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Parasitic Architecture in Defining Space and Place

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Abstract

A parasitic building can attach to its host from the outside, via its facades and roofs, or it can coexist within the host. Just as parasitic infections maintain their continuity by infecting another living organism, a parasitic building also infects another host through Co-evolutionary Interaction. At this stage, a process occurs in which the parasitic building, the host building, and the spaces and places in the urban fabric in which it is located are continuously defined. This study aims to reveal the findings related to the dynamic structure of the Co-evolutionary Interaction project process in defining spaces and places. The originality of this study lies in its integration of parasitic architecture, co-evolutionary interaction processes, and AI-based co-evolutionary interaction processes within a holistic framework. The study is expected to contribute to the literature and practical applications in this field.

Keywords: Spatial and Place Definition; Parasitic Architecture; Co-evolutionary Interaction.

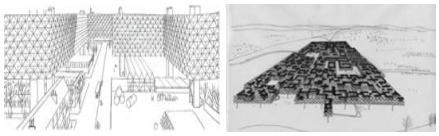
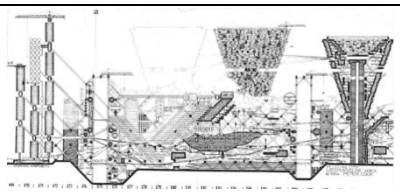
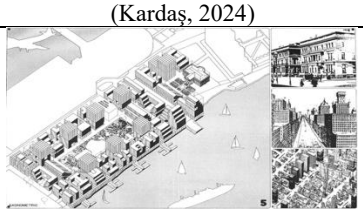
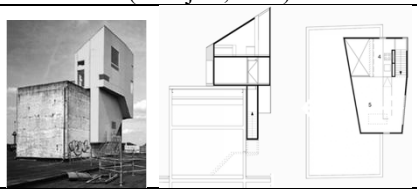
1. Introduction

In Ancient Greece, the term ‘parasite’ was used in a social and political context to describe people who made no contribution to society; in Ancient Rome, it was used to describe individuals who caused harm to others; and in the 17th century, it was used to refer to the damage caused to certain plant and animal species (Nikisch, 2023). Biological parasitism refers to a complex symbiotic relationship between a host and a parasite in which the parasite benefits whilst causing harm to the host (Atique et al., 2024). In architecture, it is used with a meaning similar to that in biology. Oswald M. Ungers posits that a city surrenders to a spatial structure imposed by buildings that are integrated into the street network and inject life into it; he defines this structure as ‘parasitic architecture’ in his book “Großformen im Wohnungsbau” (Bardzinska-Bonenberg, 2018). Similarly, the concept of parasitic architecture appears in J. Derrida’s 1994 book “Specters of Marx” (Nikisch, 2023). Parasitic architecture can be defined as additional interventions aimed at creatively enhancing the functional capacity of existing buildings by creating supplementary functional spaces, driven by the inadequacy of those buildings’ existing functional capacities. It began, particularly after the Second World War, with the aim of producing ‘immediate’ and ‘temporary’ solutions to housing problems (Şensoy & Üstün, 2018) and, over time, shifted its focus towards issues such as homelessness and poverty (Susam & Çetin, 2024). In current literature on architecture and urban planning, Parasitic Architecture is defined as an act of occupation that challenges the boundaries of the existing urban fabric, breaches established regulations, and develops informally (Türkmen and Yıldız, 2026).

In parasitic architecture, two fundamental concepts emerge: host buildings and parasitic extensions. In architectural composition, existing structures within the urban system are defined as host organisms, whilst new units added to these structures are defined as parasites (Susam & Çetin, 2024). Within the architectural fabric, the parasitic form develops on the urban network as an unpredictable and self-generating fabric (Bardzinska-Bonenberg, 2018). Unlike biological parasites, the parasitic structure does not harm the host structure and is not adversely affected by this interaction (Lank, 2022). The parasitic building benefits from the building to which it is attached in many ways. In this respect, it is defined as the architecture of parasitic forms and is viewed as an approach aimed at producing alternative spaces within the urban context (Demirkaya & Kalfa, 2017). It serves to enhance the functionality of existing structures or create new areas of use (Kavut & Selçuk, 2022). The German architect Ungers, in his 1966 definition of ‘Grossform’, categorises it into four formal categories: the presence of an overly emphasised element, the presence of an additional connecting element, the presence of a figure and a theme, and the presence of a system or an order (Hättasch, 2016). Parasitism in architecture can be observed in four distinct forms: architectural parasite (an independent structure), architectural symbiont / architectural coexistence (where a closed relationship exists between host and parasite, such as a coffee shop within a

shop), transitional parasite (where both organisms benefit from and grow with one another), and hyper-transitional parasite (Given, 2021). Some of the studies conducted on Parasitic Architecture are summarised below (Table 1):

Table 1: Some notable studies on parasitic architecture.

title	content	visual description
Spatial City, Yona Friedman (1958)	Residential units are situated on a flexible, artificial plane rising above the existing urban fabric, integrated into this three-dimensional structure (Peña Fernández-Serrano, 2017). In this way, a second city is constructed 15–20 metres above the existing one. It is designed to be situated within the voids without compromising the air and light conditions of the city below (Çetin and Ceylan Baba 2020).	 Spatial City project, 1958 (Peña Fernández-Serrano, 2017; (Çetin and Ceylan Baba 2020).)
Plug-in City Peter Cook/ Archigram (1964)	There is a constantly changing and evolving concept of a machine-city. Prefabricated modules are integrated into the system using cranes (Kardaş, 2024).	 (Kardaş, 2024)
Grossformen im Wohnungsbau (Large-scale housing developments), Oswald Mathias Ungers (1966)	This can be seen as an approach that addresses both form and scale with the aim of rethinking the impact of architecture on the city. (Bardzinska-Bonenberg, 2018; Hättasch, 2016).	 (Schrijver, 2018)
Parasite Las Palmas, R. Korteknie, M. Stuhlmacher (2001)	To demonstrate the feasibility of parasitic architecture, a residential unit is being added to the roof of a disused warehouse in Rotterdam. (Baroš & Katunský, 2020).	
Parasitic Architecture (General Overview) Tomáš Baroš, Dušan Katunský (2020)	The host-parasite relationship in parasitic architecture; how it is physically integrated (as an extension, superstructure, etc.), its urban impact/urban acupuncture (achieving a significant impact with minimal intervention), visual/contextual contrast (contrasting with and drawing attention to the existing urban fabric), and element scale (at the element scale rather than the building scale, such as green elements on the façade) (Baroš & Katunský, 2020).	

