

Original Article

# Questioning Architectural Typo-Morphology

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**Abstract** - A theoretical approach extensively implemented by architectural scholars is well-understood as typo-morphology. However, it is frequently known misconceptually in a simplistic manner, which is based on the empirical appearances in architectural form classification. This narrow misconception undermines its practical relevance and conceptual richness. Thus, this study emphasizes challenging this misinterpretation in reexamining the original understanding of “type” meaning proposed by Quatremère de Quincy, and on typo-morphology repositioning on the fundamental purpose of architecture. This study unveils that the final cause of architecture is referred to by the type, that is, providing spatial vessels facilitating pivotal human activities, comfort, ease, and safety. Through foregrounding type’s renewed definition, this study succeeded in revising recent concepts within the major schools. This perspective is concerned with the transformative capacity and existential role of architecture, unlike either a formalist or interdisciplinary approach. Rather than sociological generalization or abstract formalism, the result of the study reveals a typological method implemented in human experience lived realities. It produces contributions by offering more context-sensitive and holistic architecture understanding for both design practice and theoretical discourse.

**Keywords** - Origins of Architecture, Architecture, Typomorphological Approach, Meaning, Type.

## 1. Introduction

The theoretical approach most discussed globally in architectural discourse is typomorphology, typology, or morphology. The architectural morphology and typology have been understood, possessing the objective in tracing its historical forms of architecture across historical time, implementing empirical examination, and then classified and identified into elements known as types [1].

In the early 20<sup>th</sup> century, despite its benefit in archiving empirical architectural forms, this approach encountered criticism by architectural and urban planning theorists. The concerns emphasize three ideas. First, typo-morphology is merely a classificatory or descriptive tool in redrawing, form cataloguing, and documenting. As this approach is simply a past form documentation, the criticism emerges on how this method produces meaningful insights on the design of contemporary architecture [2, 3]. Another criticism is related to the use of more sophisticated emerging technology that is believed to be more relevant than implementing the approach. GIS or Geographic Information Systems, for example, are able to produce much more accurate results in analyzing form-based urban architecture, integrating spatial elements with data of socioeconomic [4-6]. This fact raises questions heavily on the advantages of the typo-morphology application. The last one is related to the field of architecture itself. It is doubtful whether the form of architecture incorporated within the typomorphological approach is the true essence and origin.

Due to various interpretations among critics, this research believes that typo-morphology plays a significant role in forming a fundamental understanding of architectural design. International architecture forums, such as ISUF (International Seminar on Urban Form), indeed have produced significant contributions in the architectural world. However, it is merely concerned with the particular thoughts of specific schools like French, British, or Italian in urban areas. This results in the fact that understanding architectural essence from the foundational comprehension through typomorphology and architectural type has become a gap. Thus, this research attempts to fulfill the gap through reidentifying typo-morphology as the fundamental meaning of architecture.

The study aims to reexamine the typomorphological meaning of architecture and to regenerate it as an approach relevant to the architectural teleological and ontological essence. When suitably formulated, this method is not merely appropriate in classifying forms of architecture, but also in assessing the effectiveness of a built form.

In doing so, this study aims to contribute to architectural theory by recontextualizing typo-morphology, which is often regarded as one of the most appropriate analytical frameworks. Moreover, it contributes to the development of related theories like urban planning, implemented by classifying the crucial differences between urban design and



architecture. Thus, both planners and architects are able to utilize the typomorphological approach in their related fields.

## 2. Literature Review

The three most fundamental tendencies of the typomorphological approach are elaborated in the literature review of this study despite its extensive popularity among scholars globally.

First, without concerning the underlying conceptual restrictions, the typo-morphology historical development is traced in a group of studies. For example, the general morphological history of urban areas is overviewed by Gauthiez (2004) and Kristjansdottir (2019), while the studies of urban form historical development in Germany, United Kingdom, Italy, and France are asserted by Darin (1998), Marzot (2002), Hofmeister (2004), and Larkham (2006) [7-12]. The studies benefit from genealogical trajectory mapping and in advancing a fundamental conceptual framework. Nevertheless, these benefits frequently result in descriptive historiography not interpreted into the design practice of architecture. Thus, it is required to provide research that concerns both the potentials and limitations of the morphological approach, while ignoring technocratic readings of detached architectural form meaning.

Second, several outstanding theorists like Saverio Muratori (Maretto, 2012, 2013; Cataldi et al., 2002, 2003; Malfroy, 2020), Aldo Rossi (Aureli, 2007; McEwan, 2014), J.W.R. Whitehand (Oliveira, 2019), and Quatremère de Quincy (Lavin, 1992) were concerned with unveiling the morphology and type-specific interpretations [13, 21]. Although the studies provide pivotal contributions to intellectual legacy elaboration and preservation, they frequently fail to return to the former conception of type. A vivid research gap that explains the original conceptions of type from the former theoretical articulations, like the ones delivered by Quatremère de Quincy, is systematically and deeply addressed.

Third, numerous studies struggle to propose and criticize typo-morphology refinements to the practical and theoretical implementations. The architectural type concept is defined by Argan (1963), particularly about the definition of type, the emergence, and the method by which it incorporates architectural history and creative process [22]. He is concerned with the creativity's pivotal role in architectural frames and production, where the type functions as a conceptual point, not as a stagnant rule, where the evolution of formal variations occurs. The theoretical and historical reflection on three main typologies in urban design and architecture history was proposed by Vidler (1977). He underlies a city as a historical and political entity as the reflective understanding defining typology in his "Third Typology" [23]. Nevertheless, Velder conceives of architecture as a historical and formal construct.

In responding to the conventional typology limitations, the criticism is expanded by Lee (2012), who proposed the Fourth Typology concept. Lee reformulates the concepts of the idea of the city and type. He distinguishes the conceptual framework (type as idea) and the concrete representation (type as a model). The dominant city type is not only a classificatory or formal construct; it manifests the concept of the city [24].

Meanwhile, defining typology as an epistemological device rather than a classificatory tool, Jacoby (2015) distinguishes typological reasoning and typical reasoning [25]. However, although this theory corrects the misunderstandings of historiographic typology, it produces a risk in decreasing type as a pure discursive or cognitive structure. It results in a significant idea of types that are more into theoretical, diagrammatic, and abstract, leaving the existential and experiential conditions that typology may concern.

