

Transitions in Architecture
Analysis and Design Tools

Spaces of Projects

Till Boettger

BIRKBECKER



Threshold Spaces

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Foreword

A central task for architects is designing spaces as a medium for a wide range of uses and functions. When realized as three-dimensional staging, usable space emerges with its full spectrum of spatial experiences. This backdrop explains the almost endless literature on the principles of spatial design and the abundance of attempts to analyze perception of spatial phenomena. It is therefore surprising that this publication by Till Boettger represents the first examination of the “essence and potential” of a familiar and yet overlooked and much neglected space. The threshold space is an integral element in every architectural project. Until now, almost no attention has been given to this special functional element; rather, it has remained a common blind spot. The space is almost never listed as a separate functional unit in a space allocation plan or in design competition documents, to say nothing of the possibility of providing specific requirements regarding size, function, or perhaps even the desired atmosphere. At the same time, the threshold space, as an “articulation between spaces, i.e. between outside and inside, between one space and another (between one reality and another)” (Robert Venturi), is literally a “key space” that can “open up” or “close off” access to a building.

The main aim of this text is the presentation of design parameters for the staging and organization of the sensitive and ambivalent spatial zone of the threshold. It essentially seeks practical answers, in the form of design tools for the designing architect, to the following questions: How can spaces be opened without closing them? How can we let people see what we want them to see of the inside of a building and still protect it? Can surveillance and energy-efficiency measures be integrated into the design as welcoming gestures? What information prepares users for what is to come?

Three central questions that build on one another follow from the others: What is an architectural threshold? How can a threshold space be defined? What functions does a threshold space perform in the access to and the experience of architecture?

Three chapters, written clearly and above all in the language of architects, provide comprehensive theoretical answers to these questions as well as practical answers that can be applied in the design process.

Fundamental principles are established, beginning with the terminology and the phenomena of spatial perception, then a description of the threshold space in a historical context, and finally attractive and refreshing additions in the form of examinations of threshold installations from the art world. In analogy to the medium of an architect's design process, the second chapter analyzes individual design parameters in the context of outstanding and exemplary projects. Deductively reduced "design sketches" facilitate direct comprehension. In the final chapter, the much lamented gap between (architectural) theory and (design) practice is graphically and constructively closed. The "collection of principles and strategies" is used to formulate individual design aims and also develop planning tools for the practical shaping of the "spatiality of transition."

One exceptional quality of this study is the development of design tools for the design process. The work is an insightful building block for bridging the cardinal gaps between theory, the design process, and the recognition of an underappreciated space. In view of the challenges awaiting future architectural projects with changing scales, such as transport buildings (for example, airports, train stations) or facilities for trade and commerce, or even completely new organization of functions, the changing tasks of public buildings including museums and exhibition halls, it is particularly fortunate that this publication also offers, for the first time, practical design tools to facilitate and execute attractive, high-quality threshold spaces.

Egon Schirmbeck
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Introduction

Creating Spaces and Thresholds _____	10
Topic _____	11
Aim _____	12
Outline and Structure _____	13

Appendix

Index _____	150
The Author _____	153
Acknowledgments _____	153
Illustration Credits _____	154

1. Definitions of Thresholds and Space

The Idea of Space and Spatial Perception ____	16
The Percipient Human _____	17
On the Searching Eye and the Searching Body _____	18
Perception of Movement Spaces _____	19

Historical Threshold Spaces _____ 20

Thresholds—Doorsills _____	21
The Acropolis _____	22
The Pantheon _____	25
The Gothic Portal _____	26
Japanese Homes _____	28
Arcades _____	30
The Dissolution of Floor Plans in the Twentieth Century _____	32

Transitions in Art _____ 33

Dan Graham: Present Continuous Past(s), New York, 1974 _____	34
Dani Karavan: Passages, Portbou, Spain, 1990–94 _____	35
Bill Viola: Threshold, Frankfurt am Main, 1992 _	37
Lin Yilin: Safely Maneuvering across Lin He Road, Guangzhou, 1995 _____	39
Dan Graham: Fun House for Münster, 1997 _	40
Olafur Eliasson: Green River, Stockholm, 2000 _	42
Till Boettger, Schwellenraummaschine, Weimar, 2010 _____	42
The Threshold as a Spatial Phenomenon ____	45

The Threshold Space _____ 46

Grenzen (Borders/Boundaries/Limits) ____	46
Schwellen (Thresholds) _____	47
Threshold Spaces _____	48
Equipment in Threshold Spaces _____	50
Threshold Space Closures _____	51

2. Threshold Space Analyses

Spatial Notation and Spatial Analyses _____	54
Space as Experienced/Represented Space ____	55
Analysis Techniques according to Schirmbeck _	55
Adaptation of the Method _____	57
Threshold Analysis Parameters _____	58
Selection of Objects for Analysis _____	59
Carpenter Center for the Visual Arts in Cambridge, Massachusetts _____	61
Le Corbusier, 1961–64	
Neue Nationalgalerie in Berlin _____	69
Ludwig Mies van der Rohe, 1962–68	
Museu de Arte (MASP) in São Paulo _____	80
Lina Bo Bardi, 1957–68	
Museum für angewandte Kunst in Frankfurt am Main _____	87
Richard Meier, 1979–85	
Fondation Cartier in Paris _____	95
Jean Nouvel, 1991–94	
Casa da Música in Porto _____	102
OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005	

3. Threshold Space Design Tools

Counterbalancing Pairs of Opposites _____	110
Open—closed _____	110
Delimitation _____	110
Sequence _____	112
Geometry _____	113
Topography _____	114
Materiality _____	115
Furnishings _____	116
Counterbalancing Ambiguity _____	117
Phases and Organization _____	122
Recognition _____	123
Approach _____	123
Reaching _____	123
Arrival _____	124
Orientation and Information _____	124
Monitoring _____	124
Exit _____	125
Sensitive Guidance _____	126
Positioning Thresholds _____	127
Private Realm _____	129
Essence and Potential _____	131
Spatial Potential _____	131
Increased Complexity _____	131
Access Control—Energy Efficiency _____	132
The Potential of Threshold Space Design ____	132
Application and Outlook _____	133
Analyses _____	133
Threshold Space Designs _____	140
Aspirations _____	146

Introduction

Every day we cross a number of spatial boundaries, moving from one zone to the next. We live in transition. Architecture builds on transition. Thresholds interrupt spatial boundaries for a transition from one zone to another. The phenomenon of the threshold thrives on spatial ambivalence. Thresholds open up spaces and organize transitions. At the same time they are read as part of the boundary and can be perceived as a barrier. A space that is delimited by thresholds and space-defining elements can be termed a threshold space.

Threshold spaces are required for access to the actual functional rooms. They provide a preface to perception of architectural space. They live in the sequence of what lies in the past, present, and future. This means: threshold spaces also live in the expectation of what is to come.

Creating Spaces and Thresholds

“Only man has the faculty to connect and separate what is found in nature, and to do so in the distinctive manner that one is always the presupposition of the other. By plucking two things out of their undisturbed natural state in order to call them ‘separate,’ we have already connected them in our consciousness, have differentiated these two together from what lies between them. And conversely, we can only sense those things as connected that we have previously isolated from one other in some way; the things must first be separated from each other in order to then be united.”¹

In his article “Brücke und Tür” (Bridge and Door), Georg Simmel writes of the human ability to separate spaces—that is, to establish a boundary between them—and the need to then connect them again. With the connection, we create a threshold, a possibility to enter and to exit. Without a transition point, there is no connection between the interior and the exterior spatiality. The design of thresholds is a direct result of the need to create spaces. Usable rooms are designed to be entered, passed through, or filled. Thus we can understand the interests of those who want to design, plan, create, analyze, observe, or utilize space.

Spatial thresholds are perceived, recognized, and used in spatial contexts. Wolfgang Meisenheimer calls them “tools for architectural choreography”² and identifies the narrative moment in the threshold. He emphasizes the dual nature of thresholds, namely that they can connect and separate. Architects react to this distinctive characteristic in the design process. “Threshold details are the most sensitive, elegant repertoire in architectural language.”³

Thresholds often announce and preface entrances to spaces. They are integrated into the sequence of arriving and, with their braking properties, slow down those approaching. In particular, thresholds in entrance areas organize the transition and mediate between outside and inside. In their extended form or in summation, thresholds also create spaces. Together with space-defining elements, they establish the staging for threshold spaces.

As transition points, threshold spaces are usually complex spatial structures. In terms of perception, they are a challenge to the interacting human senses. Often threshold spaces have multiple functions that can be derived from the respective typology of the architecture. Based on its

¹ Georg Simmel, “Brücke und Tür,” *Der Tag, Moderne illustrierte Zeitung* (Berlin) 683, September 15, 1909, 1–3.

² Wolfgang Meisenheimer, *Choreografie des architektonischen Raumes* (Düsseldorf: Fachhochschule Düsseldorf, 1999), Ch. 2–5.

³ *Ibid.*

particular use, each architectural endeavor has particular demands regarding access. Furthermore, additional functions can be integrated into a threshold space, such as those that arise, for example, in information, waiting, or exhibition areas. Threshold spaces are no longer simple anterooms to provide access but rather independent, complex spatial sequences and spatial structures.

Topic

Entrance areas must be opened and closed. This means that their conditions change as they react to different situations. Transitional zones are often those subject to the strictest specifications, since they are known to be weak points. Threshold spaces become complex, sensitive access zones that must allow for a transition. In the *Schwellenatlas*⁴ (Threshold Atlas), devices such as intercoms, peepholes in doors, and body scanners, which all provide control between inside and outside, are first categorized under the term *threshold*. The following questions arise: Do these thresholds compromise the quality of the architectural space? To what extent can these technical thresholds be integrated? What creative concepts can be incorporated into architectural plans in order to find a satisfying design for such a sensitive zone?

The spatial staging or organization of transitions and the particular ways in which modern architecture deals with threshold spaces are fundamental. All architecture organizes access. The zones of architectural transitions are planned, realized, and used. Depending on the design concept, these areas are executed in various ways.

There are designs that deliberately place the focus on thresholds, while others attempt to blur them spatially. The tendency to reduce thresholds and connect spaces more directly with one another is associated with the development of modern architecture. The anticipated pathway, the sequence, is at the heart of the design.

Twentieth-century architects work with an open floor plan that allows for new links between inside and outside and that stages access. The floor plan that had earlier been closed is now broken up by using freestanding panels and supports to organize the space. The concept of an open space is deliberately employed. One of the first to begin to link interior space with the exterior space of the surrounding landscape was Frank Lloyd Wright, in his floor plans for the early villas in Oak Park. The Barcelona Pavilion by Mies van der Rohe is a prime example of this conceptual design, while his Neue Nationalgalerie in Berlin can be seen as a legacy of the guiding principle of an open floor plan. Rather than adding spaces to one another as individual components, continuous spatial sequences are planned. Adolf Loos developed the *Raumplan* (considered spatial ordering). Even strict division into stories loses its meaning. Furthermore, there is less differentiation between service spaces, for example anterooms, and main rooms. Access spaces are assigned additional functions. As a particular form of transitional space, foyers even form multistory spatial structures. The staging of such “movement” spaces culminates in Le Corbusier’s architecture. In designing his spatial sequences, Le Corbusier began with motion and assigned the sequence of the spaces additional functions beyond access. The inside is turned outward. The threshold is shifted due to the breaking down of the floor plan. The turning outward of the inside becomes a dogma. Ambivalence is felt between the desire to protect the interior space and to open it up as much as possible.

⁴ Institute for the History and Theory of Architecture at ETH Zürich, *Schwellenatlas*, ARCH+, 191/192, 2009.

In addition to designing a sequence, architects must pay particular attention to the security and control of spaces, in other words to the design of thresholds. Modern architects work with opening to the outside. They attempt to blur the boundary between inside and outside. Views into the interior of the building provide a direct approach. The relatively recent preference, however, for an uninterrupted view runs counter to the desire for total control. The exact position of threshold space equipment for control of the spatial sequence should already be determined in the planning process. Given constantly changing security systems, specifications can only be laid down to a limited extent. The result is the search for flexible furnishings that provide security in the entrance area and can be adjusted to deal with both expected streams of visitors and future technical innovations.

Furthermore, specifications regarding moderate energy consumption and active energy generation are changing building design. These requirements apply in particular to the sensitive space of the entrance. It is a question of the strategic position of the threshold space with regard to the architecture. On the one hand, energy loss should be kept to a minimum, but, on the other hand, active use of the threshold space must be possible.

Thresholds and threshold spaces are thus often marked by opposing forces and requirements, which should be carefully examined. It is a matter of the staging and organization of transitions and pathways. The following questions arise: How can spaces be opened without our first having to close them? How can we allow glimpses into the inside of a building and yet also protect it? Can access control measures be integrated into the entrance area as welcoming gestures? What information and what staging can serve as preparation for what is to come?

Aim

This work is a quest for the essence of a threshold space and its capabilities. The use, interpretation, and design of transitions are clarified and newly defined based on the spatial concept of a threshold space. I hope my methodology can assist in responding to the increasing complexity involved in large buildings. The aim is to provide a useful orientation guide that recontextualizes the visitor in the space. To achieve this, a representation is needed that can describe and clarify transition situations and their spatial design elements between spaces. By analogy to an architect's design sketches, I develop diagrams. Spatial transitions are illustrated in order to come nearer to the "threshold moment." The staged transition of a person through a threshold space is related and elucidated. I present various principles and elements for the design, organization, and perception of threshold spaces that can be understood as threshold space tools.

In projects from the twentieth century to the present, treatment of threshold spaces is often inadequate. Sometimes the spaces are kept very compact, based solely on economic considerations. Some transitional spaces have had to be retrofitted due to new technical requirements and as a result have lost their particular spatial qualities. Threshold spaces should not be thought of simply as "technical systems" designed to fulfill technical requirements.

Architects can make use of form-giving means that blur thresholds without neglecting transition. Threshold spaces exist that have no clearly perceptible thresholds. Through the use of transparent facades, the changes in entrance areas, which as a rule provide initial orientation, are particularly noticeable. The question is whether the desired transparency indeed makes it easier to "read" a threshold space and orient oneself in it. The goal is also to determine what role the search for transparency plays regarding the blurring of the threshold. Jean Baudrillard puts it well:

“Take the idea of transparency, for example. It’s something extraordinary that expresses the play of light, with something that appears and disappears, but at the same time you get the impression that it involves a subtle form of censorship. This search for ‘transparency’ with which our era is fascinated is at the very least ambivalent in its relation to power.”⁵

An understanding of threshold spaces can make us conscious of how we move in a state of “between-ness.” A clear focus on passages through a threshold space can prepare us for spatial experiences and thus provide us with a deeper insight into the associated architectures. Threshold spaces should be used as perceptual and cognitive architectural access to immersion in architectural experiences. The design of threshold spaces therefore determines the “depth of immersion” of the atmospheres to be found there. The sensitive spot where we change from zone to zone becomes a stage and an indicator.

Outline and Structure

This book is divided into three chapters. In the first chapter I define the space to be considered. Here, the sentient human being provides the focus. Those human perceptual abilities are determined that play a primary role when we cross thresholds or threshold spaces. I subsequently anchor the topic of “threshold spaces” in the context of architecture history by identifying and presenting historical examples of threshold spaces. I then attempt to analyze the threshold as a spatial phenomenon and describe art installations that explicitly deal with thresholds. With the help of these “performances” of space and presentations of thresholds, I derive and define the term threshold space toward the end of the chapter.

In the second chapter, parameters for spatial analyses are identified and applied. On the basis of phenomenological descriptions and spatial diagrams, I develop a threshold space analysis. Architectures from the second half of the twentieth century and the twenty-first century are examined. They are archetypes of outstanding, specifically designed threshold spaces. Characteristic sites and architects are given due consideration in the selection of buildings that can be seen as representative examples. The detailed threshold space analyses are carried out with the help of the following parameters: *delimitation, sequence, geometry, topography, materiality, and furnishings*.

Based on the analyses of the case studies, in the third chapter I develop a collection of principles and strategies for making statements about the spatiality of a transition. Regardless of the spatial configuration of the objects of analysis, the considerations of how to organize a threshold space display similar tactics. A threshold space is strongly determined not only by tension-building counterbalances but also by the sequence in which space is experienced. In its conceptual design, a threshold space ranges between the poles of open and closed and can act, as a result of its intrinsic ambiguity, as a spatial mediator. With the help of pairs of opposites, the variations on individual spatial parameters can be presented and a new form of comparison achieved. Furthermore, the sequence of a threshold space can be divided into the phases *recognition, approach, reaching, arrival, orientation, monitoring, and exit*.

⁵ Jean Baudrillard and Jean Nouvel, *The Singular Objects of Architecture*, trans. Robert Bononno (Minneapolis: University of Minnesota Press, 2002), 61.

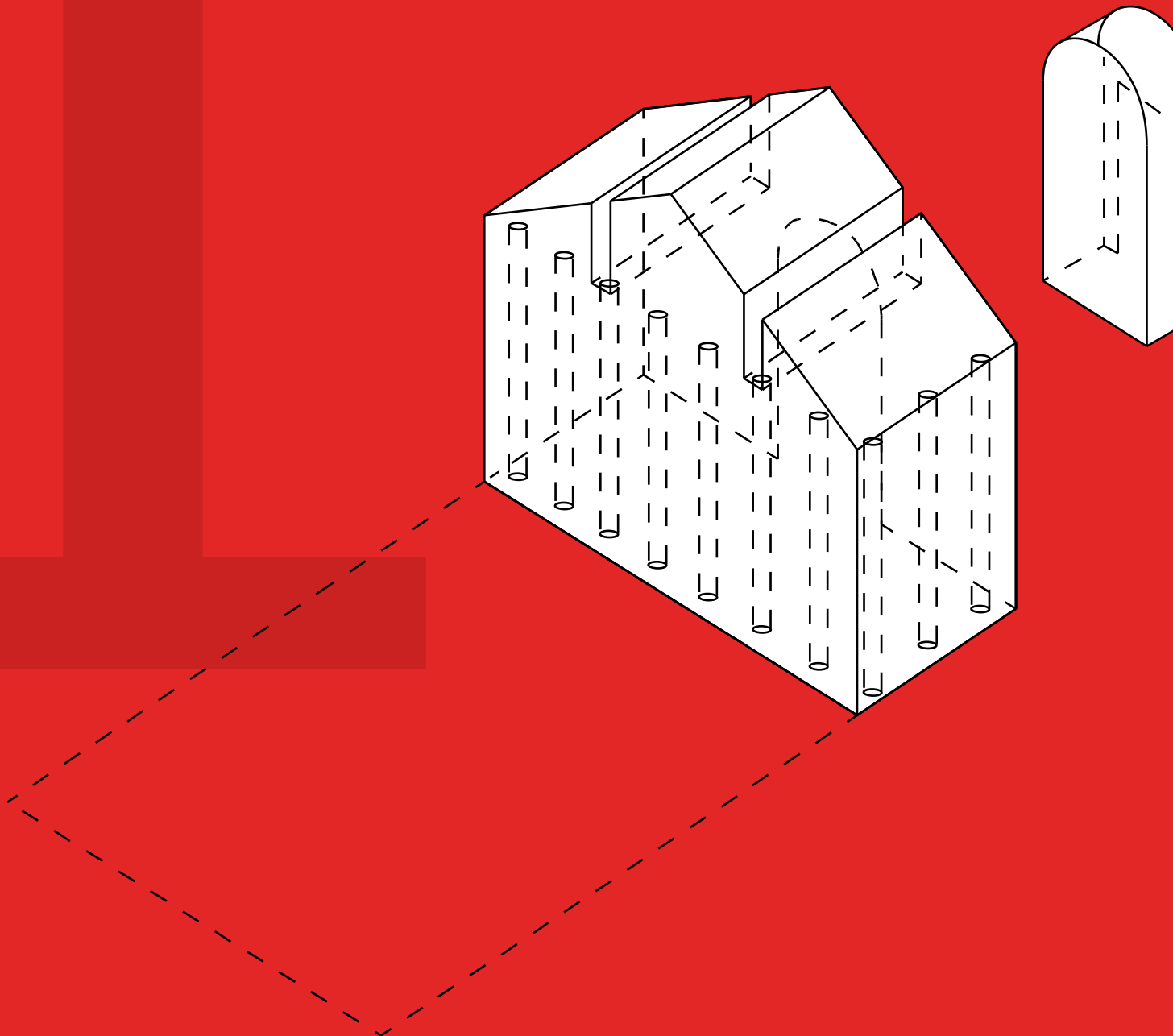
Definitions of Thresholds and Space

The Idea of Space and Spatial Perception

Historical Threshold Spaces

Transitions in Art

The Threshold Space



The Idea of Space and Spatial Perception

In the following sections, space is defined according to Jürgen Joedicke's idea of "between-ness."⁶ The result is the simple and clear interrelationship between space-defining elements and the space itself, which exists in relation to the sentient human being.

The space delimiters create a spatial body that can be entered and experienced. In extreme cases these space delimiters can create a completely closed body of space that depicts a clearly limited volume. A notable example is Rachel Whiteread's work *House*, in which, with the help of concrete, the "space" of a house is cast as an object. The exterior walls become the formwork and allow the space to become visible as a body. The spatial structure, with its indentations and protuberances, is made into visible material. On the other hand, a space can exist as an open spatial body and define itself through delimitations that do not form a closed shell. An example of such a space is Peter Eisenman's Holocaust Memorial in Berlin. This sculpture landscape forms a spatial body that is open on all four sides. A clear cast like that of Whitehead's *House* would not be possible in this case. In imagining a spatial body, the so-called between-ness can be thought of as either a delimited or an open volume.

In addition to the understanding of architectural space as an open or closed body, the development of various ideas that could lead to such an understanding will be explained. The concept of architectural space is characterized by various views of space and in certain ways mirrors the relationship between architecture and space for the respective era.

The first step is the rough division that differentiates between the two basic ideas of space in architecture—presented space and experienced space. Until the nineteenth century, theoretical discussions of space in architecture were consistently carried out on the level of presented space. The discussions were informed solely by aesthetics, proportions, and geometry. In other words, presented space in architecture was analyzed and evaluated. Space was long seen as a static system, one that, since the Renaissance, had indeed dealt with the proportions of the human body, but which had established no direct connection to human perception.

Experienced space distances itself from the concept of purely geometrically presented space but remains in dialogue with this idea of space. The space delimiters are depicted in geometric space and eventually translated into what is built.

