes, whereas a morphological region is a combination of land utilization, plan-unit pattern, and building pattern within the cultural context. So, both of them consider the social and cultural context but their physical way of analysis distinguishes them from each other.

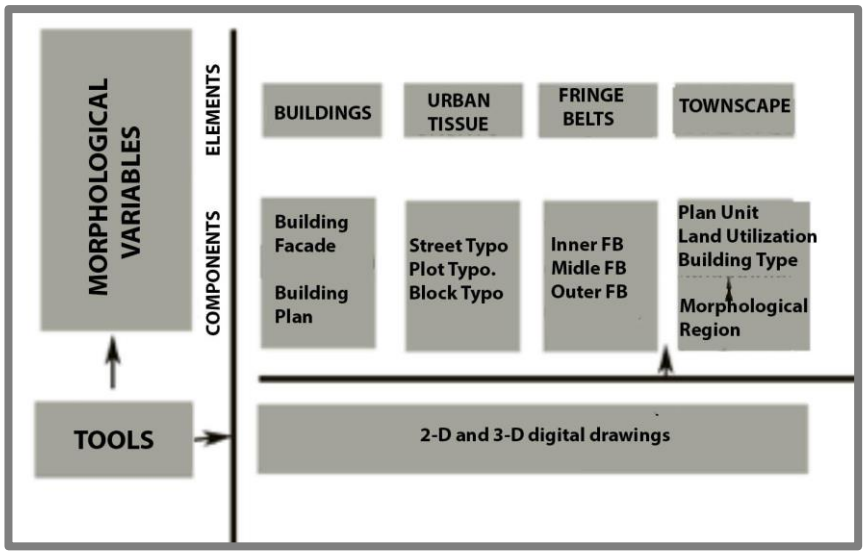
All of this discussion demonstrates how the two approaches can be integrated and used as a comprehensive method for urban morphological studies in cities in Europe or anywhere in the world.

3. Integrated Method by Synthesis of Historico-geographical and Procedural-typological Approaches

Following the discussion of similarities and differences between the approaches of M.R.G. Conzen and Caniggia and Maffei, it concluded that their approaches need to be integrated in order to produce measurable findings all around the world regarding the spirit of spaces. These theoreticians and others agreed that culture, the socio-economic situation, and political systems are major factors that directly affect the urban form, especially in morphological studies.

Within the scope of this article, buildings and streets are the parts of this effort interpreted from Caniggia and Maffei's approach on the architectural level, and fringe belts and the townscape phenomenon are taken from Conzen's approach. Hence, measurable variables are divided into elements—buildings, urban tissues, fringe belts, and townscapes—and their components. As shown in Table 1, the components of buildings are plan typology and facade typology; urban tissue components are street typology, plot typology, and block typology; fringe belt components are inner fringe belt, middle fringe belt, and outer fringe belt; and townscape components are plan unit, building type, and land utilization.

Table 1 Framework of integrated methodology (Cömert & Hoşkara, 2018)



In line with this integrated methodology, two medieval towns (Ludlow, England, and Famagusta, Cyprus) were measured to test if the new methodology is applicable. The common features of Ludlow and Famagusta are that they were fortified cities and were built in the medieval period in Europe, indicating that they have comparable features within morphological studies. Upon determining if the integrated methodology works in these cases, the authors questioned if the method could be applied in prospective morphological conservation plans.

4. Testing integrated methodology on Ludlow and Famagusta

For selecting cases, two different criteria were established. The first criterion focused on two different cultures or civilizations in Europe, and the second criterion is concerned with how these cultures and civilizations affected urban form in different parts of Europe. Within the scope of the research, two cases were selected from the United Kingdom and Cyprus.

Cyprus is a Mediterranean island located at the crossroads between Western and Eastern civilizations and it served as host to many cultures. Throughout the ages, there were always cultural interactions with other countries that had a shore on the Mediterranean Sea. Therefore, old town Famagusta has hosted varying and mixed cultures throughout its history. Until 1191, many civilizations passed through the island, including Egyptian, Byzantine, and Arab. Old town Famagusta was cited to show the generative structure, both culturally and socially, from 1191 onward The history of the old town, or walled city, dates back to the first century AD and its development has been structured on successive periods: the early period (648-1192 AD), when the foundations of the city were laid; the Latin period (1192-1571); the Ottoman period (1571-1878); the British period (1878-1960); the period of the Republic of Cyprus (1960-1974); and the post-war period (1974-present). However, because of lack of documentation from previous periods, this study focuses on the 13th century (1464) and its aftermath, called the medieval period.

