Built Ideas. Form, Space and Meaning

Amra Salihbegović

aA ccademia university press

How do architects generate form? What are the implications of the interdependence of form and space?
Architectural practice, due to its complexity and plurality, urges an aesthetic inquiry into the totality of architectural work. This book proposes a theoretical and conceptual framework for an aesthetic evaluation, understanding, and analysis of architectural work. It intersects three essential themes: architectural expression as the prevalence of the meaning of form, the uniqueness of spatial qualities as the content of the architectural work, and aesthetic experience as the essence of architectural creation. It aims to decipher the aesthetic ideal from a qualitative point of view and to reveal the reasoning behind the design approach, representing in that sense a link between the evaluation of the built design, and the clarification of the conceptual design. It intends to explain the built work from the creative process and to transform the conventional understanding of architecture from technical and technological perspectives, and economic, cultural, or social tendencies, through the aesthetic dissection of the correlation of form and space.
The book does not offer definite answers but aims to unfold and integrate the discourse on form and space interdependence, as the fundamentals of the discipline, into contemporary architecture.

"The Work of architecture […], in its singularity, excavated within, it takes on a universal breath." Luciano Semerani

AAC – Arti | Architettura | Città – studi, temi, ricerche

Città e architettura sono gli irrinunciabili fondali di tutte le arti. Da sempre il loro intreccio favorisce la lettura di epoche storiche e spazi poiché lo studio dell'una favorisce la comprensione dell'altra. La collana si pone come luogo di confronto di studi e ricerche anche tra loro diverse per metodologie e tematiche, ma distinte per originalità e taglio interpretativo, capaci di mettere in evidenza le complessità della storia e della contemporaneità.

Collana diretta da Carlo Gandolfi e Enrico Prandi
Coordinamento: Tommaso Brighenti

Comitato scientifico:

Antón Capitel	*DPA ETSAM UPM, Madrid*
Carmen Díez Medina	*DA EINA, Zaragoza*
Carlos Ferreira Martins	*Instituto de Arquitetura e Urbanismo USP – São Carlos*
Adrian Forty	*UCL Bartlett Faculty of the Built Environment*
Adrián Gorelik	*National University of Quilmes, Buenos Aires*
Jacques Gubler	*Accademia di Architettura di Mendrisio – ETH Lausanne*
Andrea Pinotti	*Università degli Studi di Milano*
Renato Rizzi	*IUAV di Venezia – Accademia di San Luca*
Alberto Sato	*Universidad Diego Portales Chile*
Daniel Sherer	*Princeton University, School of Architecture*

Susanne Komossa (*TU Delft*, fino al 2020)
Luciano Semerani (*IUAV di Venezia – Accademia di San Luca*, fino al 2021)

Ogni volume della collana è sottoposto alla revisione di referees esterni al comitato scientifico secondo il metodo di peer-review double blind.

Volumi pubblicati

Carlo Gandolfi, *Matter of Space. Città e architettura in Paulo Mendes da Rocha*
2018 | pp. 408 | www.aaccademia.it/gandolfi

Tommaso Brighenti, *Pedagogie architettoniche. Scuole, didattica, progetto*
2018 | pp. 384 | www.aaccademia.it/brighenti

Claudia Sansò, *La moschea e l'Occidente. Tipi architettonici e forme urbane*
2021 | pp. 280 | www.aaccademia.it/sansò

Enrico Porfido, Giuseppe Resta, *Journey to Albania. Architecture, Expeditions, and Landscapes of Tourism*
2022 | pp. 204 | www.aaccademia.it/porfido-resta

Amra Salihbegović, *Built Ideas. Form, Space and Meaning*
2023 | pp. 320 | www.aaccademia.it/salihbegovic

Built Ideas. Form, Space and Meaning

Amra Salihbegović

Traduzioni di Maida Salihbegović Čirak
Editing di Valentina Scaringella

I testi sono di esclusiva proprietà e creazione dei rispettivi autori.
L'autorizzazione per la riproduzione delle immagini
è strettamente riservata alla presente pubblicazione.

© 2023
Accademia University Press
via Carlo Alberto 55
I-10123 Torino

prima edizione maggio 2023
seconda edizione dicembre 2023
isbn 979-12-5500-042-6
edizione digitale www.aaccademia.it/salihbegovic

Accademia University Press è un marchio registrato di proprietà
di LEXIS Compagnia Editoriale in Torino srl

Why has a building from a particular period a particular form? This is the central problem in architectural history as well as in architectural theory […].

Most studies of architectural space still suffer from a lack of conceptual definition. In general they can be divided into two classes: those which are based on Euclidean space and study its "grammar", and those which try to develop a theory of space on the basis of perception psychology.

Christian Norberg-Schulz

Index

Preface
About the discipline Luciano Semerani 9

Introduction 13

I. Form and space

Preconditions for the primacy of form and space.
From aesthetics to architecture 23

Determinants of architectural form.
From theory towards practice 61

Toward a conceptual framework of contemporary practice.
A critical analysis of spatial design 81

II. Architectural expression

Architecture and symbolism.
Question of architectural expression and its double articulation 97

Contemporary architectural expression.
Delineation of a conceptual design 109

III. Heterotopia

Heterotopia and architecture.
Otherness of spatial structures 143

Contemporary spaces.
Outlines of heterotopic concepts 155

IV. Aesthetic experience

Primacy of aesthetic experience.
The essence of architectural creation 181

Contemporary aesthetic experience.
A sequence of spatial encounters 191

Conclusions 213

Bibliography 223

Testi in italiano 235

Index of names 311
Indice dei nomi 315

Acknowledgments 319

About the discipline
by Luciano Semerani

When research, a publication, or a direction of study is evaluated, we still refer to values such as "the originality and transmissibility of the contribution to the advancement of knowledge in the discipline". However, the fact is that in the case of architecture, the field of discipline is vast and complex, and sometimes far from well-defined. If perhaps only because of the English translation of the expression *Progettazione Architettonica* into "Design", and of the dissolution of "Progettazione Architettonica" itself into the all-encompassing notion of "Progettazione".