Oliveira (2021) also contributes to defining the third classification. He asserts that a single planning method or particular architectural design should not be the sole aim of morphological research integration with practice. It has to be aimed at producing more extensive results as plans, designs, and policy projects, meeting the architectural style with the community needs [26].

The current study is in accordance with the aims of the third theory while proposing the latest approach, that is, by observing the misconceptions of recent paradigms of typomorphology and proposing a novel conception based on the architectural essence. As an identification of the *causa finalis* of architecture, this research emphasizes the original type conception rather than providing a fixed stylistic concept. This effort of study may promote a more relevant and flexible framework for the design and analysis.

## 3. Materials and Methods

The object of the research is the theory itself, as this study implements a theoretical approach. Based on the discourse, the typomorphology of architecture is categorized typically into three primary schools: the Italian School initiated by Saverio Muratori, the French School led by Philippe Panerai, and the British School represented by M.R.G. Conzen [27].

Nevertheless, this categorization frequently experiences bias in the boundaries of discipline between sociology, architecture, and other disciplines, as these schools are placed in distinguished epistemologies. The Italian School originates from architectural design, the French is grounded in sociology, while the British is from human geography. As the Italian School is concerned with architectural typology and type, this study promotes a comprehensive examination of the type notion, an extensively unexamined dimension.

The gap of the three fundamental schools is due to the critical development, that is, the occurrence of the Belgian

School, which played a pivotal role in generating subsequent typomorphological theory, in the Asian context in particular. Different from the schools above, this School emphasizes the interpretation of the empirical buildings that is beneficial in practical applied methodology.

The operational approaches require more rigorous scrutiny compared to a pure conceptual theoretical framework, although they seem accessible and practical in implementation. First, the theory is risky when conducted indiscriminately, when applied in a method despite the appropriateness of its contextual and epistemological foundations. Second, operational approaches tend to carry an implicit authority: their codified procedures often lend an illusion of objectivity, which can obscure the theoretical assumptions embedded within them. As a result, methods that lack ontological clarity may nonetheless appear valid merely because they are repeatable. In contrast, approaches that remain at the level of theoretical discourse, while perhaps less actionable, at least compel users to remain in dialogue with foundational questions.

Based on this premise, the literature is organized into three categories:

- Theories of the four Schools of typomorphology, including M.R.G. Conzen's morphological approach (British School), the design typology developed by Saverio Muratori, Gianfranco Caniggia, and Aldo Rossi (Italian School), the typomorphological framework of Phillipe Panerai, Castex, and Depaule (French School), and the morphotypology promoted by André Loeckx (Belgian School).
- The theory of architectural type was introduced by Quatremère de Quincy, who was the first to conceptualize the notion of type in architectural discourse.
- Theories concerning the essential nature of architecture, such as those proposed by Salura (2012, 2015) and Younés (2003), are used to reconstruct a definition of "type" consistent with the inherent logic of architectural creation.

The methodological steps of this study are as follows:

- Comparative analysis of the four primary schools of typomorphology: British (Birmingham), Italian, French, and Belgian, focusing on their epistemological foundations, objectives, and definitions of 'type' and 'morphology'.
- Historical and philosophical inquiry into the original meaning of 'type' as formulated by Quatremère de Quincy. This stage is essential for regenerating the typology theoretical foundation of architecture.
- Emphasizing the basic meaning of architecture, typomorphological conceptual mapping concerns architectural form, meaning, and function. It concludes by advancing a new theoretical foundation grounded in the final cause (*causa finalis*) of architecture. In doing so, the

study contributes a critical revision to prevailing theoretical understandings of architectural typomorphology.

The result of this investigation is the formulation of a renewed theoretical paradigm in which typo-morphology is not merely a classificatory system, but a critical tool for evaluating how well architectural forms accommodate the functions and meanings they are intended to support.

## 4. Results and Discussion

### 4.1. The Four Schools of Typo-Morphology and their Epistemological Foundations

The development of design typology in Italy, the hybrid of typology and sociology in France, and the typomorphological approach in Dutch-Belgium housing design can all be seen as critical reactions to the failures of Modernism and its Universal Style [28]. However, the evolution of these schools was also influenced by morphogenesis in geography, as seen in the British School of Urban Morphology.

#### 4.1.1. The British School of Urban Morpho-Genesis and Its Roots in Geography

M.R.G. Conzen (1907–2000) was not an architect or urban designer, but a geographer. Etymologically, 'morphology' derives from *morpho* (form) and *-logia* (study or science). Thus, in the field of geography, morphology refers to the scientific study of the forms and structures of the Earth's surface.

Prior to the 17th century, geographers primarily studied natural features such as coastlines, mountains, and valleys. However, in the 17th century, technological advancements enabled the discovery of ancient city maps. This development provided geography with the opportunity to study urban form as an integral part of the Earth's surface. As a result, to this day, morphology in geography has remained closely associated with the analysis of urban plans-and, conversely, the analysis of urban plans is often framed within the context of geographical morphology.

The maps unveiled, utilizing archeological excavations, produced medieval urban interest in architectural plans and social situations of the former residents living in the cities. As a result, in Germany, the geography was highly affected by sociology (human relationships study) in the 18<sup>th</sup> century. In this era, geographers change their concern from natural settings like forests and oceans to housing, which triggered the occurrence of anthropogeography, identified as a German university's academic discipline. The prominent geographers in that period are Johannes Fritz, Walter Geisler, and Friedrich Ratzel [28]. For instance, evaluating specific situations and locations was the prior concern of Ratzel, selected by the founders of the city when establishing a settlement. Geisler

asserts that geography is able to define the description of the natural landscape through its physical form [11]. It was during the period when the urban physical form flourished.

In the field of geography, it is not allowed to focus on describing merely one specific area. Hence, the analysis of the study concerns the city morphology in accordance with the urban landscape arrangement encompassing transportation routes, three-dimensional building form, street pattern, and open spaces. Geisler's method was later adopted by a secondary school teacher, Johannes Fritz, in his essay *Deutsche Stadtanlagen* (German Towns). This essay underscored the importance of historical town plans in tracing the original settlement layout of a city. Nevertheless, the original urban layout cannot be fully understood through social history alone; it also requires a reconstruction of the historical-geographical development of urban landscape elements [11]. This reconstruction necessitates detailed two-dimensional representations of the evolving forms of these elements over time. Such reconstruction became the central priority of M.R.G. Conzen through his morphogenetic approach.