In contrast, Ludlow is a small market town in the south of Shopshire, England, a few miles east of the Welsh border. Ludlow's history dates back to the 11th century with establishment of a castle at the edge of the River Teme. Its beginning is clearly related to this castle as its pre-urban nucleus, which in its original smaller form most likely dated from 1086 to 1094 (Conzen, 1988). The town's development is based on successive periods in the 12th century as Conzen (1988, p. 263) stated, "Continent outside the area of Roman-Medieval settlement continuity, such pre or proto-urban settlements have been known to historians for a long time by various medieval Latin terms. The 13th to 16th centuries are known as the Tudor Elizabethan and Jacobian periods; the 16th to 19th centuries are known as the Georgian and Regency periods; and the 19th to 20th centuries are known as the Late Victorian and Edwardian periods." Based on this, old town Famagusta unveils heterogeneous cultures, whereas Ludlow has had a homogeneous cultural background. Although there were different historical periods with different emperors, both of their backgrounds have roots in British culture.

The justification for selecting cases from these two countries is that England is located in the northwestern part of Europe, while Cyprus is in the southeastern part of Europe. This separation provided two opposite poles and an opportunity to understand differences, if any, in terms of urban morphological characteristics of settlements that are distant from each other. Another reason to select these cases was to find how different civilizations affected urban form. One motivation to select the case from the U.K. is that Conzen studied that country on the geographical level and tested his method on Ludlow in approximately 1978. In his 1988 article, "Morphogenesis, morphological regions and secular human agency in the historic townscape as exemplified by Ludlow," Conzen discussed his work in Ludlow during the 1970s. Thus, Ludlow was considered a relevant case for continued analysis and purposes of comparison.

The old town in Famagusta is a good case because of the heterogeneity of its civilization. This feature provides the opportunity to test whether this method can be applied on a case with such character. Other significant reasons to select Old Town Famagusta were its physical location and origin, its standing as a medieval walled city with intact fortifications in North Cyprus, and its position as part of the town that borders the water. In the UK, Ludlow exhibits the same physical characteristics as Famagusta. Thus, the areas of their walled cities were selected for analysis.

In earlier studies, procedural-typological methods were applied only in the CBDs and historico-geographical methods were applied to the whole towns. The aim of this analysis is to systematize

the findings and start to move toward the macro scale, in other words, to establish a principally inductive approach. Generally, 2D surveys were applied to the whole towns in detail, and 3D searches were applied to the town centers in detail. One reason to analyze the towns in two stages is their size; the study area in Ludlow is half the size of Famagusta's study area. Furthermore, although the character of the residential units of both towns as well as the middle fringe belts are not significant elements for performing typo-morphological analyses, to measure their developmental processes, the whole towns should be analyzed to facilitate further research.

To understand the similarities and differences between the selected cases, the towns were evaluated according to geographic location and their physical, functional, periodical, and cultural characteristics.

The first concerns in the analysis of these cases are the water elements related to their geographic locations. In Ludlow, the River Teme delineates one edge of the town and is labeled as one of the outer fringe belts of the city. In Famagusta, the Mediterranean Sea meets the edge of the city and is considered one of the outer fringe belts of the old town as well. The castle of each town is located at the edge of the water feature, the castles and walls define the inner fringe belt, and fortifications define the outer fringe belts of the towns. The fringe belt developments of the two cities show the same characteristics, especially when considering features of the inner fringe belt and the outer fringe belt.