The "architectural project" is, necessarily, a small part of a "project of the world". That is why we still need to reflect on the fact that the tradition of teaching and research disciplines in Architecture recognized as its basis "Architectural Composition", in what is now the ICAR 14 disciplinary grouping, and not "Design".

Starting from the notions born with "Arithmetic" and "Geometry" (symmetry, asymmetry, proportions, etc.) all the operations, that "logic" and "practice" make available in the process of ordering and defining a complex structure such as the "architectural construction", are part of "Composition".

But as "Techniques" they are available, all useful in an approach that has a specific purpose, the realization of the "Built Work". But not all of them are always necessary. This means that the compositional process is experimental, requiring a departure that stems from a choice of language, with a reference, in consonance or in opposition, to other works and other authors.

The study of the compositional techniques implemented in works of architecture shows that their quality and value are always the result of expertise gained through research. A research denoted by principles of

freedom and autonomous creativity but at the same time characterized by a responsibility towards the history of the discipline and more generally for the future of society. A responsibility therefore individual, and of worldviews, in which intentions have grown. These intentions always have an Author.

With the ever-increasing delegation to the private sector and thus to the market of those functions handled by the State and the public commissions, it has happened that even teaching in Universities and authorship in the architectural profession have become mere trade goods, so it should come as no surprise that both have declined in terms of quality.

If it is the economic operator who gives the guarantee of the quality of the work, architecture invariably becomes fashion and design, but mostly it remains just business. The "Built Work" is first and foremost a form of "communication".

The encyclopedic research and study of categories such as the "Space", the "Form", the "Type", etc., belong to other cognitive universes that fall within the "Histories of Culture". Architecture is one of the Arts and it is in this role that it forms part of culture.

The Work of architecture thus presents itself as a "Leibnizian monad", inside which one must penetrate to understand its deep structure.

When the work is read in its individuality, freed from the interpretive formulas that explain it within the flow of ideas and requirements of contemporary culture, the Work, precisely because of its singularity, reveals a potential of interrelationships in the realm of composition, whether musical or pictorial or architectural, that transcends all immediate boundaries.

And, in its singularity, excavated within, it takes on a universal breath.

The Work of architecture […], in its singularity, excavated within, it takes on a universal breath.

Luciano Semerani



Introduction

Two major terms in architectural theory, *form* and *space*, have pervaded the realm of architecture ever since Vitruvius[1]. Diverse theories have been concerned with their features, their essential role in architecture and their compositional implications in the design process, while simultaneously reinforcing different interpretations that evolved over time. This book retraces the theoretical preconditions of this dichotomy, from early modernism to recent phenomena, and examines further in-depth their correlation in contemporary architectural practice by outlining a new architectural theory and framework of form, space and meaning.

The recurring phenomenon of the fundamentals of the architectural discipline, the correlation between form and space, can be traced in the design realm from the philosophical, aesthetic appreciation of form and space, to the diverse compositional implications in architectural design. The diversity in the contemporary design field implies even tighter dependencies, as a result of the rise of challenges in fulfilling diverse demands, particularly in recent trends as the result of technological advancements and socio-cultural transitions, from achieving aesthetic appreciation to technological regulations, to an architecture reconciling different values and conveying a specific meaning. Indeed, the design process and the evolution from the idea to the final building design are even facing a more radical path that implies a need for discernment of a new form-space interdependence framework in order to understand the complexity of contemporary practice.

The book *Built Ideas* proposes a new aesthetic distillation of contemporary practice through six theoretical and conceptual ideas that are grounded on the ambiguity between form, content and meaning. Robert Venturi defined the term *complexity*, adding that aesthetic simplicity

On the opposite page, Pezo von Ellrichshausen, *Examples of spatial structures*, published in 1999 in "AV Monographs", no. 199, titled "Pezo von Ellrichshausen – Geometric Abstraction".

evolves "from inner complexity"[2]. This definition can be traced back to the aesthetic theory of Hegel from the beginning of the 19th century, who introduced an aesthetic theory of a mutual correlation between the "judgment of *form* as expression of *content*"[3] where the content was later identified as the architectural space[4].

Contemporary architecture does not follow inherited aesthetic rules governed by order, style, or geometry, and is called "non-referential architecture"[5] according to Olgiati and Breitschmid. It represents a field of diverse individual design attitudes that cope with contemporary tendencies and evolve from even more complex preconditions of massive production, rapid development, strict construction rules, and transient needs that retransform the design proposal by even abolishing all the aesthetic and qualitative aspects. Inevitably, they represent some growing tendencies of a non-comprehensive design approach of production, infused by abolishing the value of meaningful architecture and responding to consumerism, globalization, style or individual preferences that neglect the essence of architecture. Therefore, the purpose is to examine the interdependence of form and space in contemporary architecture and the creative intention of conveying a meaning. Specifically, this book attempts to address the questions:

How do architects generate form?

How to create new forms with all of the technological advancements, but maintain all of the conceptual, technical and aesthetical aspects?