The success of a parasitic infection depends on the parasite's ability to establish itself within the host (growth and reproduction) and its likelihood of infecting a new host (Sorci & Garnier, 2008). The interaction between the host and the parasite is governed by evolutionary changes over space and time (Atique et al., 2024). Host-parasite co-evolution involves the adaptation of hosts to prevent infection and the corresponding adaptation of parasites seeking to evade the host's defences (Buckingham &Ashby, 2021). Parasites have the ability to interfere with their hosts' physiological processes and development (Zhang, et.al., 2026). The evolutionary process arising from the host's defensive behaviour against the invasion of the parasite is defined as the Co-evolutionary Interaction process (Pomigalova, 2018). The stages of adaptation between parasites and host buildings are listed as: finding a suitable host, establishing dominance over host resources, maintaining dominance, and ensuring security for reproduction (Sorci & Garnier, 2008). Similarly, according to Schmid-Hempel, parasitic stages consist of the selection of a suitable host, invasion/settlement, growth, reproduction and transmission (Schmid-Hempel, 2011). Certain criteria are proposed for evaluating parasitic architecture. These are listed as: integration with the existing structure, differentiation in form and material, the state of incongruity, differences in colour and contrast, structural feeding, reclaiming the abandoned for the city or adding value to what already exists, imparting function, and making it visible (Susam & Çetin, 2024).

The position of parasitic architecture within the host structure determines its formal structure. In organisms, parasitic relationships are classified as ectoparasites (parasites found on and feeding on the host's surface) and endoparasites (parasites that attach themselves to places where they can find food) (Nikisch, 2023). A similar classification is applied within parasitic architecture. The relationships between parasitic architecture and the host building are classified as external parasites (found between host buildings, on their facades and roofs) and internal parasites (Demirkaya & Kalfa, 2017).

This study, which aims to theoretically demonstrate the capacity of the Parasitic Architecture approach to define space and place at different scales, encompasses three interconnected phases. These phases are: host selection, the co-evolutionary interaction process, and the generative AI-based co-evolutionary interaction process. Within this framework,

a research methodology is employed that integrates Parasitic Architecture, the Co-Evolutionary Interaction process, and the generative AI-based Co-Evolutionary Interaction process. It is believed that this integrated approach lends a unique character to the study. It is hoped that this methodology, which facilitates the transformation of derelict and unused spaces, will contribute to research in this field.

1.1 Defining Space and Place in Parasitic Architecture

Whilst there are approaches suggesting that the concepts of space and place are distinct, with space being the more comprehensive term and place being a subset of space, it is observed that space is more objective, whereas place is more subjective (involving individual or group emotions, attachments, cognitive representations, etc.) (Furia, 2022). Creating place is used as a tool to reclaim and transform lost spaces, making it possible to transform these lost spaces into places imbued with a sense of belonging, liveability and security (Yalçın & Kürkçüoğlu, 2023). There are various definitions of lost spaces. They can be viewed as derelict areas that have lost their vitality and lie outside the scope of use. These areas include: squares used solely for passing through specific areas, unused coastal areas, abandoned plots in residential areas, car parks larger than necessary, desolate, abandoned areas, unused overpasses and underpasses, voids creating a negative spatial impact, large structures that have lost their function, areas beneath high-rise buildings, residual spaces left over after planning… and so on (Yalçın & Kürkçüoğlu, 2023).

The characteristics that make a 'place' wonderful are shaped by the social value it offers, the spaces and activities it provides, its accessibility and connectivity, and its comfort and image (Project for Public Spaces, 2012; Malkoç True and Sönmez Türel, 2017). In this respect, placemaking can be seen as a dynamic approach that offers the opportunity to transform lost spaces into vibrant, welcoming and inclusive areas (Yalçın & Kürkçüoğlu, 2023). Consequently, people may perceive themselves as being either within or outside a place depending on its characteristics (Seamon & Sowers, 2008). Parasitic approaches stand out for design solutions such as transforming the city's vacant spaces into an attractive context and contributing to urban aesthetics (Karacali & Erdil, 2022) and are considered as a design strategy for creating new spaces in constrained urban environments (Kürüm Varolgüneş and Aras, 2025). In this context, it is observed that parasitic architecture possesses the ability to revitalise and repurpose lost spaces, thereby reintegrating them into social life and transforming them; this process lays the groundwork for the space to become a place.

2. Materials and Methods

The aim is to explore the capacity of Parasitic Architecture and Co-evolutionary Interaction processes to define space and place using a morphological method grounded in project workshop practices. Within this framework, the objective is to examine the 'Co-evolutionary Interaction' process in Parasitic Architecture through design studies spanning different phases of the project. The study is being conducted using seven student projects developed within the Architectural Project 1 module at the Department of Architecture, Recep Tayyip Erdoğan University, during the Autumn Semester of the 2023–2024 academic year. In the first phase of the study, seven student projects—which adopt the Parasitic Architecture approach as an architectural concept and were designed in the Architectural Project 1 workshop in accordance with this approach—are presented as floor plans and models. The second phase of the study is being carried out during the 2024–2025 Spring Semester in the Environmental Behaviour course, focusing on eight projects and presenting the stages of Co-Evolutionary Interaction; in the final phase of the study, two projects are being worked on hypothetically at the campus scale with the support of generative artificial intelligence. The aim is thus to obtain results regarding the continuation of the Co-Evolutionary Interaction process.