Physically, Famagusta is larger than Ludlow; Ludlow covers half the area of Famagusta. When comparing built density, although the sizes of the towns are different, they have similar densities. Additionally, CBD size and density show the same characteristics, both with areas of approximately 1 km^2. Both of the towns have fortifications surrounding their historic cores, which have survived until today. The Famagusta town plan is organic, whereas Ludlow seems to have more of a grid-like plan organization even though some theoreticians categorize it as an organic plan (Slater, 1990; Larkham, 1991). In addition, from the perspective of land utilization characteristics, the cities both have commercial activities in the core zones with religious enterprises located at the edges of the core zones. Residential functions surround the core. In addition, shopping and retail activities begin at the edge of the market square and continue in a linear organization along the streets connected to the square.

The third point of analysis revolves around both towns' origins in the medieval era. Functionally, at the beginning of the medieval era, Ludlow and Famagusta's economies were based on trade activity, and the cities were important trade centers in their regions (Uluca, 2006, p.22; Faraday, 1991, p.43). The economic growth of the towns is an important factor related to town development. Ludlow had a strong trade economy throughout the ages.

The historical conditions also played a role in the towns' economies and forms. In Famagusta, after the British period, and shortly after the foundation of the Republic of Cyprus, there was ethnic conflict between the Turkish and Greek Cypriots until 1974. Until that time, the economy was well; unfortunately, the economy weakened over time following the war. Ludlow continues to have the same function today, but Famagusta does not. Additionally, for a specific period in its history, Famagusta became a military base rather than a trade center. Although they were important trade towns in their past, they have lost their popularity in recent times, although some trade activities continue.

Culturally, Famagusta shows a heterogeneous character, whereas, in Ludlow, a cultural homogeneity has existed through the ages. Thus, it can be stated that Ludlow presents a monoculture structure because the locals share the same Anglo-Saxon cultural background. Famagusta's cultural background through the ages has shifted from Italian, French, Ottoman, and British to Cypriot.

These findings and discussions reveal that analysis of town development and morphology in different parts of Europe provided an opportunity to test whether these two pioneering methods are valid throughout Europe.

Table 2 Similarities and Differences in Famagusta and Ludlow's characteristics (Cömert, 2013)

	Similarities	Differences	
		Ludlow	Famagusta
Geographical	They are on the same continent.	Northwestern Europe	Southeastern Europe
Physical	Towns have fortifications. They have water features.	Half-size smaller than Famagusta Grid organization	Two times larger than Ludlow Organic pattern
Functional	They were based on trade activity.	Strong economy	Weak economy
Periodical	Medieval origin		
Cultural (civilization)		Homogenous structure Monoculture structure	Heterogeneous structure Cultural diversity

Table 2 Similarities and Differences in Famagusta and Ludlow's characteristics (Cömert, 2013)

As seen the summary in Table 2, those three fundamental issues make the study of these cases comparable because their political systems and socio-economic evolution have more or less followed the same patterns. The cultural background differences also aid the comparison.

Consideration of the elements and components of the two approaches helps to analyze the existing urban forms according to morphological criteria. This analysis aims to determine unique morphological forms according to town character and helps in making a wide range of comparisons possible, especially for towns of medieval origins that survive today.

In building typology, there are two types of morphological analysis: plan typology and street facade typology. In plan typology, the towns showed different plan organizations. Culture played a critical role in such formations. However, when Famagusta and Ludlow are compared with each other, their evolutionary process reveals the same order. Building plans in both towns bear the same developmental features, starting with base type, continuing with leading type, and carrying on to synchronic variants of base types. As seen in Figure 1, because of the cultural differences, they do not show common features in their plan organization, but they endured the same evolutionary process. During the pre-modern period, both towns' base plans conveyed the same typology whereas their leading types and synchronic variants showed differentiation in external factors.