The ideas and methods of morphology developed by Ratzel, Geisler, and Fritz laid the foundation for the urban morphology later taught by Conzen after his migration to England [11]. Continuing the methodological legacy of his predecessors, Conzen analyzed urban form through its physical elements. His most renowned work is *Alnwick, Northumberland – A Study in Town Plan Analysis* (1960), which attempts to explain the structural formation of the town of Alnwick by tracing its development over time.

This tracing of town development was carried out in three stages [29]: First, the urban landscape is divided into three components: the town plan, building fabric, and land and building utilization. The town plan is defined as the topographical arrangement of the built-up area, consisting of streets and street systems, plots, and block plans of buildings. Second, the built-up areas of Alnwick are analysed according to five historical periods, ranging from the Anglian period to the modern era (1950s). From these five periods, both newly introduced and historically persistent elements of the urban landscape are traced. Third, the contemporary town plan of Alnwick is analysed. As will be demonstrated in the subsequent discussion on type, the Conzenian interpretation diverges significantly from how type is first understood in architectural discourse.

Based on this analysis of the existing urban layout, Conzen classified 13 types and 49 subtypes. This indicates that the notion of type in Conzen's framework does not refer to a theoretical abstraction, but rather serves as a classificatory tool for describing the physical form of urban areas. Through the three stages of analysis, Conzen aimed to demonstrate that urban morphological elements could be reduced to a logical

system that explains the relationship between the emergence of these elements and the socio-economic conditions of a particular historical period. On this basis, the formation of the present-day urban form can be explained by its historical development. It is for this reason that his approach is referred to as morphogenesis.

Explanatory and descriptive in nature are the features of morphogenetic research by Conzen. The urban areas' historical period elaboration and detailed depictions make it descriptive. Meanwhile, it is deemed explanatory for unveiling the urban element occurrence of socio-economic analysis in every period. In describing urban plans, the evolutionary perspective by Conzen was applied, explaining that the growth of urban areas is not only the aggregation of discrete fragments, but rather a continuous process. Nevertheless, the polarizing concept synthesis does not culminate in his study. As an analytical tool, its limitations lie in its empirical-inductive approach, which prevents the development of a systematic and transmittable theory. Furthermore, Conzen's work does not address design issues at all. Nonetheless, the descriptive and explanatory nature of Conzen's morphogenetic method would later influence the Italian and French schools of typomorphology-even though these traditions are not rooted in geography, but rather in architecture itself.

Following the foundational work of M.R.G. Conzen, the morphogenetic approach was further developed by scholars such as Peter J. Larkham, Tim R. Whitehead, and Karl K. Profp [30, 31]. Together, these scholars contributed to a more interdisciplinary and methodologically robust understanding of urban transformation, while maintaining the descriptive-explanatory legacy of Conzen's geographic perspective.

#### *4.1.2. The Italian School of Design-Typology and its Roots in Urban-Architectural Design*

The Italian School was pioneered by Saverio Muratori and further developed through the work of his assistant Gianfranco Caniggia, as well as by Giulio Carlo Argan and Aldo Rossi. Muratori's design-typology emerged as a critique of the Modernist movement, particularly its master-builder paradigm, which he viewed as overly personal, subjective, and dismissive of the perspectives of the laypeople.

Muratori argues that in order to overcome the problems caused by modern architecture, designers must return to the spontaneous awareness collectively held by society [13]. Through this collective consciousness, people within a specific culture do not need to consciously deliberate when designing their homes; all architectural forms have existed before, and it is these pre-existing forms that occupy their minds during the act of designing. The form embedded in collective memory is what Muratori identified as the building type. Contrary to the modernist pioneers who sought to invent new forms, Muratori maintained that architects do not create

but rather discover, in the sense of uncovering pre-existing precedents deeply rooted in society's spontaneous collective awareness.

The main goal of typological studies by Muratori was to examine the structural element, highlighting the city's concrete existence that over time evolves [13]. It is understood as essential for the structural relationship, as the urban structure material configuration is perceived as economic, cultural, and social condition representation in a particular society.

In this view, the methodological approach by Muratori incorporated individuals documenting elevations and plans in particular urban circumstances, documenting the gradual development. His objective, through the process, was to identify the inseparable connections between an individual and community, technology, economy, and language.

In typo-morphology theory, Aldo Rossi is understood as the most prominent theorist. It is evident by the extensive citation worldwide on his tremendous work titled *The Architecture of the City* (1996), emphasizing typology, typo-morphology, and type. This work is a result of an evolving intellectual development on typo-morphology that began in 1964 in his essay. Thus, he does not elaborate on the typomorphology systematic theory in this book.

“Considerations on the Relationship between Urban Morphology and Building Typology” is Rossi's first essay explicitly writing about typology in 1964. The city's empirical experience, constituted in the urban and building landscapes, is presented in his essay on representing typology [18]. His essay was a response to a thesis written by Georges Chabot, a French geographer, who emphasized that a city has to be recognized as a major datum evolving due to an ambiguous and complex rational system rather than a rational, ordered pattern. However, Rossi asserted that typological study should be a documentation of urban landscape empirical reality, not related with metaphysical and logical frameworks. It means that his thinking is still correlated with Caniggia and Muratori.

Only when Rossi was engaged with an urban theorist, Kevin Lynch's *The Image of the City* (1960), was his perspective shifted. Lynch formulated the people's perspectives about the city in his work, which are based on five major elements: landmarks, districts, paths, edges, and nodes [32]. Then, Rossi developed this conceptual framework into conceptual setting by improving the urban morphology approach highlighting the city's structural and formal elements. Again, Rossi believed that urban morphology rules not only as a description of empirical urban elements, but also as a logical structure identification of diverse relational patterns of the city. Rossi underlines that the logical pattern should not be defined as an abstraction universalization.