The project phases are outlined as follows:

- The first phase of the project covers Architectural Project 1. Within this scope, a host building is selected, and parasitic architectural elements attach themselves to the building as external parasites. At this stage, individual and group work modules are designed, with these elements attaching to the building via horizontal and vertical circulation elements.
- The second phase of the study is carried out within the scope of the Environmental Behaviour course. Within this scope, a phase of growth, spread and invasion is presented, reflecting the Co-Evolutionary Interaction process of the study, extending from the host building to other hosts in its vicinity and the external courtyard space.
- The third phase of the study is carried out with the aid of AI-based applications. In this phase, the process of the parasitic architecture's growth and spread, encompassing the entire campus site, is continued, and AI-supported hypothetical results for both projects are obtained.

The study examines the spatial and locational characteristics associated with different periods of work. The areas of investigation are listed as follows: spatial characteristics, elements defining space, mass structures, the relationship between interior and exterior, the perception of space, and the experience of space. In this way, it is possible to theoretically elucidate the process by which space, through its physical definition, transforms into a place based on experience (Figure 1).

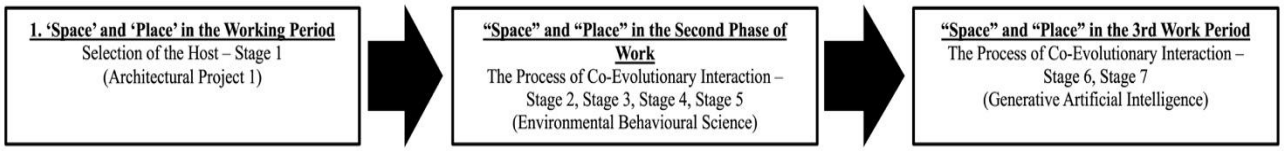


Figure 1. Structure of the Study (Developed by the Authors).

2.1 Study Area

The study area comprises the eastern and southern façades of the Recep Tayyip Erdoğan University Congress and Culture Centre, the western and northern façades of the Central Library, the shared gathering area defined by these structures, and the area where the main entrance gate to the Fener Campus is located (Figure 2). The host building to which the parasite building is attached is the Congress and Culture Centre; the other host buildings to which the parasite building has attached itself during the Co-Evolutionary Interaction process are the Central Library, the shared gathering area, and the area containing the main entrance axis.

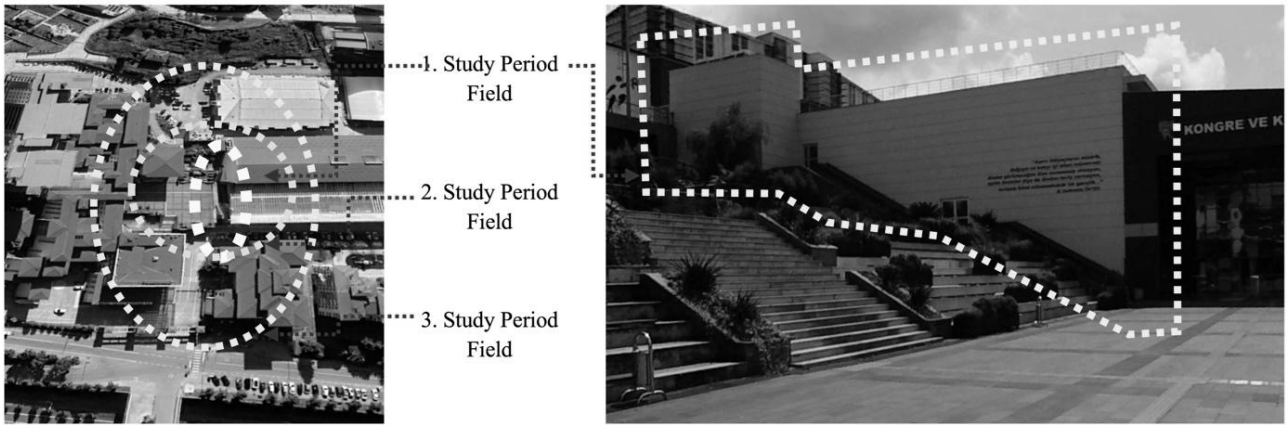


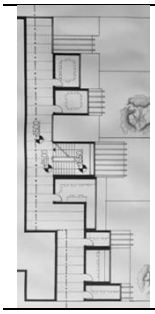
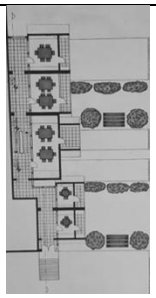
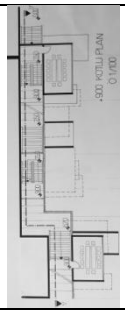
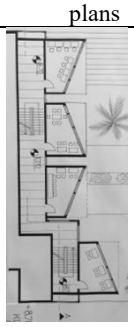
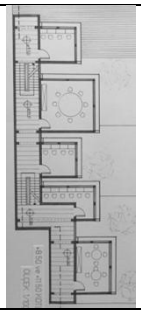
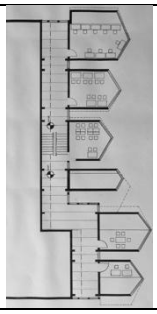
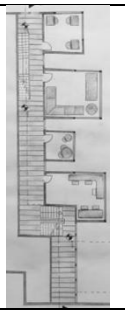
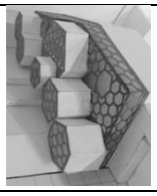
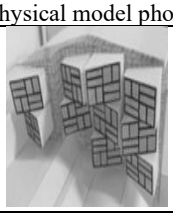
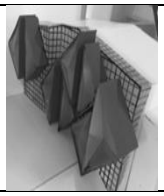
Figure 2. Plan and perspective views of the study area (Google Earth, 2026).

2.2 Stages of Parasitic Architectural Design

2.2.1 Stage 1: Host Selection Stage

As part of the project, this process—referred to as Stage 1—involves selecting a host building and establishing a presence on it as an external parasite. Within this framework, the subject of Architectural Project 1 is defined as Parasitic Architecture: "Design of Individual and Group Work Modules". Within the scope of the project, on a vertical plane with a 10-metre difference in level, it is expected that vertical and horizontal accessibility will be ensured, whilst individual work spaces, group work spaces, rest areas, and vertical and horizontal circulation areas will be created. The floor plans and model photographs of the final products from the seven projects designed by a total of seven students are presented in Table 2:

Table 2: Stage 1: Floor plans and scale models of the projects associated with Architectural Project 1.