It is more a matter of an intermediate state that results from the dynamics between individual, subject, and presented space. Otto Friedrich Bollnow cites Martin Heidegger, who, while he does not differentiate between presented and experienced space, formulates the relationship between man and space on a fundamental level. "The subject (Dasein), if well understood ontologically, is spatial."⁷ Man is the center of attention and forms, in every sense, the starting point. "As this space-forming and space-spreading being, man is however necessarily not only the origin but also the lasting center of his space."⁸

⁶ Jürgen Joedicke, *Space and Form in Architecture* (Stuttgart: Karl Krämer, 1985), 18.

⁷ Martin Heidegger, "Sein und Zeit" in *Mensch und Raum*, Otto Friedrich Bollnow (Stuttgart: Kohlhammer, 1963), 22.

⁸ Otto Friedrich Bollnow, *Human Space*, trans. Christine Shuttleworth, ed. Joseph Kohlmaier (London: Hyphen Press, 2001), 24.

Regardless of this theory, namely that humans form their own spaces or, in other words, their spheres of activity, ranges of movement, or their own private realms, the fundamental principle remains, to my mind, that architectural space is created through perception of the space-delimiting elements. What is even more important is to understand humans as the perceptive beings in the center of any analyses of space and not to confuse presented space with experienced space.

The Percipient Human

Given the changing approach to architectural space in the course of the twentieth century, in which an individual is centered in the space, in the following sections humans must be considered in conjunction with their sensory organs. How can humans perceive space-delimiting elements?

Joedicke describes perception with the help of the concept of the experience of space and cites Aristotle. “Perception occurs via the senses, to which, according to Aristotle’s classical subdivision, sight, hearing, smell, taste, and touch belong.”⁹ He amends this classification system, drawing on James J. Gibson, who combines smell and taste and adds a basic orientation system. What is particularly important for the perception of spatial experience is, according to Joedicke, “the introduction of a system of basic orientation, which includes the sense of above and below, in front and behind, or left and right.”¹⁰ Various studies demonstrate the importance and prominence of this sixth, or rather new fifth, sense.

Alfred A. Tomatis points out the early development of the organ of equilibrium in an embryo. “It [the vestibular system] not only already forms near the beginning of embryonic life, but also begins to be active in this phase.”¹¹

Along with the system of basic orientation, which facilitates perception of a person’s position in space, the stimuli with which his or her sense organs are confronted condense into a complex idea of space. Depending on how their sense organs have been trained, humans achieve an ability to perceive their environment and orient themselves in space. A deciding factor in this interaction of the sense organs is movement. Movement is a prerequisite for properly comprehending complex spaces, and through active appraisal it can help to form an idea of the space and its associated atmosphere in our heads. August Schmarsow speaks of a positive interplay between sense of space and creation of space, which in turn improve comprehension and perception of space. In the course of movements within the space, the use of various sensory organs, which are activated in a consciously selective manner, leads to a clearer perception of the complexity of the space.¹² With the help of this perception “in motion,” the space can be more exactly comprehended and optical illusions are more easily resolved. The atmospheres of a space can only be perceived by strolling through it or by immersion in it.

Schmarsow cites St. Peter in Rome as an example. He sees the form of Bernini’s colonnades there as the true consummation of the ensemble. The colonnades are described as the essential spatial completion as they provide spatial depth and form an invitation to stroll about.

⁹ Jürgen Joedicke, 9.

¹⁰ Ibid.

¹¹ Alfred A. Tomatis, “Der Klang des Lebens”, in *Von mir aus ... Bewegter Leib—Flüchtiger Raum*, Manja Leyk (Würzburg: Königshausen & Neumann, 2010), 38.

¹² August Schmarsow, *Der Werth der Dimensionen im menschlichen Raumgebilde* (Leipzig: Hirzel, 1896), 44–61.

Joedicke incorporates the dimension of time in architecture into his considerations and highlights the importance of perceiving succession. In other words, the perceptual process is dependent on movement in the space within a particular period of time.

“The definition given at the beginning, according to which space was seen as the sum of relationships between points, must be formulated more precisely to read: space is the sum of consecutively experienced relationships between points. Here too time is the consequence of our perception and not at all comparable with the three dimensions of space.”¹³

On the Searching Eye and the Searching Body

An individual naturally moves through his or her environment and actively perceives it. Gibson speaks of an interaction of the perceiver. In order to perceive phenomena, a person must initiate motor processes. Gibson explains that in the case of sight alone, ten different muscles must be activated to achieve a sharply focused image. He speaks of attention directed outward on a subconscious level. He distinguishes very clearly between passive and active experiences, using the terms “sensations” and “perceptions.”¹⁴

These insights exert significant influence on the understanding of the perceiver in space. As a result, we can think of a person as a searching subject who attempts to attain an overview in order to orient himself or herself. People respond with attentively focused behaviour in order to obtain information about their environment. Gibson cites Pavlov, who calls the various adjustments of the sense organs, for example the eye-head system or the hand-body system, “investigatory responses.”

This active receptivity and searching can be used to provide clearly stimulating signals for orientation in a spatial context.

In addition to movements of the individual sensory organs, which can perceive their environment better through active adaptation, various other movements play a large role in the perception of spaces. The human musculoskeletal system has the fundamental role of counterbalancing movements for orientation toward the floor, and it stabilizes vertical posture. Furthermore, the orientation-investigatory system and the locomotive system play particularly large roles in spatial perception, given the dual purpose of obtaining information about the surroundings and also reaching a specified place.

Le Corbusier formulates the process of spatial perception and the resulting design strategy for the Modern Movement as follows:

“An architecture must be walked through and traversed. [...] Thus, equipped with his own two eyes and looking straight ahead, our man walks about and changes position, applies himself to his pursuits, moving in the midst of a succession of architectural realities. He re-experiences the intense feeling that has come from that sequence of movements. This is so true that architecture can be judged as dead or living by the degree to which the rule of movement has been disregarded or brilliantly exploited.”¹⁵

¹³ Jürgen Joedicke, 21.

¹⁴ James J. Gibson, *The Senses Considered as Perceptual Systems* (Boston: Houghton Mifflin, 1966), 51.

¹⁵ Le Corbusier, *Le Corbusier Talks with Students*, trans. Pierre Chase (New York: Princeton Architectural Press, 1999), 45.

These observations made by Le Corbusier are prefaces to fundamental reflections on spatial sequences in his work *Vers une architecture*,¹⁶ in which promenades through the Acropolis are depicted with the help of drawings by Auguste Choisy.

Perception of Movement Spaces

Spaces that offer transitions often present themselves as open spatial bodies that are experienced in motion. For the most part they are only partially delimited by spatial boundaries and provide access in an open or a circumscribed manner. The basis for considering threshold spaces is the phenomenological view of space, including, however, Joedicke's understanding of architectural space as one in which humans can move in exact between-ness. Humans move between space-defining elements. They open their spheres of perception, which are created, together with the spatial bodies, by the architectural space.

To a certain extent, this concept of a movement space cannot develop without the theoretical principles of the twentieth-century view of space described in the preceding paragraphs. Only through humans moving into the center of a view of space is it possible to evaluate and comprehend such a perceptible space. Architects of the modern age position the percipient individual in the center of their architectural designs. This way of thinking leads to an understanding of the concept of a connected movement space. It is a space that develops out of the idea of a spatial continuum, which means the series of spaces can be thought of and designed as an "enfilade." The upcoming experience of space that is announced can guide percipient humans and lead them forward.

The idea of designing a space as an open spatial body or as a field is actually, according to Joedicke, not an invention of the twentieth century. Nonetheless, he sketches a particular view of space that developed in the 1930s, dissolving walls and seeing the interior and the exterior as a continuum and a spatial field.¹⁷

Perception of connecting movement spaces occurs in a manner analogous to the general perception of spaces, namely in interaction among various sense organs. A movement space is characterized by its function as a transitional space; in other words it is a "passage space" which distributes and redirects. This means it is primarily perceived as we stroll through it, as opposed to a "place space," which serves as place to stay or rest.

Gibson's observations are essential to the perception of movement spaces:

"[A]ll the perceptual systems [...] can serve to govern directed locomotion. They are all orienting systems insofar as they can guide the individual to a goal."¹⁸

The vestibular (balance) system seems to be of particular importance for feedback on our own position in a space, as it lays a foundation for the other senses. It is oriented to gravity and gives us information on the incline of a floor and on our own locomotion in space.

¹⁶ Le Corbusier, *Vers une architecture* (Paris: Crès, 1923).

¹⁷ Joedicke, 12.

¹⁸ Gibson, 73.

Barring visual or acoustic stimuli, movement to the right within a building seems to be the natural direction for most people. When shopping areas are designed, the products with the greatest turnover are often positioned to the right of the entrance. Furthermore, planned circuits usually operate with systems in which the customer is first led to the right and then follows a path that continues counterclockwise. Such a pathway for movement spaces with items for sale is a reaction to studies that demonstrate customers' natural orientation toward the right. This "pull to the right"¹⁹ can be explained by our dominant left brain for movement patterns, which controls the right side of the body.

The question arises as to the ways in which an architect can react to a human being's physiological functions while designing and realizing spatial transitions. He could use unambiguous design motifs to give those arriving recognizable signals that facilitate orientation in the space. Such clarity can guide the users and lead them to their destinations. Particularly in entrance contexts, weak contrasts in spatial demarcation confuse those arriving and leave them—disoriented—to their own devices.

In summary it can be said that transitions, and thus traverses of thresholds, are particularly associated with intermediate states. First of all, percipient humans find themselves in spatial between-ness. Moreover, the intermediate state between two spatial areas, for example inside and outside, also plays a role. One could even speak of a double intermediate state.

Between-ness also offers users a certain flexibility, insofar as they can change their minds—there is a chance to "go back."

Historical Threshold Spaces

The following section examines characteristic examples in architecture history that have contributed to the topic of transitions. First of all, the structural element of the threshold is elucidated; subsequently the spatial dimension of the threshold moment is studied in greater depth.

The *Acropolis* plays a key role in this selection, as it provides a particularly clear example of the spatial relations between inside and outside. The exterior space links the secular world with that of the gods.

The *Pantheon* in Rome, with its compact portico, provides an archetype for the creation of a transition.

A *Gothic portal* is based on the conceptual design of the Pantheon in that it can be perceived as a symbolic spatial delimiter. The transition space of a Gothic portal is kept relatively compact; it achieves high intensity with the richly illustrated sculptures on its walls and it introduces the processional path.

The transitional spaces of *Japanese homes* call for a different interpretation than that of Gothic portals. An approach guided by ritual is possible here, too. What is missing, however, is the staging of an entrance as an easily readable element. The focus is on the link between exterior and interior and their layered ordering through the use of sliding elements.

¹⁹ Hans-Georg Häusel, *Brain Script* (Freiburg: Haufe Mediengruppe, 2004), 191–3.

The subsection “The Dissolution of Floor Plans in the Twentieth Century” points out analogies between the architecture that sees itself in the Modern Movement and the architecture of traditional Japanese homes. It demonstrates how spatial ambivalence is built up and spaces create an open—or closed—transition. How can an entrance area with an open floor plan define—in steps and yet clearly—the transition between inside and outside?

The historical examples provided are designed to serve as a basis for studying contemporary architecture. The selection was made with the aim of finding representative examples relevant to an analysis of transitions.

Thresholds—Doorsills

The threshold is a fundamental structural element. As a sort of beam it creates the lower edge of the opening in the wall and, in connection with a door, closes or opens that wall. From the beginning this structural element is given a double function; a threshold allows for passing through and shutting out. This basic functionality can be found in the most diverse building cultures. The details of a threshold are realized in many different ways. Diverse building cultures with their different methods develop complex structural solutions for threshold details according to their building traditions. Thresholds made of wood, natural stone, metal, and concrete have been developed. The development of threshold details is also influenced by threshold rituals. Arnold van Gennep deals with this topic in his publication *The Rites of Passage*, describing the analogies between rites in various cultures and also the relationship between rites and space. He divides “spatial transitions” into three phases:

“rites of separation, rites of transition, and rites of incorporation.”²⁰

The special experience of crossing a threshold leads to the cultural development of rituals. These rituals set the moment of transition by influencing the design of the threshold, made visible through exaggeration and/or detailed artistic decorations.

The thresholds in Roman buildings were executed very precisely. One well-preserved example is the doorsill of the Roman trading house in Walheim. It dates back to the year AD 150. The granite threshold displays complex notches and different levels. It was very clearly designed to connect inner and outer spaces.

Thresholds have also been given pronounced details in Chinese cultures. The wooden doorsills were raised for practical reasons, namely to prevent animals from entering the home. Thus the door could remain open and there was a direct connection between outside and inside. This function was ritualized in palace buildings and is particularly prominent in the “Forbidden City” in Beijing. The doorsills are up to 20 cm high and are supposed to protect the inhabitants from evil spirits.

²⁰ Arnold van Gennep, *The Rites of Passage*, trans. Monika Vizedom and Gabrielle Caffee (Chicago: University of Chicago Press, 1961).

The Acropolis

The Acropolis is situated on a 270-meter long, 136-meter wide, and 156-meter high flat-topped mountain. It is 80 meters higher than the city of Athens and 40 meters higher than its immediate surroundings. To the north, east, and south, the sides of the mountain are very steep; on the west side the decline is more gradual towards the Areopagus. The plateau on top of the mountain has an area of 37,000 square meters.

The first wall structures appeared between 1580 and 1100 BC. From 800 BC on, the flat-topped mountain was used solely as a holy district, with the entrance gate on the west side. After the Persians destroyed the temple in 479 BC, there was debate as to whether the site should be reconstructed or maintained as a memorial. In the end, Pericles commissioned Phidias with the planning. The following buildings were erected:

Parthenon 447–438 BC

Propylaea 437–432 BC

Temple of Athena Nike 432–421 BC

Erechtheion 421–406 BC

The Acropolis is of fundamental significance for the study of thresholds and transitions. The sacred sites have been rebuilt and fine-tuned but remain in their places. The Parthenon shifts the architectural weight to the southern part of the site. The central square is developed with the statue of Athena where the Old Temple of Athena had been located, between the Parthenon and the Erechtheion. This new space becomes part of a connected space of experience. The overall design of the Acropolis breaks down the autocracy of the individual buildings and rather forms a new whole out of the individual architecture and the spaces in between. The path through this exterior space allows for “step by step” immersion and facilitates an exceptional architectural experience. Together with the walls and paths, the separate temples become space-delimiting elements. As limits, they form an interconnected exterior space (fig. 1). The spatial structure is no arbitrary entity but rather presents itself as a planned in-between space (figs. 1 and 2).

It is also important to consider the Propylaea as a gateway; they form a differentiated constriction and framing of the exterior space and mediate between outside and inside. The ramp in the flight of steps very cleverly guides approaching individuals and provides a path for experiencing the space.

The flat-topped mountain, raised as it is, forms the beginning of the staging. Coming from below, the approacher first sees only the silhouette of the individual buildings. The perspective of the “distance view” makes the Parthenon seem smaller and subordinate, creating a balance with the Erechtheion, which is in reality the smaller of the two. The very small Temple of Athena Nike becomes the focal point. The serpentine processional path ends, for the moment, in the three-wing Propylaea. This forecourt to what is “before the gate”²¹ leads through a colonnade with limiting elements on both sides. The Propylaea are staggered in height and depth, with a broad trough in the middle of the steps that continues the Sacred Way upward. The broadening of the middle bay emphasizes the centered upward movement. The space seen by those ascending is alternately narrowed and widened from without, creating an exciting, dynamic spatial continuum.

²¹ Victoria Neufeldt and David B. Guralnik, eds., *Webster's New World Dictionary, 3rd College Ed.* (New York: Simon & Schuster, 1988), 1079.

Fig. 1: Acropolis, exterior spatial delimitations

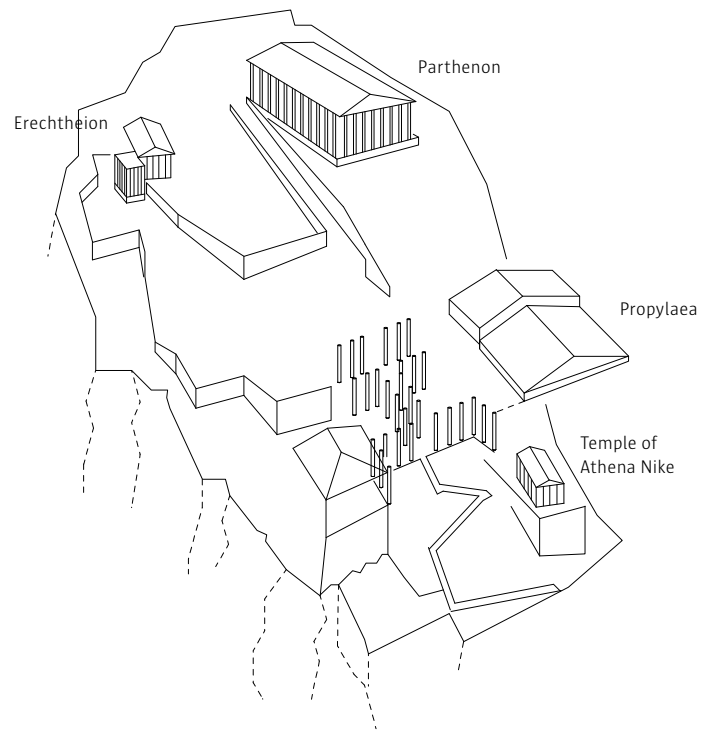
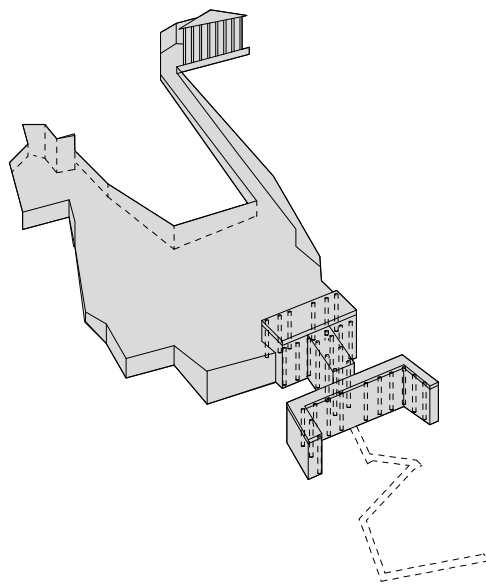


Fig. 2: Acropolis, exterior spatial body



The columns on the inside of the Propylaea frame the Parthenon laterally and aim axially at the slightly rotated statue of Athena and the square. The Parthenon is slightly turned, allowing it to present its spatial volume. It is framed by the columns and looks particularly imposing in this “embrace.”

The walk continues in a natural way around the entire temple (fig. 3). The sanctum, protected, can be entered from the rear of the temple. The intimate space of the cella with the cult image is hidden. The walk around the building heightens anticipation and emphasizes the importance of the unhasty approach. Both Choisy²² and Le Corbusier²³ note this archetype of a traffic pattern and it serves as a model for many designs. The entrance sequence for Jean Nouvel’s Musée du Quai Branly in Paris, which was completed in 2006, demonstrates surprising parallels (fig. 4).

The higher east pediment accentuates the gate building as the third main element in the overall plan and emphasizes its status with respect to the other two main temples. Furthermore, the Doric facade columns and the Ionic columns on the inside define the building as “hermaphroditic.” Such a combination has never been used on temples; a unique type of design is created.

Fig. 3: Acropolis, spatial sequence

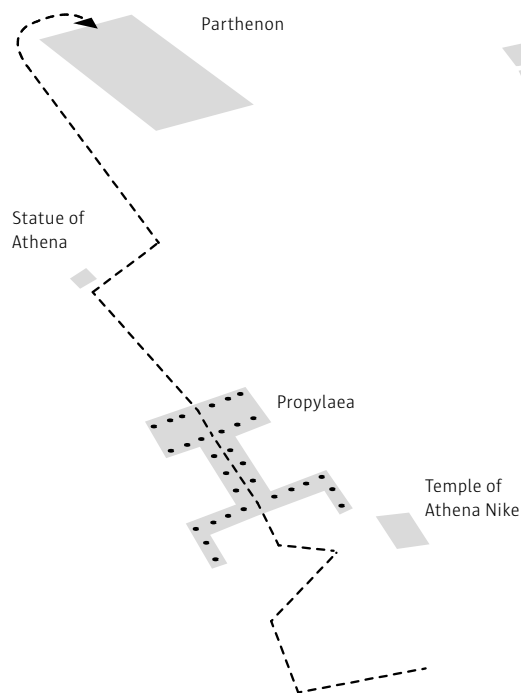
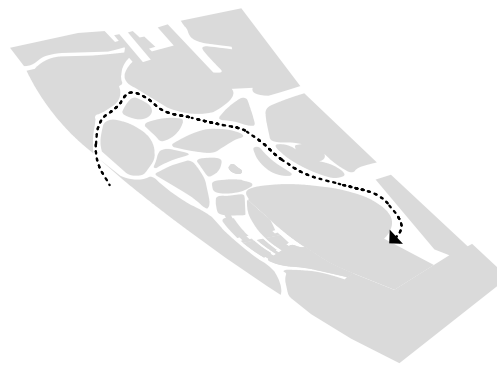


Fig. 4: Musée du Quai Branly, Paris, spatial sequence



²² Auguste Choisy, *Histoire de l'architecture*, vol. 2, 1899.

²³ Le Corbusier, *Vers une architecture*, 13.

The Pantheon

The Pantheon was constructed on the site of the octagonal temple built under Agrippa in 27 BC, with the Piazza della Rotonda in front of it. Under Hadrian's rule, between AD 118 and 125, the central-plan Pantheon with its portico was built. Its role as a temple was probably for the worship of the seven planetary gods. After the temple was given to Pope Boniface IV in AD 609, it was converted into a Christian church. Today it is used as a mausoleum.

Like the Acropolis, the Pantheon plays a fundamental role in developing an understanding of thresholds and transitions. The transition sequence in this compact structure is finely divided into a number of steps. The complex, continuous transitional space is in marked contrast to the symmetrical floor plan of the main room. The latter is very strictly based on a sphere with a diameter of forty-three meters. The transition is formed by three structures and their space-defining elements, namely the portico, the transitional element, and the opening to the main room (figs. 5 and 6).