What are the implications of the interdependence of form and space?

New theoretical discussions especially leave out form as it mainly evokes a negative connotation through one-sided or superficial analysis that regards geometric features or concentrates on phenomenological, compositional, or aesthetic concerns. What is current nowadays, is that there is a need for a critical approach towards the understanding of contemporary tendencies in terms of a mutual correlation of form, space and meaning, and the compositional implication they have in the design process. A thorough critical approach in the delineation of architectural design by simultaneously extracting the underlying features of the form-space interdependence.

The challenge of determining the levels of complexity in this interdependence prevails because the form-space relation exists in the physical world, while the meaning responds to the creative intention of embodying a meaning and the connotation it has in the individual experience. Pallasmaa declared that there is not any more complex endeavor than architecture. He stated in his article *The complexity of the simplicity, the inner structure of the artistic image* that: "The difficulty of determining

something as simple or complex in an artwork, arises from the fact that any artistic image – painting, poem, a piece of music, or architectural space – exists simultaneously in two realms, firstly as a material phenomenon in the physical world, and secondly as a mental image in the unique individual experience"[6]. Hence, in order to completely understand the underlying correlation of form and space in contemporary design, it was necessary to underpin the core aspects of the trajectories of a design process, from the level of complexity in the design process to the conceptual approaches of current design attitudes, and simultaneously from the built work towards individual concepts.

Starting with the identification of the dichotomy of form and space in theory and practice towards contemporary architectural design, the first chapter of the book represents the theoretical context of this dichotomy analyzed from different realms. It is divided into three main themes: the theoretical context on the primacy of form and space, the determinants of the design process, and the conceptual framework for the understanding of contemporary practice.

Preconditions for the primacy of form and space, from aesthetics to architecture, deals with the identification of the state of the art, examining chronologically the preconditions of the primacy of form and space in various theoretical considerations from aesthetics, philosophy, literature, art and architecture. It questions: how do we define the dichotomy of form and space in contemporary architecture? To comprehend this dichotomy, it was necessary to trace the significant ideas from where the correlation of form and space embarked. Starting from the aesthetic theory of Hegel[7] towards the conjunction in the theory of Hildebrandt and Schmarsow[8] to the diverse notions of space and form in 20th-century modernism to Robert Venturi's *Complexity and Contradiction in Architecture*[9]. The evolution of compositional implications in practice however, as a matter of form and space relationships, was highly influenced by theoretical considerations, social, cultural, and political tendencies as well as a result of a striving to redefine architecture. Furthermore, this part focuses on the diverse methodological approaches that were used in the identification of the formal and spatial qualities in architectural design and the tools used in depicting the design process.

Determinants of architectural form addresses the levels of complexity in the creative design process and the paradigm of the concept of form in this broadest sense from theory towards practice. The objective is to answer the question, what determines the complexity of the architectural form in the design process? *The six determinants of architectural form* by Paul Rudolph are identified and associated with these levels of complex-

ity in the design process[10]. The overall purpose of this part is to examine the preconditions for a comprehensive design approach that architects face in the design process and to identify the levels of the complexity of architectural form. To elaborate on the correlation and importance between the form and each of these determinants in the design approach. These determinants not only answer to what impacted the built form, but as an assessment tool enable an in-depth understanding of how they contribute in reshaping the built form.

Conceptual framework discusses the possibility of a conceptual taxonomy that could address the tendencies of contemporary architectural practice since the current design trends require a conceptual definition. This chapter aims to answer the question of what could be a possible framework of the contemporary practice? The conceptual framework is grounded on the recurrent phenomenon of architecture serving as an encounter of diverse experiences, secondly the heterotopias of space or otherness of such new spatial qualities of contemporary society as diversity, versatility, transformability, and adaptability, and in terms of meaning the symbolic and iconological value of the building design. This further led to the six distinct conceptual approaches that evolved as a result of an empirical multiple case study analysis.

Norberg-Schulz stated that there is a lack of a conceptual definition since architectural space was analyzed from a phenomenological point of view or as a language[11]. The term *concept* means an idea, but represents also the universal values from the design process to the final built work and refers to the underlying design intention. Furthermore, Peter Eisenman noted at the Conceptual Architecture Symposium 1975[12] that a concept means a set of instructions that we can envisage as a guideline embedded in the final building design, but denote a unique link leading toward the author.

Multiple case studies through empirical observation indicated several main intentions or phenomena of architecture. Specifically, through the process of regrouping multiple case studies, based on similarities and contrasts and determined by the final formal logic, without a deep dive into the specificity of the location, or design preconditions. This implies that in the correlation of form and space (content), contemporary architecture aims to provide a peculiar aesthetic experience and to offer new spatial qualities. On the other hand, in the correlation of form and meaning, it aims to point out the significance of the symbolic and iconological value of the built form.

Further underpinning of the design themes revealed the classification of the three themes into two concepts denoted by opposing design atti-

tudes. The six extracted concepts are characterized in diverse manners by a specific correlation of form and space, while each of these concepts is elaborated from its theoretical origin to modernist precedents already examined in architectural theory.

The second chapter, "Contemporary architectural expression", deals with the immaterial aspects of the building design, specifically the symbolic and iconological value through two distinct conceptual approaches that relate to the visual appearance in different manners. These concepts are preceded by a brief introduction of the correlation between architecture and expression and its symbolic qualities. Further clarification is made of the terms *symbol*, *icon*, and *index* as well as the link between signifier and signified as part of the semantic-syntactic analysis. The concept of *mask* refers to an imaginative representation of the architectural enclosure with multivalent qualities of the figure, while *mimesis* resembles a symbolic idea or imitation of already known qualities.