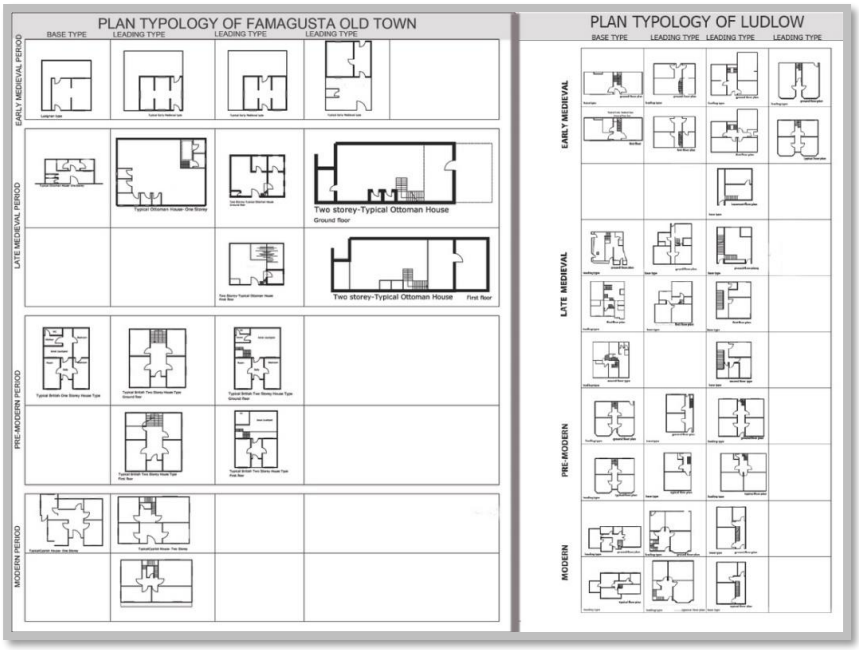


Figure 1 Plan Typology of Famagusta and Ludlow (Cömert, 2013)

Regarding facade typology, like plan typology, the facade characteristics and ratios are completely different in the two towns. One explanation for this discrepancy is the cultural differences, and another explanation is the use of local material and techniques. However, the evolution of the towns followed the same processes. Morphological analysis techniques in building façade typology can be applied to both towns, and they provide an opportunity to compare their processes within those analyses. It was observed that each town contains procedural-typological development starting from base type and moving to leading type with some synchronic variants observable by means of solid-void ratio, material choices, and construction techniques. Usually local materials on the façades and construction techniques defined the towns' unique character. The cultural heterogeneity in Famagusta is clearly observed in the building façade ratios and construction techniques. Although this seems to be the dominant feature for the base types, the ratios representing each cultural shift were affective in the typological development together with the period features. On the contrary, as shown in Figure 2, due to the cultural homogeneity Ludlow's façade typology shows procedural consistency between the periods.

Figure 2 Façade Typology of Famagusta and Ludlow, (Cömert 2013).

As was listed in Table 1, components of the urban tissue are plots, blocks, and streets, and urban tissue deals with their relations. Plots are an important element in morphological analysis. The findings indicate in Figure 3 that each town's plots have been divided into smaller and smaller portions from the medieval era to modern times. Today, the plots take their final form and they are observed to be linear and rectilinear formations in Ludlow, while rectangular, L-shaped, and irregular shapes are seen in Famagusta. Their town-plot division ratios and their forms differ; however, plot amalgamations and divisions show consistency in both towns. The street forms indicate that each town has a unique character regarding shape, order, length, and width. Both of the towns have an organic street character, but the degree to which they are organic differs. For example, in Famagusta, the main street and others are moderately curved and one street may have varying widths, meanwhile in Ludlow, the streets are not as curvy as in Famagusta yet they display varying widths. Thus, in both towns, the streets present an organic medieval form. Additionally, in Ludlow, some of the major streets are parallel to each other, but in Famagusta, major streets usually show irregular organization, constituting the primary difference between the two towns. Moreover, in general terms, the two towns show the same medieval characteristics and other street formations based on those streets.