Fig. 5: Spatial delimitations

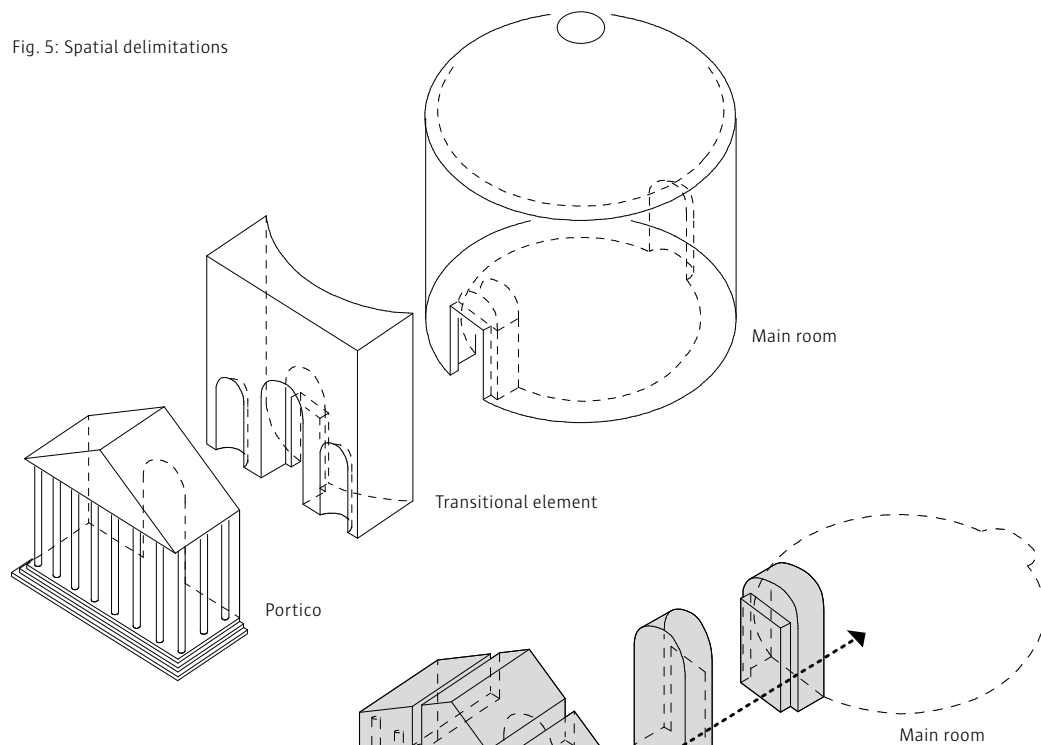
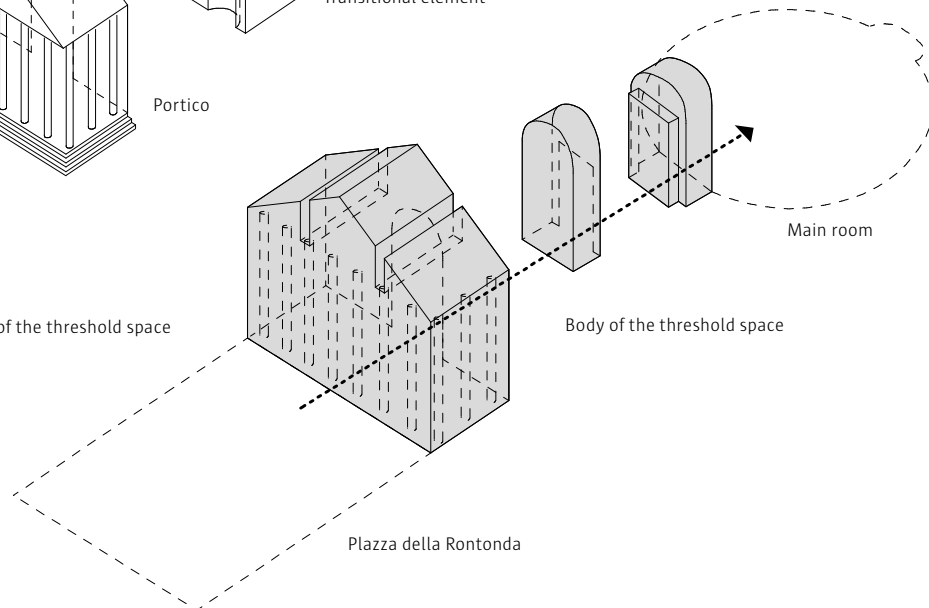


Fig. 6: Body of the threshold space



The forecourt, the Piazza della Rotonda, which is nowadays higher than it was when the Pantheon was built, provides the first view of the higher-lying Pantheon. The portico, along with its steps, is understood as denoting an entrance. The columns create a permeable border, a threshold. The porch collects those arriving in a spatial state of between-ness. The visitor is still in the exterior space, the space-defining elements of which, however, define an open interior space.

The transitional space and its geometry cannot be understood as a whole when you walk through it. Only the granite threshold indicates that you are now between the portico and the main room. Within the transitional element, the door with its deep granite threshold effects a deceleration of the approach and a consciously experienced traversing. Nonetheless, the visitor is not yet in the main room, but rather in the opening of the outer ring that, as a slight spatial widening, borders on the constriction of the door frame. Only now do you leave the continuous transitional space and find yourself in the main room under the dome and the opening of the dome.

The space described along the path prepares you for the rotunda. It is a carefully sequenced space that, with its complexity, clearly mediates between the directions of outside and inside. The focused transitional spaces form a severe spatial narrowing and a perceptible contrast, one that is necessary for the spatial experience of the rotunda. The spatial sequence of the threshold spaces makes it possible for the human eye to adapt to the lighting, so as to properly experience the light coming through the oculus.

The Gothic Portal

The Gothic portal is an artistically designed and constructed entrance. The model for this Western portal is the Roman triumphal arch.²⁴ Noteworthy renditions can be found in church buildings. From the Romanesque period, an intensive exploration of the entrance area began to manifest itself. The portals provide a very representative miniature version of the concepts of form and space of the architectural epoch. With its richly artistic design and its spatial dimensions, the Gothic portal achieves an exceptional status. Sculptures on the jambs and the tympanum were used to tell stories. The combination of this narrative function and the angles of the jambs creates an extreme spatial effect.

In some churches, even the trumeau in the axis of symmetry is decorated with a figure, as for example in Chartres Cathedral. Here, the steps also heighten the spatial experience as you ascend them.

The Gothic portal could be described as a threshold space (fig. 7), as the stories normally depicted in the interior of the church are shifted to the figures in the exterior space. The stories are experienced through the sequence in which they are approached. The figures appear to turn their bodies toward those who enter and to speak to them. From a distance, the figures are part of a uniform whole. The prefacing gesture of the portal prepares the approacher for the church interior. In large Gothic cathedrals, the depth of the portals is substantial; in Chartres, it is more than three meters in the central north transept portal. The tripartite portal complexes reproduce the three-nave structure of the cathedral interior on its outside. They are a symbol of access that can be recognized from a great distance, and with the help of their spatial gradations they establish a foreshortened pull on those approaching. The connected spatial body (fig. 8) can be experienced as a sort of room.

Fig. 7: Spatial delimitations

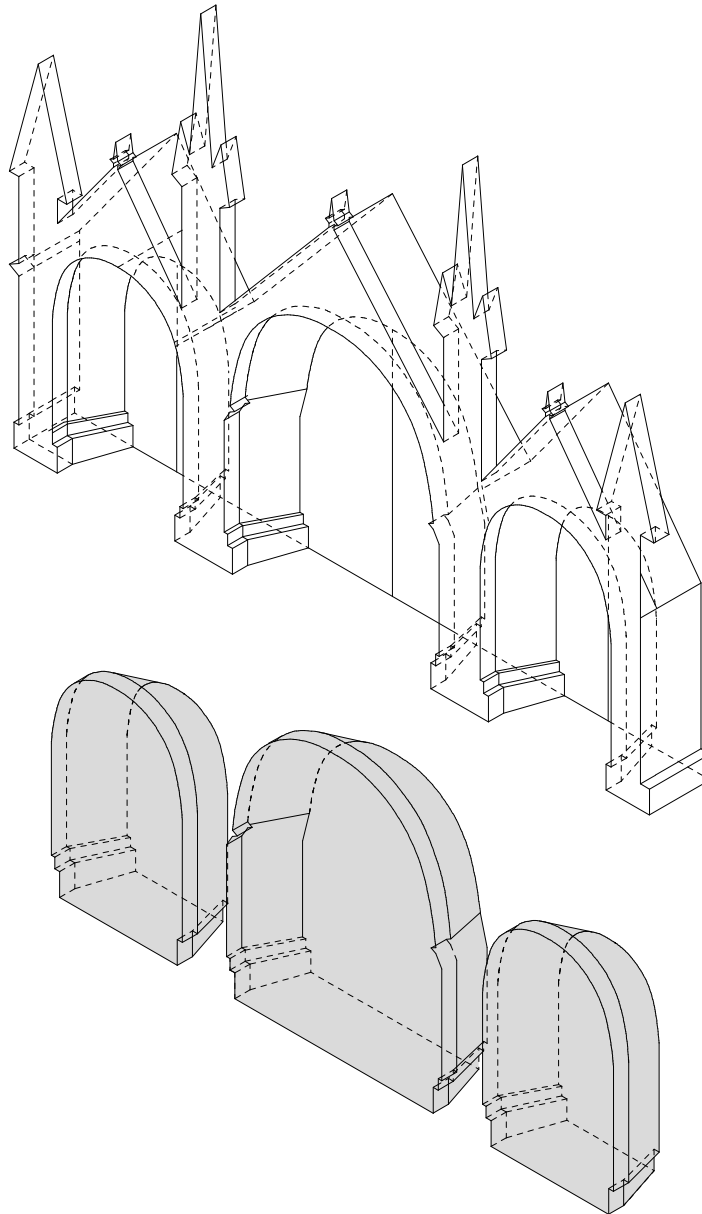


Fig. 8: Body of the threshold space

The portal complex of the Cathedral of Reims is another example from the Gothic era. Joedicke emphasizes the importance of the sculptures as preparatory elements. “The transitional space into the church is signaled in the iconography of Salvation History.”²⁵

²⁴ Wilfried Koch, *Baustilkunde: Das Standardwerk zur europäischen Baukunst von der Antike bis zur Gegenwart* (Munich: Bertelsmann Lexikon Verlag, 1994), 442.

²⁵ Joedicke, 89.

Japanese Homes

Japanese homes are of interest in the examination of transitions in two respects. Firstly, Japanese entrance areas are simply remarkable as transitional spaces. In his book *Houses and People of Japan*,²⁶ Bruno Taut gives a very detailed description of entering his new home in Japan. He explains the function of transitional space, for example, in the ritual of taking off shoes. Secondly, the particular spatial relationship between inside and outside has a general influence on design concepts in modern architecture. The flexible wall elements provide the living space with a layered transition between interior and exterior, which in turn produces ambivalent spaces of between-ness.

Simply raising the living space forty centimeters above the level of the surrounding terrain and leaving the vestibule at the terrain level establishes the clear spatial relationship between the transitional space and the exterior space (fig. 9). The floor is either cement or tiles and highlights the contact with the exterior. A forty-centimeter-high wooden step forms the connection to the living space and takes up a third of the space of the square vestibule. This fixture has a direct functional link to the ritual of removing shoes (fig. 10). The person entering stores his or her shoes here and can sit on the step to take them off. Thereafter, standing on the step, he or she can slide aside the second door that forms the entrance to the living space with its flooring of tatami mats.

Fig. 9: Isometry based on sketches by Bruno Taut

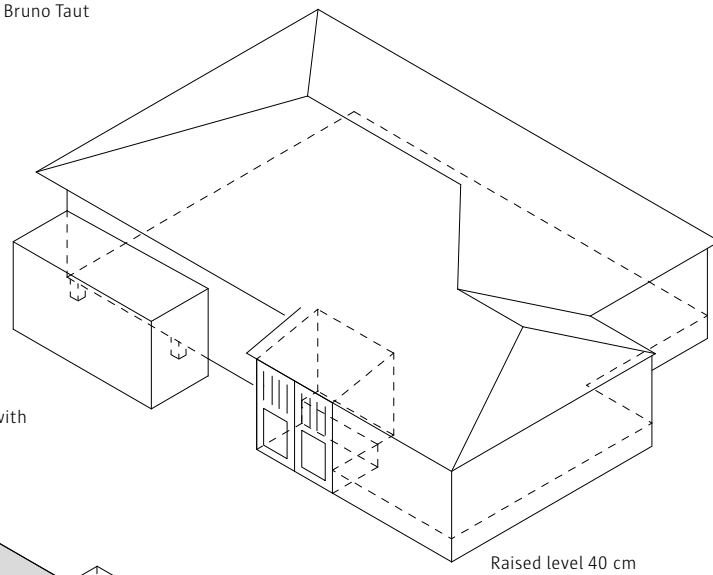
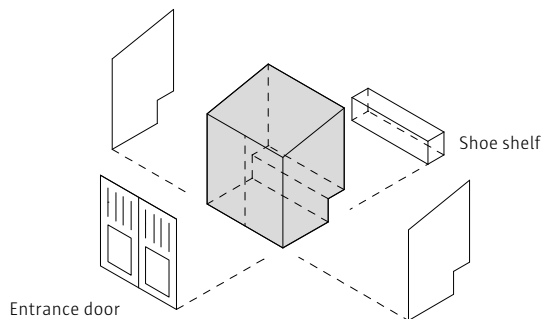


Fig. 10: Body of the threshold space with delimitations of the threshold space



²⁶ Bruno Taut, *Houses and People of Japan* (Tokyo: Sanseido, 1958), 4–5.

The sensitive gradation from inside to outside is particularly clear in the case of both the veranda and the mat room (fig. 11). The transition system is executed on two levels with sliding doors to the inside and the outside. The floors are almost level with one another but the mat flooring on the inward side is four centimeters higher to protect the mats from rain. The height of the ceiling draws attention to the mat room and slopes downward over the veranda. The inner mat room is separated off using a transparent sliding door wall. On the outer side, the neighbouring veranda is bordered by a second translucent set of sliding screens. The second, middle layer can only be locked from within. This is true for the entire house. The third, outside layer can be locked using additional wooden elements. The shutters can be recessed into pocket-like units on the side of the window.

The system described here makes it possible to react to seasons and times of day in the house. Each of the various positions of the sliding elements defines a different kind of transition. The blurred boundary between inside and outside is achieved through the different possibilities of the superimposed systems (fig. 12). This principle has been used in many contemporary variations. In his design for the Fondation Cartier, Jean Nouvel, for example, uses gradated transparent layers, some of which are in front of the building. The spaces in between that are created by this system form a threshold space.

Fig. 11: Japanese home, floor plan

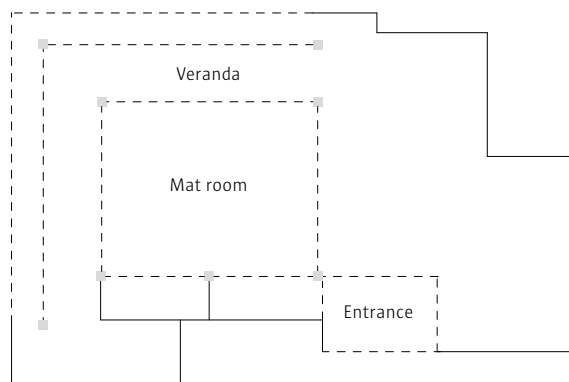
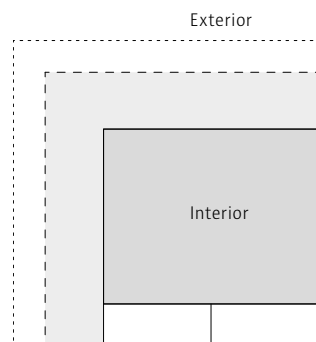


Fig. 12: Japanese home, “extendible border”



Arcades

By virtue of their special atmosphere, arcades are a source of inspiration. Walter Benjamin, for example, uses the term in the title of his philosophical treatise *The Arcades Project*.²⁷ In his comprehensive work, he describes the atmosphere of Paris. “[T]he project Benjamin worked on for thirteen years, from 1927 until his death in 1940, [...] would have become nothing less than a materialist philosophy of the nineteenth century.”²⁸

In addition to Benjamin’s philosophical approach, Johann Friedrich Geist creates an irreplaceable basis for considering the arcade in the context of architecture and urban planning in his publication *Arcades: The History of a Building Type*, which has become a standard reference. Arcades are catalogued and compared in illustrations. Examinations of the term “arcade” contribute to an understanding of transitions. Geist lists terms that are often substituted in everyday language for arcade—street, lane, driveway, passageway, thoroughfare, transit—and elaborates, “Inherent in all the meanings, whether they manifest themselves in terms of space or time, is the common element of a transition, a threshold, a process, a measured route or something that passes. Something happens—the movement becomes an experience.”²⁹ It becomes clear that an arcade can per se be a threshold space. It contains ambiguity; it connects street spaces and at the same time bonds the street frontage of the blocks of buildings. It welcomes a stroll. The displays in the shop windows can be examined without the weather causing problems. Moreover, the straightforward spatial structure of the arcade makes it easy to orient oneself within it. The flâneur can let himself drift and be tempted without being “misled.” Franz Hessel writes in *In Berlin: Day and Night* in 1929:

“Walking slowly down bustling streets is a particular pleasure. Awash in the haste of others, it’s a dip in the surf. But my dear fellow citizens of Berlin don’t make it easy, no matter how nimbly you weave out of their way. I always catch wary glances when I try to play the flâneur among the industrious. I believe they take me for a pickpocket.”³⁰

Originally, an arcade was defined as a glass connection between two street spaces, which was enhanced with additional functions such as shops (fig. 13). It becomes living space with its own atmosphere of between-ness. The space is neither inside nor outside (fig. 14). Its strength lies in the link between the private and the public. Geist provides a definition: “The illusionist element of an arcade is the passage area: imaginary exterior space as interior space—a facade with exterior architecture pulled inward.”³¹

Particular materials, for example the flooring, create the impression within an arcade of being “outside.” Crucial to the feeling of stepping into an exterior space is no doubt the large opening and the lack of a door or a gate. You drift quite naturally into the spacious area. The hall, with its extensive glass spaces, is characterized by bright and sympathetic lighting. We find ourselves in an exterior space in an interior setting. Herman Hertzberger elaborates:

²⁷ Walter Benjamin, *Gesammelte Schriften: Band V: Das Passagen-Werk* (Frankfurt: Suhrkamp Verlag, 1982).

²⁸ Peter Osborne, ed., *Walter Benjamin: Critical Evaluations in Cultural Theory* (London: Routledge, 2005), 232.

²⁹ Johann Friedrich Geist, *Passagen, ein Bautyp des 19. Jahrhunderts* (Munich: Prestel, 1969), 11.

³⁰ Franz Hessel, *In Berlin: Day and Night in 1929*, trans. Amanda DeMarco (Berlin: Readux Books, 2013), 5.

³¹ Geist, 12.

“The high, long passages, illuminated from above thanks to glass roofing, give you the feeling of an interior; thus they are ‘inside’ and ‘outside’ at the same time. Inside and outside are so strongly relativized vis à vis each other that you cannot tell whether you are inside one building or in the space connecting two separate buildings.”³²

Fig. 13: Spatial delimitations

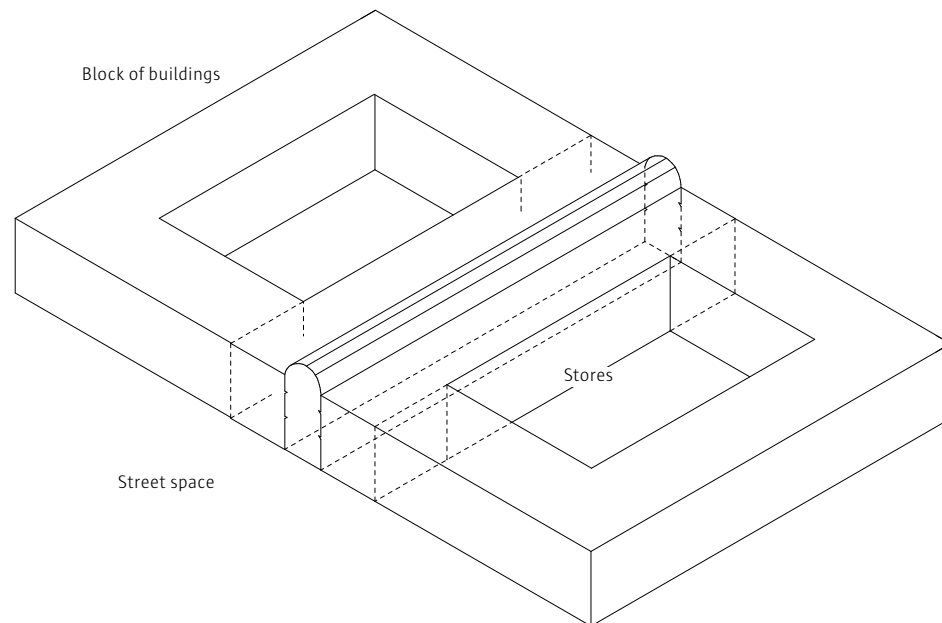
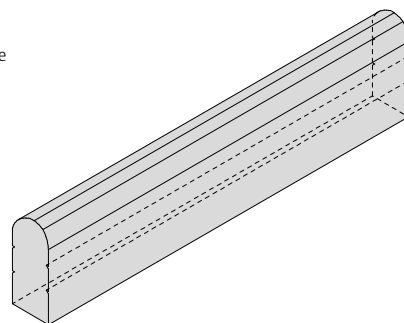


Fig. 14: Body of the threshold space



³² Herman Hertzberger, *Lessons for Students in Architecture*, trans. Ina Rike (Rotterdam: 010 Publishers, 2005), 76–77.

The Dissolution of Floor Plans in the Twentieth Century

The notions of space at the end of the nineteenth and beginning of the twentieth centuries have a particular influence on perception of transitions. More and more, modern architects refuse to connect spaces in an additive manner and instead design a spatial continuum.

In 1902, Frank Lloyd Wright linked the main rooms in his design for the Willits House with the help of a central built-in unit that integrated the chimney and the supports. This freestanding structure appears to form extremities that extend into the next spaces. Transitional spaces emerge that mediate between the various main rooms, with little daylight and spatial constriction. As you enter these transitional zones, you are led seamlessly around the corner to the respective next room. These spatial sequences are determined by the staging of leaving one space and arriving in a new one. The transition makes it possible to experience various spatial atmospheres in a continuous sequence.

Mies van der Rohe radically opens up the closed floor plan in his design for the Barcelona Pavilion. He separates the structural from the space-defining elements and thus has more freedom to create continuity in the spatial sequence. The alternation between closed and open areas provides the visitor with this new spatial experience. “As in Wright’s work, one can recognize here a principle whereby broad spaces are separated and at the same time linked by narrow transitional elements.”³³

In 1928, in the Villa La Roche in Paris, Le Corbusier designed a complex interior *promenade architecturale* that was intended to facilitate a new perception of cubistic art.