While Rossi formulates typology as the architecture study with its concreteness, type is defined as something complex and permanent, constituting and preceding form in *The Architecture of the City* [33]. It refers to the comprehension of type in the Renaissance proposed by architects J.N.L. Durand, Quatremère de Quincy, and Francesco Milizia. For instance, Milizia's theory cited by Rossi is concerning the building comfort that has to be based on the location, architectural element organization, and its location. Cited by Quatremère, Rossi adopted the difference between model and type, that type incorporates architecture *causa finalis*. From these citations, he emphasizes not only the teleological preference but also the architectural existence structured by inherent principles. Hence, the irreducible structural fundamentals highlighting both architectural and urban elements is defined as typology study.

The understanding of Rossi on typology and type led him to his predecessors' similar questions: is type an evolving concept with time and place spirit, or an immutable principle? To address this question, Rossi drew on the notion of collective memory developed by the sociologist Maurice Halbwachs. Collective memory refers to an ongoing stream of thought whose continuity is natural (not artificially constructed), since only those aspects of the past that remain alive in the consciousness of the remembering group are preserved. The relevance of the past is only recognized when it endures within contemporary collective memory; otherwise, it is relegated to history.

Adopting Halbwachs' concept of an active, ahistorical past within collective memory, Rossi understood the permanence of architecture as a past that is still experienced, and he linked this with his conception of place. According to Halbwachs, collective memory is socially constructed, but it also depends on the spatial frameworks provided by the physical environments in which people live. In line with his preference for living memory over static historicism, Rossi emphasized the dynamic relationship between a specific place and the buildings that occupy it. The dynamic relation arises from the meaning-making process of the building constituted in the memory of collectiveness that makes the place spirit memorable in its community's consciousness.

Due to the discussion, it is evident that typology and type discourse in the Italian School evolves based on two primary aspects: meaning and form, while overlooking the concern on function. Hence, function is often regarded as a negative view, which is perceived as overly utilitarian, transcended by an emphasis on meaning and form.

It is implied that the methodological approaches are the theorists' differences in the Italian School. Rossi and Muratori's work focuses on conceptual criticism without making an objective in developing systematic methods for architectural and urban analysis. In contrast, Cannigia, while

sharing the same objective of exploring the relationship between form and meaning, adopted a more methodological approach by incorporating the morphogenetic analytical framework initially developed by M.R.G. Conzen.

Meanwhile, what unites the theorists of the Italian School is their shared understanding of type as a means to formulate a precise approach to the design process-whether one ought to follow pre-existing forms or generate entirely new ones. It can also be concluded that the Italian School's perspective is predominantly shaped by the dynamic interplay between two central aspects of architecture: form and meaning.

#### 4.1.3. *The French School of Typo-Morphology and Sociology*

After Conzen and Muratori laid the foundations for the first two schools of urban morphology, a third school emerged in France in the late 1960s. Architects Philippe Panerai and Jean Castex, together with sociologist Jean-Charles DePaule, established the School of Architecture in Versailles as part of the dissolution of the *École des Beaux-Arts* [27]. Like the Italian School, the French School arose in reaction to modernist architecture and its dismissal of historical context.

Panerai and Castex quite literally discovered the work of Muratori-largely unknown in France at the time-which prompted them to further explore the theoretical and methodological dimensions of their own work. It may therefore be said that the focus of this School remained aligned with that of the Italian and British schools: the historical evolution of the Parisian built environment.

It is presumed that the term typo-morphology was first introduced by the French School. The French School's approach to typo-morphological thinking can be traced through two seminal works: first, the essay titled *Prospects of Typomorphology* (1982), authored by Jean Castex and Philippe Panerai; and second, the book *Formes Urbaines: De l'ilot à la barre* (1997), which was later translated into English in 2004 as *Urban Forms: The Death and Life of the Urban Block*.

The objective of typo morphology is to demonstrate the urban form transformation and the design models aligning the transformation. In understanding urban forms, four analysis layers are elaborated by Panerai and Castex in *Prospects of Typomorphology* [34]. The layer number one refers to the connecting elements of the city, like ancient pathways and roads in particular, which are beneficial in commercial exchange.

Concerning the institutions and particular monuments corresponding to the structure-modification influence of the city. The zoning and division of non-monumental areas, like work and residential areas, belong to the third layer. The final layer emphasizes personal properties like houses. These layers manifest the descriptive stage of the entire analysis.

The sociology influence becomes the following analysis stage, with evidence incorporating residents examining the specific locations they refer to. For instance, Castex and Panerai highlight the significance of local terms in demonstrating blocks, plots, or streets in the area studied. In Lyon, *traboules* refer to the pedestrian pathways linking blocks; *allees* is referred to the similar paths in Chambery; *mews* identify them in London. By comprehending this local typology, the models of context-specific design can be identified by the designers free from irrelevant picturesque regionalism and outdated stylistic standardization, moreover, also ignoring excessive reverence of "master builders" modernists.

Due to the sociological orientation, the French School developed typo-morphology as a humanist modernist response. This method drove other approach revisions treating type as merely a taxonomic tool, but failed in grounding the concept of philosophy as asserted by Quatremère de Quincy. The challenge is that it may shift the focus as an architecture when incorporating typomorphology with sociology, although it provides insightful knowledge.

Nevertheless, the conceptual limitations play a role in this sociological shift. Although it concerns the cultural context and lived experience, it is likely to displace the architectural ontological basis. Rather than admitting architecture to the human need response, the French School relies merely on the cultural and emotional associations, on the subjective architectural perception. The place's symbolic dimension might be enriched by the local labelling practices and narratives.

However, it may produce a central question: what is the objective of the architectural form, and how can human activity be supported by the architectural form? Without addressing this foundational concern, the French School's typo-morphology may inadvertently substitute social meaning for architectural essence.

#### 4.1.4. *The Belgian School of Morpho-Typology and Urban Settlement*

The emergence of morpho-typology within the Belgian School was primarily influenced by N.J. Habraken, an architect and educator based in Amsterdam. Similar to the Italian School, like Muratori, Habraken highlighted the poor conditions of settlement as an influence on modern architecture. The problems of mass housing had in fact emerged as early as the 1920s and continued well into the post-World War II era.

In short, the core issue centered on standardized housing designs that were monotonous and failed to accommodate individual identity or human freedom. Moreover, Habraken performed a significant criticism on the bureaucracy standardization on the design of housing and settlement in his

1961 work titled *Supports: An Alternative to Mass Housing*, in which he proposed the need for community involvement in deciding the design process need [35].