Okan Yağcı	Gufran Tarrab	S. Hussaın Shah Meeran	Muhammet Taşkın	Müge Eroğlu	Enes Habil Emir	Ruya M. S. Sedeeq
plans						
						
physical model photos						
						
an arrangement of triangular-shaped parasitic elements of different sizes placed side by side	vertical and horizontal arrangements of hexagonal-shaped parasitic appendages of various sizes	rhythmic repetitions of interlocking square-shaped parasitic elements of varying sizes	the staggered arrangement of trapezoidal parasite appendages of the same size	repetitions of square-shaped parasitic elements of similar dimensions	alternating repetitions of triangular-shaped parasitic elements of the same size	spaced arrangements of rectangular parasite elements of similar dimensions

Two of the projects developed as part of the Architectural Project 1 course are presented in Figures 4 and 5 in the form of floor plans, sections and elevations, with the aim of detailing the planning process for Phase 1. In Yağcı's project, triangular parasitic forms are used to create the spatial elements that define the activity areas. The triangular parasitic

elements are anchored to the vertical wall plane by vertical and horizontal circulation elements (Figure 3a). Sayed Hussaín Shah Meeran's project employs interlocking square-shaped parasitic elements. These elements are attached to the host building via a circulation element, serving as functional zones that define spaces for individual and collective activities (Figure 3b).

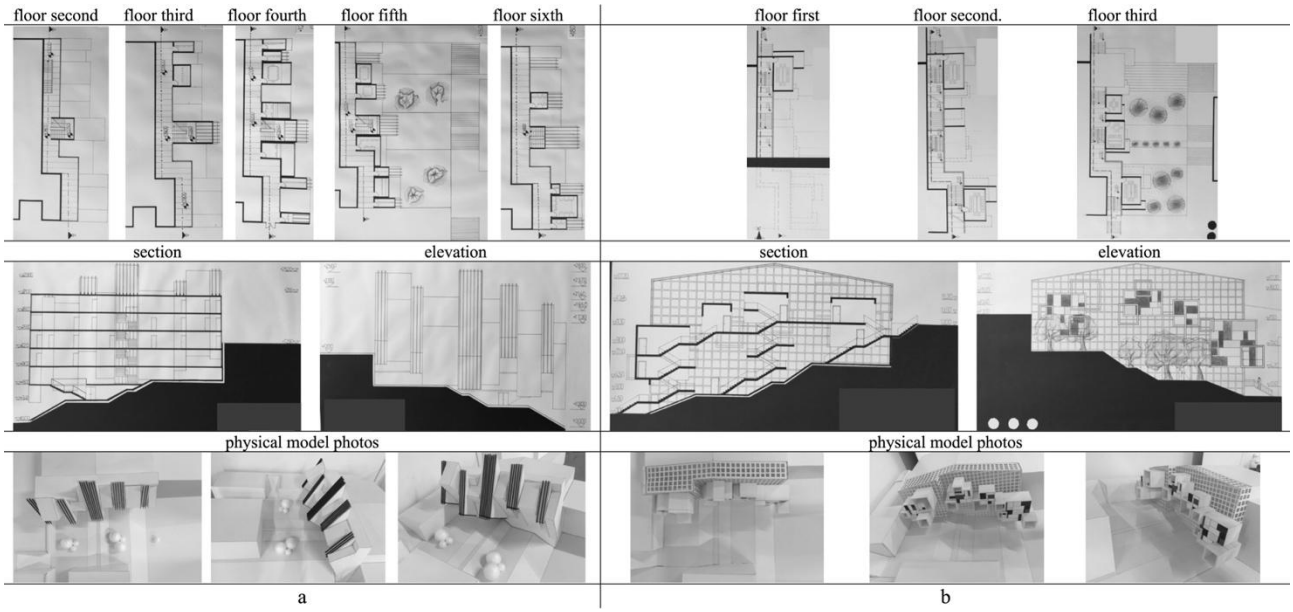


Figure 3. Drawings from the architectural design for 'Host Selection – Stage 1'.

2.2.2 Stage 2: The Process of Co-evolutionary Interaction

The second study period, in which the Parasitic Architectural structure proliferates through co-evolutionary interaction in conjunction with the host's process of attaching to and settling within the building, is being developed as part of the Environmental Behaviour Studies course. During this study period, the process progresses as follows: Stage 2: Invasion of the host; Stage 3: Occupation and domination by the parasitic structure; Stage 4: Reproduction of the parasitic structure and its spread to another structure; and Stage 5: Spread to another structure and the floor of the communal gathering area, followed by proliferation. The developmental and transformative stages of these projects are presented in Figure 4.