A further important aspect of spatial design in the twentieth century can be found in the new uses of glass and transparent plastic, affording new possibilities for opening and closing spaces. The transparent panels are used as space-defining elements and form a see-through boundary. In some projects, it seems possible to shift the spatial boundary. An example of this design concept is the panorama windows of the Villa Tugendhat by Mies van der Rohe, which could be completely sunk into the ground. Similarly, in his design for Lovell Health House, Richard Neutra shifts the spatial boundary into the landscape. He does so with hidden profiles on the window elements and spatial layering of the interior and the exterior spaces. The glass panes and the slim steel construction provide a wide, free view into the surrounding landscape. Richard Neutra intentionally allows materials to run over the boundary between inside and outside. Spatial conditions are achieved that suggest an exterior space in the interior.

As Joedicke points out, it is possible to identify a commonality in how space is defined in the Modern Movement. “It is characterized by sequences of linked, interpenetrating spaces, by open spaces, spatial sequences that, on proceeding through them, open up ever new perspectives and that undergo constant changes.”³⁴

³³ Joedicke, 165.

³⁴ Joedicke, 168.

Gerald Staib explains the developmental history of the new spatial sequences in conjunction with “iron, concrete, and glass construction”³⁵ and “the growing dissolution of the traditional solid cubic building. Frank Lloyd Wright referred to it as ‘the destruction of the box’.”³⁶

These commonalities lead to the conclusion that there is a new, modern approach to thresholds. There is a new transitional space, a threshold space, that has been conceived and designed as a continuum. The transition is expressly designed and given its own place.

Transitions in Art

Toward the end of the twentieth century, more and more artists began to deal with the concept of space and spatial thresholds have frequently been examined. The threshold is used as a device for slowing down the person perceiving it. Various artists deal with spatial transitions and with raising awareness of transition situations. Notable among these are Dan Graham, Olafur Eliasson, and Dani Karavan. All three artists have in common the fact that they see public space as a laboratory for their spatial installations. Their works can, in a way, present a “pure” spatial transition, as neither the artist nor the passerby is concerned with its usability. Artistic spaces can, in contrast to architectural spaces, focus more directly on the spatial experience per se, as they have no functions to perform.

Dan Graham’s installations present to observers their positions in a space. In addition to his various installations with video and screen hook-ups, he has created a series of pavilions in different contexts that lead to extraordinary perceptions of surroundings. The *Fun House for Münster* invites the visitor to step into a transparent, open space and at the same time subtly blurs the sensation of being inside or outside the spatial configuration. Transparent mirrors create doublings that cause the visitors to wonder whether they are looking at the image or a body.

Close examination of the different art installations reveals the complex nature of a “threshold” as a device, a phenomenon, and an allegory. The various approaches complement one another in some respects and enable observers to form their own interpretations. Art installations with a focus on an experience of space are given particular attention here.

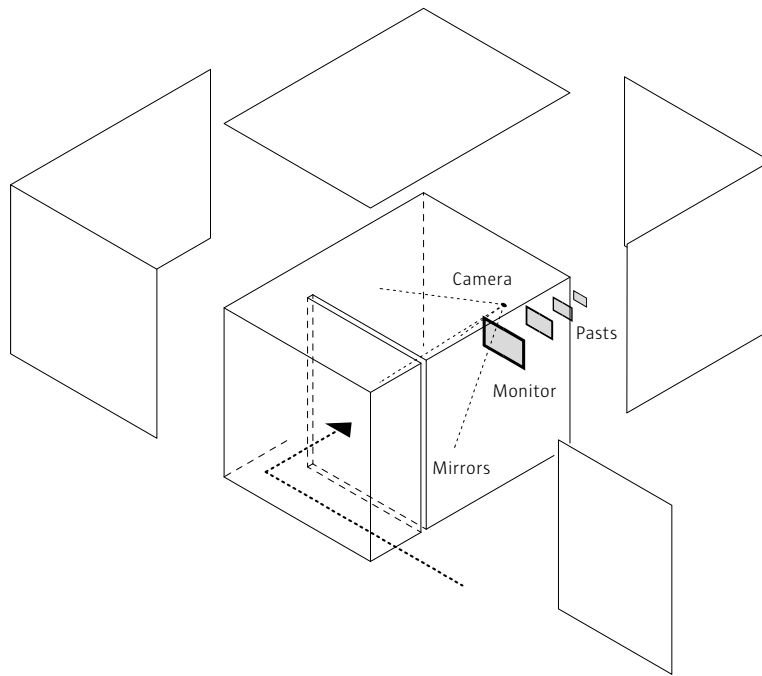
³⁵ Christian Schittich, Gerald Staib, Dieter Balkow, Matthias Schuler, and Werner Sobek, *Glass Construction Manual* (Munich: Birkhäuser Verlag, 1998), 26.

³⁶ *Ibid.*

Dan Graham: Present Continuous Past(s), New York, 1974

With his installation, Dan Graham creates a closed, cube-like perceptual space that confronts visitors with the spatial position they have just experienced (fig. 15). The construction uses a monitor to present to the beholders their own past.³⁷

Fig. 15: Threshold spaces in framed monitor



A perceptual space spans the area between two mirror walls and a monitor-camera wall. Intuitively, visitors position themselves between the monitor-camera wall and the opposite mirror wall. Providing the visitor's body does not directly cover the camera lens, the camera records the space and the reflection from the mirror, which includes the image to be seen in the monitor. The video camera records both what is happening at the moment in the space and also the reflection from the opposite mirror wall. The recorded image is presented on the video display monitor with an eight-second delay. The viewer sees not only the picture taken eight seconds ago, but also what was reflected from the monitor eight seconds previous to that. Eight-second-long pasts are created, clearly recognizable in the picture within the frame of the monitor.

"An infinite regress of time continuums within time continuums (always separated by eight-second intervals) within time continuums is created."³⁸

Another mirror wall connects the monitor wall to the reflecting mirror wall. The third wall reflects the present and displays the real-time image.

³⁷ Birgit Pelzer, *Dan Graham* (London: Phaidon Press, 2001), 53.

³⁸ Doug Hall and Sally Jo Fifer, *Illuminating Video: An Essential Guide to Video Art* (New York: Aperture, 1991), 186.

The video camera records movements in front of it and plays them back to the viewer eight seconds later. Seen from a central perspective, the framed images of the past vanish into the infinity of illegibility. The viewer is confronted with his or her immediate transition from the past into the present. The simultaneous experience of pasts in the present and the immediate becoming past of the present unsettles and recontextualizes the viewer.

Furthermore, Dan Graham creates closed spatial situations that, by means of the camera in the frame of a monitor, record the between-ness of the viewer in the space. The individual moments in the space are framed in eight-second pasts and individually presented as such.

It seems as though the viewer is entering spaces, one after another, which are located eight seconds away from each other. The framed window becomes a time threshold. In addition, the installation provides insight into the time dimension of threshold experiences; it separates what lies in the past into “eight-second time intervals” and projects it forward. The individual past time continuums are captured and made visible in isolation.

Dani Karavan: Passages, Portbou, Spain 1990–94

In 1994, Karavan’s *Passages*, a memorial to the German philosopher Walter Benjamin, was completed in Portbou, a small Spanish border town in the Pyrenees and on the Mediterranean. It is assumed that Benjamin took his own life there in 1940 to avoid his imminent deportation to Germany, and he is buried in the small town cemetery. The open area in front of the cemetery was chosen as the site for the memorial. From the high cliff line, Karavan discovered a whirlpool which he wanted to highlight spatially. He designed for the slope a 27 m long, 2.35 m high, and 1 m wide traversable steel construction that focuses on the whirlpool. This rectangular passageway digs into the slope at a thirty-degree angle and is made negotiable by the inclusion of steps.³⁹

In front of the open four-cornered shaft, Karavan places a long steel plate, flush with the ground. The width and material of this threshold allude to the passageway. The plate lies between the tunnel and a section of dry-stone wall that has been set back to give the threshold a spatial moment. The straight path of motion is interrupted and rerouted resulting in the preface to the traversable steel construction, the threshold space.

In the upper part, the passageway is closed on all four sides, but in the lower part the top is open. The entire hollow structure, including the steps and the floor, is made of corten steel (fig. 16). Karavan offers a dark, narrow, elongated space that invites the visitor to take leave of the surrounding world and do nothing but concentrate on the sea. In the confinement of the steel structure, gazing at the whirlpool, the visitor can have a threshold space experience. The muffled echo of his or her own steps intensifies the narrowness of the hollow structure. Benjamin’s words only become—weakly—legible when you are near the end of the path. Karavan chose the following quote and had it etched into the pane of glass:

“It is a more arduous task to honour the memory of anonymous beings than that of famous persons. The construction of history is consecrated to the memory of those who have no name.”⁴⁰

The words are superimposed on our view of the whirlpool.

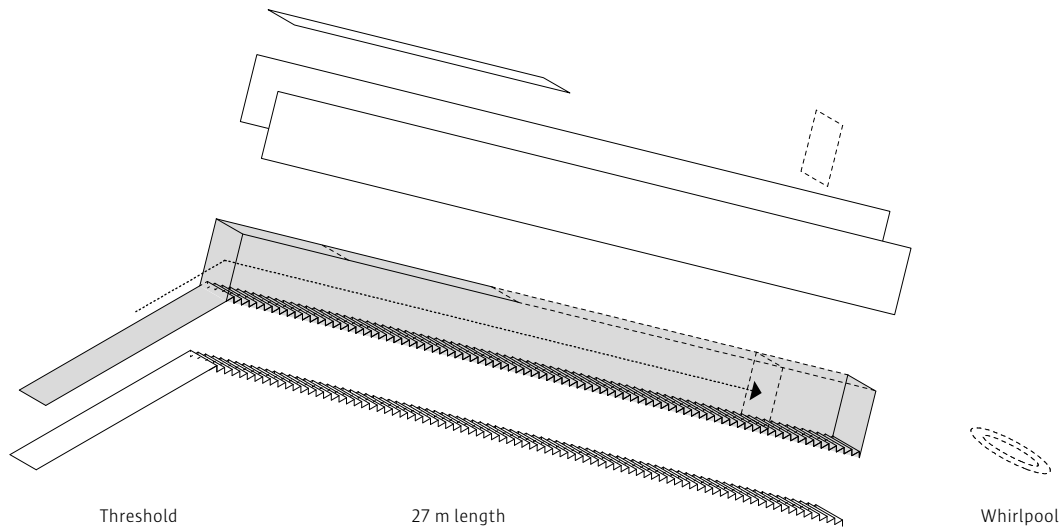
³⁹ Ingrid Scheurmann and Konrad Scheurmann, *Dani Karavan: Homage to Walter Benjamin* (Mainz: Verlag Philipp von Zabern, 1995), 10, 49, 50.

⁴⁰ Scheurmann, 49.

The entire installation could be described as an elongated, linear threshold space with the additional function of facilitating immersion in Benjamin's inner thoughts. The area in front of the cemetery appears as an exterior space from which you can visually immerse yourself in the whirlpool. The passageway forms a transition between two exterior spaces. It demonstrates intense spatial confinement and thus makes between-ness something to be physically experienced. The passageway was initially designed to be closed throughout, but was redesigned by Karavan on site and opened up in the lower section. The spatial expansion allows the visitor to sense the sky and it heightens the effect as an in-between element. This opening and the threshold plate at the entrance are the soft transitional zones of the threshold space.

The shaft could be understood as a visual aid that brings Benjamin's words into focus. The whirlpool is a point to be aimed at. Seen symbolically, the passageway builds up a threshold space from a feeling of hopelessness into the expanse of the sea. The spatial body lies between the cemetery and the sea—between life and death.

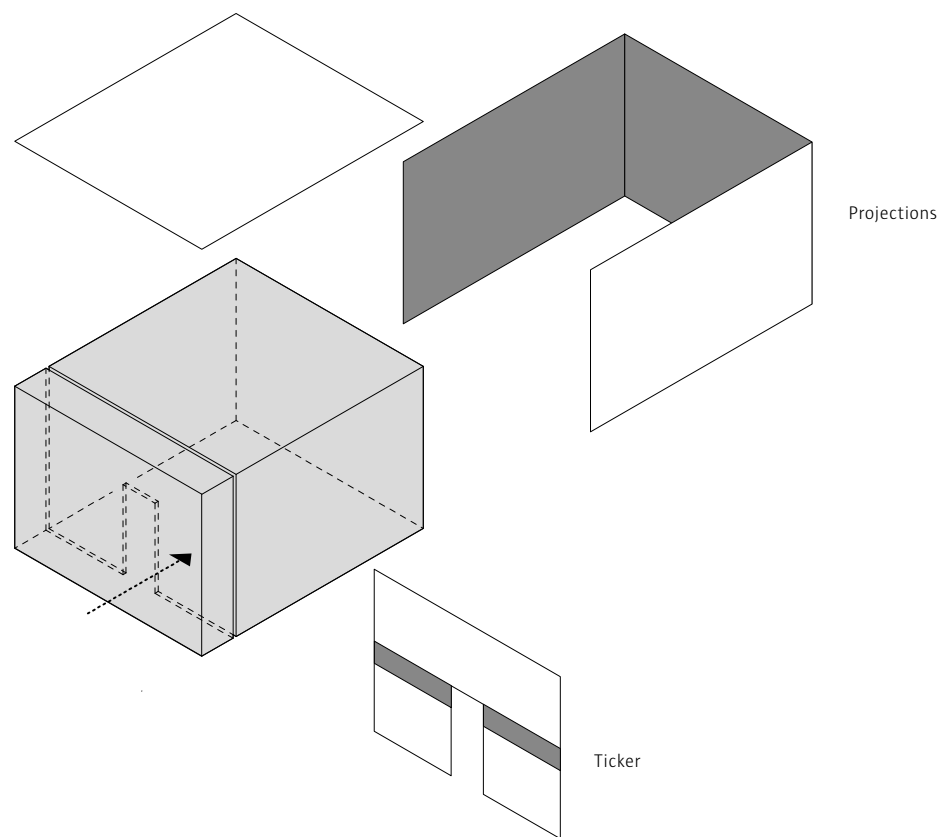
Fig. 16: Delimitations of the threshold space and body of the threshold space



Bill Viola: Threshold, Frankfurt am Main, 1992

Bill Viola assembles a cubic room with a square floor plan of six by six meters and a height of 4.5 meters to walk into (fig. 17). The box has an electronic ticker on the outside that is synchronized with news from a press agency. On the inside, three sleeping people are seen in a video projection that is repeated cyclically. The presentation of the outside and the inside worlds is emphasized using a number of contrasting pairs. The bright orange ticker messages display current news items and move noiselessly. Conversely, the interior black-and-white video projection is set up as a loop and presents supernaturally loud breathing noises.⁴¹

Fig. 17: Delimitations of the threshold space and body of the threshold space



⁴¹ Bill Viola, "The Threshold" <<http://www.medienkunstnetz.de/works/threshold/>> Accessed May 18, 2014.

“The intersection in the middle of the electronic ticker provides access to the inner room of the installation. The spectator has to pass through the silent, but optically very ‘loud’ electronic flow of data in order to reach a dark space. Here, he will find himself confronted by the vast, blurred images of the heads and upper torsos of three sleeping figures, projected onto three of the inner walls ... If the spectator then remains for a while in the darkened space, he will begin to sense the deep calm of these ‘night scenes’ ... The sound of regular breathing characterizes the inner room as an area of unconscious ‘being there,’ away from the continual further development of what is happening in the world.”⁴²

The glaring, borderless, silent exterior is juxtaposed with the colorless, interior, abstract place for self-reflection. The interplays have obviously been assigned intentionally and allow equivocal, complex atmospheres to develop. These ambivalent moods show parallels to threshold space experiences, which are also characterized by ambiguity and the unexpected. Furthermore, the dissimilar atmospheres establish a strong contrast between inside and outside, which puts the visitor into a perceptible intermediate state. Visitors not only physically penetrate an inner world but also find themselves reflecting on their own inner thoughts. The media space provides a two-fold threshold space experience, on the one hand physical, on the other intellectual. The act of waiting inside the installation is bestowed not with a particular effect but rather with forgetting the outside world. A new threshold space has been entered.

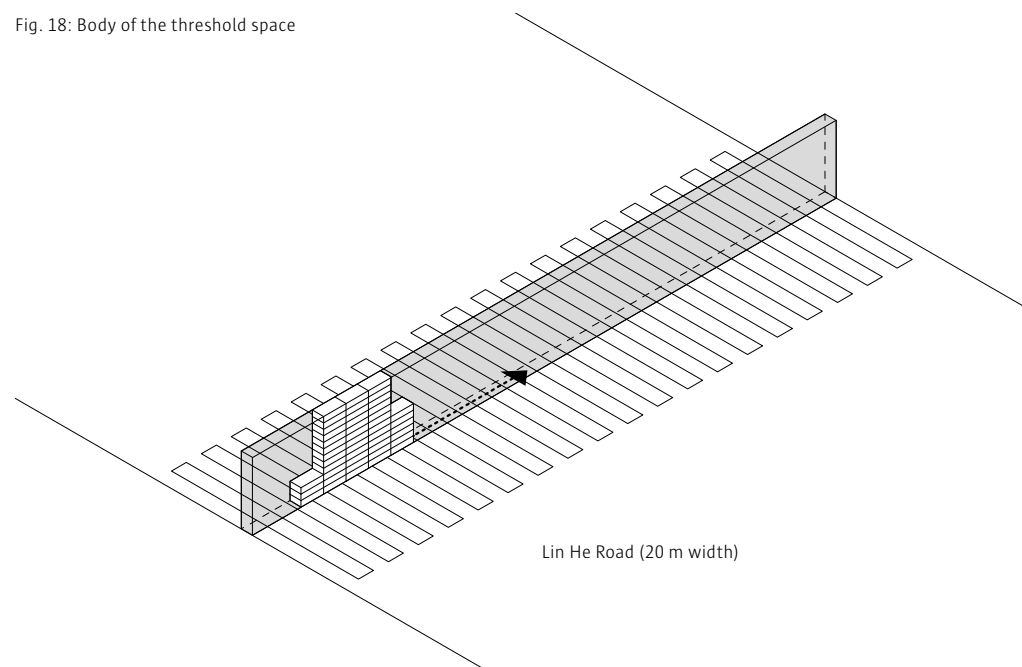
⁴² Ursula Frohne, “Bill Viola ‘The Threshold’,” in *Kunst der Gegenwart*, ed. Heinrich Klotz (Munich: Prestel Verlag, 2000), 273f.

Lin Yilin: Safely Maneuvering across Lin He Road, Guangzhou, 1995, dokumenta 12

The performance shows the artist helping a brick wall across a street. The blocks become a loose masonry bond when Lin Yilin takes them from one end of the wall to reposition them at the other.⁴³ Thus the wall is continuously adjusted and the traffic on the busy street in China's third-largest city, Guangzhou, is forced to change lanes. It is striking to note the construction site in the background, where the same blocks are being used.⁴⁴

In addition to its sociopolitical reading, the installation is particularly forceful in terms of its creation of space (fig. 18). This strength intensifies the political statement. Walls are space-creating elements that must first be opened to allow passage. In other words, walls delimit space, they close it, in this case a wall made of blocks that is made into a subject, or a passage. The street with its vehicular traffic momentarily loses its significance as a linear connecting path and becomes a space delimiter for the advancing wall. From a spatial perspective it is particularly interesting to see how a wall, the epitome of a space delimiter, can express a transition. It seems paradoxical that a shifting boundary can itself become a passage. This situation, so unusual in architectural space, heightens awareness of delimiters and their space-defining functions.

Fig. 18: Body of the threshold space



⁴³ Lin Yilin, "Safely Maneuvering across Lin He Road" <<http://linyilin.com/index.php/art/detail/?lang=e&id=2>> Accessed May 18, 2014.

⁴⁴ Hu Fang, "Lin Yilin, Safely Maneuvering across Lin He Road, Media Installation 1995," in *Documenta Kassel 16/06—23/09*, Ruth Noack and Roger M. Buergel (Cologne: Taschen Verlag, 2007), 278.

Dan Graham: Fun House for Münster, 1997

The *Fun House for Münster* is based on the ground plan of a narrow parallelogram with one short, curved side (fig. 19). One of the long sides has an open section the width of the short end. The panes set in a grid of gray frames are made of two-way mirror glass with a high degree of transparency. Dan Graham created a series of pavilions, including the *Octagon for Münster* and *Fun House for Münster*, that offer diverse contexts for perceiving the surroundings in novel ways.

“Both pavilions are ‘photo opportunities’ for parents and children, places to linger in within a park atmosphere that calls for picnics. Both works are set up within the larger framework of the park and the city. *The Fun House for Münster* refers to a nearby playground; its curved facade harkens back to the circular town layout established by the Romans. The use of transparent mirror glass alludes to newer office, government and bank buildings.”⁴⁵

A visitor to the *Fun House for Münster* is presented, above all, with his or her own spatial position. The installation invites the visitor to step into a transparent, open space while it subtly blurs the sensation of being inside or outside the spatial configuration. Through the transparent mirrors, a doubling occurs that makes the visitor wonder whether he/she is perceiving the image or a body (fig. 20). Many spaces are created by the geometry and the reflective and transparent surfaces of the pavilion. Some of these spaces are only projections, but even these can be walked through like the inside of the pavilion. Soft transitions emerge which do not allow for a clear demarcation between inside and outside.

Dan Graham used these spatial experiments in the design of Café Bravo in Berlin. When daylight levels are low, the café seems very open and closely connected to the inner courtyard, whereas in broad daylight the cubes appear as strong, independent bodies.

At the Fondation Cartier, Jean Nouvel works with the idea of a soft transition in a similar way by layering facade elements and rows of trees and using mirrorings and openings to create an inside and an outside that can hardly be kept distinct from one another.

⁴⁵ Klaus Bußmann, Kasper König and Florian Matzner, *Zeitgenössische Skulptur. Projekte in Münster 1997* (Ostfildern: Hatje Cantz Verlag, 1997), 183f.