A term “typology” for Habraken is understood as the designers-inhabitants' negotiation as the fundamental theory. These shared values become the fundamental idea of Habraken's principles, that is, typology was generated in an ethical aim, creating “living” cities and settlements. By identifying the historical trace of a settlement location, Habraken and some collaborators formed a research community, understood as Stichting Architecten Research (SAR), in developing methods that observe the shared values.

For example, in the 1980s, Amsterdam was observed to possess relationships between open spaces and buildings similar to the ones unveiled in the 17<sup>th</sup> century. This result can be formulated into the governmental rules on the design of new settlements, which are then discussed with the main stakeholders, like architects, community representatives, and decision-makers. When a consensus was reached, the resulting agreement defined which elements were essential to the planned settlement. A settlement area in which such relationships could be clearly identified and agreed upon was termed a tissue.

Habraken's ideas and the SAR's methods inspired André Loeckx, a professor at KU Leuven, who began organizing workshops that helped shape the understanding of morpho-typology in Asia, especially in Indonesia. However, Loeckx himself did not produce a comprehensive theoretical formulation of typo-morphology. Instead, he compiled various writings by theorists of urban design, housing, and typology into an anthology that reviewed contemporary architectural approaches of the time.

In that anthology, Loeckx contributed three essays- *Settlement as Tissue: The Rediscovery of a Key Metaphor*, *The Architecture of the City*, and *Tissue Analysis: A Practical Perspective-guidelines for Fieldwork on Forms*. In the first essay, he reiterated SAR's understanding of tissue but applied it at a broader scale, namely to the urban realm. Even so, the interpretation of the underlying rules remained largely the same: patterns in the relationship between built form and open space were attributed to economic, ecological, climatic, symbolic, or cosmological factors.

The aspects analyzed remained consistent with SAR and the design typology of Muratori and Caniggia, with a strong focus on formal aspects of the built environment. The concept of function, as used by SAR, was limited to normative aspects of land use and zoning, such as housing, retail, office, industry, and socio-cultural institutions. In the editorial preface to the second section of the anthology and in *Tissue Analysis*, Loeckx outlined a method consisting of three steps: First, field observation of the urban area under study, carried

out at multiple levels-from the city scale, to city segments, neighborhoods, neighborhood segments, housing clusters, and individual dwellings. Second, documentation of the elements within the tissue and their relationships to one another, supported by interviews with residents about their experiences and actual spatial use. These interviews were intended to identify the problems residents encountered in their living environment.

Third, based on the observation and interview data, researchers conducted both what he called a synchronic (present-day) and diachronic (historical) analysis of the area-tracing changes in built form and functional patterns over time.

In practice, this three-step method generated highly detailed documentation of the empirical form of specific areas-including building forms, open spaces, and the relationships between them. However, no clear examples exist of how urban or settlement designers have used such detailed documentation to inform the design of new settlements.

Theoretically, this form of analysis remains ambiguous. There is no explanation of how speculative claims-that a specific spatial form is shaped by economic, symbolic, or cosmological conditions-can be rationally justified. As a result, morpho-typology in this context often amounts to a process of a formal pattern-matching rather than a rigorous theoretical inquiry. It is therefore vulnerable to a disjunction between the documentation of empirical form and the abstraction of theoretical principles.

The differences provide issues in epistemology. It refers to the failure of methodology in providing the reasons why the forms of building occur, not merely documenting patterns or their relevance in times. It means that one principle missing in tissue analysis of Loeckx and the SAR method, which succeeds in emphasizing the spatial configuration, is the objective behind form, the teleological and ontological dimensions.

Moreover, by focusing more on the normative land utilization and form, the morpho-typology of the Belgian School results in less highlighting of the dimension of functional-experiential architecture as a human activity vessel.

Similar to the French School, identified as culturally symbolic or speculative frameworks, it tends to focus on descriptive patterns of architecture. Without emphasizing the essence of architecture in a vivid understanding based on human need, it would be more of a representation project for morpho-typology than a generation.

Thus, although it produces significant contributions to the context-sensitive and participatory design discourse, the Belgian School needs to undergo a pivotal reflection. A robust

theoretical foundation should be completed in its dependence on collective negotiation and empirical observation.

#### **4.2. Type as Causa Finalis: Revisiting Quatremère de Quincy**

The word is from the Greek language, *tuptein*, which means to press or to strike a thing, and *tupos* which means image, matrix, figure, or impression. The word typology as a classification method merely occurred in linguistics field within 19<sup>th</sup> century. Then, around the next century, it was utilized in architectural concept. It is crucial to highlight that the word type in the discourse of architecture was initiated by the Antoine-Chrysostome Quatremère de Quincy (1755-1849) in the 18<sup>th</sup> century [36]. Different from contemporary approach of typo-morphology incorporating analysis of morphogenesis in classification, the type notion by Quatremère does not possess a relation to morphogenesis.

In the journey to discover the origin of architecture, Quatremère's understanding is formulated. This question was raised in 18<sup>th</sup>-century architectural and artistic discourse, along with unveiling *causa finalis* (final cause), the reason, ultimate purpose serving as any discipline foundation [37]. It, moreover, reveals responses to the inquiry: what and why was architecture created? Thus, the *causa finalis* provides rational criteria in assessing the architectural work's failure and success.

Grounding the architectural practice and theory in fundamental principles by Benedictine abbot Marc-Antoine Laugier (1713-1769), the intellectual context is aligned with his theory, which proposes the Primitive Hut idea as the architectural original state [38]. Nevertheless, the original architectural notion by Laugier was significantly abstract, covered in the metaphorical meaning of a hut.

He proposed monogenetic ideas of the origin of architecture that were highly criticized by theorists like Quatremère de Quincy. Quatremère perceives nature as a change governing a system, not a universal and stable order as proposed by Laugier. Moreover, Quatremère's concern was that the architectural origin emerged from specific geographic and historical conditions, not from a universal model like a primitive hut.

In accordance with the perspective above, he differentiated three kinds of primordial human residents: nomadic pastoralists, agrarian societies, and hunter-gatherers. Through these classifications of human settlement history, Quatremère defines architecture as not provided by nature, but human creation, enabling human life development and continuity.