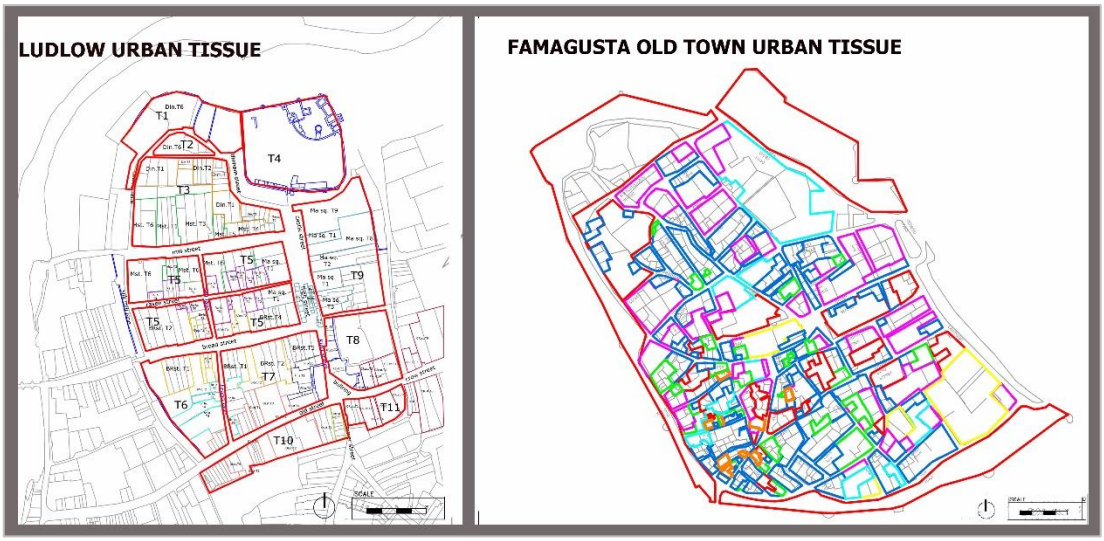


Figure 3 Ludlow and Famagusta Old Town Urban Tissues

Block typologies in figure 4 have developed until the present with differences revealed in both cities. Discontinuity is observed in block typologies in Famagusta, and the most important reason for this is the irregularities in the parcel ratios and the organic street texture, which formed accordingly. On the other hand, proportional division or amalgamation of the plots following the initial formation in Ludlow also affected the block formation and a consistency between the blocks was observed. One of the main differences between these two cities is the cultural diversity that is a determining factor on one hand, and the proportional or disproportionate changes in the plot ratios are the factors that determined block transformation on the other hand.

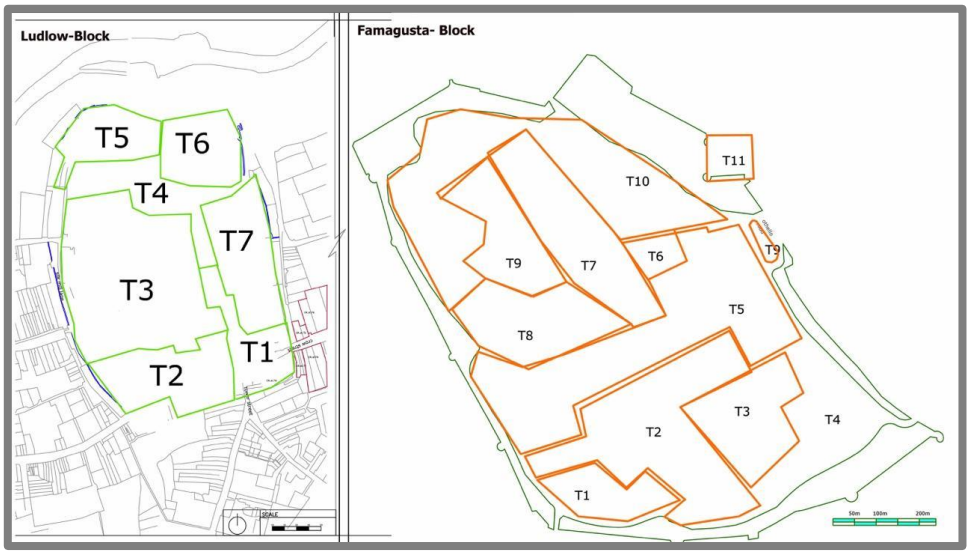


Figure 4 Ludlow and Famagusta Block Typology (Cömert, 2013).

Additionally, analysis of urban tissues revealed that all of the building façades or front yard walls, from the medieval period until the 17th century, had a direct relationship with the street. After the 17th century, each town's urban tissue formation shows certain differences.

