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From traditional to contemporary, means-end definition in the use of representation

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Keywords

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Abstract

Architecture has undergone significant changes over the years, yet these changes are not always reflected in professional discussions. While innovation and progress in architecture involve relativity, the transformation in the semantic roles attributed to the architect often goes unnoticed. This study opens a new field of discussion by analysing the transformation of architecture from an interdisciplinary structure to a specialized discipline. In architecture, representation has led to a more focused and specialized practice that continues to evolve. This study limits architectural representation to the scope of 'drawing' and examined the changes and transformations created by architectural drawing within the field. Through an in-depth literature review, the study identifies key breaking points in the representation of architecture from the 5th to the 21st centuries, highlighting means-end distinction. These breaking points correspond to shifts in meaning in architecture over time. The synthesis graphic created as a result of the study reveals the projection of the meaning crisis in the relationship between architecture and representation. In this context, the study significantly contributes to the development and progress of architectural practice by creating a new basis for discussing the means-end distinction, thus eliminating the synonymy of architecture with mere construction activities in architectural representation.

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Highlights

- Changes in the meanings of the concepts of architect and architecture were determined along with periodic breaking points.
- The journey of architectural representation between means and ends is followed within historical processes.
- The historical process shows us the inevitability of new transformations in architecture with representation tools that will allow new perception data.

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Gelenekselden güncele, temsil kullanımında araç-amaç ayrışması

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Anahtar Sözcükler

Mimari temsil, Çizim, Yenilik, Mimarın kimliği, Mimarlığın anlamı

Özet

Mimarlık yıllar içinde önemli değişimlere uğramıştır, ancak bu değişimler her zaman mesleki tartışmalara yansımamıştır. Mimarlıkta yenilik ve ilerleme görelilik içerse de mimara atfedilen semantik rollerdeki dönüşüm genellikle fark edilmez. Bu çalışma, mimarlığın disiplinler arası bir yapıdan uzmanlaşmış bir disipline dönüşümünü analiz ederek yeni bir tartışma alanı açmaktadır. Mimarlıkta temsil, gelişmeye devam eden daha odaklı ve uzmanlaşmış bir uygulamaya yol açmıştır. Bu çalışma, mimari temsili 'çizim' kapsamıyla sınırlandırmış ve alan içinde mimari çizimin yarattığı değişimleri ve dönüşümleri incelemiştir. Derinlemesine bir literatür taraması yoluyla, çalışma 5. yüzyıldan 21. yüzyıla kadar mimarlığın temsilindeki temel kırılma noktalarını belirleyerek araç-amaç ayrımını vurgulamaktadır. Bu kırılma noktaları, zaman içinde mimarlıktaki anlam değişimlerine karşılık gelmektedir. Çalışmanın sonucunda oluşturulan sentez grafiği, mimarlık ve temsil arasındaki ilişkide anlam krizinin yansımasını ortaya koymaktadır. Bu bağlamda çalışma, mimarlık temsilinde mimarlığın salt inşaat faaliyetleriyle eş anlamlılığını ortadan kaldırarak, araç-amaç ayrımının tartışılmasına yeni bir zemin oluşturarak mimarlık pratiğinin gelişimine ve ilerlemesine önemli bir katkı sunmaktadır.

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Öne Çıkanlar

- Mimar ve mimarlık kavramlarının taşıdığı anlamlarda yaşanan değişikliklerin dönemsel kırılma noktaları eşliğinde tespiti yapılmıştır.
- Mimari temsilin araç ve amaç arasındaki yolculuğu tarihsel süreçler boyunca takip edilmektedir.
- Yeni algılama verileri ve deneyimlere imkân verecek temsil araçları ile eş zamanlı olarak mimarlığa yeni varoluşlar katacak dönüşümlerin kaçınılmazlığını tarihsel süreç bize gösterir.

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INTRODUCTION

Representation, which makes the subject-object relationship possible, can be defined as showing the meaning and information of an object, sign, or thing by establishing links between people. In the architectural community, representation corresponds to the works of visual thinking that designers embody and transfer to other people and the media. Regarded as a practice of producing space in the traditional sense, architecture requires the use of representation tools for the visibility and expression of thought. In this process, a two-way relationship occurs between architecture and representation that supports the existence of each other.

While the transformations and innovations experienced by architecture and its practitioner, the architect, have been the subject of discussion at various times, there is usually an intrinsic understanding that these concepts always correspond to their current meanings. Based on the thought that art is nothing but a historical idea, Eric Roose claims that "architectural novelty is relative and there is no such thing as progress in architecture" (Roose, 2009, p. 17). Aart Mekking, on the other hand, draws attention to the fact that the built environment is the realization of a mental construct and that the structures possess ideas that they represent and states that "architecture and urbanism are expressions of non-material phenomena" (Mekking, 2009, p. 23). Within the paradigm of architectural representation, Mekking searches for the term 'reality' in the built environment, which he sees as an inclusive space. The fact that reality is sought only within 'construction,' which is just a part of architecture. The lack of progress in architecture, is a result of ignoring the changes that have taken place over the last 600 years, particularly in the transcendent structure of architecture and the architect.

The most reliable way to detect the progress that Roose claims did not exist in the development process of the understanding that architecture expresses today from the transcendent structure of architecture over thousands of years is to examine the architectural representation paradigm. This paradigm allows Mekking to see architecture as the expression of immaterial phenomena. By examining the continuing development of drawing within architecture from a historical perspective, it is possible to understand the boundaries that define architecture today. Taking Foucault's (2002) idea that knowledge transforms without preserving its validity forever and reoccurs in context as a basis for this study, we can identify the transformations that have occurred in the historical process from the formation of the architect's identity to the present, and the contexts that create the breaking points causing these transformations.