The third chapter, "Heterotopia", explores the unique spatial qualities that emerge as a consequence of the needs and requirements of contemporary society. These new spatial qualities are showcased in the examples of two conceptual approaches: the *aleatoric design* denoted by transformability and adaptability, whereas the concept of *aporia* refers to an architectural paradox of the correlation of form and space. These heterotopic conditions (*aleatoric design* and *aporia*) are represented with a brief overview and further in-depth theoretical concerns.

The fourth chapter, "Contemporary aesthetic experience", focuses on the concept of *estrangement* and *unity* in contemporary design, where the aesthetic experience represents the essence of the architectural work. It examines the notion of architectural experience in several precedents with a clear theoretical outline. The concept of *estrangement* refers to an alienation of the architectural work in its totality, while the concept of *unity* denotes a unified architectural composition.

Since contemporary architectural works indicate a manifold of possibilities of architectural form, the book deals with the application of an aesthetic analysis to one case study with the intention of demonstrating the richness of the space-form interdependence. The aim here is to define a clear outline of a possible comprehensive aesthetic analysis through elaborated analytical drawings and critical observations. The building of the Chichu Art Museum is used as an applicative case to define the levels of complexity in terms of architectural expression and its symbolic values, architectural elements and its spatial qualities, and the peculiarity of the architectural experience. The Chichu Art Museum is used since the building is completely embedded underground so that the architectural

expression is reduced to its extreme, it is composed of elementary elements and offers a meticulous experience. The analysis consists of an aesthetic delineation of the case study, from the design process to the final architectural work.

The last chapter summarizes the final remarks, design guidelines, and strategies that could be applied in future design approaches. It focuses on the advantages of the application of these guidelines that imbue architectural work with an added value and reflect upon the necessities of contemporary society. It showcases a critical review of the design evaluation that emerged from the architectural analysis. It defines the outlines of the research in terms of its potentiality in architectural theory and practice. Secondly, it demonstrates the limitations of the research based on the vast plurality of architectural production. Furthermore, it summarizes the disadvantages of the research, since it can be considered that the conceptual framework dilutes the differences and oppositions of the variety of design intentions. Future implications in theory and practice attempt to highlight the originality and implications this research has, since it deals with the two fundamental aspects of the architectural realm. It indicates the possibilities of an analytical and evaluation tool for architectural work. Precisely, it elaborates on the possible future implications, in terms of extending the framework, using it as a design tool, or as a means for measuring the aesthetic value of built work.

The methodological framework in this book was developed not to discard any of the compositional, spatial, and phenomenological aspects that affect the architectural design as it tries to link the architectural form as a constant between the process of creativity and the intuitive proposal, towards the final built work. The idea and constraints of the methodological approach aimed to emphasize the variety of the architectural production and not to delimit the architectural work to a specific geographic location or one author. Restricting the geographical location as a selection criterion would reduce this research to a one-sided, or culturally conditioned architectural design. Limiting the architectural work to a specific author would contradict the diversity of the creative process and the different attitudes that depict the architectural practice.

The book *Built Ideas* attempts to clarify the dichotomy of *form* and *space* in the universal understanding of the architectural work. It proposes a conceptual framework of these essential terms in the architectural realm, and clarifies its significance in the complex design process. Ultimately, this book does not offer definite answers but aims to unfold and integrate the discourse on form and space interdependence, as the fundamentals of the discipline, into contemporary architecture.

Notes

1. Vitruvius, *The Ten Books on Architecture*, Harvard University Press, New York 1914.

2. Robert Venturi, *Complexity and Contradiction in Architecture*, Museum of Modern Art, New York 1966, p. 17.

3. See Cornelis van de Ven, *Space in Architecture: The Evolution of a New Idea in the Theory and History of Modern Movements*, Van Gorcum, Assen 1980, p. 37.

4. See Israel Knox, *The Aesthetic Theories of Kant, Hegel and Schopenhauer*, Columbia University Press, New York 1936, p. 82; Georg W.F. Hegel, *The Philosophy of Fine Art*, trans. Francis P.B. Osmaston, G. Bell and Sons, London 1920. Original work published in 1829.

5. Valerio Olgiati – Markus Breitschmid, *Non-Referential Architecture*, Park Books AG, Zurich 2019.

6. Juhani Pallasmaa, *The Complexity of Simplicity: The Inner Structure of the Artistic Image*, in Roman Kossak – Philip Ording (eds.), *Simplicity: Ideals of Practice in Mathematics and the Arts. Mathematics, Culture, and the Arts*, Springer, Cham 2017, pp. 15-26.

7. See I. Knox, *The Aesthetic Theories* cit., p. 82; G.W.F. Hegel, *The Philosophy of Fine Art* cit.

8. See Adolf Hildebrand, *The Problem of Form*, trans. Max F. Meyer and Robert M. Ogden, G.E. Stechert & Company, New York 1907; and August Schmarsow, *The Essence of Architectural Creation*, in Robert Vischer – Harry F. Mallgrave – Eleftherios Ikonomou (eds.), *Empathy, Form, and Space: Problems in German Aesthetics, 1873-1893*, CA: Getty Center for the History of Art and the Humanities, Santa Monica 1994, pp. 286-287. Original work published in 1893.

9. R. Venturi, *Complexity and Contradiction* cit.

10. Paul Rudolph, *The six determinants of architectural form*, "Architectural record", vol. 120, no. 4 (October 1956), pp. 183-190.