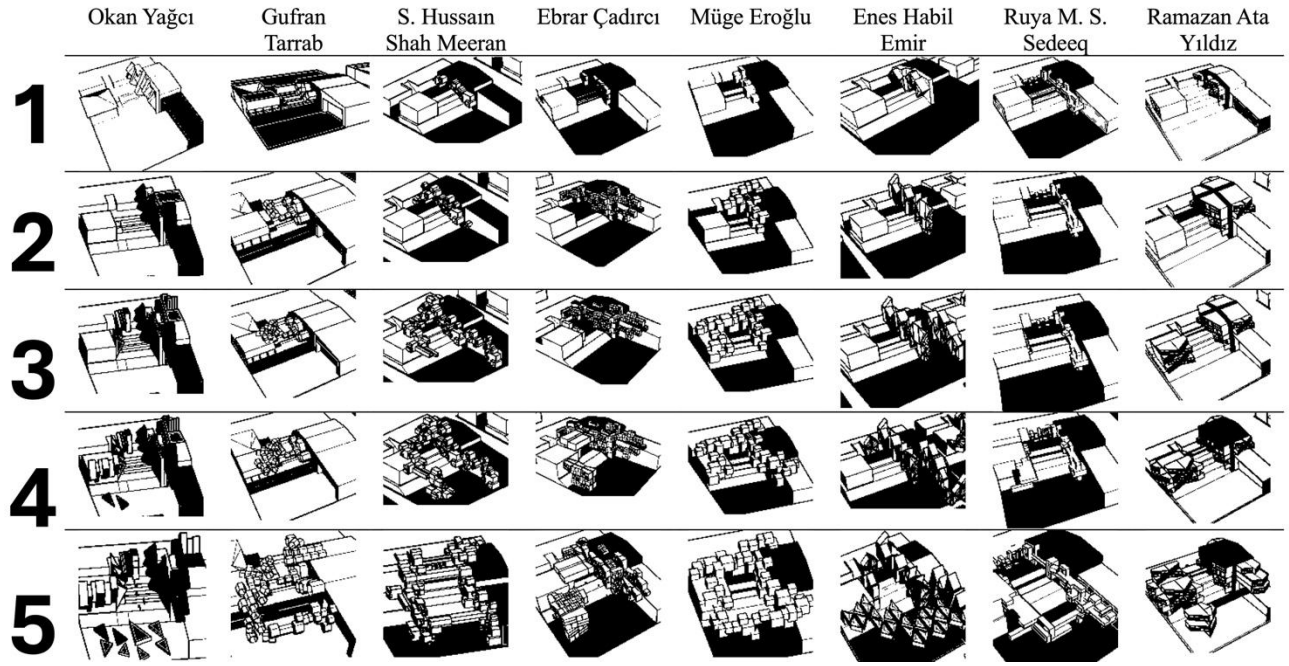
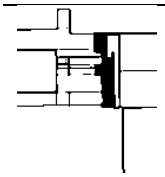
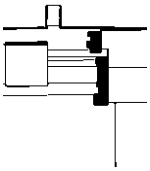
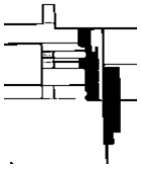
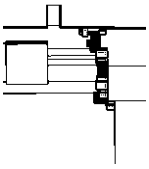
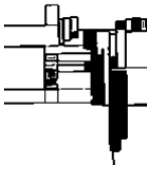
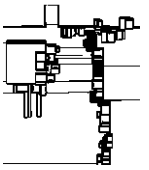
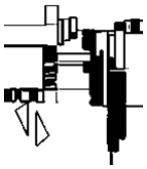
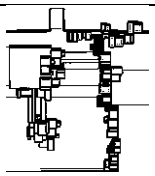
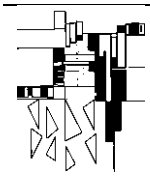
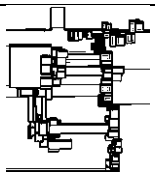


Figure 4. 2. Work Phase: Three-dimensional studies corresponding to Stages 1, 2, 3, 4 and 5 of the Process of Co-evolutionary Interaction.

Analyses of the stages of the Co-evolutionary Interaction Process and the spatial identification characteristics of two prominent studies—developed as part of the Environmental Behaviour course and constituting the second study period—are presented in Table 3. The aim is thus to elucidate the development, growth, and invasion of the host by the parasite architecture, as well as its transmission to another host, and to reveal the dynamic processes in spatial and locational identification capacities within the Co-evolutionary Interaction Process. The stages of this process (Stage 1, Stage 2, Stage 3, Stage 4 and Stage 5) are shown in relation to the plan.

Table 3: The stages of the Process of Co-evolutionary Interaction.

Okan Yağcı's project	Sayed Hussaín Shah Meeran's project
Stage 1	
 Selection of the host: the attachment of the host building's vertical wall plane as an external host via the circulation unit of the triangular-shaped parasitic elements. Spatial formation: the creation of interior spaces linked to individual and group work modules via the circulation module, and the formation of exterior spaces through the attachment of the triangles to the surface.	 Selection of the host: attachment of the circulation unit—as an external parasite—to the vertical wall plane of the host building. Spatial formation: interior spaces linked to square-shaped parasitic elements and the creation of exterior spaces through the forward and backward movements of these square-shaped planes along the vertical plane.
Stage 2	
 Infiltration of the host structure: the growth and proliferation of parasitic elements to the extent that they infiltrate the host's walls and roof. Formation of spaces: the creation of new interior spaces by new working modules on the building's external walls and roof surfaces, and the dynamic formation of new external spaces associated with these elements.	 Invasion of the host: the growth and proliferation of external parasitic elements in such a way that they invade the vertical wall plane of the host building. Creation of spaces: the growth of functional modules towards the building walls and the outer walls of the campus, thereby creating new internal and external spaces.
Stage 3	
 The parasite's occupation, domination and spread to another building: the invasion of the host building's external wall and roof planes by parasitic elements, their establishment of dominance, proliferation and spread to another host building. Spatial formation: new interior volumes created by modules joined together on the external wall and roof planes of two host buildings, and the external spaces formed in connection with them.	 Parasitic occupation, domination and spread to another building: the process whereby external parasitic elements invade the host building, establish dominance, multiply and spread to another host structure. Spatial formation: the internal volumes and external spatial configurations created by modules articulated along the vertical wall planes and roof planes of two host buildings.
Stage 4	
 The parasite's spread to different host buildings and shared communal areas: its proliferation on the walls and roof surfaces of the host buildings it has occupied and taken over, and its spread into the courtyard space. Spatial formation: urban spatial formations resulting from the emergence of new functional modules on the walls and ceilings of two host buildings and their spread onto the outer courtyard floor.	 The parasite's spread to different host buildings and shared communal areas: multiplying across the vertical and roof planes of the host buildings it has occupied to dominate the area and spread into the outer courtyard space. Spatial formation: the emergence of new functional modules on the wall and ceiling planes of the host buildings, and the support of urban spatial formations resulting from their spread between host buildings and their spread into the external courtyard space.
Stage 5	
 The proliferation of the parasitic structure in the host buildings it has infected and in the courtyard's outdoor spaces: the growth of the parasitic structure in different host buildings and within the courtyard space, its invasion of the area, and its proliferation in the courtyard. Spatial formation: the proliferation of functional spatial modules of parasitic structures across different host buildings and within the courtyard space, facilitating the formation of outdoor spaces of varying characteristics.	 The parasitic building is connected to the host buildings and the courtyard's outdoor spaces in such a way as to provide vertical and horizontal access across different levels: the growth of the parasitic building within the various host structures and the courtyard space, its invasion of the area, and their interconnection across different levels. Spatial formation: the proliferation of the parasitic building's functional spatial modules as it grows and invades the area across different host buildings and the courtyard space, resulting in the formation of enclosed, semi-enclosed and semi-open outdoor spaces of varying characteristics.