The urban tissue analysis showed that there could be no open space evaluations. One of the reasons is that in medieval times, all of the plots were fully occupied by buildings—there were no empty plots without buildings. The only open spaces in urban tissues were streets and squares. Regarding this characteristic, the two towns are the same.

When fringe belts were analyzed, both Ludlow and Famagusta Old Town showed similar fringe belt formation. Castles defined the inner fringe belt formation with their walls identified as fixation lines. Both towns are located in the inner belt. In this context, plots, buildings, and land uses created by public and semi-public buildings in the inner fringe belt show that these areas are actually located around the center.

The townscape, composed of land utilization, building types, and plan units of towns, is an important element in morphological analysis. The townscape analysis provides an overall image of a town and is classified according to Conzen by overlapping plan unit, land utilization, and building type. Within this context, the two towns' land utilization can be analyzed easily to understand formation of the center, where the institutional and public functions are located, or the borders and how the residential units developed. This makes it advantageous to follow land-use patterns of settlements.

As seen in figure 5, Ludlow and Famagusta, town-center functions consist of shops, offices, and professionals with or without residences. The towns' open space functions were observed near religious facilities and castles. Other functions were spread throughout the towns. This provides an opportunity to understand the functional distribution of towns in terms of certain criteria. This approach shows that if those five functions are analyzed, it will provide an opportunity to compare the towns' functional distribution.

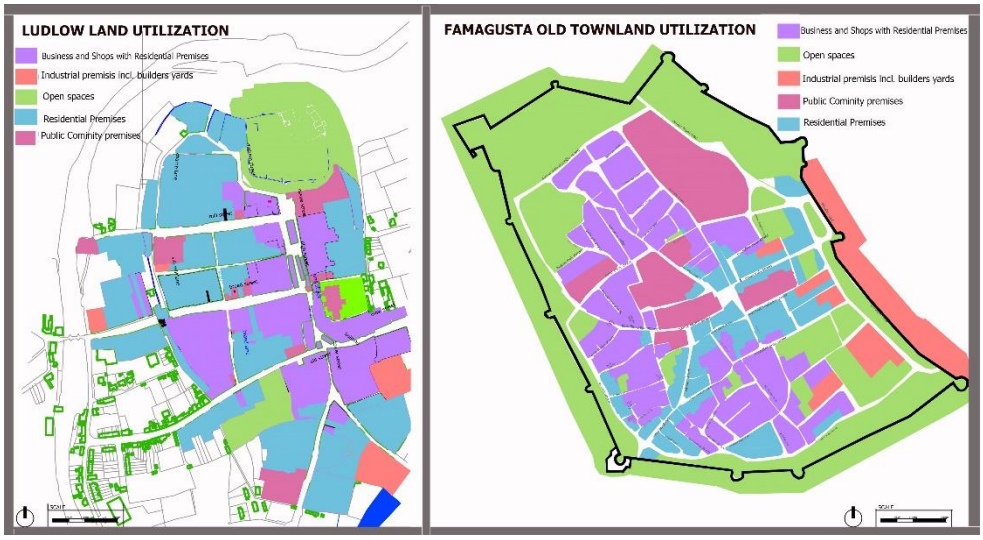


Figure 5 Ludlow and Famagusta Land Utilization

Building type analysis in both towns revealed differences caused by cultural and geographical differences. As observed in Figure 6, the analysis shows that most of the medieval buildings that survive today are located in the centers of the towns, compared with other buildings from later periods that were built more randomly on their plots. One common characteristic in both towns is their construction techniques and materials. Construction techniques, according to periods, are similar both towns, along with the use of mud-brick or local stone as a building material. The towns can be compared readily according to their historical construction periods, materials, and techniques.