THE STRUCTURE OF CONVENTIONAL ARCHITECTURE

In the wall paintings found in Catal Huyuk, the representation of interpersonal sociability and spatial production influenced by a natural event can still be read as a communication tool conveying architectural knowledge despite the passage of time. Today's architects can read the architectural plan engraved on the statue of King Gudea in Mesopotamia dating to 2200 BC, and the architectural plan engraved on a terracotta tablet of more recent dates, also found in Mesopotamia, as well as the architectural information they expressed. In contrast, reading the cuneiform tablets from the same periods requires certain expertise, revealing the difference in communication practices between drawing and writing (Emmons, 2020). Kostof, who believes that architecture in Egypt was practiced by a professional dynasty that can be defined as a profession and that this professional knowledge was passed on from father to son in a closed system, discusses "the list of twenty-five generations of architects as supplied by Khnumibre in the fifth century BC, starting with Kanofer, the father of the great Imhotep, and ending with Khnumibre himself" (Kostof, 1986a, p. 6) as proof. The drawing on papyrus found in the tomb of Ramses IV reveals the importance of drawing in professional practice. The use of colors to define different materials in the building illustrates the power of the graphic language of Egyptian architecture.

Jonas Holst (2017), in his work on the rise of the identity of an architect in Ancient Greece, documents that the first people to be named architects in this period were the stonemasons responsible for construction, who emerged in the 6th century BC. In the 5th century BC, Plato, based on the theoretical knowledge these people possessed, distinguishes them from ordinary workers involved in architectural construction activities and defines them as "master-builders" (Plato, 1995, p. 31). Aristotle, by stating that "the master workers in each craft are more honorable and know in a truer sense and are wiser than the manual workers because they know the causes of the things that are done" (Aristotle, 2005, p.3), distinguishes architects from workers and craftsmen.

De Architectura by Vitruvius is the oldest architectural text that has survived to the present day. According to Vitruvius, in the ancient architectural tradition, the proportions of the human body are central to the paradigm built on proportions. In the section titled 'The Education of the Architect,' he begins to list the necessities of being an architect by saying "he must have both a natural gift and also readiness to learn" (Vitruvius, 1931, p. 7). In the methods conveyed by Vitruvius as forms of scientific expression, 'ichnography' is the ground plan representation as the horizontal section of the building, while 'orthography' consists of drawing the facades vertically. In Vitruvius's work, written in a mixed language of Greek and Latin, 'scenography' is a controversial concept. Even though translations made by Morris Hicky Morgan and Frank Granger at different times translate the word as perspective, this meaning differs from today's understanding of linear perspective.

Vitruvius's use of a mixed language of Greek and Latin, coupled with the lack of drawings in his work to support the text, made it difficult for readers to clearly visualize what he described. Vitruvius's work, published in 1521 with translation and commentary by Cesariano, includes "isometry, to the military, and more frequently to the cavalier projections" (Diaz, 2020, p. 133), in alignment with the drawing knowledge of the period it was published, rather than the period it was

written. Gulielmus Philande lists the drawings referenced in his book of 1544 and propounds that none of these figures represent architectural objects (Tavernor, 2019).

Panofsky (1993) reveals the differences between the worldviews between the present day and the ancient period by comparing the perspective understandings between these periods. Panofsky's understanding of perspective, which he says existed during the late antiquity and the Roman Empire, can be seen in murals drawn without a central vanishing point in Boscoreale, Italy, now exhibited at The Metropolitan Museum of Art (Fig. 1).

Figure 1. Cubiculum (bedroom) from the Villa of P. Fannius Synistor at Boscoreale (Metropolitan Museum of Art, 2021).

In the Middle Ages, spanning approximately 1000 years from the collapse of Rome to the 15th century, the profile of the architect was replaced by the profile of the "master-builder" confined within the closed system of traditional construction methods (Kostof, 1986b, p. 60). The Christian architects of the Middle Ages conducted their architectural activities using modules based on proportional relations, influenced by numerical proportions with symbolic meanings.

Architecture in the Gothic period was a discipline based on construction activities, with the rules to be applied on-site being passed down through well-preserved traditions. The architectural profession, produced through guild systems where information sharing was prohibited, was considered a way of life and a system of social solidarity. Throughout this period, architects were

master builders on construction sites, responsible for a collective aesthetic that emerged through the participation of guilds, clergy, nobles, and the public during the lengthy construction phases, often lasting longer than a person's lifetime, while adhering to traditional definitions.

Due to traditional reasons such as drawing on materials that are not resistant to external conditions or on reusable materials, and drawings being destroyed by the guilds to prevent the leakage of information within its closed structure in the education process based on the master-apprentice relationship, very few architectural drawings have survived from the early Middle Ages to today.

The drawing of the Abbey of Saint Gall, one of the oldest surviving Gothic architectural drawings, illustrates the dominance of architectural symbolism. The Abbey, with its 40-foot measurement, represents the significance of the number 40 in Christian terminology. Its survival was due to the reuse of the parchment on which the drawing was made; Kostof notes, "Its survival was accidental" (1986b, p. 73) (Fig. 2). The complexity of construction techniques in the later stages of the Middle Ages necessitated the use of ichnography and orthography drawings, as mentioned by Vitruvius, by utilizing knowledge of geometry. These drawings were generally not produced systematically together but rather on an as-needed basis. Although sketches and rough diagrams were used to explain production activities requiring complex solutions, architectural activities continued primarily with traditional methods.

Figure 2. The plan of St. Gall (UCLA Digital Library, 2012).