11. See Christian Norberg-Schulz, *Existence, Space & Architecture*, Studio Vista, London 1971.

12. Conceptual Architecture Symposium, a two-day event that took place at Art Net, founded by Peter Cook in London, in January 1975, with contributors: Will Alsop, Peter Eisenman, Charles Jencks, Peter Cook, Cedric Price, Bernard Tschumi, David Stezaker, Colin Rowe, Dalibor Vesely, Jo Rykwert, Rosalee Goldberg. Chairman Bob Maxwell. Available at AA School video archive [https://www.youtube.com/watch?v=rqCg1WLUMac&list=PLI1nDzeohfnkM4P71st1-2DuxKaZvO1M8].

I Form and space

aA

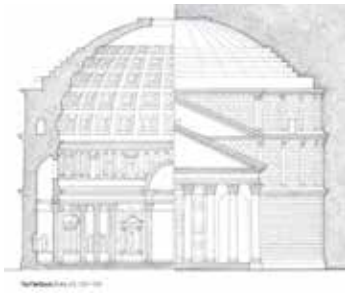


Dichotomy of form and space

Architectural form and space are a major focus in the discourse of design theory, in particular, due to their predominance in contemporary architecture. In various approaches, the notion of architectural space and form conventionally deal with three-dimensional Euclidean geometry. Meanwhile, the course of modern and contemporary architecture has been characterized with other content, resulting in new design attitudes that have affected the traditional idea of conceiving space and form. The contemporary phenomena of production demonstrate that architectural form does not only evolve as a result of the architect's intentions, instead, it transforms throughout the design process in order to fulfill complex requirements.

In the design process, the interdependence of form and space are approaching a radical path as a consequence of changing requirements in a technological era, the increasing production, the need for adapting to space versatility, the computer-based design process, energy efficiency and sustainability, human comfort, and other prerequisites. Indeed, architecture in contemporary society is disposed towards fulfilling complex design requirements, following strict rules of construction, as well as accommodating diverse programs. These engendering contemporary tendencies are portrayed by an architectural space adapted to transient functional needs. In an environment where architecture faces a rigorous path from the initial design to a completed building, the creative design process proceeds through different layers, altering the formal design to fulfill all the demands, and even, in some cases, abolishing all the aesthetic and qualitative aspects of architectural space.

On the opposite page, Rachel Whiteread project, *House*, East London, 25 October 1993.
"Space visualized as its negative; a solid, impenetrable volume. The reversal of the void space into a solid mass renders it almost experientially incomprehensible". Robert McCarter – Juhani Pallasmaa, *Understanding Architecture*, 2012, p.12.



The Pantheon, Rome, A.D. 120-124, representation of a half section and half elevation as a comparison of those two qualities.

In the center of 20th-century discourses on design theory, the prevailing interest in the idea of space and form directed a turn towards modern architecture. Where the idea of space portrayed the main essence in design theory, by emphasizing the comprehension of space as "the purest, irreducible substance of architecture – the property unique to it, that sets it apart from all other artistic practices"[1]. This notion of space and its implications towards architectural practice were first introduced in the theory of Hildebrand and Schmarsow in the 1890s, emphasizing that space serves as a prerequisite for understanding form[2]. Meanwhile, with the intensified impression of architecture as an art of spatial design, the issue of the duality between space and form prevailed as an important component of opposing points of view. In particular, the various theories dealt with diverse reinterpretations of transient meanings, but also with the representation of form and space. This consequently led to the creation and perception of architectural space to be altered. According to Ven, "Only when the idea of space was introduced as fundamental to architecture, the architect was able to de-emphasize the application of historic styles, or the treatment of matter in favor of its content: the space within"[3]. And only then was it possible to turn towards an architecture of new spatial designs in order to elicit a social and cultural impact.

The opposing, and at some point contradictory, notions of space and form indicate the variety of their enormous significance in the domain of architecture. Above all, these different ideologies had a decisive impact both in setting precedents, as well as conveying ideas for further inquiry. Giedion stated that "Throughout history there persist two distinct trends – the one toward the rational and the geometrical, the other toward the irrational and the organic: two different ways of dealing with or of mastering the environment"[4]. However, despite the fact that these heterogeneous and elaborated understandings of form and space are not absolute categories, in terms of their conception, they are not coherent with the transitional demands and technological advancements that depict contemporary society. In particular, the current spatial design process can neither be understood nor analyzed from a modernist perspective, in terms of formal, conceptual, or functional understanding. Especially as the ever-growing impact of technology, rapid production, globalization, as well as changing demands of occupants, lead to a shifted and expanded field of spatial possibilities. Architecture is moving beyond strictly defined principles, rooted in historic styles, towards an open field of diverse spatial identities and narratives.