Although the architectural empirical forms distinguish among societies, Quatremère further emphasized that there have to be fundamental principles highlighting architectural

establishment across culture and time, that is the notion of type, a conceptual foundation of an architectural model across time. Type concerns on *causa finalis* (the final cause) underlying the architectural emergence and origin retrieved by abstraction and reasoning.

A type concept by Quatremère demands formal and spatial articulation than only replicate or categorize the empirical forms. Unfortunately, this interpretation of type as the embodiment of human activity was not further developed by later architectural theorists. The term activity was often conflated with function, and an overemphasis on function was wrongly criticized under the label of functionalism. This mischaracterized functionalism was then seen as a significant cause of the perceived failure of modernist architecture.

#### **4.3. Tracing the Conceptual Fallacies of Typo-Morphological thought in Architecture**

##### **4.3.1. Durand's 'Typology' and The Origins of Formalist Misreadings**

The conceptual misinterpretation of type in architecture arguably originated with the understanding of "typology" retrospectively attributed to J.N.L. Durand (1760–1834), a highly influential educator at the École Polytechnique. In fact, Durand never explicitly used the terms type or typology; instead, he emphasized the notion of genre as a methodological means for identifying general principles underlying architectural forms. Nevertheless, later theorists appropriated his method under the label of "typology."

In contrast to Quatremère de Quincy, Durand made no attempt to inquire into the origins or the final cause of architecture. For Durand, architecture was already understood to involve empirical forms—it was, in his view, the sum of buildings composed through the additive arrangement of their parts. Durand elaborated a method of design functioned as a practical implementation.

He asserted that the fundamental concepts in defining complex architectural concepts can be reformulated utilizing basic geometric images or structural grids into new formal compositions [40]. His approach is designated as the occurrence of modern architecture that is associated with the application of industrial machine. The arbitrarily discrete components are mirrored in Durand's modular combination as settlements, own, cities, and treating houses.

As displayed in Figure 1, approaches of typo-morphology from French, Belgian, and Italian schools are modernist architecture critiques attempting to solve the failures. They perceive that an architectural form is originated from cultural consciousness and collective memory, although each School was from distinct disciplines. It indicates the change to socially collective meaning from individual formalism. However, there is a question arising: if it depends only on the sociological grounding, is the shift sufficing?

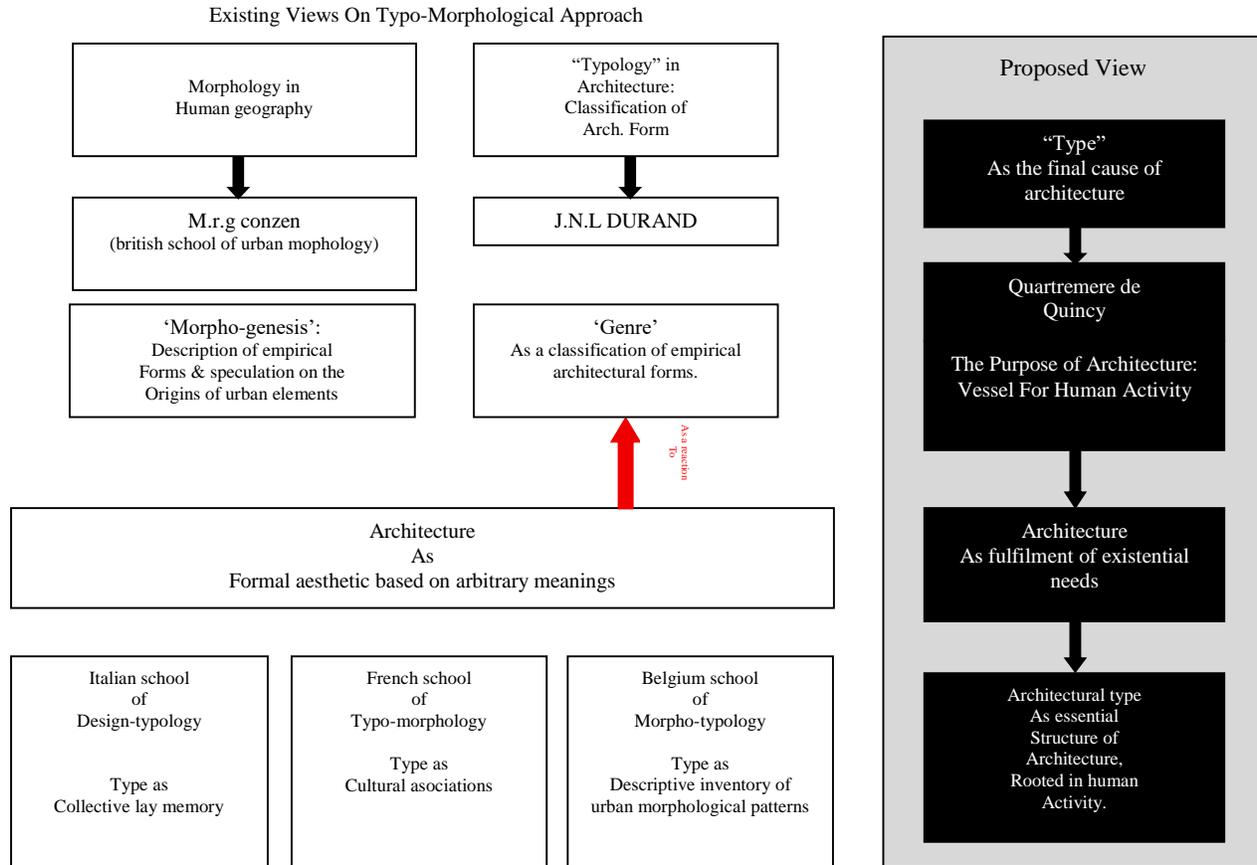


Fig. 1 Existing view and proposed view on architectural typo-morphology

4.3.2. *Ontological Differences of Sociology, Urban Design, and Architecture*

Architecture occurred due to the primary human need for living protection in preserving human existence, along with clothing and food [41, 42]. Thus, it requires more comprehensive evaluation regarding the spatial arrangements and enclosures to acquire comfortable, efficient, and safe human activities.