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CONSTRUCTION OF THE DUAL STRUCTURE OF THE ARCHITECTURE BY REPRESENTATIONS

After the Fourth Crusade, the relations established with the Islamic world and the flow of information revived the value of the Greco-Roman classical tradition in the West. Concurrently, the widespread production of cheap paper facilitated the dissemination of knowledge. During the Middle Ages, knowledge remained largely confined within guilds unless disseminated through printed books (Panofsky, 1955). Renaissance intellectuals, who regarded buildings as comprehensible documents, visited Roman ruins to recover the lost ideals of classicism and transferred their explorations to the two-dimensional paper plane, enabling the sharing of these drawings.

Brunelleschi democratized the knowledge of perspective, a method for representing spaces and objects within the limitations of dimensions and proportions. Alberti further systematized perspective by framing it within mathematical rules. Perez-Gomez and Pelletier note that "Perspective marked the moment of an epiphany, the revelation of meaning and the God-given geometric order of the World" (Perez-Gomez & Pelletier, 1992, p. 31), highlighting the Renaissance's shift towards uncovering order.

Under Alberti's leadership, the practice of representation gained independence, distinguishing Renaissance architecture from the building tradition of the Middle Ages. Although architectural drawing was crucial for constructing buildings, it did not become the primary method for holistic design until the Renaissance. Melendez (2019, p. 11) emphasizes Alberti's importance, stating, "The shift to drawing as the primary mode of creating architecture occurred around the mid-fifteenth century when the Florentine polymath Leon Battista Alberti argued that architecture is an idea, conveyed by the author, notated in drawings and built by manual workers". Alberti pioneered defining architecture as the idea of building design created by the architect, conveyed through drawing, and constructed by workers. The dual structure of architecture, enabled by the use of drawing as a form of representation, separated the existence of architecture from the structure itself and facilitated the design process. The assertion that architecture consists of both design and construction, and the fragmentation of the professional tradition that had persisted through construction activities, was realized with the publication of Alberti's 'De Re Aedificatoria.' Hill (2006) and Ceylan (2010) attribute the adoption of architectural design as a fundamental tool for form-based thinking and communication to this period. From this point on, as the design is separated itself from the building activity, which is now called the end product, and starts to deal with what is not yet a structure, which is considered as the break that made the first possible progress take place (Forty, 2004). While the effectuation area of architecture existed singularly until this period, from this point on, the effectuation area acquires a dual structure and creates the first transformation that takes place within the structure of architecture (Tanyeli, 2001). Lefévre (1991) associates the origin of 20th-century space design with Renaissance linear perspective, linking architecture's dual structure to its separation into design and construction. The need to design buildings holistically before construction was met by the necessary representation tools. Thus,

architecture transitioned from a field confined to construction activities to one that explores different alternatives and possible problems through design on paper.

From Vitruvius to Alberti, no other conceptual text on architecture was written over 1500 years. Like Vitruvius, Alberti did not include illustrations to support his narrative, aware that copyists might introduce errors and add their interpretations. Vasari emphasized the centrality of drawing in architecture, stating, "its design is composed only of lines, which so far as the architect is concerned, are nothing else than the beginning and end of his art, for all the rest … is merely the work of carvers and masons" (Vasari, 1907, p. 206). This highlights that the shift from a holistic understanding of construction to design thinking was recognized by Renaissance artists. The necessity of holistic building design before construction became feasible due to the existence of representation tools. Consequently, architecture evolved from a field tied to construction activities to one that allows different design alternatives and potential problems to be tested on paper. Architecture, which aims to resist and control the forces of nature with the use of a human-centered perspective, now assumes a mechanical paradigm (Eisenman, 2013). With this paradigm shift, architecture evolved from a field existing solely during construction to one encompassing design, allowing for the testing of different alternatives and potential problems on paper. This transition transformed architecture from a secret knowledge passed down through master-apprentice relationships into a teachable professional knowledge conveyed through representations to aspiring architects.

BUILDING SCIENCE ENABLED BY THE ENLIGHTENMENT AND NEW GEOMETRY

The idea of new geometry, founded by Girard Desargues in the 17th century, was developed by Monge in the following century at the École Polytechnique, an engineering and architecture academy in France, and taught by Durand to architecture students (Fig. 3). With the use of descriptive geometry as a tool of architectural representation, a new breaking point in the meaning and expression of architecture occurs. Institutions like the École Polytechnique transformed architecture students into architects through institutional academic education, departing from traditional master-apprentice training. In Durand's drawing approach, the placement of architectural plan, cross-section, and facade drawings on top of each other using guidelines on a single page established the layout of the technical drawing that is still used today. Descriptive geometry, which Durand deemed necessary to be used in line with the principles of economy and utility, allowed for the accurate, measured, and systematic expression of three-dimensional objects on two-dimensional planes. This precision made it possible to achieve the accuracy required for mass production during the industrial revolution, whose effects were seen in all areas of life. The end of the 18th century marked the period when a rationalized theory of drawing, derived from Cartesianism, took its place in the world of architecture. Descriptive geometry provided a framework for precise architectural representation, ensuring that complex structures could be accurately depicted and constructed. This development was crucial in transitioning from artisanal construction practices to a more scientific and industrial approach to building. Thus, the evolution of architectural drawing from the master-apprentice tradition to an academically taught discipline

underpinned by descriptive geometry reflects a significant transformation in architectural practice. This shift enabled architects to achieve greater precision and efficiency, aligning with the demands of the industrial revolution and setting the stage for modern architectural methods.