This chapter will discuss the dichotomy of form and space in multiple realms such as aesthetics, philosophy, art, and architecture, which lead

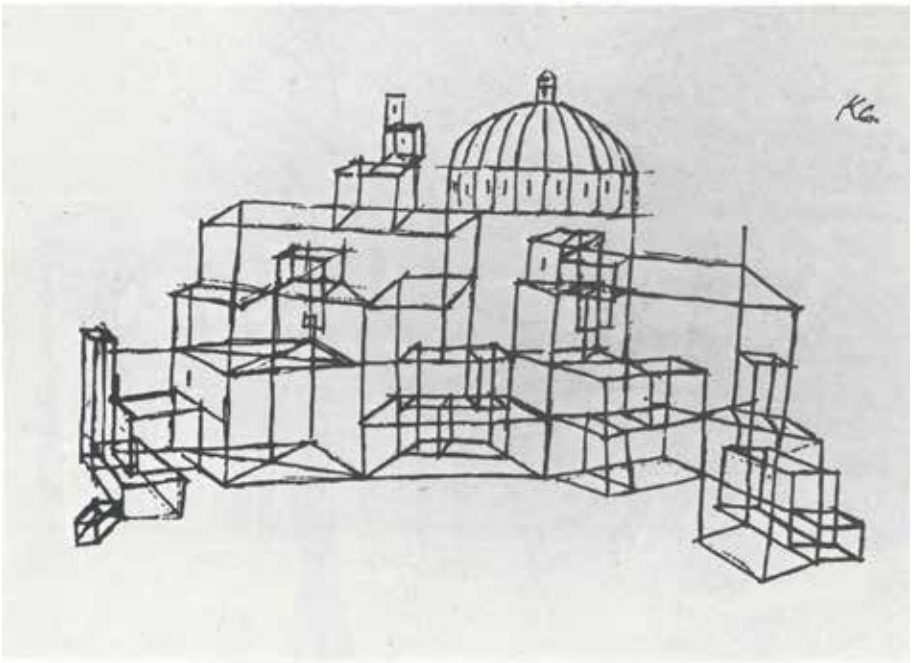
to the preconditions for an understanding of the design process. Secondly, it will clarify the interdependence of form and space as inherent aesthetic qualities of the creative work that imply various manners of design approaches. Starting from the aesthetic theory of Hegel towards the idea of space of Semper, to the conjunction of space and form in the theory of Hildebrand and Schmarsow, to diverse notions in 20th-century modernism and Venturi's definition of *complexity* in architecture[5]. Besides presenting the conceptions of space in the 20th century grounded on theoretical consideration to spatial design in recent trends, this chapter will critically evaluate several methods of analyzing this interdependence and propose an attempt towards the understanding of contemporary tendencies of spatial design. A conceptual definition grounded on the form-space correlation in the qualitative aspects of the design could provide a new framework for assessing the complexity of recent phenomena and contribute to the field of architectural design by means of clarifying the interdependence between space and form.

Preconditions for the primacy of form and space

Preconditions for the primacy and meaning of architectural space and form were mainly associated with German aesthetic philosophies[6], which later dispersed into the architectural realm[7]. For instance, Hegel initiated the congruency of content and form[8] in art history by introducing "an aesthetical theory governed by the judgment of *form* as expression of *content*", where the beauty in art was achieved through the "sensuous presentation of an Idea"[9]. According to Ven, "for the first time in aesthetic theory, the space within, enclosed by an architectural boundary, was recognized and identified as the necessary content", and where the interpretation of form was conceived "as an expression of its inner content: space"[10]. The consideration of such a notion had further influence on some of the leading protagonists of the Modern movement[11] and initiated an aesthetic consideration of the creative work. On the contrary, Kant in his *Critique of Judgment* emphasized the aesthetical judgment of art, and the accomplishment of beauty, exclusively related to the judgment of form as the basic category[12].

Nevertheless, the deliberation of the idea of space in architectural aesthetics was firstly introduced by Gottfried Semper[13], whose theories influenced the beginning of the Modern movement in the 20th century. In opposition to Hegelian theory but under its influence, he underlined the idea of the origin of form, by emphasizing the value of architectural matter. In particular, through the identification of space, as Forty ex-

Paul Klee, *Saint A in B*, 1929, in Will Grohmann, Paul Klee, Harry N. Abrams, 1967.
"The *Idea of Einfuhlung*, at the end of the nineteenth century is inseparably connected with the rise of the Idea of Space in architecture [...] Lipps came with a theory of space that enabled him to reduce to abstract schemata. This theory holds that the *shape* of the object is its *mass*; the *form* is what remains if we eliminate mass: an abstract spatial structure". Cornelis van de Ven, *Space in Architecture*, 1980, pp. 78; 81.



plains, "Semper proposed that the first impulse for architecture was enclosing spaces"[14]. It represented a milestone in the further development of architecture as a spatial study and the inception of discourse over space and form in architectural theory. Furthermore, in the *Prolegomena*, Semper identified that aesthetical appreciation is governed by the idea of space, concluding that formal beauty emerges from three main determinants symmetry, proportionality, and direction which represent spatial extension in three manners: width, height, and depth[15]. He explained that these determinants "where they do not emanate from the beautiful object itself, must still be reflected in it, must still condition its particular configuration"[16]. In particular, his aesthetic exploration was linked and grounded upon the purity of Renaissance architecture, with its compositional order and symbolism, as a means for new expressions in architecture.

There can hardly be any doubt that progressive architectural research demands adequate tools, that is, a valid thorough method for the complex requirements of an authentic aesthetic evaluation of form, and a true insight of genuine experience gained through the perception of space. On the level of the idea, it is important that both the concepts of space and form should intersect all levels of the process of architec-

ture ideation, the traditional approach to these two aspects of creative practice tends to express continuity from the meticulous experience to that ideal.

Specifically, as far as the contemporary design process is concerned, there is no reason why the conceptualization of the design process should not be part of pure research, and above all, why it should not act as a critical stimulus to present-day inquiries, so as to address the production of culture. Based on similar premises, the interrelation of space and form tends to point to new directions in architecture, in order to broaden our knowledge and expand our horizons in terms of theoretical approaches and practical experimentation within the design process.