Urban planning is different from architecture. Urban planning is more concerned with the connections of building masses, not the building's enclosed space, highlighted by architecture. Sociology also differs from architecture, as sociology emphasizes the human relationship and the effects arising from the interactions. In contrast, architecture highlights the spatial aspect in the form of a building or shelter, functioning differently based on human needs.

Through thorough discussion, the typomorphological study of architecture unveils three pivotal elements: form, meaning, and function. Although Quatremère de Quincy highlights one of the essential architectural developments that is type, this approach is lacking in clearly defining architecture through its function, as well as its correlation with the meaning and form. Hence, the ideas below elaborate the connection

between those three aspects, challenging instrumental logic and reductive narrow functionalism.

4.4. *Within Architectural Disciplinary, Reformulating Typo-Morphology*

4.4.1. *The Twofold Meaning of Architecture and the Epistemic Position of Typo-Morphology*

The emergence of architecture was preceded by the fundamental human need for a safe, efficient, and comfortable shelter [43, 44]. The zoning system structure is a result of varied human collective activities. It is then conceptualized into practical materials that produce vertical and horizontal elements as walls, roofs, and floors.

This process illustrates that form originates from the structure of activity. The spatial form that accommodates a particular activity inevitably conveys a certain expression, which is in turn interpreted-imbued with meaning-by human beings.

Misunderstandings surrounding architectural meaning are mainly due to a disciplinary confusion regarding the epistemological position of architecture itself. Based on the premise of the final cause of architecture, it becomes clear that architecture arises from the need to preserve and extend

human life in response to the natural world. Hence, human activity originates from acts of interpretation that acknowledge the world as something objective and external, not merely a correlate of human consciousness. When early humans first constructed shelter, they already intuitively understood that they could not regulate the rhythms of nature or override the objective laws that govern it. It is through the interpretation of this external, objective world, beyond arbitrary human control, that architecture came into being.

In architecture, then, the 'world' must first be understood as the natural world, rather than a socially or culturally constructed reality. This world exists independently of human awareness; it is external and objective. Because both humans and their built artifacts are subject to natural law, architectural works must be evaluated against external criteria, not merely internal aesthetic preferences.

These criteria are grounded in the balance and order that underlie the natural environment in which the building is situated. Architectural forms that successfully accommodate human activity while reflecting this natural equilibrium thus fulfil what can be called the basic architectural meanings.

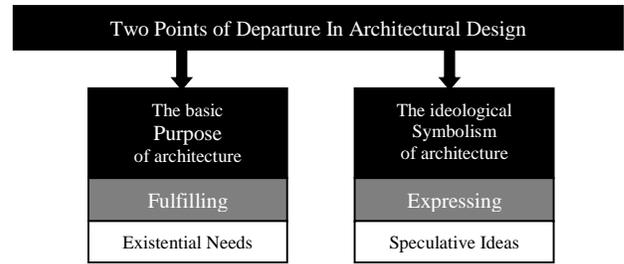


Fig. 2 The departure of two points in the design of architecture

As demonstrated in Figure 2, two primary, distinct epistemic premises become the origin of an architectural design, either as a teleological response to a crucial human necessity or as a symbolic formulation formed by ideological narratives. This research adopts the standpoint aligned with the original conception of architecture final cause by Quatremère de Quincy, in which type is a conceptual anchor manifested in the existential functions, not a mere stylistic legacy or formal pattern. As a spatial answer to human activity, in Figure 3, the development of an idea locating type is illustrated in a framework of architectural ethnosemantics that formulates the architecture role.

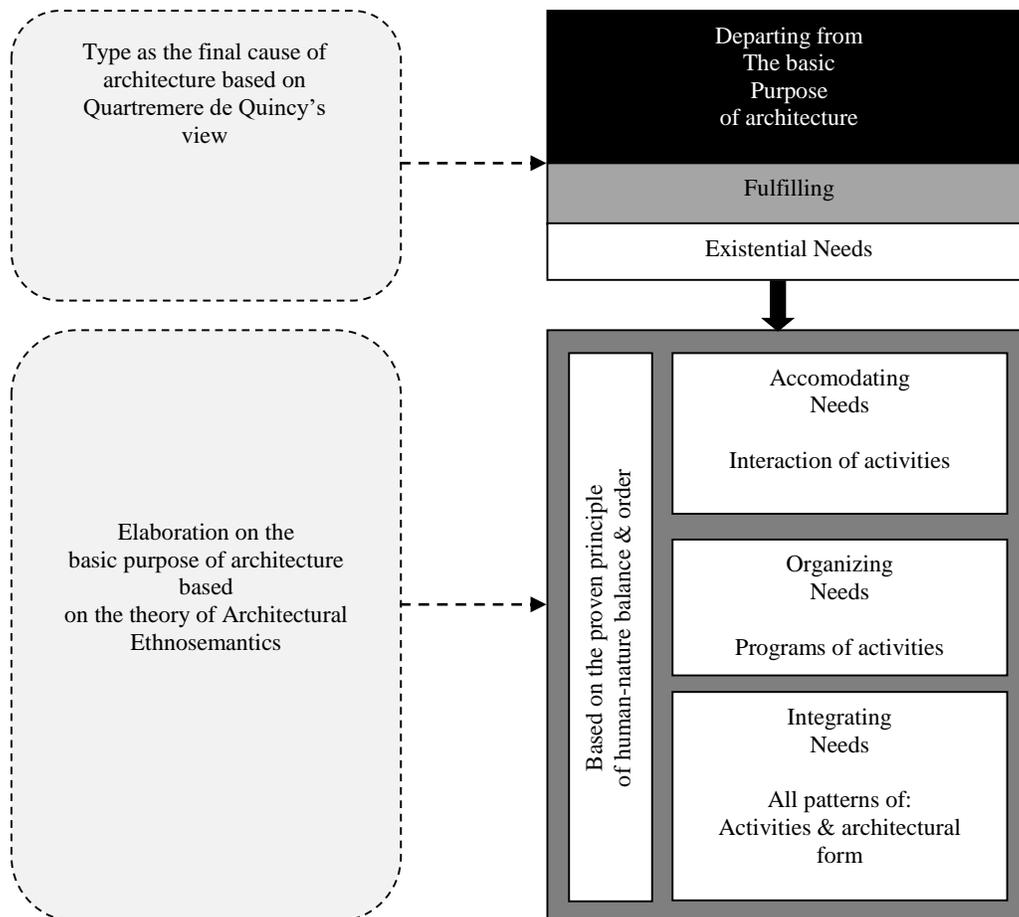


Fig. 3 Quatremere de Quincy's teleological typology and its explanation regarding architectural ethnosemantics

In architecture, the difference elaborates why when the functional age and natural world detach meaning, it will be arbitrary, additional, and speculative rather than crucial. This is the critical flaw shared by the four dominant schools of typo-morphology, which emphasize type as collective memory or cultural associations. In their critique of modern architecture, these schools shifted the focus from the

ideological meaning of the designer to the collective meaning of society. However, both ideological and collective meanings belong to the same category: arbitrary additional meanings, not essential architectural meaning. Without formulating meaning in activity and function, a mere projection could be produced by typological thought, away from the architecture foundational purpose.