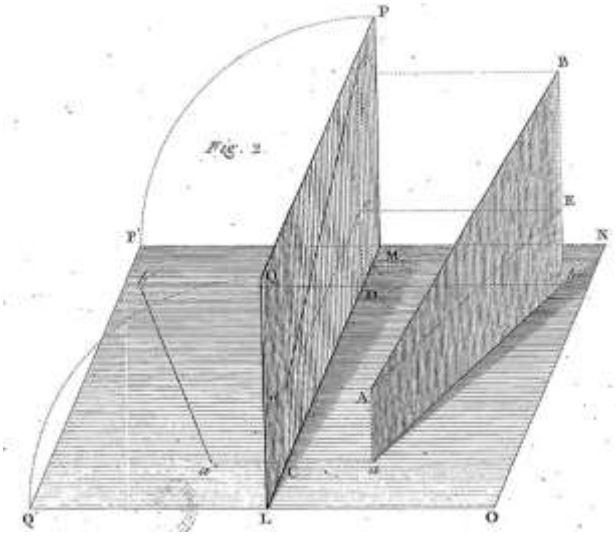

Figure 3. The method of projection in Monge's geometric descriptive (Liu, 2014).

Using descriptive geometry as an architectural representation method, drawing evolved into a limited yet comprehensive information system facilitating building construction. The systematic use of plan, cross-section, and facade vertical projections in architecture allows precise cost planning, justifying Perez-Gomez's assertion that "descriptive geometry made building science possible" (Perez-Gomez, 1982, p. 4). The innovation brought about by the Cartesian mind in architectural representation continues to form the basis of architectural representation practice today. The reflection of the epistemological revolution caused by Cartesian ideas in the architectural representation paradigm provided the search for efficiency, economy and utility that did not exist in design thought before Durand. By producing accurate representations of the building on paper, architects could establish absolute dominance over construction workers by providing clear instructions, leaving no room for error during the construction phase. In the 19th century, architectural activities, rationalized by Durand's principles of economy and utility, were easily executed with the common use of plan, cross-section, and facade drawings.

However, criticisms arose regarding architecture's departure from the static and transcendent state of the Renaissance under Cartesian influence, becoming a tool for expressing relations between divided structural parts. Gottfried Semper, who viewed Durand's approach and methods as constraints that limited architectural creativity, argued that the education provided at the École Polytechnique lacked artistic elements and disparaged Durand as a "compendium artist for the students" (Semper, 1983, p. 9). Paul Emmons states, "Descartes's radical bifurcation of mind and body is tenaciously inserted in architectural drawing by dismissing the touch of mark-making as superfluous to design thinking" (Emmons, 2020, p. 13). He suggests that rationalism reduces architectural drawing to mere informative diagrams and argues that the transition to mathematical space design under rationalism hinders the differentiation of thinking styles and inhibits pluralism

in design thought. Dalibor Vesely (2004) comments that architectural representations, claiming universality through targeted mathematical precision, are actually 'divided representations' that reveal a disconnect from the human role of architecture. He argues that design should relate to changing worldviews based on human positions in the world, rather than the technical characteristics of buildings and representation systems. Vesely advocates for an architecture that responds to human sensory qualities, emphasizing the need for a more human-centered approach in design.

MODERN ARCHITECTURE AND MEANS-END DISTINCTION IN THE USE OF REPRESENTATION

Under the guidance of the machine idea that dominated the first half of the 20th century, the basic unity between the idea that accepts architecture as a "living machine" (Avella, 2010, p. 46) and the architectural representation method is established with axonometric projections. This process began with the discourse and designs of pioneering modernist architects who witnessed the devastating effects of unhealthy architectural environments plagued by epidemic diseases, alongside the societal changes brought about by machine mass production in the 19th century. This evolution continued into the 20th century, where rapid changes in architecture and its practitioners occurred within short intervals. With modernism, which identified residential architecture as the main focus of modern urban design, architects began addressing social issues beyond traditional concerns such as usability, attractiveness, and decoration. In the early 20th century, movements like Futurism in Italy and Suprematism in Russia, influenced by turbulent social and political climates, embraced mechanization's speed and motion as foundational principles. Antonio Sant'Elia's drawings, exemplifying Futurism's rejection of tradition and styles, celebrated mechanization visually, albeit remaining unrealized. Alan Colquhoun highlights Malevich's works titled Arkitectons, describing them as "objects floating in a gravity-free space" (Colquhoun, 2002, p. 124), as precursors to the variable functional demands that would characterize the 20th century and the rapid transformations resulting from them (Fig. 4).

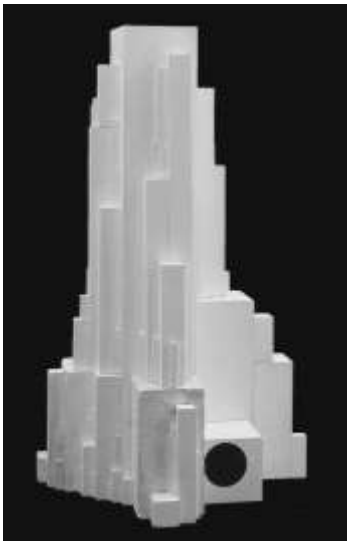

Figure 4. Kazimir Malevich's Arkhitektons (Mariabruna, 2015).

While Futurism, Suprematism, and Constructivism produce representations that spatialize the concepts of speed, motion, process, and division, they gain significance as they propose an architectural thought not intended to be built and physically impossible to construct. These representations, entirely detached from the construction activity—one of the dual parts of architecture—are created to convey specific discourses and have been termed 'paper architecture' or 'disembodied architecture'. Nerma Cridge (2015) establishes that architects who produce these representations are not opposed to transforming their works into real structures. However, knowing the lack of appropriate construction techniques, they are aware that these representations will remain unbuilt, thus not detached from reality. Cridge highlights that Adolf Loos destroyed all his drawings before his death, wishing his architectural identity to be defined solely by the buildings he constructed. This emphasizes the significant change from an environment where drawings had no independent right to exist without an accompanying built structure, to an understanding of architecture that includes disembodied architectures.