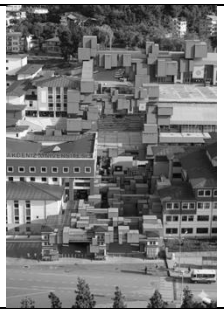
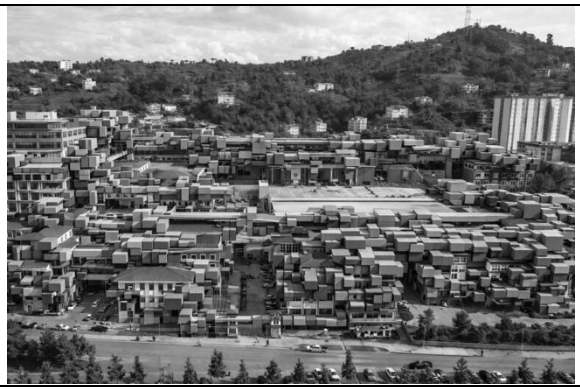
2.2.3 Stage 3: Generative AI-Based Applications

The aim of this stage of the study is to discuss the effects of the hypothetical stages to be developed—based on the infiltration and spread of Parasitic Architecture across the entire campus—on the definitions of 'space' and 'place'. In this context, Generative AI programmes such as Google Gemini and OpenAI ChatGPT are utilised. A visual photograph showing the entrance axis and workspace within the campus area, along with images from Stage 5 of the Co-Evolutionary Interaction Process, are uploaded to both programmes. The subject and problem are defined, and it is requested that the approach demonstrated in the Parasitic Architecture example be continued throughout the entire workspace (Table 4).

In these hypothetical scenarios, it can be seen that the Parasite architecture is integrated into the building facades, roofs and ground plane of the campus area. This results in the campus area being effectively occupied. It is evident that the

introduction of new functional areas could lead to changes in social interaction, access and connectivity, as well as the area's image value.

Table 4: Parasitic Architecture via Artificial Intelligence-Based Co-Evolutionary Interaction in Selected Projects.

Okan Yağcı's project		**Sayed Hussaín Shah Meeran's project**	
Stage 6			
			
Stage 7			
			

The Parasite Cycle Occupation: Parasite cycles ignite and infect all buildings, movement on walls and roof flights, Cyclical cycle occupation occurs.
Spatial Formation: Changes in the ground plane in the campus area, providing different qualities of functional modules and outdoor formations depending on the parasite architecture that spreads and infects the wall and roof planes.

3. Findings

3.1 Findings Regarding the Definition of Space and the Formation of Place in Parasitic Architecture

The Congress and Culture Center building, where the parasitic architecture project was implemented, lacks openings such as windows and doors on its south-facing facade. This facade, which has a considerable width and faces the central courtyard, has a capacity for defining space based on a single vertical plane. With the parasitic architecture application, additions are created in the vertical wall plane, thus enabling the creation of both enclosed interior spaces and semi-open, semi-enclosed urban spaces in the exterior. It is observed that, through the process of Co-evolutionary interaction, the parasitic architectural elements can infect more host buildings, allowing for more interior space definition and the creation of richer areas in terms of urban space. It is also seen that, through the process of Co-evolutionary interaction, spaces can transform into places (Figure 5).

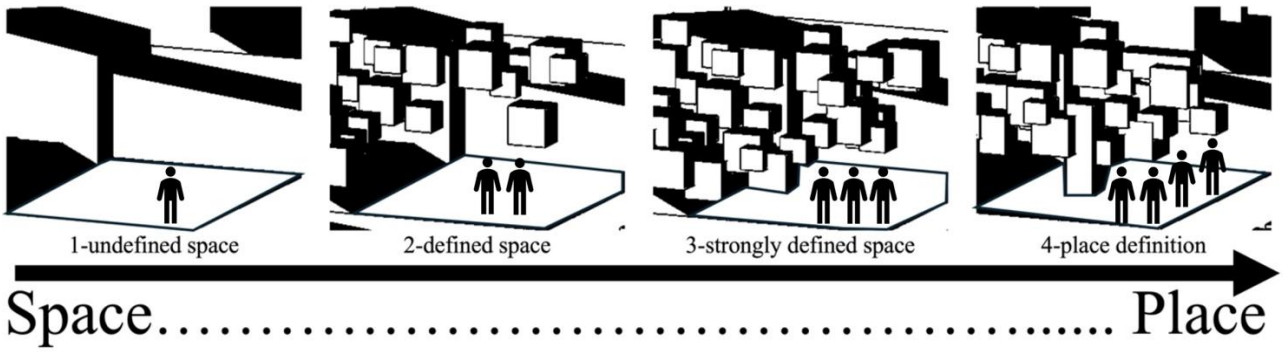
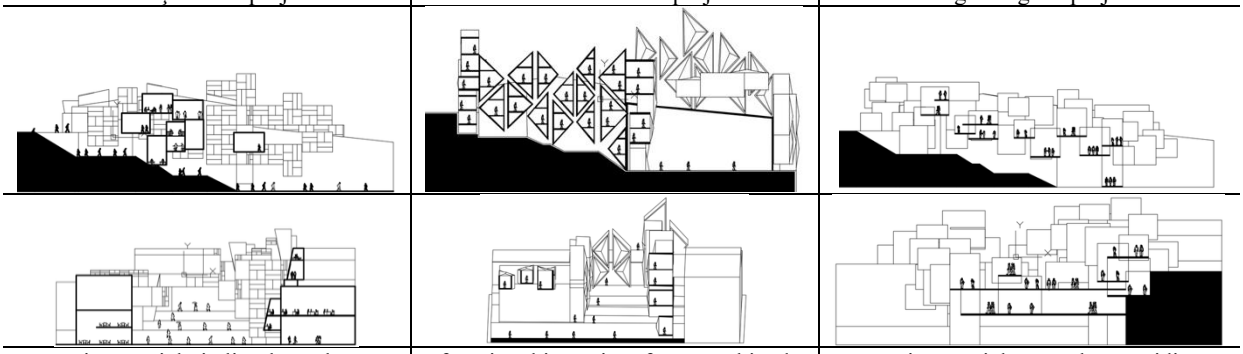