Fig. 19: Delimitations of the threshold space and body of the threshold space

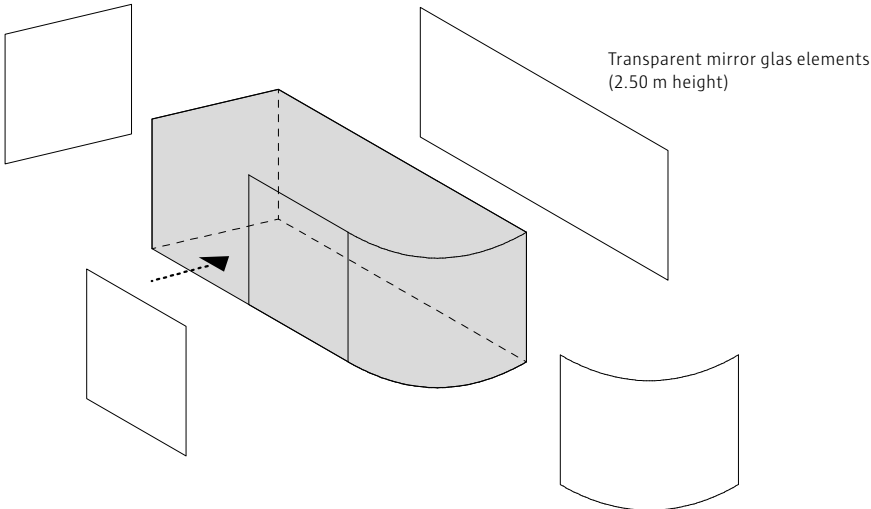
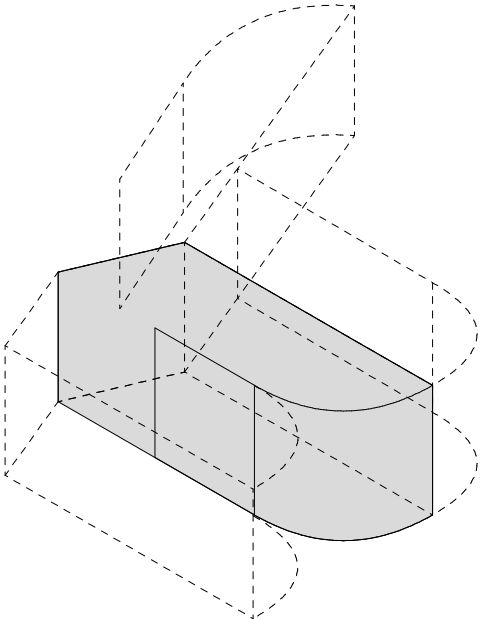


Fig. 20: Extension of the threshold space through reflection



Olafur Eliasson: Green River, Stockholm, 2000

In his project *Green River*, Olafur Eliasson works with the shifting of local expectations, which in turn invert reality. Eliasson seeks out special locations that stage their natural look. Without warning, the artist uses harmless fluorescein to dye bright green for half an hour the blue-gray water that picturesquely washes around the mainland of Stockholm. In contrast to the earlier project by the artist Nicolás Uriburu,⁴⁶ who dyed a river green in the context of a self-staging, in Eliasson's case a perturbing, artificial world is created. The place surprises and sets up its own artistic reality without the presence of the artist. This temporary change places the staged naturalness in the appropriate artistic context.

The surprise, the unsettling, the contrast all play a decisive role in the perception of Eliasson's works in public spaces. He follows this principle in many of his installations. He uses a passing glance of the passerby and establishes a threshold, provoking the passerby to cross it. Interaction with the art project arises from the confusion. The artist seems to play with this moment and to test how susceptible passersby are to his stimuli. He experiments with this means of designing works of art to the point of exclusivity, where unsettling is an end in itself.

Eliasson expands on this principle, for example in his new exhibition *Innen Stadt Außen* (Inside City—a play on words with *statt*, which means “rather than”—Out),⁴⁷ in which common objects can be found in new contexts. The logs distributed in the chaotic urban space of Berlin do not stick out. They are anything but a provocation. Those who notice them have been observing very carefully and have “spotted the difference” in the puzzle picture. This fine appeal to attentiveness calls for heightened awareness and demands close observation. Furthermore, the unsettling objects set the given location in a new context. A look, a fleeting moment seems crucial; the present is set in time.

Till Boettger: Schwellenraummaschine, Weimar, 2010

The *Schwellenraummaschine* (Threshold Space Machine) is designed to heighten the experience of the instant of spatial transition. The focus is on perceiving the temporal and spatial dimensions of the threshold phenomenon. In particular, the following questions were examined: Is it possible to compress and layer the temporal sequence of experiencing what lies in the past, the present, and the future? Can the spatial experience of the immediate past be registered concurrently with the spatial perception that is expected to follow? In other words, can you experience the past and the future in the present? The idea behind the *Threshold Space Machine* is to make a momentary overlap of different time frames possible and to thus highlight the mediating function of a threshold space as a spatial and temporal connecting element. The installation can be entered and walked through and provides a threshold space experience that makes the character and capabilities of the threshold space perceivable and visible. The aim is to project for the visitor what has happened in the past into the future and thus to show the complexity of a transition in a compressed form. The *Threshold Space Machine* is intended to be a visual aid for experiments in spatial perception with regard to thresholds. It functions as a perceptual apparatus for a body in motion, similar to a microscope, which makes it possible to see the invisible.

⁴⁶ Nicolás García Uriburu, “Coloration du Grand Canal” <<http://www.nicolasuriburu.com.ar>> Accessed May 18, 2014.

⁴⁷ Daniel Birnbaum, ed., *Olafur Eliasson: Innen Stadt Außen / Inner City Out* (Cologne: Walther König, 2010), 27.

Fig. 21: *Threshold Space Machine*

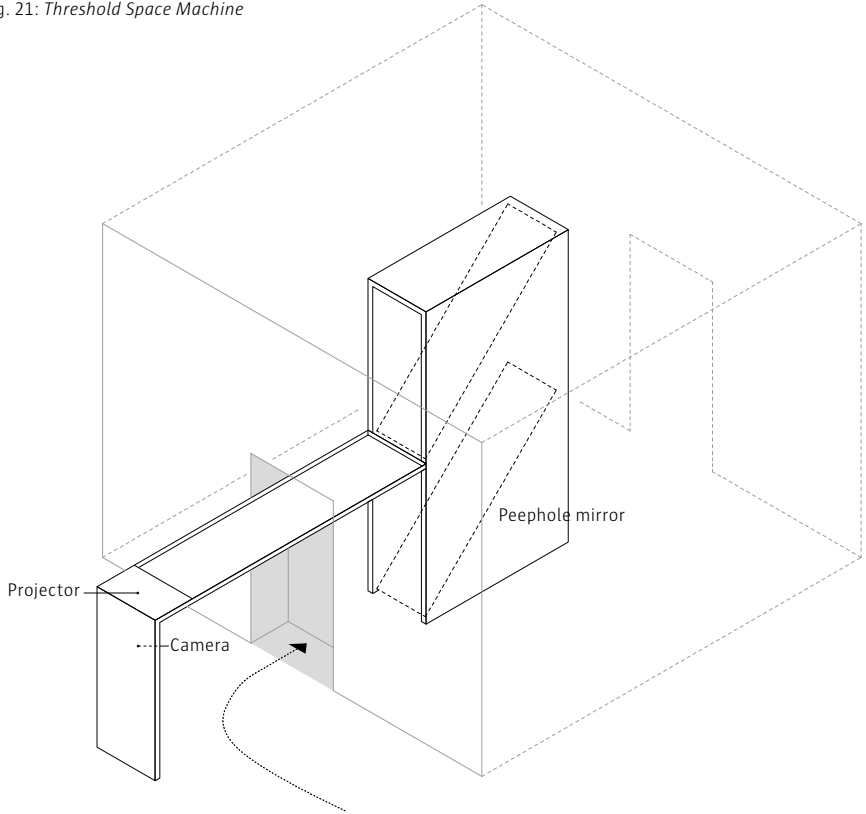
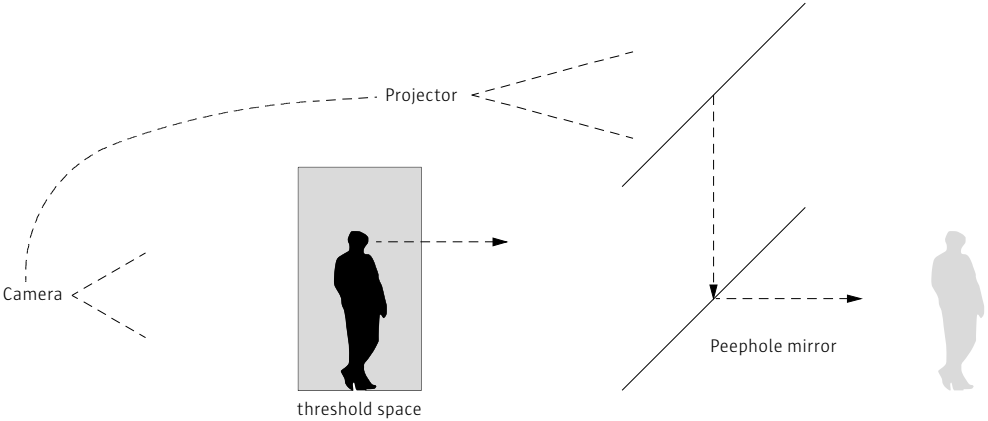


Fig. 22: Principle of the *Threshold Space Machine*



The *Threshold Space Machine* is constructed as an open object. It gets in the way and causes confusion (fig. 21). At the same time it creates a threshold space that invites you to enter. Upon entering, the visitor is already in the threshold space, in the perceptual space. Visitors can experience their own spatial past together with an overlapping of the spatial future (fig. 22). It becomes possible for them to see themselves from behind, in motion and life-size. At the same time, each visitor can see in this “backward mirror image” the front view of another visitor approaching. Both the projection and the space ahead can be perceived at the same time (fig. 23). The *Threshold Space Machine* prompts you to use it more than once. The visitors go back and forth through the installation in order to truly perceive the projection, their physical experience, and the situation that lies before them simultaneously. It is virtually impossible to focus on all three phenomena at the same time.

With the help of two mirror systems, real-time video transmission and projection technology, the user perceives an extraordinary spatial experience as he experiences the space he has just passed through and the space in front of him simultaneously (fig. 22). The transitional situation is projected forward using the *Pepper’s Ghost* illusion. This momentary overlapping demonstrates how the threshold space must function as a complex connecting element. The temporal sequence of that which lies in the past, the present, and the future is compressed and overlapped. This superposition makes the visitor see and feel the complexity. Various light tests made it possible to find a good balance between the transparency and the light-reflecting qualities of the mirror. The better you can see the space ahead through the transparent mirror, the fainter the deflected image of the passageway is. Conversely, the clearer the projection appears in front of us, the less significant is our perception of the space in front. Additional lighting helped to solve this technical problem. The *Threshold Space Machine* brightens the threshold space and facilitates a high-contrast reflection of the projection. The installation is conceived as an open system that can be modified based on its utilization (fig. 24). As such, the *Threshold Space Machine* is a variable perception apparatus that can be adapted to its site each time it is set up.

Fig. 23: Walking through the *Threshold Space Machine*



Fig. 24: The Open System



The Threshold as a Spatial Phenomenon

Both the examples from architecture history and the art projects presented here illustrate the diversity and interpretability of a spatial transition. They can be understood as reference points or sources of inspiration for further explorations of thresholds, whether in architecture or in art. The transition from one space to another is a problem that on principle is to be solved by means of design. Based on their deeply rooted cultural significance in places of worship, such as the Acropolis, transitions have been meticulously planned and constructed. The ceremony proceeds along a planned path that makes “crossing” the focus of attention. The Pantheon establishes this spatial transition with the portico, which provides a form in which to contain the threshold space.

Several of the architectural examples have been drawn on directly for the design of a threshold space. The sequence of the threshold space of the Acropolis, for example, has been examined and used as an archetype by a number of architectural generations. Le Corbusier sketches the sequence and combines it with his own designs. Analogies can be found in various projects by Rem Koolhaas, such as the Embassy of the Netherlands in Berlin or the Casa da Música in Porto. He works with the concept of a driving spatial sequence, which he even refers to as a “traject.”⁴⁸ In a similar way, Dan Graham’s ideas and concepts have found their way into a number of architectural designs. Diller + Scofidio have implemented a video link in their brasserie in Mies van der Rohe’s Seagram Building. The arriving guests are filmed by video cameras while still on the sidewalk, before they enter the restaurant. The film sequences are shown on monitors to the guests who have already taken seats at the bar. This video installation is reminiscent of the video concepts Dan Graham developed in the 1970s. This is the idea behind the design of my *Threshold Space Machine*. It demonstrates a spatial transition and draws on the art projects described here.

The historical examples and the art projects also form a basis for the analyses that follow here and clarify the fundamental nature of the phenomenon of threshold space. Moreover, Simmel’s observation that separation is a precondition of connection is clearly demonstrated. The performance *Safely Maneuvering across Lin He Road* is an impressive display of this relationship. Lin Yilin moves a wall across a street by taking blocks from one side of the wall and stacking them up on the other side. The masonry bond is broken up and connects the two sides of the street through its structural movement. The wall is “divided” in order to connect.

The selected examples make thresholds visible as spatial phenomena. Furthermore, they demonstrate how important the mediating moment between “open” and “closed” is for the threshold space. The spatial ambivalence is striking and especially explicit in the art projects. The passage-way in Dani Karavan’s memorial dramatically presents how two worlds could be connected.

⁴⁸ Peter Buchanan, “Von Le Corbusier zu OMA,” in *Die Moderne der Moderne*, ARCH+, 143, 1998, 62.

The Threshold Space

Based on analyses of space that make use of expressions such as “experienced space” and “spatial experience,” the term “threshold space” will now be traced back etymologically and defined. Architectural space is linked to human perception. The analysis of historical examples has demonstrated that such a view of space is applicable to these as well and forms a basis for architectural vocabulary that modern architecture draws on and extends. The virtual field trip into designs in the art world has created a more concentrated view and, as a result, a strong focus on the spatial experience of transition.

The etymologies of the terms “boundary” and “threshold” are examined in order to show their meanings and the context in which they are used. In this way, the connotations associated with the terms “threshold” and “threshold space” are revealed.

Following the definitions, a terminology will be established, based on the term “threshold space,” and from this perspective, various technical devices of a threshold space are identified.

Grenzen (Borders/Boundaries/Limits)

The German term *Grenze* can refer to the line that divides two countries, states, lots, or other areas.⁴⁹ The word comes from the Slavic and was introduced into German by Martin Luther. It replaced the German *Mark* for “boundary” (cf. “demarcation” or “marker”), as this term referred more to a border area rather than a boundary line.⁵⁰ A *Grenze* provides a space with a clear status. Setting *Grenzen* divides space into two sides. In this work, the term “boundary” will be used for *Grenze* as it is free of geopolitical connotations and refers more clearly to a line rather than a margin or area.

If a boundary is drawn to form a closed figure, the result is an inside and an outside. You experience the inside and outside when you move from one side of the boundary to the other. Whether a boundary is experienced as a line, an area, or a volume depends not only on the boundary itself but also on its context and the dimensions thereof.

In the language of architecture, a boundary is a spatial delimiter. Boundaries define spaces by separating a smaller space out of a larger spatial structure. Joedicke provides the definition: “The creation of space therefore always implies dividing off a smaller space from a larger one.”⁵¹ This means that the act of separating can be seen as a space-delimiting process. Boundaries always have spatial consequences. They organize and arrange space.

Demarcation can occur in two-dimensional space. It can consist solely of a marking. Boundary interfaces can define closed spaces that make the contrast between inside and outside perceptible.

⁴⁹ Wolfgang Pfeifer, *Etymologisches Wörterbuch des Deutschen* (Munich: Deutscher Taschenbuchverlag, 1997), 474.

⁵⁰ Friedrich Kluge, *Etymologisches Wörterbuch der deutschen Sprache* (Berlin: Walter de Gruyter, 2002), 372.

⁵¹ Joedicke, 15.

A transparent boundary represents a special case among boundaries in general. The expectation held of a boundary is that it can be perceived and recognized. If a boundary can be seen through because of its particular materiality, say, glass or transparent plastic, then at times the delimiter cannot be directly recognized and understood as a spatial boundary. Display windows make use of this phenomenon. We can approach the products but we have learned that direct access to them is not possible. Transparent boundaries organize space and can be understood as thresholds even if they do not provide for spatial transitions.

Invisible boundaries are harder still to recognize than transparent ones. It could be that they are based on tacit agreements that are subject to varying cultural interpretations. For example, plantings on the edge of a lot can be understood in different ways. The gaps between the plants can be read as an invisible boundary, but also as a threshold.

Alternatively, electronic security systems can create invisible boundaries. Crossing the boundary may be registered in another location and then reacted to. Invisible boundaries can also be seen as thresholds and can unintentionally encourage access.

Schwellen (Thresholds)

The original meaning of “threshold” is a doorsill, namely “a length of wood, masonry, etc. along the bottom of a doorway.”⁵² The word comes from the Old English “prescold” for “point of entering” which comes from “prescan” for “to tread or trample.” Walter Benjamin deals with the differences between *Schwelle* and *Grenze*. The German word *Schwelle* connotes a zone, a change, a transition, and rising water.⁵³

The threshold is the lower sill between the door jambs. It is a structural element that helps to seal the building. It provides a closure for the door and is an obstacle for insects, wind, and cold. The threshold can be a part of the door frame. In some cases it is developed out of the interior or exterior surface material. A threshold can also be a space-defining, independent element that places a particular focus on the act of crossing from one space to another. The materiality of the threshold is a deciding factor as to the context in which the threshold is perceived.

Openings in boundaries make transitions in space possible. Thresholds interrupt boundaries for the transition from one zone to another. That is, they are both a part of the boundary and a gap in it. A threshold is understood as a linear interruption in the boundary, so it naturally runs in the same direction as the boundary. It is a perforation of the boundary and represents a small portion of that boundary. The threshold is perceived as a possible crossing point and at the same time as a part of the boundary, so that permission to cross is required.

Thresholds are openings in boundaries that constitute an invitation to cross. They are a preface to a space and create not only the transition but also the space itself. In terms of defining space, thresholds are both boundary and transition. That means they thrive on the ambiguity of both opening and closing off spaces.

⁵² *Webster's Dictionary*, 1394.

⁵³ Benjamin, 617f.

When closed spatial bodies have substantial, clear delimiters, the opening of the space through the threshold is particularly clear. The threshold is associated with one side of the spatial boundary and thus structures the spatial sequence. In the case of open spatial bodies, thresholds are often not so easily identified, as they may be integrated in the spatial sequence in the form of flush platforms, ramps, or steps.

The original meaning of a threshold has been extended in the architectural context. The term no longer refers solely to the physical traversing of a complete body from one space to the other. The possibility of combining spaces with technical equipment has created new thresholds. Understood this way, the telephone, intercom, or video surveillance have become thresholds. These technical thresholds link and separate spaces. They monitor access and are also a part of the boundary.

Threshold Spaces

The term “threshold space” is used in various disciplines and describes a spatial or temporal transitional state. In architecture, the term is used by Ilka and Andreas Ruby, among others. They point out how dependent an experience of space is on a sequence.

“[T]he entrance [...] is becoming less a spatial element and more a complex spatial sequence. We do not enter at a particular point, it is a process in space and time. So the threshold is no longer linear, but a ‘threshold space’ that can be both in front of and behind the facade.”⁵⁴

Susann Behnke-Pfuhl uses the term threshold space to denote “the contact area for living.”⁵⁵ For her, the term threshold space includes expressions seen in literature such as “intermediate area,” “connection,” “transitional nature,” or “interface between action spaces and retreat areas.”⁵⁶ She further develops its meaning to include the social aspect of “facilitating contacts.” Behnke-Pfuhl deals with the term in the controversial context of apartment construction, without analyzing the spatial expansion of threshold space or how it operates inside a building.

I chose the term “Threshold Spaces” as the title of a series of seminars at the Faculty of Architecture and Urban Studies of the Bauhaus-Universität Weimar.⁵⁷ We use spatial analyses of selected architectural examples from the twentieth and twenty-first centuries to pinpoint threshold spaces. In addition, we design and build threshold spaces in the design section of the seminars.

Otherwise, the term threshold space appears irregularly as a means of expressing a further line of thought regarding spatial transitions. In the *Schwellenatlas* of the magazine *ARCH+*, Diller + Scofidio’s Slow House is described as follows:

“It was a matter of a connection between a door and a window. The building was the threshold space between the entrance and the view out.”⁵⁸

⁵⁴ Ilka Ruby and Andreas Ruby, “Schwellenräume – Zur Transformation des Eingangs in der Kultur des Übergangs,” in *DETAIL, Zeitschrift für Architektur und Baudetail*, 11, (2004): 1265.

⁵⁵ Susann Behnke-Pfuhl, *Schwellenräume in Haus und Wohnumfeld* (Hanover: privately printed, 2005), 26.

⁵⁶ *Ibid.* 30.

⁵⁷ See Till Boettger, “Schwellenräume” (seminar, Bauhaus-Universität Weimar, Faculty of Architecture, summer semester 2007).

⁵⁸ *Schwellenatlas*, 6.

“Threshold space” is a compound term. The “threshold” part refers to the transition from one space to another. The term threshold incorporates the ambivalence between opening and closing. Threshold spaces thrive on announcing the upcoming spatial experience; in other words, such a space exists in the expectation of moving on. “Space” means architectural space, which is determined by an individual’s physical experience in motion and perception. In architectural designs, threshold spaces adopt the function of access to other rooms; in many cases this is also the entrance.

Both entering a space and leaving a space are key moments in experiencing spaces. Threshold spaces are perceived in terms of accelerated or decelerated movement. Crossing a threshold allows us to perceive a threshold space as an experience and entrance space. Our path, dependent on direction and time, leads us to experience the spaces as being ahead of or behind the thresholds.

Threshold spaces border on thresholds. Together with other space-defining elements, thresholds can create a perceptible space, a threshold space. Thresholds constrict a threshold space and often form protuberances from it. Threshold spaces are transitional spaces that form a spatial preface to functional spaces. From the point of view of the functional spaces, threshold spaces infold into them.

The threshold space precedes the space to be entered. The threshold space can lie primarily outside, between inside and outside, or entirely inside. Threshold spaces can be organized in the form of a point, a line, an area, or a three-dimensional figure.

Threshold space can be described and defined from various perspectives. In the following text the term is seen from the point of view of the user, the space, and the architecture:

- A threshold space defines the opening of spatial delimiters during the act of crossing them.
- A threshold space is a transition that separates spaces from and connects them to one another.
- Threshold spaces are transitional spaces that provide a spatial preface to the functional spaces that follow.

The spaces bordering the threshold space, the boundaries, and to a large extent the thresholds determine the atmosphere of the threshold space. Form, material, and orientation can facilitate pathways and hence draw attention to thresholds or, conversely, blur them or even let them disappear. Small-scale transit situations can arise inside a space and develop out of various spatial functions. In larger spatial contexts, half-open spaces can create intermediate areas that, depending on the point of view, can be associated with functional spaces. Threshold spaces are experienced particularly in the changeover between interior spaces and exterior spaces. Entrance spaces are threshold spaces, insofar as they provide for access to the perceptible ambience in the interior space. The act of crossing a threshold space can be consciously perceived when there is a noticeable contrast between spatial atmospheres. Planners can intentionally downplay thresholds in order to amplify the ambivalent spatial nature of a threshold space.