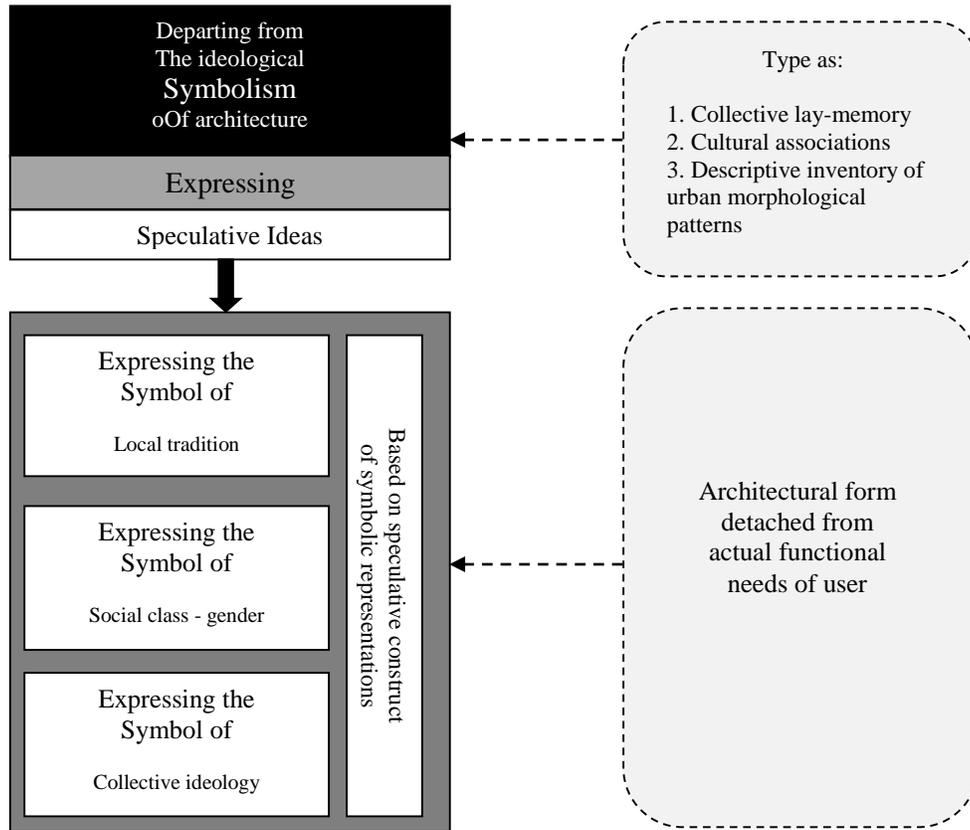


Fig. 4 Four schools of typo-morphology

This research reformulates typo-morphology as an epistemic method in identifying the continuity of spatial configurations, meaning formation, and architectural purpose, not as a taxonomic device for categorizing forms.

4.4.2. Operational Strategies for Refining the Typo-Morphological Approach in Architecture

Based on the earlier analysis regarding the essential differences in the formal and material cause of architecture and urban planning, this article argues that the adoption of urban typo-morphological analysis for architecture risks eliminating the reflective depth that defines both disciplines. Architecture risks becoming merely reactive to urban data-such as density, circulation, or zoning-without offering a conceptual framework for experience or spatial meaning in the context of use.

This concern was raised by none other than Aldo Rossi, a key figure in the Italian School. After a long career and many

contributions to the study of typology, he ultimately concluded that urban analysis, with its descriptive-historical orientation, had little or even no direct influence on the design process.

Starting from the understanding of type as the search for the final cause of architecture, and affirming that human activity is the primary generator of architectural form, the following operational solution is proposed to refine architectural typomorphological analysis:

- Step 1: Identify the underlying purpose and function of a particular architectural work  
Analyze the architectural work in terms of its original intent, focusing on the essential human needs or activities it was designed to support. For example, the primary purpose of a mosque is to serve as a place of worship, particularly for the congregational prayers (ṣalāt al-jamā‘ah). Hence, the purpose

of the mosque is to facilitate the spiritual connection between humans and God. Its function is to provide a space that enables the ritual practice of Islamic worship in accordance with the Sharia. The use of the space involves bodily actions such as standing, bowing (rukū'), and prostrating (sujūd), listening to the Friday *khutbah*, and participating in communal religious life.

- Step 2: Trace the Evolution of Form as a Response  
Identify how the building physical form had evolved through time based on the functions and objectives, rather than recognizing form as an aesthetic or autonomous construct.
- Step 3: Relate form to broader cultural and historical meanings  
Locate the building within the historical, social and cultural context by implying how the form reflects symbolic values, ideological meanings, or collective memory across time.
- Step 4: Evaluate user needs and spatial performance  
Examine how the spatial elements address the experiential, emotional, and practical users' necessity, in recent-day function and the original context. This stage also makes sure that the Step-3 interpretations are in accordance with the original objective of architectural work.

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## 5. Conclusion

Due to the analysis result, the conclusions can be formulated as follows.

First, the final cause of architecture, which is the origin of the objective of architecture creation is the search for type as seen in the earliest architectural literature.

Second, the type notion, highlighting type as architectural form diversity merely categorizing empirical forms, is erroneous. The understanding of type in architecture should be based on the fundamental necessities of human activities completed through the spatial compositional arrangement and properties of the enclosing architectural features.

Third, this research provides revision to the dominant typomorphology schools by advancing the architectural type understanding.

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