Architects and artists, who have been in search of new meanings since the 1960s, have abandoned the "earlier functionalist, empiricist, foundationalist way of thinking" (Hays, 2002, p. ix). As Malevich anticipated, architecture now addresses more complex structures than those envisioned by modernism, solving problems for a world with multiple functions. The complexity of functions has made the simplicity imposed by modernism untenable. Postmodernist architects, using historical images and forms as symbols detached from their original contexts, demonstrated differences in the meaning of representations used in the design process. Drawings that describe not only the designed architectural product but also the design thought and process have begun to be seen as architectural products in their own right.

Since the 1960s, groups like Archizoom, Superstudio, and Archigram have expressed their proposals in non-traditional architectural representation forms, addressing future concerns and introducing creative languages in architectural graphic expression (Tschumi, 1996). Archigram, led by alumni of the AA School (Architectural Association School of Architecture), aimed to address land ownership problems and costs, exploring architectural mobility opportunities to combat the rigidity of modern cities (Mateo-Cecilia et al., 2018). Peter Cook, a member of Archigram, states, "the statement would gain power through the likelihood of the drawn image" (Cook, 1999, p. 12), seeing representations as a way to break through reality and formal barriers in the intellectual field. Peter Eisenman characterizes Archigram, along with other movements of the late 1960s, as having a "neo-functionalist attitude, with its idealization of technology" (Eisenman, 1998, p. 237). Tanyeli (2005) saw Archigram as a revolution in architectural epistemology, using simulation with ambiguous architectural character as a representative tool to present its discourse (Fig. 5).

Tschumi notes that "the dematerialization of architecture into the realm of concepts was more the characteristic of a period than of any particular avant-garde group" (Tschumi, 1996, p. 35). Tschumi took a role in the formation of such a group in the second half of the 20th-century, which he himself defined. Deconstructivism thought, which has an important place in the 20th century architectural world, emerges with the conceptual studies of Eisenman and Tschumi, to which Derrida contributes by allowing the questioning of its existence. A new trend comes to the fore with the Deconstructivist Exhibition, which was held in New York in 1988 with 7 participants consisting of architects. When the exhibitors Eisenman, Gehry, Hadid, Koolhaas, Libeskind,

Tschumi, and Coop Himmelblau are examined one by one, it is seen that they have created graphic expressions that question the relationship between architecture and representation.

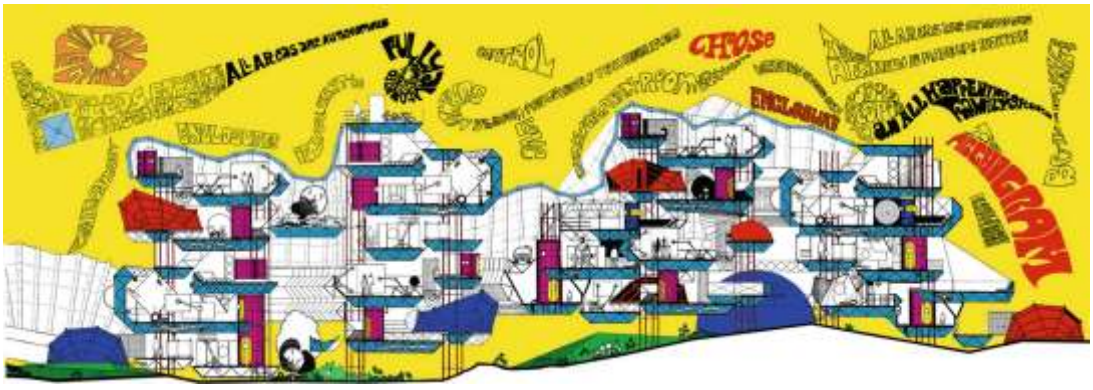

Figure 5. Control and choice dwelling. Exhibition for the Paris Youth Biennial 1967 (Chalk et al., 2018, p. 200).

Eisenman, who redefined architecture as more than mere buildings during a period when contemporary architectural problems required new solutions beyond the capabilities of Modernism and Postmodernism, challenged the rigid principles of modernism. He achieved this by disrupting traditional structures through his innovative drawings and grid-based diagrams.

Tschumi, in his exploration of Deconstructivism, questioned the notion of unity by emphasizing concepts such as change, time, and continuous movement in his representations. His approach, described as 'event architecture,' revolutionized architectural thought. Cook, drawing on Sergei Eisenstein's montage theory, highlighted the interplay of movement, event, and space in his narrative. In 'The Manhattan Transcripts', Tschumi utilized representational tools to accumulate information, challenging conventional, pragmatic architectural thought and establishing the work's significance among 20th-century architectural representations (Cook, 2008).

In the 90s, Computer-Aided Design came to the fore with the increase in accessibility to personal computers and the development of software that can calculate curved surfaces. Regarding the impact of CAD on architecture, which facilitated the creation of complex geometric forms beyond Euclidean geometry, Eisenman observes, "…a paradigm shift has taken place that should have profoundly affected architecture: this was the shift from the mechanical paradigm to the electronic one" (Eisenman, 2013, p. 16). One of the actors involved in this paradigm shift is Hadid. While benefiting from the digital representation opportunities of the 20th century, Hadid built her understanding of architecture on parametric design by soundly interpreting the expectations in the construction industry of the new century. In her Pritzker Architecture Prize acceptance speech, Hadid (2004) emphasized the potential of new digital design tools to foster an architectural language that seamlessly integrates complex fluid forms.