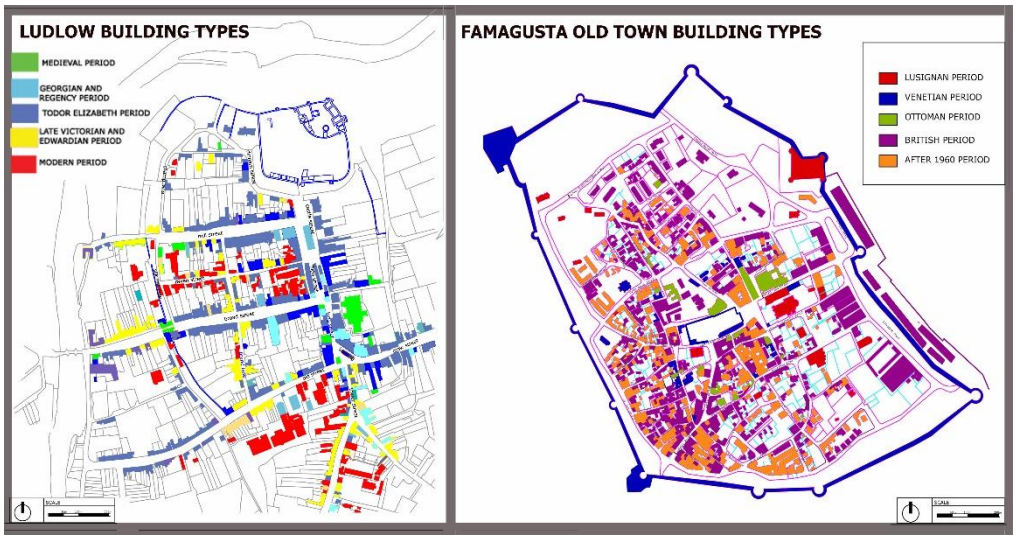


Figure 6 Ludlow and Famagusta Building Type

In figure 7, plan-unit analysis indicated that both towns had special plan units based on their street character and plots, streets, and building relations to each other. Ludlow transformed plan units along with street evolution and it has a unified plan-unit character. On the contrary, in Famagusta, there is a fragmented plan-unit character on one street and this caused heterogeneity of the plan unit.

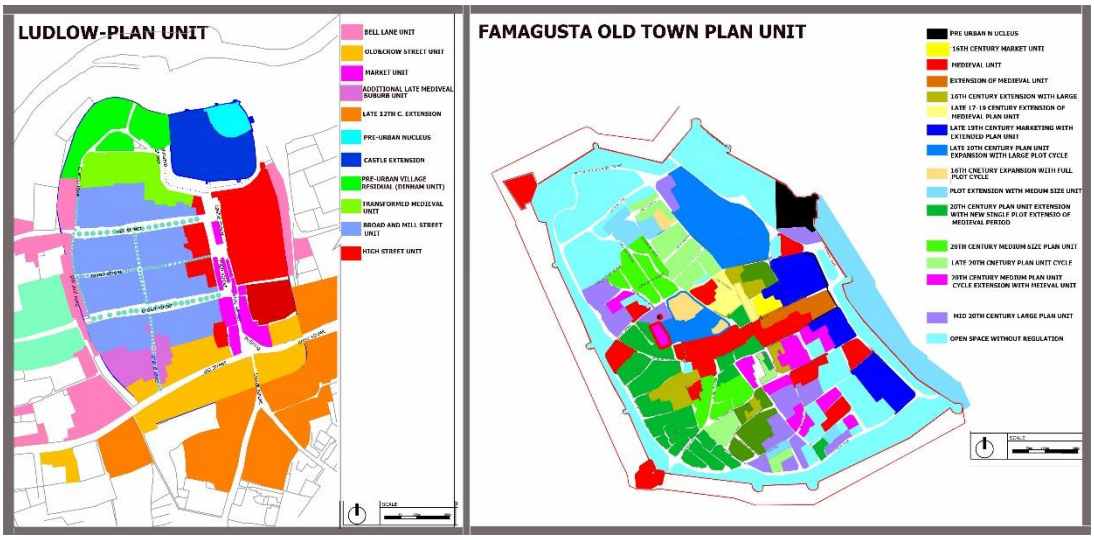


Figure 7 Ludlow and Famagusta Plan Unit

The townscape analysis helps to understand the evolution of town plans until the present day and creates a basis for townscape conservation in the present and the future. In other words, it shows how the townscape formed throughout time and whether there may be a new development area or new planning strategies. This analysis suggests how new formations might appear.