We speak of inviting entrance areas that work with open boundaries and turn the inside out. Rhythms can be established that invite seamless stepping in and produce a steady beat. In some cases, obstacles are set up with the intention of slowing down the approach in the planned spatial sequence.

In contrast, spatial experiences and habits facilitate orientation. Materials and lighting play a decisive role in forming pathways in a threshold space. Changes in material can be heard, felt, or seen and thus mark the breaks. Transferring the familiar into a new context makes it possible to provide spaces with a new character. For example, materials, furniture, and forms that are normally found in exterior spaces can be used in an interior space to create an outdoor mood. A novel threshold space results.

Threshold spaces, like thresholds, thrive on ambiguity. They live on their double function: access control and opening. In addition, the design of threshold spaces often makes use of the varying spatial atmospheres of an exterior or an interior space. The essence of a threshold space is capturing and staging an entrance. A clear, planned sequence allows the visitor to gain entrance to the design of the building. Thus the threshold space provides orientation and facilitates, both literally and figuratively, access to the space. In threshold spaces, people find themselves in a state of between-ness.

The manner in which people enter spaces is in a constant state of flux. Various cultures develop threshold rituals based on beliefs and traditions. As a result, accessibility and the demarcation of boundaries are variable. Accessibility defines a person's range of movement. The place where the boundary opens is on the edge of the threshold space. The gate, door, curtain, or video surveillance are elements of the concept of threshold spaces. It is the ambivalent nature of between-ness that makes a threshold space exceptional. The degree to which one locks, obstructs, opens, invites, extends, or limits determines the accessibility of the spatial experiences.

Equipment in Threshold Spaces

Technical equipment is increasingly included in the form of built-in units in designs for new buildings. Threshold spaces make this development particularly apparent. Built-in units that support the spatial organization of a threshold space could be referred to as "threshold space equipment."

Threshold space equipment makes access control possible, usually in order to replace reception personnel or to facilitate more exact technical monitoring of details. Much of this threshold space equipment has been compiled in the *Schwellenatlas* (Threshold Atlas) published by the journal *ARCH+*. A body scanner, for example, is supposed to organize access to an airplane by graphically undressing people and thus revealing weapons. An intercom combined with a camera aids in controlling initial access to private areas when there is no direct connection to them. A peephole in a door is another example of a surveillance instrument.

When positioning threshold space equipment, it is essential to think through in advance what sequence the arriving person will experience and to orient the equipment according to this movement. The time sequence is measured to determine the correct position for the individual items of equipment that follow on from one another and are connected in series. In the case of video surveillance, for example, the recording range must be carefully adjusted in order not to infringe on neighbors' privacy rights. Private video surveillance is subject to neighborly limits.

Items of threshold space equipment can be directly integrated into the design to keep them inconspicuous within the spatial layout. Technical innovations in threshold space equipment allow more and more exact access control to be implemented. It is, however, difficult to integrate the latest developments into the space-defining elements after the fact without the equipment looking out of place. Special security controls designed to scan bodies are too large to remain inconspicuous. Video surveillance systems installed at a later time have a profound influence on the atmosphere of the threshold space. They are recognized as monitors and call free access to the space into question. Staged observation can both serve as a deterrent and contribute to an increased feeling of security. So far, no verdict on these two points of view has been reached. It is clear, nevertheless, that spatial perceptions change based on recognizable threshold space equipment.

Threshold Space Closures

The term “threshold space closures” refers to mechanisms that seal off the thresholds of the threshold spaces and make them impassable. These closures can be opened or closed and the ambivalence of the threshold can be experienced in their varying states. For the most part, the closure takes the form of doors or gates, whose emblematic nature is recognized in the presence of a door handle. Transparent threshold space closures have become standard in many public buildings in order to imply open access to those arriving. Should the transparent doors be closed, the visitor is disappointed with regard to this expectation. Threshold space closures can also be organized in an interior space. In the Neue Nationalgalerie in Berlin, for example, we find the entrance to the interior space in the center of the threshold space. During opening hours, the revolving doors function as a strong threshold and form a threshold space closure of the glass surfaces, but one which does not provide its own space of perception. This threshold space can be experienced in its continuity, as the interior section is used as a foyer.

Currently, sophisticated closure mechanisms are being combined with threshold space equipment. Positive biometric fingerprint recognition allows a visitor to open the lock. Access authorization is becoming more and more individualized. In newer designs, threshold space in private buildings is first closed in a provisional way, although transparent entrance areas imply open access. Whoever has authorization has the “key.” In the science-fiction movie *Gattaca*, Andrew Niccol presents an elaborately designed fingerprint reader that, as a central apparatus in the film, is tricked through the use of a second skin, and this in the year 1997.

In the meantime, the culture of opening is often replaced by a culture of access control. Decentralized concepts that operate without a distinct main entrance, such as the Centre Pompidou, have been redesigned. The original design concept called for the entrance area and the public square in front of it to form one continuous threshold space and to make the interior space accessible through a number of different entrances. The area was redesigned, however, to allow for central access control. The idea of the freely accessible art machine can no longer be experienced. The present entrance is hard to find, as the building was designed with a decentralized entrance.

Threshold Space Analyses

Spatial Notation and Spatial Analyses

Carpenter Center for the Visual Arts in Cambridge, Massachusetts

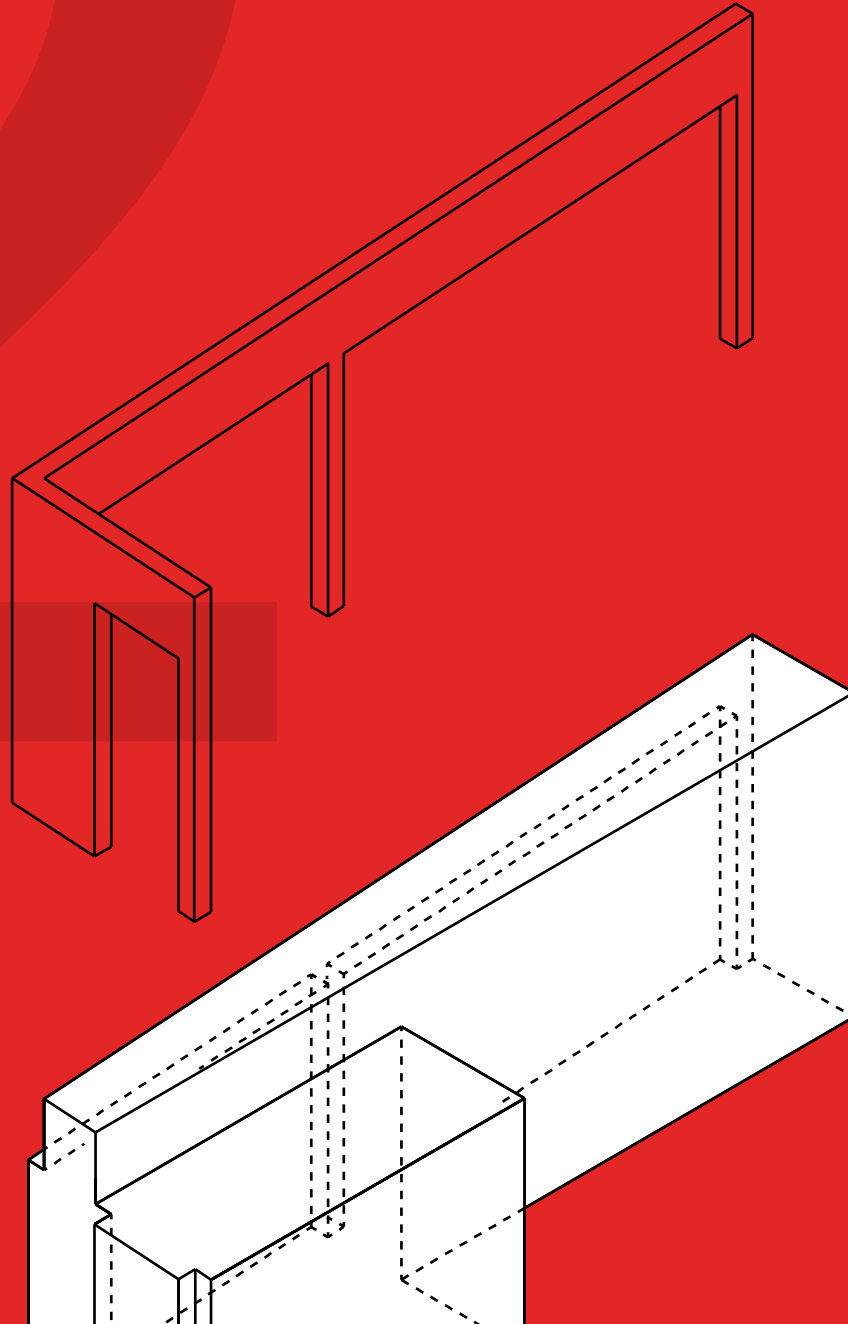
Neue Nationalgalerie in Berlin

Museu de Arte (MASP) in São Paulo

Museum für angewandte Kunst in Frankfurt am Main

Fondation Cartier in Paris

Casa da Música in Porto



Spatial Notation and Spatial Analyses

Pictorial representations of space can be developed into a tool to facilitate an understanding of spaces. The term “spatial notation” means a presentation of space that sheds light on its configuration. The goal is to use specially designed analysis techniques and diagramming to present the perception and idea of a threshold space in order to gain deeper architectural insights into this spatial phenomenon.

Architectural drawings provide striking insights into the spatial concepts of architects. The presentation of possibilities influences the later spatial models and their realization. Some time after the planning layouts, views of the finished building are drawn in order to understand what is to be built. Spatial notations serve as a source of inspiration for future buildings, document as-is states, and sometimes reveal lost construction techniques and details.

It is therefore possible to differentiate between spatial notations that are prepared to help create spaces and those that attempt to comprehend or depict existing architectural spaces. This differentiation does not, however, play a great role in the understanding of space, as the fundamental difference lies between space as experienced and space as presented. Spatial notations facilitate the process of imagining and work reciprocally with the space to be experienced. Furthermore, the space-defining elements are constantly subject to modification; that is, they age and can be renovated, adapted, and renewed.

Moreover, techniques and representations of notation are also subject to change over time, and examinations using new media can offer valuable insights. In order to put a spatial idea into practice, it is useful to complete representations during the planning and the building phases as well as afterwards. While the notation creates its own view of the space, this view is strongly linked to the completed space. A diagram can have the power of expression of a first design sketch and presents the concept in an abstract form.

There are numerous graphical examinations of architecture. Choisy’s work⁵⁹ from the year 1899, which depicts the Acropolis and demonstrates its spatial qualities, is particularly impressive.

Francis D. K. Ching’s drawings explain spatial ideas and attempt to categorize them. His publication *Architecture: Form, Space, and Order*⁶⁰ has shaped foundation courses in architecture in the United States and remains a standard reference work.

Boris Podrecca’s efforts run in a similar vein. His *Almanac of Architecture*⁶¹ analyzes one hundred buildings and sorts them into spatial categories.

Egon Schirmbeck also examines the question of how space and its various concepts can be presented in a legible and comparable manner. The publication *Architecture and Space: Design Concepts in the 20th Century*⁶² presents an attempt to use drawings and models to represent and display spatial concepts in a comprehensible manner.

⁵⁹ Turit Fröbe, “Wege und Bewegung in der Architektur Le Corbusiers,” *Wolkenkuckucksheim, Gebaute Räume. Zur kulturellen Formung von Architektur und Stadt* 9, no. 1 (2004).

⁶⁰ Francis D. K. Ching, *Architecture: Form, Space and Order* (New York: Van Nostrand Reinhold, 1979).

⁶¹ Boris Podrecca, *Almanac of Architecture* (Salzburg: Verlag Anton Pustet, 2009).

⁶² Egon Schirmbeck, Till Boettger, and Christian Hanke, *Architecture and Space: Design Concepts in the 20th Century* (Berlin: Dom Publishers, 2011).

Thomas F. Hansen experiments with spatial notation to describe architectural space and make it more intelligible. He has developed a sophisticated technique of “sequence symbols”⁶³ that focus on architectural experiences along a path.

Space as Experienced/Represented Space

Architects move and work in spaces of representation and experience, that is, they plan the space to be constructed⁶⁴ and attempt to walk through it in their imagination. These mental images are translated into space-defining elements.

In the following spatial analyses, I use spatial notation that includes not only the space to be analyzed but also the space to be experienced. The planning process is reconstructed in reverse order and then divided into individual aspects. One basis is the set of planning documents that results from the examination. These principles facilitate an advance mental walk-through of the architectural space. The second important requirement for the analysis is the experience of space on site that allows me to perceive the space as its user. Experience in the completed space makes it possible to compare the relationships perceived there with those that were planned. What I experience and perceive and what I observe in other users on the one hand is superimposed on what has been determined analytically on the other. The description and graphical depiction of space as experienced can succeed in particular with background knowledge of the spatial relationships of the architectural space.

Relevant spatial parameters are used to closely analyze individual aspects so that important factors can be presented in isolation. This dissection is accomplished in the reverse order of the planning process. Identifying the themes relevant to the design is not to be confused with the design process itself for the object to be analyzed, but is an independent examination subsequent to the design and construction processes. This examination and analysis sharpens design skills. Diagrammatic drawings are tools for architects; they facilitate spatial thinking and planning. For this reason, numerous diagrams have been developed here to demonstrate the individual aspects. Their role is to make the aspects easier to understand and to work reciprocally with the explanatory texts. The text explains the diagrams, the diagrams explain the text.

In the process of the analyses, the diagrams also served to prompt questions and to redirect lines of thought. The drawings form an important building block toward gaining insights. They assist in reading the architecture and what has been experienced spatially.

Analysis Techniques according to Schirmbeck

In his teaching, Egon Schirmbeck uses the examination and inversion of the design process in contemporary architecture to confront his students with the various aspects of the design concept. The architectural design is dissected into five parameters in order to confer structural organization on the complexity at hand. This dissection makes it possible to focus on one aspect at a time and thus come to a clearer understanding of it. For all parameters, space is the center of attention. Together, they form a differentiated composite picture.

⁶³ Thomas Hansen, *Der Architekturraum als Erlebnisraum für Planer und Nutzer* (Stuttgart: Karl Krämer Verlag, 1977), 203.

⁶⁴ Ludwig Fromm, “Raumpaare—dem Erleben verpflichtet. Ein Lehransatz,” *Der Architekt*, 2008, no. 3, 60–64.

Schirmbeck explains the approach in the text “On the Analysis of Spatial Concepts” as follows: “Using graphical analysis in the sense of a deduction, we attempt to make particular design parameters explicit and show them individually (spatial design, spatial function, spatial definition, spatial structure, spatial sequence). For the sake of clarity, contrasting characteristic parameters are documented in each respective case. Through the analysis, the design is deconstructed into the elements with which it defines space and forms structures.”⁶⁵

On a second level, the individual parameters are more closely defined and divided into conceptual fields:⁶⁶

- Spatial design: Material, color, light
- Spatial function: Space and use
- Spatial definition: Objects and space
- Spatial structure: Form and order
- Spatial sequence: Places and paths

In my opinion, a modified categorization would make it easier to comprehend a building in the context of teaching and student activities. Statements with regard to the creation of space can provide a good overview and space-defining elements can clarify the body of a space. As a result, spatial understanding of the elements that define the space and of its actual volume and cubature is heightened. An appropriate means of presenting this parameter is an isometric drawing. It is best suited to depicting the physicality of spaces.

A second step can be used to gain insight into the ordering system of the spatial design. Structural analyses are appropriate not only for describing the geometric rules, but also for revealing proportions. This reduction to the design ordering principles can best be read from vertical and horizontal sections. These sections abstract relationships between planes and lines out of the complex spaces.

Following this overview, the spatial sequences can document an understanding of how we move in the space. Presenting movement on one plane, and also while overcoming changes in level, gives a first impression of the scale of the rooms. The articulation of the openings serves to explain and introduce the scale. The spatial sequences give the higher-level structure a perceptible and experiential temporal order.

In connection with spatial design, the percipient individual is central to the examination. Which spatial delimiters have which perceptible materiality? Here spatial design allows us to draw conclusions regarding the atmosphere. It is helpful to include considerations of the physicality of the space, as it provides another defining level for working with the space. The analysis of the spatial design examines its materiality and provides information on the manner in which the space-defining elements are executed and how they can then be perceived.

As a final step, it is appropriate to analyze the spatial function, as it places the emphasis on the use of the space. This very concrete parameter provides information on the built-in components and furniture that actually provide the space with its role. Moreover, the analysis of spatial functions is the final step in the building process.

⁶⁵ Egon Schirmbeck: “Raum’Gestalt” in Egon Schirmbeck, Till Boettger, and Christian Hanke, *Architecture and Space: Design Concepts in the 20th Century* (Berlin: Dom Publishers, 2011), 13.

⁶⁶ *Ibid.*, 16–27.

The sequence described here in which the parameters are applied leads from a comprehensible overview to a closer view of the details. This categorization makes it possible quickly to compare the actualities of various architectures. The individual parameters provide deep insights when applied in the given sequence. The relationships among the parameters reconstruct the complex image of the architecture. As I understand them, the parameters are open, overlapping topic areas.

It should be mentioned, nonetheless, that some objects are better served by a different categorization process, for example one in an inverse order where the spatial function is dealt with as a starting point. This order focuses on activity in the utilized spaces and evaluates the strategy. Categorization according to the importance of the parameters for the particular architecture in question can also achieve a convincing analysis. However, such individualized approaches are of little use, if not to say confusing, in a comprehensive comparative study.

Adaptation of the Method

Spatial topography, as a further parameter, inquires into the site. This extension of the spatial context positions the architecture and the space in the surroundings. Spatial topography involves questions regarding the urban structure and the landscape. An architectural project can be presented alone as a “solitaire” or form part of a larger ensemble. The analysis of spatial topography is a means of classifying the full-scale project and it provides insights into the relationship between the architecture and its environment. It is a matter not only of the full-scale site but also of the newly created “place” and its identity. Places are usually associated with experiences that live on in memories and stories. As a result they are often narratively charged; the collective memory defines the place in a direct manner.

The six parameters—spatial delimitation, spatial sequence, spatial geometry, spatial topography, spatial materiality, and spatial function—form the framework of the analysis. In the case of threshold spaces, they are applied to the analysis of one space, the threshold space, and not the entire architecture. The larger spatial context in a threshold space analysis is the architecture itself and its immediate surroundings. The emphasis is on the relationship between space and architecture, similar to the dialogue between a building and its surroundings in an architectural analysis. The terms are defined more precisely for threshold space analysis and thus offer an adaptation for the phenomenon of transition. Spatial delimitation refers to the boundaries of the threshold space. These make it possible to trace the open spatial body and describe whether the threshold space is perceived as an entity or as a continuum. It is essential to determine the open and closed sections that either facilitate or prevent entry. Another important question is whether the threshold space is registered as a space or the space-defining elements are read as symbols.

Identifying the sequence is a key factor in threshold space analysis. In what way is the path through the threshold space staged? In what order are the experiences of space perceived? The time component is significant, as a threshold space is defined by entering and leaving. Furthermore, the question of sequence focuses on the pathway and the line of movement. To what extent is the path and the direction predetermined? To what extent are we free to choose a path?

A subsequent examination of the geometry is helpful, as it explains the spatial organization of the threshold space sequence and, for example, highlights certain proportions. The relationship between the space and the surrounding architecture is also relevant to the organization. Is the threshold space integrated or does it possess its own structural organization? The structural analysis also implies the question of location. What spatial topography does the threshold space have in relation to the architecture? The topography of the threshold space describes the place

that has been created. The question of spatial materiality is appropriate after the determination of the spatial topography because it gives form to the site-specific contextualization. The materials used are naturally closely associated with the architecture as a whole, but they develop a certain independence through their close relationship to the exterior space and to natural light. The wear and tear on the materials that results from the constant crossings is also worthy of mention. The visible signs of wear that result are indicative of the number of visitors. Whether a visitor feels welcome or not depends to a large extent on the atmosphere of the threshold space. Finally, the furnishings of the threshold space are analyzed. This part of the analysis poses the question of built-in thresholds. What equipment can be seen? The technical execution of the threshold space is influenced by certain security standards and requirements regarding building climate control.

Threshold Analysis Parameters

The following section outlines the parameters that lend themselves to threshold space analysis and the questions that are central to each topic. The terms used by Egon Schirmbeck are given in parentheses. The parameter “spatial topography” has been added.

Delimitation (spatial definition)

How is the threshold space defined? Can the spatial body be perceived in its entirety?
Are threshold space delimiters used as symbols of arrival?

Sequence (spatial sequence)

Along what path can you stroll through the threshold space? Is the path staged?
What lines of movement are offered? Is there a planned transition?

Geometry (spatial structure)

What is the organization of the threshold space? Can geometric forms be identified?

Topography (spatial situation)

What place does the threshold space define? What is the position of the threshold space with respect to the architecture as a whole?

Materiality (spatial design)

What atmosphere can be experienced in the threshold space? What color, what light, what contrast does the threshold space possess? What influence does the lighting have?

Furnishings (spatial function)

What are the effects of the furnishing and/or the technical execution of the threshold space?
In what ways do threshold space closures and threshold space equipment alter or support the threshold space?

Practice has shown the value of a summary that demonstrates the importance of the individual parameters. The summary condenses the findings and prepares a categorization that evaluates the space on the basis of its spatial capabilities.

Selection of Objects for Analysis

The examples chosen for this analysis are freely accessible public buildings. Because of this accessibility, the architect has to deal with the threshold space during the planning phase in order to organize how the users enter and leave the building.

The focus is not on an analysis of buildings that operate with entirely private access. Transition situations play a larger role when the type of building carries in its design a desire for openness. The ambivalence of the threshold space becomes more visible. In the case of private buildings, the idea of hiding or sealing off plays a large role. In such a typology, protecting privacy is a more important function of a threshold space.

Each object for analysis can be considered a form of “art.” For the most part, buildings are included that present modern or contemporary art. This exceptional group is of particular interest in the analysis of transition situations as the art in question deals, to a large extent, with the breakdown of boundaries in itself. Furthermore, a special relationship develops between the art objects in the threshold spaces. The spatial perception of some sculptures displays parallels to the perception of complex spatial sequences. These similarities provide insight into the moment of transition itself.

Architectures and access to them are utilized to demonstrate openness and the associated dissolution of the threshold. A prime example of this development is the architecture of museums in Europe in the second half of the twentieth century. Major European cities are keen competitors with regard to their museum projects. The treatment of the threshold in these prestigious buildings is critical for the spatial design. The space should encourage the visitor to enter the museum. The structure of the buildings embeds them in the urban space; access to the exhibition space or performance space is staged accordingly. Transition sequences result. Generally, green spaces or urban squares are incorporated into the organization of the initial approach. The ideas of transparency, clarity, and openness become guiding themes for these designs.