Lebbeus Woods, though not part of Deconstructivism, challenged traditional architectural norms with his stance on architecture, representation, and construction. He transforms the projects, which

are shaped by the scenarios he constructs on different situations, into an architecture other than the purpose of their implementations. This architecture ceases to be a tool for constructing the representations that make up the discourse itself, and becomes the end, not the means, of political discourse. Woods thinks that architecture exists after the drawing process and not everything drawn necessarily needed to be built. Woods, with his fantastic representations, has created his architecture by trying to show the relationship between war and architecture as if it exists, and by using the simulation, which we saw used for the first time with Archigram, as a creative tool (Tanyeli, 2000).

Daniel Libeskind made some of the most compelling interventions within the realm of 20th-century architectural representation. With his work titled 'Micromegas', produced using technical drawing tools, he has presented representations that are independent of application concern and have no purpose other than its own existence (Fig. 6). Libeskind took the architectural drawing out of the functional representation that served as an assistant to the construction activities, and set off on a quest of new meanings. With the 'Berlin City Edge' and 'Micromegas' projects, which has a meaning on its own as complex structured representations, he has rejected the instrumentality of architectural drawing, that defines the architectural structure that it refers to. While the last breaking point in the meaning shift of architecture occurred with Libeskind's pushing the boundaries, the separation of means and ends also occurs in the existence of architectural representation. Architectural drawings, which are no longer a means of transmitting information that refer to the building to be constructed, constitute an architectural product on their own accord as a drawn architecture that "does not refer to any architectural reality other than itself" (Tanyeli, 2001, p. 12) and has no other purpose whatsoever.

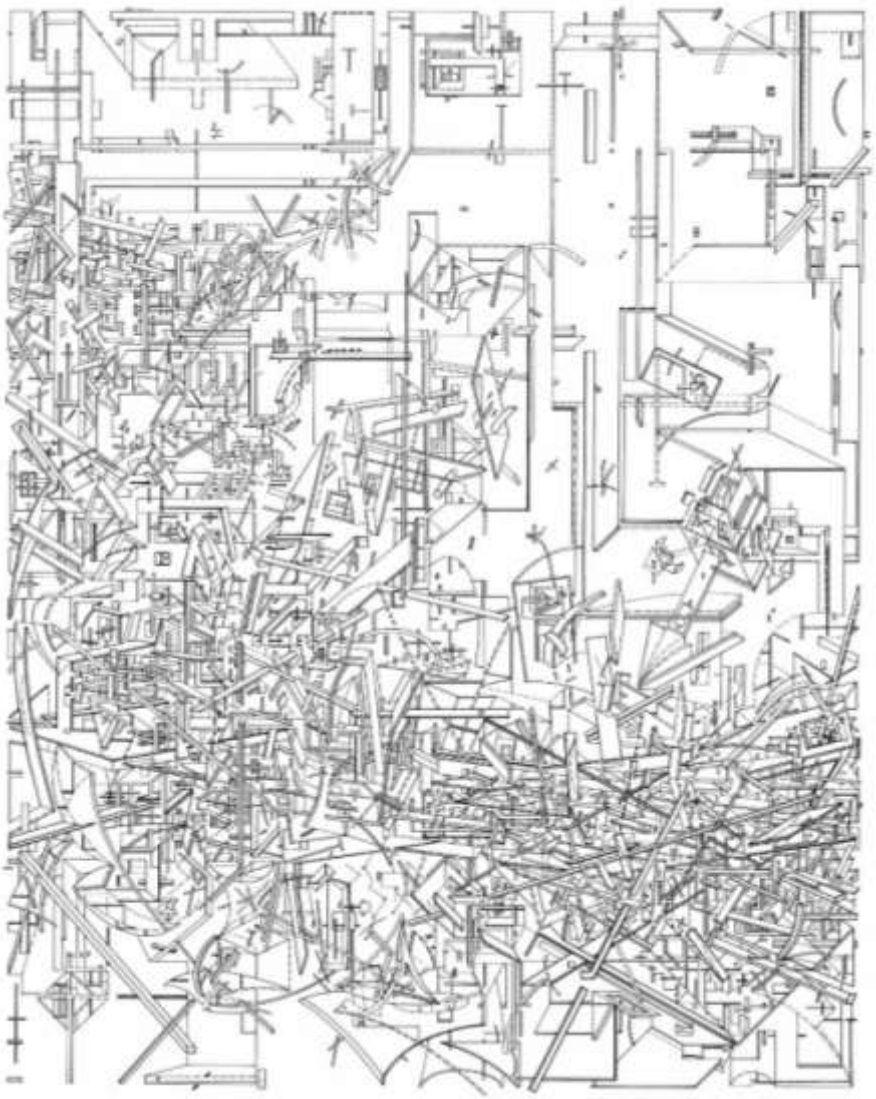

Figure 6. Libeskind, Micromegas drawings (Libeskind, 2021).

In Peirce's (1994) philosophy, representation functions as a sign, signifying something other than itself. Within this framework, the subject-object distinction assigns the object to the signifier, while the representation, which denotes something different from itself, assumes the role of the subject. Despite the existential orientation of architects reflected in their individual design choices, the diverse orientations emerging in the 20th century led to architectural representations becoming independent of the structures they denote. Consequently, the separation between the signifier and the signified is dissolved, transforming the signified into the object of representation. This evolution challenges Peirce's assertion that the signifier must be distinct from the object it signifies. While paper architectures are an inseparable aspect of architecture, they have provided possibilities for architecture to question, reinterpret, and develop itself, and the transformation of the representation object into elements that do not refer to anything other than itself has caused the distinction of means and end in the use of representations. Architects such as Hadid, Tschumi, and Libeskind, who became famous in the last quarter of the 20th century by creating paper

architectures, pioneered the autonomy of representation, but they changed their stance to become architects who could build in the classical sense. As a result of these stance changes, there was a pause in the period stretching from the representation of architecture to the architecture of representation.