Interdependences of form and space: aesthetic appreciation

Relevant theories of the interdependence of form and space were selected chronologically with an emphasis on the diverse form-space relations in terms of aesthetic appreciation, where this correlation of ideologies interacts or overlaps. Starting from the conjunction of form and space, found in the work of Hildebrand and Schmarsow, to diverse methodological approaches which emerged out of this aesthetic deliberation and developed several attempts to analyze creative work of distinct formal or spatial qualities. German architect August Endell introduced for the first time a new meaning associated with the term *form* by identifying it, apart from shape or mass, with the matter of perception[17]. While the notion of space, as the purest substance of architecture, appeared as a synonym for volume or void, portraying a physical formation and a mediator through which we perceive our surroundings[18].

Meanwhile Endell, who recognized architectural space as the negative of form, argued that the conjunction of form and space as opposing categories came upon the occurrence of the theory of Hildebrand and Schmarsow in 1893[19]. This was a turning point in creating a direct connection between form, space, and architecture, in particular where architectural space was perceived as essential for understanding form[20]. Consequently, signifying a milestone on the space and form continuum in the discourse of architectural theory and practice[21]. Hildebrand in his book *The Problem of Form* stated "we must, therefore, consider general spatial ideas and the perception of spatial form as the most important facts in our conception of the reality of things"[22]. This shift in the recognition and identification of the interdependence of form and space, was grounded in the consideration that form is identified and conveyed through the experience of space.

Following the notion of aesthetic appreciation of architectural space from within, Schmarsow "differed most from other theorists in his insistence that bodily movement through space rather than stationary perception of form was the essence of architecture"[23]. Contrary to the dominant idea of form, in his book *The Essence of Architectural Creation*, Schmarsow declared that the essence of architecture is spatial creation. He stated that "Our sense of space (Raumgefühl) and spatial imagination (Raumphantasie) press toward spatial creation (Raumgestaltung); they seek their satisfaction in art. We call this art architecture; in plain words, it is the *creatress of space* (Raumgestalterin)"[24].

Unlike Schmarsow's and Hildebrand's idea of space, Heinrich Wölfflin in *Principles of Art History* recognized the coherence of form and matter, by identifying it as the core of architectural practice. Additionally, he developed a methodology for formal analysis, contrary to a spatial design process, he emphasized and proposed a planar methodology, identifying five opposing visual concepts as "linear vs. painterly, plane vs. recession, closed form vs. open (tectonic vs. atectonic), multiplicity vs. unity and clearness vs. unclearness (absolute vs. relative)"[25].

Furthermore, Frankl developed a scheme for an analysis of space[26], by extending the division of actual and perceptual form as proposed by Hildebrand into "spatial form – the plan, corporeal form – the physical articulation that creates the space within, visible form – the viewer's optical and physical experience within the structure, and purposive intention – the function for which the structure was built"[27], emphasizing a functionalist approach to spatial design. He further explains the means towards perceiving space as "The visual impression, the image produced by light and color, is primary in our perception of a building. We empirically reinterpret this image into an idea of corporeality, and this defines the form of the space within. Once we have reinterpreted the optical image into an Idea of space enclosed by mass, we read its purpose from the Form of space. We thus grasp its spiritual import, its content, its meaning"[28].

These ideologies of space, where architectural form emerges directly as a consequence of its purpose, not only represented a tool for analyzing architectural form, but also created a link to an iconological interpretation of architecture. Especially, where aesthetic appreciation is gained through reading the symbolism of the creative process as identified by Ernst Cassirer and Erwin Panofsky[29]. It represents an analytical study of images and symbols, in order to understand the meaning of artistic content. Panofsky expresses this as "an insight into the manner in which, under varying historical conditions, objects and events were expressed