Since the beginning of the twentieth century, projects involving public buildings for art have been carried out with an increasing focus on economic and social goals. In the twentieth century, the art market developed into an independent sector of the economy. Furthermore, governments initiate public museum-building projects in order to provide contracts for local and national companies. The public buildings are expected to develop a sense of identity among the inhabitants by exhibiting cultural works and providing a platform for discussion. The buildings are places for communication and representation. Image cultivation plays a major role in the development of spatial concepts, as the hope is to present one’s own values at the same time. States and organizations have discovered the possibilities of using buildings for art and its presentation as showpieces for their understanding of culture. Transparency, openness, clarity, and accessibility stand for values that are to be demonstrated in the spatial designs.

The objects of analysis are presented in chronological order and are considered in particular as representatives of threshold space situations. Sites with different cultural characteristics were intentionally chosen in order to explore the international spectrum of spatial transitions. The goal of the analyses is to gain a closer understanding of the design of the buildings by focusing on individual significant transitions. Perhaps architecture can be made more approachable if the objects of analysis are viewed from the perspective of access.

The selected buildings were designed at intervals of approximately ten years and were all completed after 1950. Limiting the work to architectural endeavors of the second half of the twentieth century and of the twenty-first century seems to be particularly helpful for tracing various positions and interpretations of threshold space. The selection of threshold spaces allows for a juxtaposition and comparison with examples of contemporary architecture and their treatment of the threshold space. The different positions and interpretations are illustrated with the help of the examples.

The various objects of analysis provide insight into their different spatial designs, which in turn permits a spatial categorization of their threshold space organizations. The emphasis is on analyzing treatment of the transition between exterior and interior spaces, as this is the area where the greatest spatial change is signaled. The stark contrast between inside and outside makes demands on the threshold space. Generally speaking, similar types of threshold spaces can be found in spatial configurations that mediate between interior and exterior spaces. The transition situations are then usually less distinct.

Carpenter Center for the Visual Arts

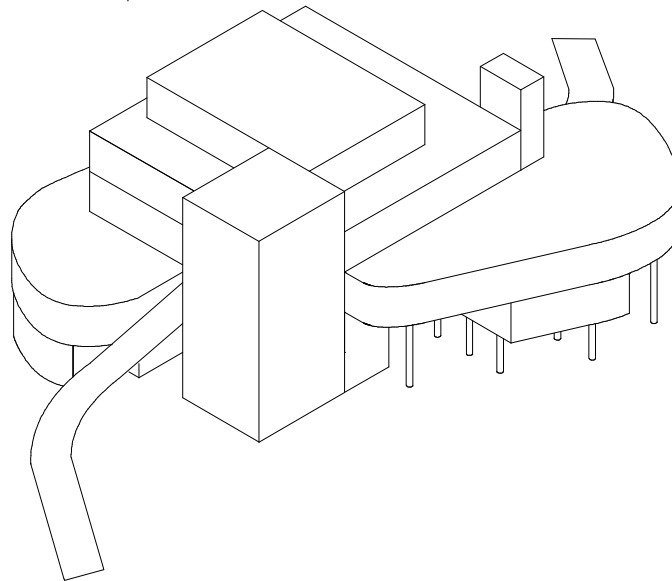
Cambridge, Massachusetts, Le Corbusier, 1961–64

The Carpenter Center for the Visual Arts at Harvard University is a building designed for multidisciplinary use.⁶⁷ It is currently being used by various classes in art subjects, who each occupy their own studio. Only the woodworking workshop is still operating according to the principle Le Corbusier developed of an open atelier, as it is used by students from various disciplines.

The building presents a bold contrast to the clear geometry of its neoclassical surroundings.⁶⁸ The architectural design is characterized by the materiality of the exposed concrete and dark appearance of the glass and, for that matter, the openings (fig. 25). The individual raw, open bodies find their dynamic counterbalance in vertical towers and supports. The spatial body presents itself as an open, fragmentary structure. The result is a center with different spaces connected to one another. Winglike bodies with round exterior surfaces extend from both sides of the rectangular, vertical elements. The prominent S-shaped ramp runs through the building and takes center stage.

At first, Le Corbusier tried to convince the commissioners to use the ramp as the main entrance. All visitors were supposed to arrive on the third floor. The lecture hall on the ground floor was to be accessed via a side entrance that would also serve as a delivery entrance. During the design process, the sunken entrance on the main floor was supplemented by a lobby and a windbreak.

Fig. 25: Cubature of the architectonic shape



⁶⁷ Willy Boesiger, *Le Corbusier Œuvre complète*, Vol. 7, 1957–65 (Basel: Birkhäuser Verlag, 1965), 54.

⁶⁸ *Ibid.*

Delimitation

The threshold space that is most important for the building is seamlessly formed by the S-shaped ramp that serves as a passage as it makes its way through the entire building and generates the entrance on the third floor (fig. 26). In the context of the paths through the campus, this passage creates a direct diagonal connection from Prescott Street to Quincy Street, where it continues in the form of a ramp to the Harvard Art Museum.

Most of the ramp is only delimited by linear rails, through which you can view the Carpenter Center from the outside as you ascend. On the southern side the safety barrier has the form of a concrete upstand. This element is solidly bonded to the ramp and, due to its depth, it was possible to keep it very low. It gives the impression of a roadside barrier, underscoring the image of a ramp on a freeway. A simple frame construction of flat-rolled steel with square grating delimits the opposite side only slightly and allows views through. These two lateral guides accompany the visitors as they pass the stair tower to one side and while they find themselves inside the volume of the building itself. The latter twenty-seven-meter-long area is protected against the elements and offers views into the gallery and the studio areas.

A level platform indicates the spatial center. From above, the space is delimited by the lower surface of the fourth floor. On either side, two broad glass entrance doors provide access to the building.

Fig. 26: Delimitations of the threshold space and body of the threshold space

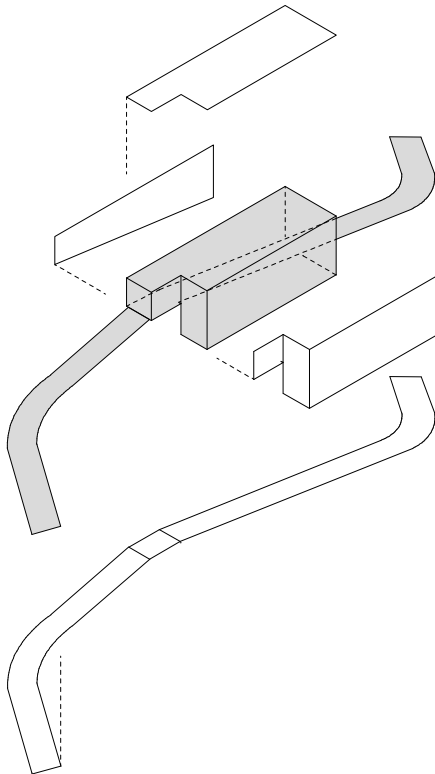


Fig. 27: Threshold space sequence, Prescott Street

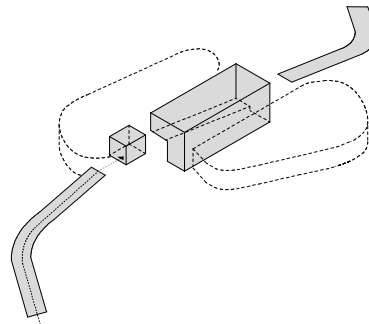
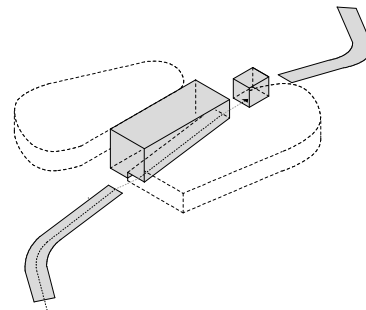


Fig. 28: Threshold space sequence, Quincy Street



Sequence

The ramp invites the visitor, coming directly from the street, to approach the building (figs. 27 and 28). “The ramp dramatically advertises itself as a bridge with the outside world. What constitutes the inside world—the other end—is still not apparent.”⁶⁹ The path is closely controlled from the first step onto the ramp. The preset route along the ramp gives our sensory organs plenty of freedom to experience and perceive the space. The separate spatial bodies of the building can be walked around and thus develop their physicality. Le Corbusier creates a guided distance and a meandering stretching of the path. The end of the ramp is logically the entrance into the building.

Regardless of the direction from which the visitor approaches, the ramp leads onto a level, square, interior platform. The *ondulatoires*, as vertical reinforced-concrete elements for dividing glass panes, support the fluid movement. Their widths were determined using Le Corbusier’s “Modulor” system. A special rhythm develops, for the ramp approaches the atelier areas in a countermovement.

Geometry

The floor plan of the building features a high degree of rotational symmetry (fig. 29). Both the ramp and the winglike studio spaces line up when rotated 180 degrees. The strong S-shape displays independence and appears to superimpose itself on the organization of the building or to cut through it.

The first, straight sections of the ramp delimit the site and run parallel to Quincy Street and Prescott Street (fig. 30). Moreover, their linear extensions form tangents to the winglike studio structures. This geometric alignment allows the visitor to head toward the unusual shapes as soon as he or she steps onto the ramp. The winglike structures echo the change in direction and function as a spatial introduction. They are the first bodies to be passed after the respective curve in the ramp. The curved sections of the ramp very naturally redirect the approacher. The straight central section lies on the diagonal of the property and underscores the dynamics, since the neighboring buildings and the structure of this building can be spatially perceived through its guided pathway.

Fig. 29: Rotational symmetry of the threshold space

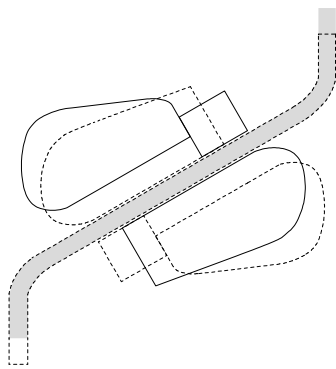
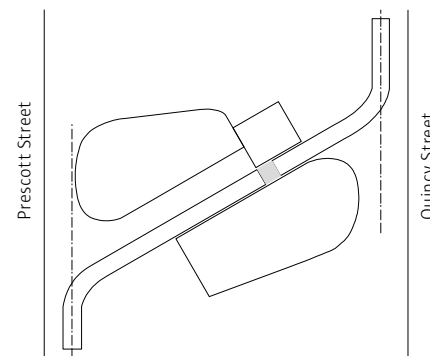


Fig. 30: Tangents of the threshold space



⁶⁹ Eduard F. Sekler and William J. R. Curtis, *Le Corbusier at Work: The Genesis of the Carpenter Center for the Visual Arts* (Cambridge, MA: Harvard University Press, 1978), 16.

The 3.66 by 3.66 m Modulo square is used as a recognizable geometric figure for defining the spatial body (fig. 31). The two openings in the spatial body that enable a visitor to enter the threshold space are distinguishable as squares (fig. 32). On the Prescott Street side, the opening is two stories high and wide; on the Quincy Street side, the square is only one story high and takes up only one quarter of the area of its counterpart. This balanced geometry in such a dynamic structure creates a distinctly peaceful and therefore important moment. The calm is underscored by the centrality of the square in the views. The floor plan of the inner section of the threshold space forms a rectangle made up of three squares (fig. 33). The cuboid space in front of the entrance doors is particularly remarkable. The ceiling is a white square. The smaller cube can be perceived as a constriction.

Fig. 31: Modular composition of the threshold space

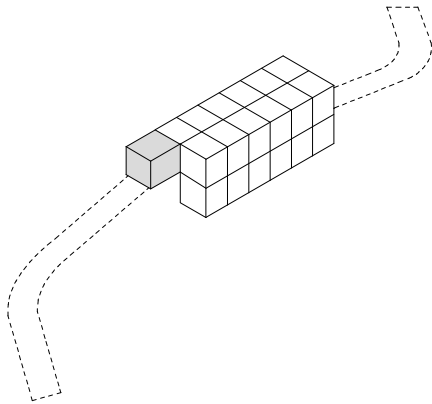


Fig. 32: Openings of the threshold space

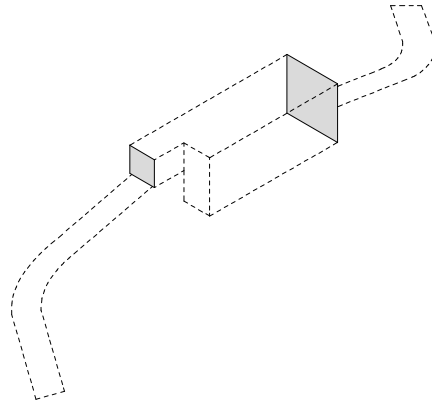


Fig. 33: Grid of the threshold space

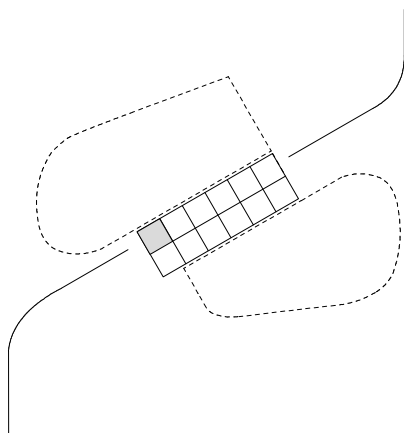
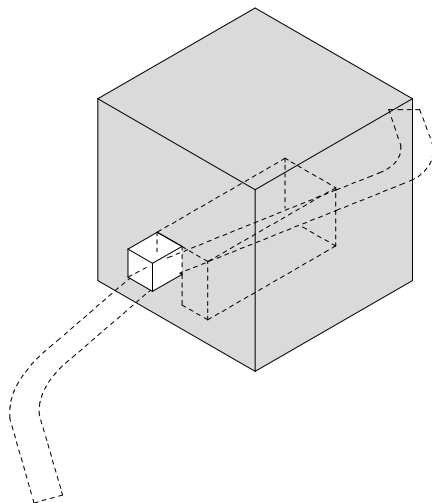


Fig. 34: Entrance cube of the threshold space



Topography

In his design, Le Corbusier envisaged a new, exceptional place that would distinguish itself from its environment in its design and its positioning (fig. 35). The visitor is led diagonally through the site and, while ascending, can perceive the clear contrast of the building to the orthogonal organization of the surroundings. The threshold space not only provides the visitor with an entrance into the Carpenter Center, but also functions as a transition space for the entire Harvard campus. The threshold space offers a change in position and with it a new, higher, and changing perspective.

The threshold space creates its own topography. It appears to overcome the height difference of its own accord (fig. 36). This operation creates a between-ness, or rather a center in between. In his first sketches, Le Corbusier calls the threshold space a *route ascensionnelle*,⁷⁰ thus emphasizing the upward motion.⁷¹

As far as a public exterior space is concerned, the area between the studios and the exhibition areas is unrivaled in the intensive way you approach “the visual arts.” The curvilinear promenade invites glimpses and arouses curiosity. The fundamental idea of multidisciplinary access is extended to the complete opening of the passage to the public.

Fig. 35: Contrast between threshold space and urban context

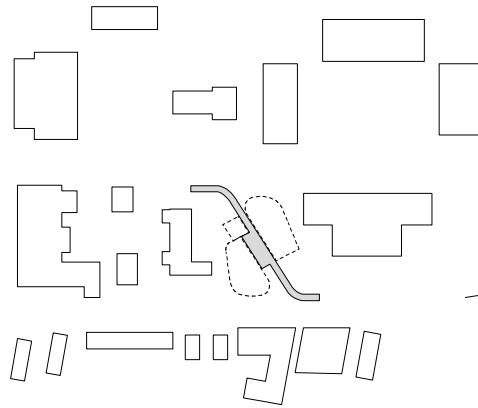
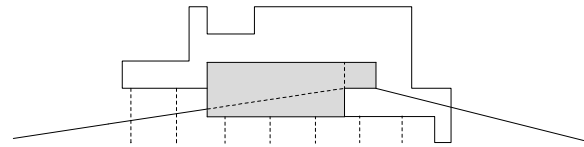


Fig. 36: Raised position of the threshold space



Materiality

The materiality of the threshold space corresponds to the materiality of the building as a whole; that is, the choice of material for the threshold space can be seen as a form of representation. The exposed reinforced concrete is the basic material. The plasticity of the individual spatial bodies is perceived intensely in the sunlight due to the light, beige, sandy color of the concrete. Light is absorbed to differing degrees in the changing seasons, varying the appearance of the building.⁷² The openings appear dark; the glass elements have a slightly green sheen. The concrete of the ramp is more porous than that of the building and thus underscores the particular surface feel of the exterior space. The same is true of the so-called safety barriers, the concrete upstands that

⁷⁰ Françoise de Franc lieu and Architectural History Foundation, *Le Corbusier Sketchbooks Vol. 4, 1957–1964* (Cambridge, MA: The MIT Press, 1982), 46, sketch 522.

⁷¹ *Ibid.*, 37.

⁷² Sekler and Curtis, *Le Corbusier at Work*, 16.

intensify the freeway character of the ramp. Small spotlights have been installed on the inside edge to lead the way when it is dark. With their rhythmic spacing, they are reminiscent of the lights that line the runways at an airport. The upper side of the ramp is also a projection surface that can capture the moving shadow play of the trees.⁷³ In winter, the white snow gives particular emphasis to the path of the ramp. Seasonal changes make the ramp seem even more like a city street.

Furthermore, in the dark the threshold space is showcased by the artificial light coming from the workshops and studios (fig. 37). The atmosphere of the interior space spreads to the bordering threshold space.

Furnishings

The interior of the threshold space is determined by its function as a passage and an entrance area. There are no built-in components to obstruct traffic. A notable characteristic is the degree to which the interior of the threshold space deals with the individual in motion, consistent with the Modulor system. Attention to this topic is also seen in the safety barriers that allude to freeway ramps (fig. 38).

The surface of the ramp is characterized by a rectangular Modulor arrangement⁷⁴ that produces a repeating pattern through the use of staggered tiling combinations. It provides the visitor walking up the ramp with a detailed, small-scale structure proportionate to the length of a stride. The dimensions are such that they can be experienced and felt. The water channel takes the form of a distinctive longitudinal groove. It divides the surface according to the golden ratio. The curvilinear safety barriers are prominent, emphasizing path and motion and simultaneously serving as very long seating. Their form is an upside-down L with a Modulor seating height of seventy centimeters and a depth of fifty-four centimeters. The upper, shorter side is tilted down approximately twelve degrees, suggesting only a fleeting moment in a sitting position.

The glass planes in the interior of the threshold space function as reflective surfaces and give what is actually a narrow area a natural breadth.⁷⁵ The spatial constriction is visually counteracted; indeed, the entrance area seems spacious. Le Corbusier planned to have plants in the passage (fig. 39), but according to the building supervisor these were never successful due to the lack of light. At present the space is being used as an exterior workspace.

⁷³ Ibid., 15, fig. 8.

⁷⁴ Ibid.

⁷⁵ Ibid., 18.

Fig. 37: Contrast of threshold space under artificial lighting

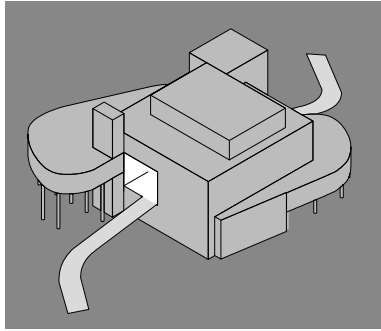


Fig. 38: "Roadside barriers" in the threshold space

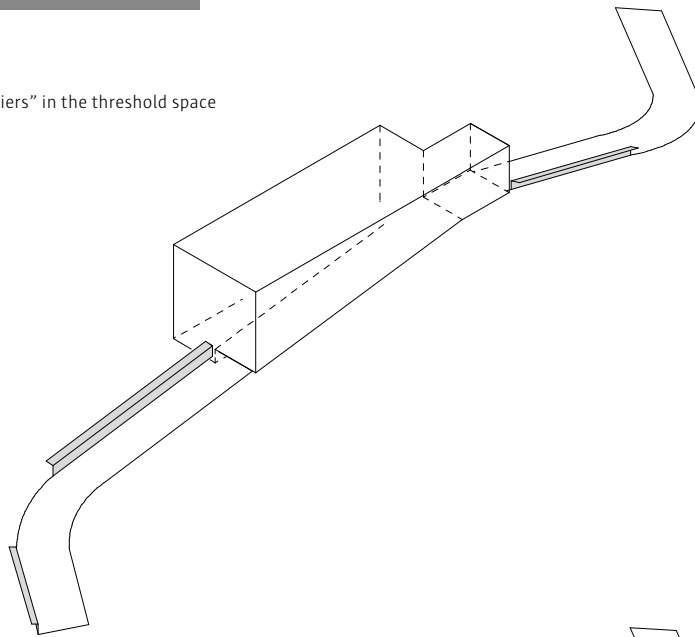
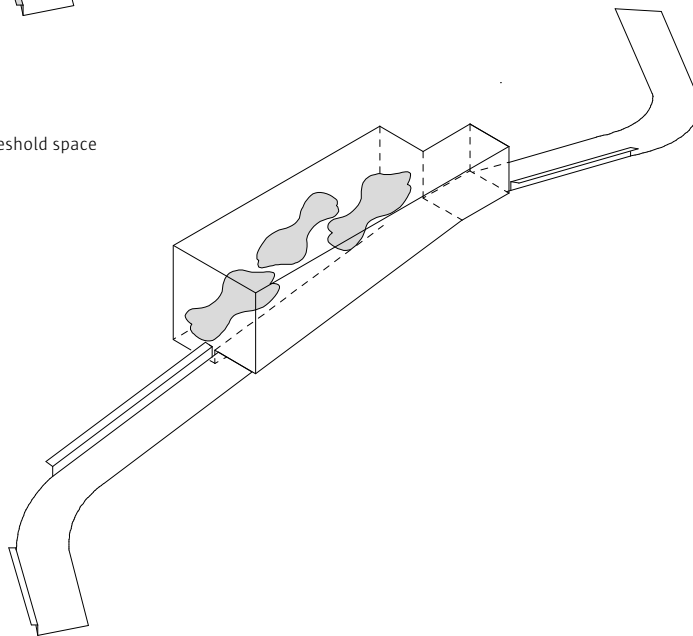


Fig. 39: Plants in the threshold space



Summary

The S-shaped ramp is the constitutive element of the threshold space. It determines the direction, pace, and order of the approach. This linear threshold space orchestrates arrival and a planned path through the complex. The spatial penetration links the surrounding campus with the functions of the Carpenter Center. The highest point on the ramp is in the interior and in the spatial center of the structure.