THE JOURNEY OF ARCHITECTURE FROM REPRESENTATION TO THE ARCHITECTURE OF REPRESENTATION

According to Mitchell & McCullough (1995), the computer, which synchronizes the design and production processes today, has become the main factor in the production of architectural representation. Charles Jencks, in his article, where he questions whether or not the architecture, that goes beyond Euclidean geometry and produced with Computer Aided Design is a short-term fashion or a paradigmatic transformation that begins in the mental environment, states "consciously adopts the underlying ideas of nonlinear science and its many suggestive methods of production and design". He gives examples from the works of some architects he has identified and summarizes his thinking by saying "the complexity paradigm in architecture, based loosely around the sciences of complexity, has reached maturity" (Jencks, 2013, p. 88). The most prominent example of the transition from traditional hand drawing to digital in architectural design was the creation of an architectural style called parametricism, which included smooth, curved lines and surfaces (Carpo, 2017). Patrick Schumacher, who sees innovation in architecture as design research programs that evolve with new styles, notes that parametricism, defining the architectural language created by Zaha Hadid Architects, is based on digital design studies from 1994. Responding to Jencks's question, Schumacher explains parametricism as "finally bringing to an end the transitional phase of uncertainty engendered by the crisis of Modernism … Postmodernism, Deconstructivism, and Minimalism" (Schumacher, 2009, p. 15). However, Schumacher's concept of architectural progress, characterized by fluid forms and parametricism, has shifted toward market-driven needs, diverging from the social benefits emphasized by pioneering modernist architects of the 20th century (Frearson, 2016).

According to Tschumi, traditional architecture comprises a representation space that "represents something other than itself: the social structure, the power of the King, the idea of God, and so on" (Tschumi, 1996, p. 36). Farshid Moussavi and Alejandro Zaera-Polo (2013), argue that architecture has moved beyond representation, focusing on spatial production without concretizing "concepts, symbols, and ideologies" (Moussavi and Zaera-Polo, 2013, p. 58). According to them, unlike the Postmodernist and Deconstructivist architectural ideas, an architecture that allows differentiations based on more consistent relations with the local is on the agenda.

Architects, who since the Renaissance have been seen as designers, evolved throughout the 20th century into professionals who developed their discourse by liberating themselves from traditional constraints and seeking solutions to social issues. However, contemporary architects have often become media figures whose architectural discourse aligns with the capitalist-driven production of space, utilizing the digital drawing capabilities of the 20th century. Despite this shift, architects who remain conscious of the social responsibilities imposed by the architectural paradigm of a century

ago continue to contribute to the field. They do so by using architectural drawing, which has evolved alongside the profession, to develop architecture in response to the compelling demands of the marketplace.

Tchoban is an architect whose work transcends the needs dictated by capitalism, echoing the pioneering modernists of the 21st century in seeking solutions to social issues. He adeptly leverages the power of representational tools in these efforts. Tchoban supports the notion that representation should be a means in the 'means-end separation in the use of representations created by architectural drawing,' a concept distinctly articulated since Libeskind.

Much like Tschumi, who emphasized the significance of actions occurring in and around buildings, creating an architectural language that eschews designs focusing solely on functionality while highlighting architecture's political and social dimensions, Tchoban establishes a personalized architectural language. He argues that buildings designed with a sole focus on functionality struggle to sustain their relevance. Thus, Tchoban creates a language that prioritizes sustainability and incorporates the social dimension, which includes interactions between the building, its environment, and its users. Just as Libeskind's architectural designs incorporate the history of existing human communities or those long obliterated, Tchoban integrates the representations of architectural elements that define a city's identity. He combines these with the history of the building's users and its location, transforming representations from mere information transfer tools into characters' rich with meaning and social dimensions, emphasizing the local history and culture.

Tchoban stands in favor of the representation being a means in the 'means and end distinction in the use of representations created by architectural drawing', which has been claimed with clear distinction since Libeskind. While expanding the boundaries of representations by adding new meanings to representations, Tchoban provides them with the chance to come to life in the building itself as a physical architectural element. With the Tchoban Foundation, which he established for the continuity of the tradition of architectural drawing, and the 'Tchoban Foundation - Museum of Architectural Drawing', which he designed and built in Berlin for this foundation, he has shown that he prioritizes the concept of sustainability not only for buildings but also for the hand drawings, one of the architectural representation methods. While the reliefs created by transferring architectural drawings to concrete surfaces make the relationship between the interior and exterior of the museum visible, a talking structure was created that conveys the reason for the building's existence to both its visitors and citizens (Fig. 7). With this structure, Tchoban has rendered physically the embodiment of the journey of architectural drawing from the representation of architecture to the architecture of representation. With the Museum for Architectural Drawing, Steve Parnell (2013) sees Tchoban's turning the building from the inside out while performing the representation as a Postmodernist position, and he points out that Tchoban is not the first to notice the demise of hand drawing in today's world dominated by digitality but that he was the first to build a monument to leave behind him.

Figure 7. Museum for architectural drawing (Tchobanvoss, 2021).