Figure 5. The process of 'Parasitic Architecture' and 'Co-evolutionary Interaction' in the spatial and site definition of Müge Eroğlu's project.

The functional intensity of the site's use can increase through the process of co-evolutionary interaction within Parasitic Architecture. In particular, vertical access between levels within the site, the utilisation of new functional areas on the wall and roof planes of different host buildings, horizontal access possibilities between different host buildings, and new usage opportunities arising from the enhancement of the central courtyard's functional capacity through parasitic

architecture all serve to strengthen spatial vitality across different levels and planes. Thus, it can be seen that a physically defined space can, through spatial revitalisation, be transformed into a 'place' over time (Table 5).

Table 5. Enhancing spatial vitality through increased functional capacity.

Ebrar Çadırcı's project	Enes Habil Emir's project	Müge Eroğlu's project
		
ensuring spatial vitality through new functional areas derived from the parasitic architecture that permeates the entire site and the central courtyard	functional intensity of use combined with parasitic architectural elements across different planes	ensuring spatial access by providing horizontal access between different host buildings

3.2 Findings Relating to the Process of Co-Evolutionary Interaction

This section of the study discusses the findings obtained in relation to the selected case studies. Here, the findings are examined through the stages of the parasite attaching itself to the host building, the parasite's growth and transmission to another host, and the parasite's spread to the campus. It is thus observed that the transformation of spaces into new functional areas may be possible depending on the experience and development of the process (Figure 6) (Figure 7).

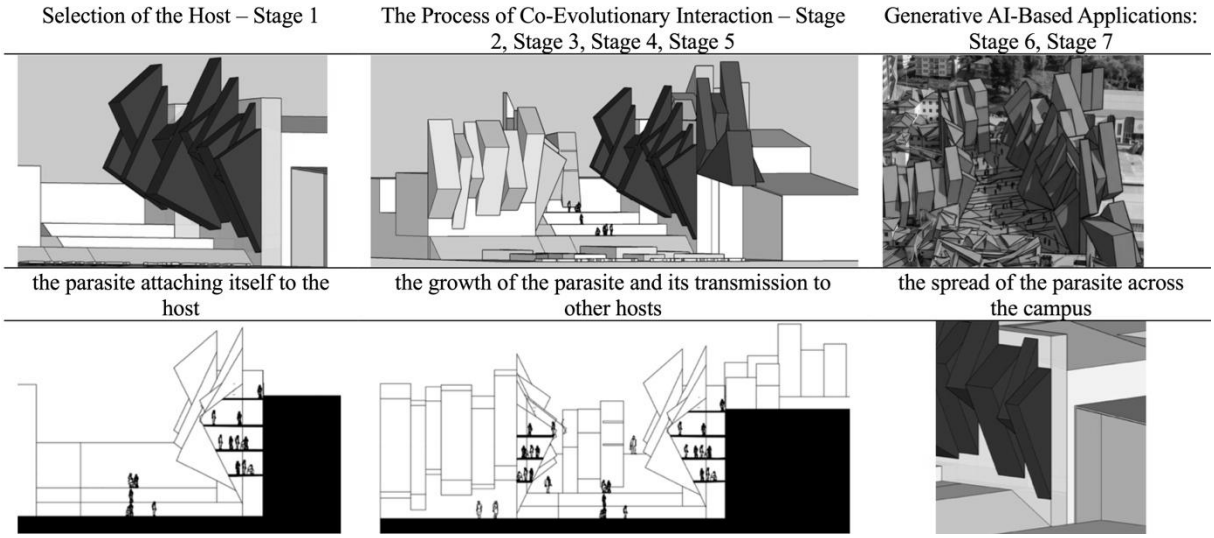


Figure 6. Descriptions of space and place in Okan Yağcı's project.

Selection of the Host – Stage 1:

- enclosed, fully enclosed parasitic modules
- spaces defined by sloping and vertical ceilings and vertical planes
- semi-open urban spaces defined by sloping ceiling planes
- harmony in the relationship between space and mass
- creating visual diversity through a form that contrasts with the host building to which it is attached
- the transformation of 'spaces' into point-scale 'places' through the experience of horizontal and vertical access and working modules across different levels

The Process of Co-Evolutionary Interaction – Stage 2, Stage 3, Stage 4, Stage 5:

- a regional modular application created by using enclosed, fully sealed parasitic modules in various orientations and dimensions
- internal volumes defined by sloping and vertical ceiling and wall planes
- open, semi-open and enclosed urban spaces defined by sloping and linear planes at different heights
- dynamic spatial formations within volumes created by inclined planes
- a relationship of harmony at the micro-scale and contrast at the macro-scale, linked to a broad scope of application
- the transformation into a large-scale site through the experience of spaces defined by functional areas of the same character

Generative AI-Based Applications: Stage 6, Stage 7:

- the new functional areas and formal transformations brought about by the parasitic architecture that permeates the entire campus
- the transformation of the entire campus from a 'space' to a 'place' within the city, and the acquisition of meaning in this regard