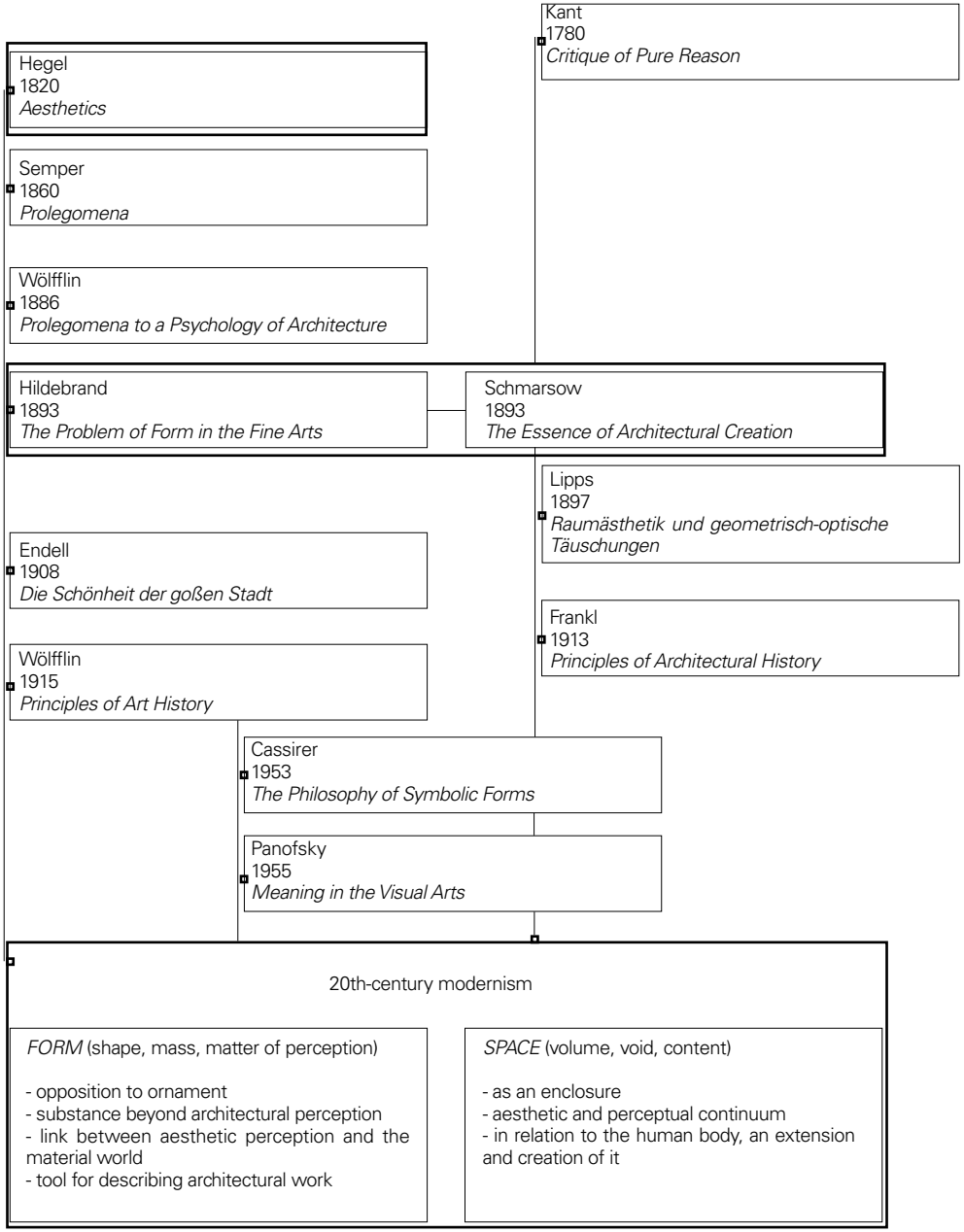
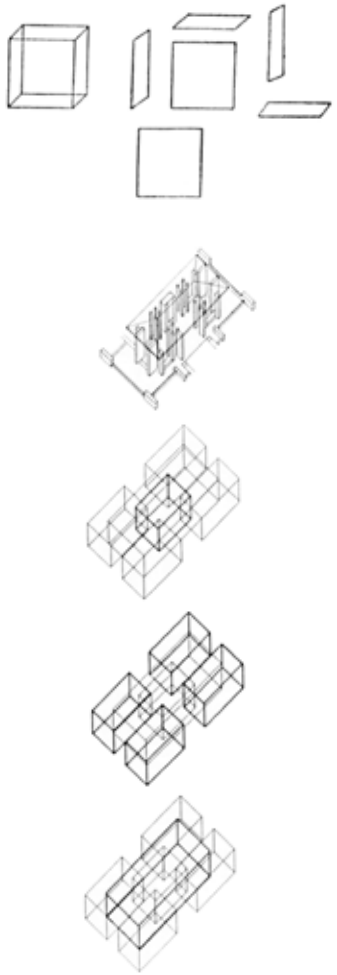


Diagram of the trajectory of form and space dichotomy in theory.
Drawing by the author.

One of Moholy-Nagy's various explanations of architectural space in The New Vision.
Above, László Moholy-Nagy, V*olume and space relationships*, 1928.
Below, a design interpretation of the "organic" line-idea in the example of Frank Lloyd Wright's Darwin D. Martin House. Drawing by Kevin Nute, *On the Wright lines*, published in "The Architects Journal", no. 14 (August 1991), pp. 20-23.



by forms (history of style)"[30]. This variety of different notions of form and space meanwhile generated the ascendancy of one over the other dependent on the ideological background. They defined its mutual importance in the creative realm and established diverse tools in analyzing architectural work, in the sense of describing aesthetical appreciation, its representation, conceptual, functional, or symbolic meaning.

Conceptions of space in 20th-century modernism

Within the 20th century, modernism brought new perspectives to the significance of spatial design, disregarding the historical and preconceived standpoints in practicing architecture, and the formal and compositional rules in defining space. Modernist discourse and practice were instead based upon the Triad of the indispensable hegemony of form, space, and design, which were essential for contemporary design tendencies to emerge. Endell emphasized the importance of form in the design process by stating that "The architect must be a form-artist; only the art of form leads the way to a new architecture"[31].

In general, within modernism, by following and adopting the opposing ideas of this triad, several concepts of form and space appeared. According to Forty, the form was conceived and interpreted as four main ideas, either as opposition to ornament, a substance beyond architectural perception, a link between aesthetical perception and the material world, or a tool for describing architectural work[32]. Moreover, architectural space was perceived as an enclosure, or an aesthetical and perceptual continuum, or in relation to the human body, an extension and creation of it[33]. These essential ideas emphasized the evolution of architectural practice towards a new direction. Especially since, without the understanding of these categories, the field of design would remain unknown, as it would not be possible to understand nor analyze architectural work.

Meanwhile, the abolition of inherited styles not defined by borrowed motives and determinants turned the design process towards the creation of new spatial configurations. Gandelsonas argues that: "The rules represented in classical architecture by the orders, the notion of beauty, and rational Cartesian principles are abandoned and replaced with an ideology that stresses the importance of relationships rather than shapes, leaving architecture with a highly diffuse lexicon and an entirely new syntax"[34].

Architects used these new possibilities in creating and shaping space, consequently leading to new directions in the design field. For instance,