A major challenge for conservation planning is to identify methods by which townscapes can be maintained as functioning entities without losing their essential historicity. All too often, urban development in both Ludlow and Famagusta has been allowed to proceed without sufficient recognition of the need for sensitive conservation of historically distinct urban landscapes. This is especially true with respect to the importance of maintaining the integrity of the historical urban landscape as a whole rather than treating individual sites in isolation.

All of the findings indicate that towns of medieval origin have a unique character. Accordingly, a morphological analysis method helps to understand the evolutionary form of the town throughout the formative process. Within this context, integrated morphological analysis – including building typologies, plots, streets, urban tissues, fringe belts, and townscapes – shows the overall formations of the towns and presents an idea of the future forms of the towns. When this analysis is complete, the discussions suggest that these morphological techniques can be applied to any town on any continent with any culture. Although their morphological character would be different from one another, the method presents the opportunity and the means to discuss, analyze, and compare towns on different continents with one another.

Many different methods have been established in morphological studies that include multi-layered studies. Unfortunately, most of those methods only account for measurement and evaluation in their own region, both at the architectural level and at the planning level, which does not constitute an obstacle to the comparison of different regions today. In particular, the analysis of morphological elements with a common denominator is necessary in order to facilitate a general discussion. While on one hand, façade studies at the building scale help to share information about the transformation of morphological structure at the urban scale, on the other hand plan organizations actually shed light for researchers when determining the meanings of cultural differences. In addition, building and plot ratios and street formations are the most determining elements of the urban fabric. Similar evaluation of the characteristics of all of these in different geographies shows the importance of urban morphology in comparative studies. Besides, how the fringe belts of each city develop and transform enable the researcher to predict transformations of public spaces and to take readings from different examples while conservation plans of the cities are being made.

It is understood from this study that the plan units, land uses, and building types that make up the townscape should be measured using different criteria for each region. While much more regularly transforming, plan units and block typologies were observed in Ludlow. At the same time, this study showed how difficult it is to apply these in an organically developed city like Famagusta. However, it is necessary to measure townscapes by generalizing in order to see the whole in morphological studies.

5. Conclusion

Urban morphological concepts may provide a specific structure of reference for comparative urban studies (Conzen, Gu, & Whitehand, 2012). Comparative studies help not only to understand how widely generalizations that are true in one region can be demonstrated in another, but also reveals unique historical urban forms as configurations of characteristics related to particular urban processes. While making conservation policies, at least in urban areas, they should be produced by putting certain criteria under the protection of urban morphologies. Since these criteria are arbitrary today, it is important for these studies to protect the urban form, especially within the scope of urban landscapes.

Comparative studies in morphological research broaden the discussion, especially by providing a common background for further studies. The integration of procedural-typological concepts and historico-geographical concepts provides a strong tool for urban morphological analysis, conservation, and planning strategies. Although the theories of Conzen and Caniggia and Maffei developed separately, with this proposed integrated methodology, some complicated values can be made measurable, set on a common ground, and evaluated by comparing them for all cities in a systematic way. The methods identifying the morphological analysis of the two different towns of medieval origin, which characterized the features of the urban pattern, were determinant and examined. Analysis indicates that all of the elements and components of urban morphology can be tested on different settlements that have different historical backgrounds.

It is believed that this integrated method for morphological analysis helps to clarify and understand (a) the future development of town guidelines, (b) long- and short-term planning guidelines, (c) ways to improve historical town conservation planning, and (d) an overall point of view about the morphology of settlements that inspires appropriate or compatible uses and forms in the urban environment. Additionally, this morphological analysis can be applied not only to historically originated towns; it also provides a wide range of opportunities to study new or modern settlement development.

As a result of considering the findings of the research summarized above, it can be concluded that an integrated method derived from Conzen and Caniggia and Maffei's methods can be applied to different civilizations in different regions and geographies. In addition, this analysis contributes to an understanding of the spirit of cities from medieval times until today and initiates a discussion regarding how the urban organism has been developed and conserved using those morphological methods. This comparative study provides the means to compare towns according to the same criteria, which establishes a method of equivalent comparison via morphological studies to understand and compare cities for more comprehensive results.

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Resume

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