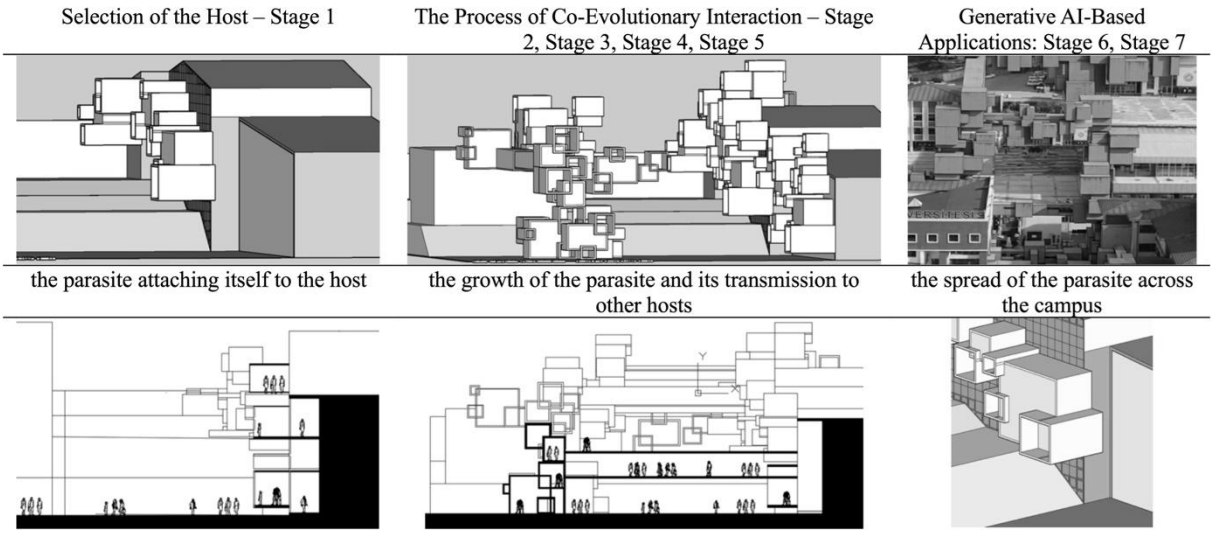


Figure 7. Descriptions of space and place in Sayed Hussaín Shah Meeran's project.

Selection of the Host – Stage 1:

- modules defined by complete enclosure
- interlocking, flowing square-shaped spatial formations with right angles
- semi-open and semi-enclosed urban spaces defined by the ground planes of modular units attached to the building at different levels
- harmony between mass and space, dependent on the harmonious formal transitions between the masses defining the space
- harmony based on geometric similarity with the host building
- the transformation of 'space' into a 'point' on the ground, dependent on access at different levels and the experience of the defined outdoor spaces

The Process of Co-Evolutionary Interaction – Stage 2, Stage 3, Stage 4, Stage 5:

- enclosed interior spaces, semi-open, semi-enclosed and enclosed exterior spaces achieved by the distribution of functional modules across different host buildings, the vertical wall plane and the courtyard, and their connection to one another at different levels
- interior volumes formed by the intersection of ceiling and wall planes at right angles
- open, semi-open and enclosed urban spaces defined by horizontal planes at different heights
- dynamic spaces within volumes formed by the assembly of linear planes at different levels
- harmony at a regional scale and a relationship of similarity at a campus scale, depending on the extensive application area of the design
- the transformation into a regional-scale place facilitated by the experience of interior and exterior spaces defined by functional areas sharing the same formal character

Generative AI-Based Applications: Stage 6, Stage 7:

- formal transformation linked to the new functional areas created by the parasite's spread across the entire campus
- the transformation and interpretation of the campus as a whole, at an urban scale, from 'space' to 'place'

4. Discussion

Generally, studies on Parasitic Architecture aim to transform disused, 'lost' spaces. This study presents examples of parasitic architecture that evolve from the vertical wall plane of a building within a campus area, extending first to the entire host building, then to other host buildings, and finally to the entire campus. Consequently, the concept of 'lost space' can be defined as a weak spatial formation in terms of urban spatial relationships, arising from the absence of openings such as windows and doors on the vertical wall plane of the host building; it is understood that the aim is to facilitate the transformation of this weak space into a strong 'place'. It is observed that parasitic architectural analyses facilitate spatial design and urban spatial transformations at a point-scale. Through the Co-Evolutionary Interaction Process, it becomes possible to achieve dynamic transformation processes encompassing broader areas at a regional scale. This situation may enable the space to be experienced within the process, to gain meaning for individuals, and to transform into a "place". The study attempts to reflect both the morphological transformations of parasitic architecture and those within the Co-Evolutionary Interaction Process through hypothetical scenarios. It is believed that continuing the evolutionary interaction process of parasitic architecture using artificial intelligence-based applications enables rapid results and decision-making in line with the specified design approach, and that it can thus be utilised as an innovative design model. It is considered that this study, conducted through student projects, is significant in terms of understanding

the relationship between the built environment and people within architectural education, as it enables students to view existing spaces critically, question them, and develop solutions aimed at their improvement.

5. Conclusions

This study has sought to demonstrate, through a hypothetical morphological approach, the importance of Parasitic Architecture applications in defining space, and the effects of Co-evolutionary Interaction Process applications on the transformation of spaces into places. It is considered that the Parasitic Architecture, the Co-evolutionary Interaction Process, and the application steps outlined in this study could contribute to future practical implementations in this field. It is thought that, beyond merely serving as a spatial addition that reinforces the functional structure, parasitic architecture emerges as a strategy for defining space and place that learns from existing data through an AI-based co-evolutionary interaction process, adapts to its context, and is capable of continuous and dynamic transformation. It is believed that the integrated use of Parasitic Architecture, Co-evolutionary Interaction, and Artificial Intelligence-based Co-evolutionary Interaction processes lends this study its originality. It is hoped that the study will contribute to research in the fields of both parasitic architecture and space and place. As this study addresses Parasitic Architecture and the Co-Evolutionary Interaction Process based on a morphological method, it has not been possible to conduct studies related to users' experiences of space and place. It is planned to include user experiences in the process in future research.

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Conflicts of Interest

The authors report no conflicts of interest.

Data Availability Statement

No new data were created or analysed in this study; all sources are cited within the article.

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