CONCLUSIONS

Architecture has long served as a medium to make social knowledge visible, with architectural products emerging through processes that reflect societal understanding. Over time, as information transformed and re-emerged in context, architectural thought evolved alongside technological, cultural, and social developments. The fact that architecture ceased to be an order consisting of buildings and moved away from a system in which knowledge is self-contained is the result of the transformations in science and thought structures that started with the Renaissance and continue today. The social and individual transformations that took place with the effect of different breaking moments in the flow of time, brought together objectivity and subjectivity at different levels within architecture, allowing the transformation of architecture into a form of communication.

Until the productions of the actors of the 20th-century architectural world such as Deconstructivist architects, architectural representations were seen as tools used to reach the structure from design

to construction. However, the representations had no purpose other than representing themselves causing the representations to remain stuck as only a visual art product. Traditionally, architectural representations served to illustrate the intended building and its physical reality. Yet, throughout the 20th century, these representations gained autonomy by distancing themselves from their objects, transitioning from means to ends (Fig. 8). The distinction between means and purpose in the use of architectural representation, which plays a leading role in eliminating the synonymy of architecture with construction activities, has made a significant contribution to the development, transformation, and progress of architectural practice. The understanding that representation refers to construction activities has been disrupted. When considered from the framework of Saussure's signifier-signified relationship, the built structure lost its signified position, and a representation that assumed the role of both the signifier and signified together emerged. As much as the traditionally built structure is considered as architecture, representations that are now freed from means of identity are considered just as much as architecture. Architects, freed from the traditional obligations of constructing buildings, developing discourses, and addressing social issues, have now the latitude to become artists who may choose to produce personalized representations without the imperative of practical application.

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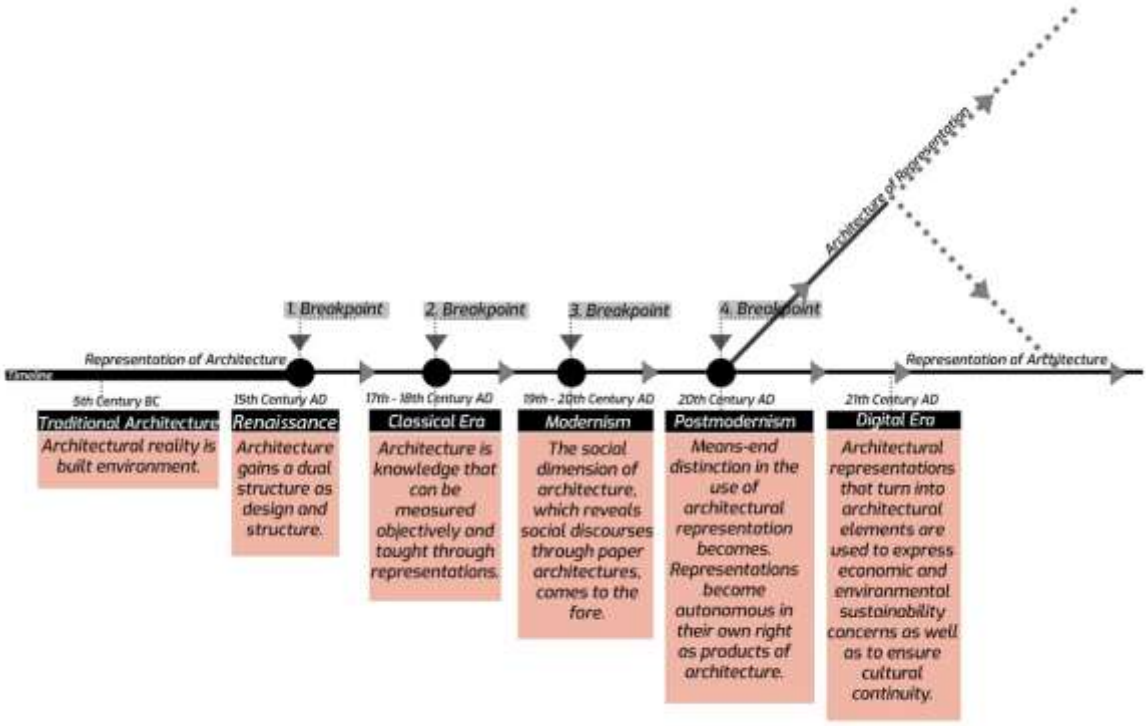

Figure 8. The breaking points that triggered the changes in the meaning of architecture in the historical process from the formation of the identity of the architect to the present (Image made by the authors of the article).

In the ancient world, architecture served as a visible representation of political and divine authority, reflecting the power of the king, the supremacy of God, and societal structures. The architect, as the profession's practitioner, transmitted architectural knowledge within closed circles, preserving

it as a singular tradition across generations. Innovations and transformations that have spread over a long period have brought about the realization of new meanings and multiple structures in architectural knowledge and the architect himself. Over centuries architects evolved from who seek the eternal mystery of God to architects who aim for error-free mass production; evolved from architects who quest for solutions to the housing problem to architects who reduce their professional practice to a matter of form and do this by taking positions according to the needs of market conditions. Finally, when architects have evolved into architects who are concerned about the use of limited resources and actualize their architectural ideas by pursuing sustainability, many pioneers with different realities, with their work on the plane of structure and representation, have taken part in the architectural scene. Even if we cannot predict the future effects of the transformations that will add new existence to architecture simultaneously with the development of new perception data and representation tools that will allow new experiences, the historical process traced shows us that these transformations are inevitable for the reality of architecture.

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Author Contribution Statement | Yazar Katkı Beyanı

AUTHOR 1: (a) Idea, Study Design, (b) Methodology, (c) Literature Review, (h) Writing Text.

AUTHOR 2: (d) Supervision, (i) Review

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