The spatial volumes seem to be attached to the ramp space and secondary to it. William J. R. Curtis describes the ramp as a “*promenade architecturale*.”⁷⁶ This term was coined by Le Corbusier and dates back to his observations on the Acropolis during a study tour. In both Villa La Roche and Villa Savoye, the *promenade architecturale* lies primarily in the interior and has partial, additional contact with the outside. With its length, central position, and shape within the organism of the building, the Carpenter Center ramp can be seen from virtually every point outside as well as inside. The threshold space seems omnipresent. Sekler and Curtis speak of “a landscape within a landscape.”⁷⁷ Thus the Carpenter Center opens like a park in the Harvard University campus. The landscape could also be compared to an English garden, in which a visitor ambles through a planned sequence of choice views.

Le Corbusier wanted to let the visitors arrive without a foyer or security controls. Only the ramp was to function as a transition point. The relocation of the main entrance spoils the building design. As early as 1978, Curtis criticized the annoying fact that the doors were often left locked for security reasons.⁷⁸ A portal marks the lower-lying side entrance, through which the visitor, subject to visual surveillance, now steps into the adjacent lobby area. The pathways and access to the building have been changed for security and surveillance reasons. Construction activities in the immediate area have repeatedly altered the beginning of the ramp in Prescott Street.

The ramp extends into an undercut into the Harvard Art Museum. This solution frees the ramp of the dogleg that led to the entrance of Werner Otto Hall. Nevertheless, the ramp no longer has the open end that was planned to let it “swing” freely. The alterations demonstrate that relegating the ramp to a path space and a secondary entrance compromises the building as an organism. Sensitive controls would have to be integrated into the threshold space in order to allow for the ambivalence between opening and closing. The ramp could then keep its character and its function, as Curtis expresses in three questions: “Is this interior, or exterior? Is one inside or outside the building? Is it the public or private realm?”⁷⁹

⁷⁶ William J. R. Curtis: *Le Corbusier: Ideas and Forms* (Oxford: Phaidon Press, 1986), 219.

⁷⁷ Sekler and Curtis, *Le Corbusier at Work*, 104.

⁷⁸ *Ibid.*, 18.

⁷⁹ *Ibid.*, 20.

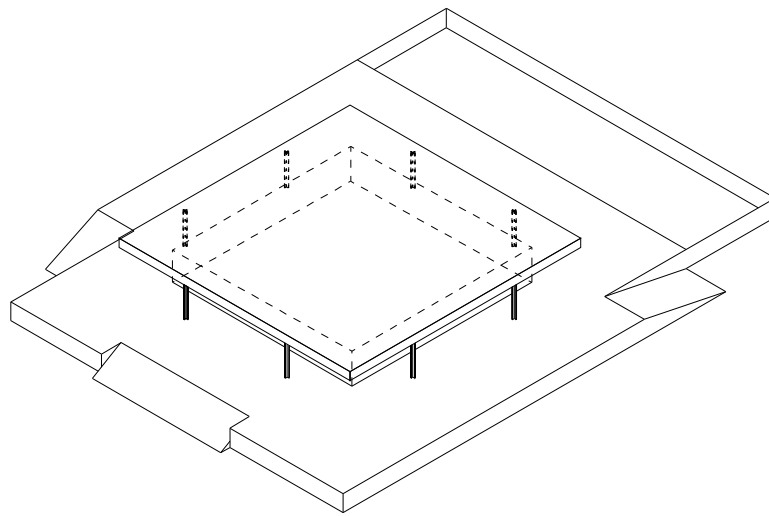
Neue Nationalgalerie

Berlin, Ludwig Mies van der Rohe, 1962–68

After World War II, the Western and Eastern powers reorganized the remaining collections of art in Germany; the Alte Nationalgalerie (Old National Gallery), designed by Friedrich August Stüler and officially opened in 1876 now belonged to the territory of East Berlin. The rebirth of the Institution Nationalgalerie in West Germany began with the merging of the Western section of the Institution Nationalgalerie and the Galerie des 20. Jahrhunderts (Gallery of the Twentieth Century). The amalgamation, with its increased collection, made a new beginning possible, for which a new location was also sought. Mies van der Rohe was directly commissioned by the construction senate in West Berlin. The Neue Nationalgalerie was to be a part of the Kulturforum. Together with the Philharmonie, the Staatsbibliothek (Berlin State Library) and the Staatliches Institut für Musikforschung (National Institute for Musicology), the idea was to create a new cultural center in Berlin.⁸⁰

The square black roof, a strong and weighty element, determines the appearance of the exterior of the Nationalgalerie (fig. 40). The roof plate is 64.8 meters long on each side and has a construction height of 1.8 meters. It is made up of steel plate girders that allow for structuring and coffering on a grid of 1.8 meters on the underside of the roof. Two slightly tapered cruciform steel columns on each side of the plate support the 1,260-tonne roof. The roof is held up at a height of 8.4 meters above the terrace and loses some of its massiveness. Under the roof and set back 5.4 meters from its outside edges, a transparent glass facade forms the thermal boundary plane between inside and outside.

Fig. 40: Cubature of the architectonic shape



⁸⁰ Anne Enderlein, *Die Neue Nationalgalerie* (Berlin: Berlin Edition, 2001), 32.

As a counterpart to the roof, a light granite plinth is the foundation for the steel and glass construction. This flat, horizontal terrace lifts the upper structure and creates a stage. The slope of the site to the west makes it possible to inscribe an inner courtyard in the base, providing the lower level with natural light.

The terrace offers an exterior space with an area of 9,760 square meters in which to arrive and also for the display of large sculptures.⁸¹ The glass facade, with its high clearance of 8.4 meters and its wide exhibition area of 2,430 square meters, creates a protected space for sculptures and hanging artwork that can be placed in a variety of positions. Mies van der Rohe designed a hanging system that could be attached to the underside of the roof.⁸² At the same time, the glass pavilion was conceived as a foyer and houses the cloakroom and the ticket office. Admission is monitored by the personnel. The ground-floor areas can accommodate special exhibitions. Two symmetrically placed double-flight staircases lead from the ground floor to the lower level. There they open into a rectangular lobby that guides the visitor to a museum shop, a later addition, and to the restrooms and the galleries. This 620-square-meter foyer is delimited by the stairways and, with the massive sliding doors, establishes a strong axis that corresponds to that of the main flight of steps outdoors. The *Graphisches Kabinett* (graphics gallery) follows, and then the *Kleiner Raum* (small room) that leads to the *Großer Raum* (large room). This large room has supports in a seven-by-seven-meter grid on which walls can be positioned. Light comes in from the adjacent sculpture garden. The *Großer Raum* houses the permanent collection.

In addition, the basement level includes ancillary rooms such as administrative offices, restoration workshops, and utility rooms, which are connected on one side by a ramp.

Delimitation

The upper side of the plinth and the lower side of the roof delimit the threshold space of the Nationalgalerie. The roof area is square; the base area with its embedded stairways is nearly square (fig. 41). The body of the threshold space can be described as a flat layer with a square floor plan (fig. 42).

Fig. 41: Delimitations of the threshold space

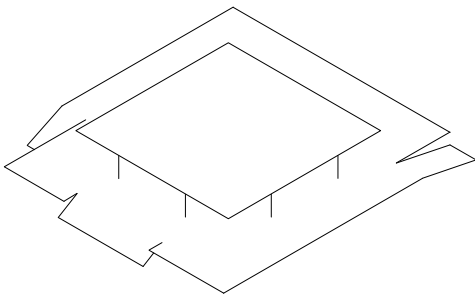
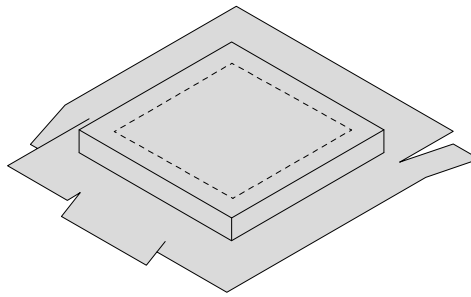


Fig. 42: Body of the threshold space



⁸¹ Andreas Grote, "Historische Baubeschreibung," in Imke Woelk, *Der offene Raum: Der Gebrauchswert der Halle der Neuen Nationalgalerie Berlin von Ludwig Mies van der Rohe* (Berlin: Technische Universität Berlin, 2010), 102.

⁸² *Ibid.*, 101.

The threshold space is created between the “city terrace” and the roof. It links the city with the art and organizes access to the works of art. It almost seems as though the city of Berlin, or at least all of the residents, could squeeze themselves into this inviting interlayer. With the terrace, the roof creates the spatial layer that invites visitors to step in and thus prepares them for the pieces to be found in the permanent exhibition within the plinth. The glass skin is logically set back from the edges and only provides thermal separation, not a spatial boundary. The deep coffers on the underside of the roof run throughout the entire area without regard to inside and outside space.

The threshold space is divided into three areas: the terrace, the peristasis with its minimized columns, and the pavilion. The terrace ring contains the three outdoor sets of steps that are perceived as a part of the base and at the same time function as a connection to the sidewalk. The area is delimited neither on the outside edges nor above and in this way develops its emphatic centering. The peristasis is also in the shape of a square ring and, positioned between the terrace and the hall, presents itself as a threshold space within a threshold space. It is delimited by the eight columns and the glass skin in addition to the roof and the terrace, and it continues the centering process. The hall on the inside is clearly delimited by the horizontal planes, whereas the glass facade does not form a strong spatial delimiter.

The body of the threshold space is clearly recognizable, as the approacher can perceive the space-delimiting planes in their entirety. The upper side of the plinth can be viewed as a unit because of its height of 1.2 meters. The underside of the roof, whether you are passing by or approaching it, can be understood in full due to the limited supports and its height of 8.4 meters.

Sequence

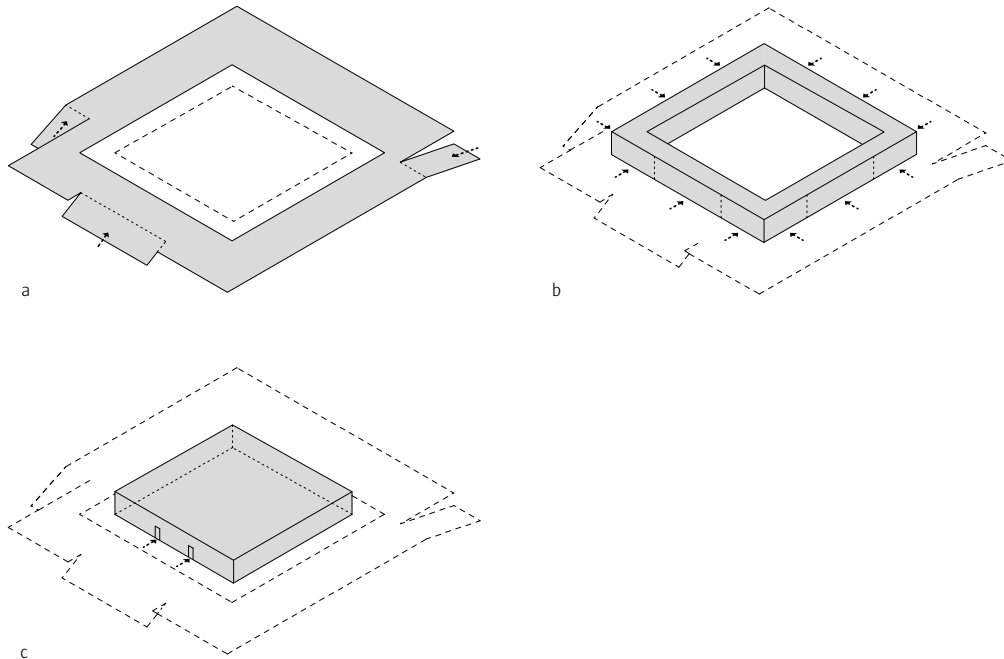
Regardless of the direction they come from, visitors can easily see the freestanding steel-and-glass structure. Surrounding it, the terrace leaves a generous amount of space and presents the raised body like a temple (fig. 43a). The base includes three embedded outdoor staircases arranged hierarchically both in their width and their alignment. The 45.6 m wide central staircase aligns with the central axis of the building and, in its role as main staircase, relates to Potsdamer Straße. Those arriving from the west, from the parking lot, or from the south, from the Landwehrkanal, automatically head for one of the two narrower stairs. In this way, all arriving visitors are first guided towards the terrace via the outdoor stairs that are cut out of the base. This first section of the threshold space is characterized by its horizontality and breadth. It is still quite a distance to the steel-and-glass body that positions itself in the middle and presents itself as the center. The city is perceived as being in the background, the temple of art in the foreground. The sculptures arranged on the plaza announce the exhibition to come. The entrance door cannot be seen from a distance but, regardless of the direction they come from, the visitors are guided to the centrally positioned body.

The peristasis, which links the hall to the terrace lying behind it (fig. 43b), is a remarkable zone in the threshold space. This section of space suggests a state of “having entered,” since you have already passed the exterior columns to find yourself under a roof. This double state of betweenness generates a special spatial tension, as you are already in the building. You are in the middle of the threshold space or, more exactly, between the in-between spaces.

Two revolving doors inside the recessed glass facade form the entrances to the hall and lead directly into the foyer (fig. 43c). The revolving doors are themselves recessed and do not disrupt the smooth surface of the glass facade, although they do control air exchange between inside

and outside. They form a transparent threshold but do not interrupt the threshold space. The space-defining force of the roof is stronger; the space is experienced as a continuum. The atmosphere of the hall is not very different from that of the peristasis other than that the temperature is different under extreme weather conditions. The hall then leads to the inside of the plinth, which houses the collection.

Fig. 43: Threshold space sequence



Geometry

The entire building complex demonstrates a strict organization that runs through the project from urban planning adaptations to the last detail. The building is set according to the grid of the former urban structure of the Tiergartenviertel (the neighborhood around the Berlin Zoo) as passed down in the alignment of Matthäuskirche (Church of St. Matthew). The threshold space possesses two axes of symmetry, which position the steel-and-glass body in the urban context. The main axis corresponds to Potsdamer Straße. The principal staircase runs at a resolute right angle to this central axis (fig. 44).

The areas of the terrace are precisely balanced; the left and the right sections have exactly the same area despite the outdoor stairs that have been cut out (fig. 45). The 3.6 m wide north side is compensated for. As a result, the smaller, covered, square area of the threshold space is centered in the larger square of the terrace. The secondary staircases are symmetrically arranged around the center and their alignment corresponds to that of the building. The floor plan of the base mediates, with the help of the rectangular notches of the stairs, between the surroundings and the square floor plan of the glass pavilion.

Fig. 44: Symmetry of the threshold space

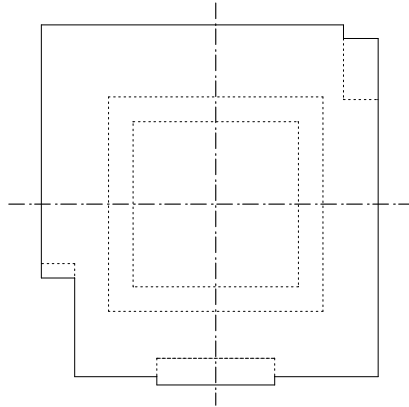
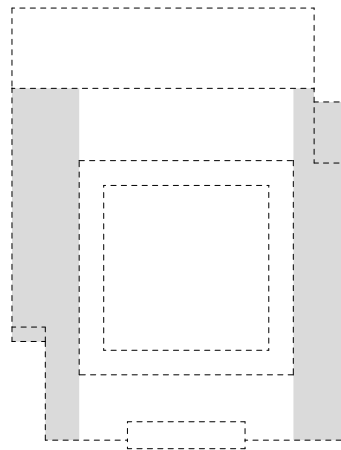


Fig. 45: Spatial balance in the threshold space



The entire complex is based on a modified cubic structure. The foundation is a 1.2 by 1.2 m grid that defines not only the areas on the ground plane but also in the elevation. A vertically extended cubiform spatial module prevails that divides the terrace and the areas of the peristasis and the hall into squares with sides measuring 7.2 meters (fig. 46). The peristasis surrounds the building with this same depth of 7.2 meters, while the hall itself stands on a 43.2 by 43.2 m square, or six times the basic measurement of the base of the module. At 8.4 meters, the height to which the roof is raised is seven times the floor grid, meaning that the height exceeds the sides of the base of the spatial module by 1.2 meters. Seen from the side, the vertical extension of the quadrilateral appears as a square due to optical distortion. As a result, the effect of the roof is more that of a floating body, whereas a slightly flattened cube would have made the roof appear heavier. Furthermore, while the basic geometry of the roof is rectangular, slight curves have been added to compensate for a perceptible sagging. In this way, the roof is visually experienced as light and sharp-edged. This spatial system is particularly important in ordering the threshold space, as the spatial modules can be distinguished and recognized.

Fig. 46: Modular composition of the threshold space

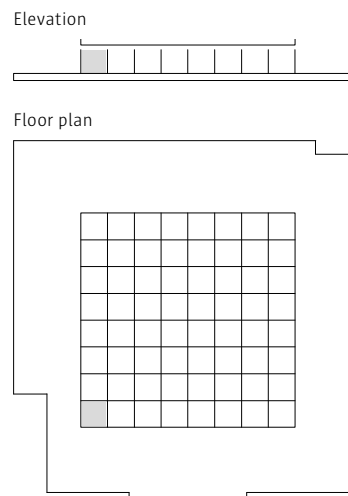
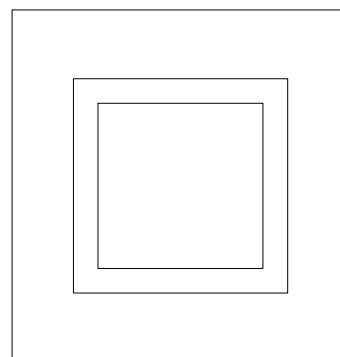


Fig. 47: Squares of the threshold space



The geometric arrangement of a square in a square in a square determines the two surfaces that define the threshold space (fig. 47). The quadratic floor plan of the hall is centered within the square of the roof and this, in turn, in the almost square plan of the terrace.

Furthermore, all the joints of the individual space-defining elements continue the pattern of squares on a smaller scale. The square floor slabs of the plinth surface and the coffering of the underside of the roof correspond to one another and thus reinforce the spatial definition of the threshold space. The underside of the roof is structured in deep, square coffers with 3.6 meter sides. This spatial profile shapes the ceiling of not only the hall but also the outside peristasis. Only the interface with the glass panels interrupts the continuity of the coffering. The stone slabs of the outside area are joined in a 1.2 by 1.2 m grid. Inside the hall the floor grid is halved to 60 by 60 cm. Thus, the granite slabs of the foundation continue throughout the outside and inside but are cut in half again in the interior. The halving of the floor grid and the continuation of the coffer grid out into the peristasis firmly interlock the interior and the exterior, so that they are perceived as an entity.

Topography

The alignment in accordance with that of St. Matthew's Church and the clever utilization of the topography of the site establish the building, and with it the threshold space, in its urban context (fig. 48).

The openings on the four sides and the horizontal boundary interfaces of the threshold space optically frame St. Matthew's Church (fig. 49). The threshold space is high enough to visually capture the nave and the side aisle of the church. In this way, the threshold space relates to the context and is linked to its surroundings. As a clearly structured space above the plinth, it appears empty and seems to offer itself as an empty container to accommodate objects, thoughts, visions, and much more. This new space attempts to do justice to the art collection and focuses on communication with the art, or on access to it.

Public access links the space to the urban space. The threshold space is therefore located between the city and the art collection and defines the spatial sequence and hence the approach to the art objects. The public space is very naturally continued onto the terrace, reinforcing the sense that the threshold space is part of the city. In this way, the threshold space is an urban space. As a public city space and with its breadth extending on all four sides, the terrace makes it possible to look in all directions. The fact that the terrace is elevated emphasizes the importance of the urban space, since the height difference of 1.4 meters is quite minimal and suggests natural, easy access (fig. 50). The new location for art presentations is unobtrusive; the visitor has the opportunity to approach the art freely and without ceremony.

As an institution, the Neue Nationalgalerie is firmly anchored in the city as the new permanent location for the collection. The threshold space leads to this collection and organizes access to it. Since the collection is at first hidden, curiosity is aroused and the works are seen as something special, something to protect. The valuable collection is safely set underground, like a burial chamber in a pyramid.

The changing exhibits of objects in the threshold space thus herald the art to come. The threshold space creates a display window, an empty space that, in accordance with the philosophy of the institution, can be filled and changed anew in accordance with the philosophy of the institution. The professionals responsible for it can redefine access to their collection at any time. Thus, the

Fig. 48: Urban context of the threshold space

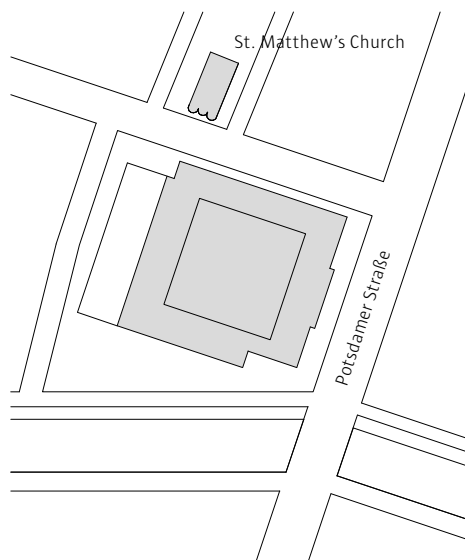


Fig. 49: Visual framing, St. Matthew's Church

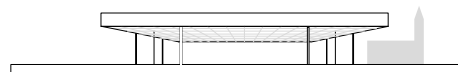
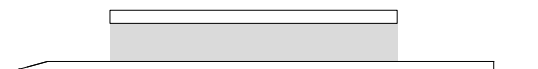


Fig. 50: Raised threshold space



threshold space becomes the reflex of the institution. The curators can display the selected contemporary art in different ways and find an appropriate means of representation. The threshold space functions as a tray for presentation.

Materiality

The limited range of materials places the focus on the clear, welcoming threshold space. The massive light gray granite block with the stairs cut out of it functions as a sort of presentation plane. Mies van der Rohe uses it to allude to the impression of a plinth and references the elevated temples of antiquity. The moderate height of 1.4 meters invites visitors to climb up, as the events on the terrace are in full view and there are only a few steps to negotiate. The dark steel-and-glass structure sits in stark contrast to the flat plateau. The black roof rests heavily on the slim dark cruciform supports (fig. 51). The profile of the steel is also very fine, as it was possible to do without a fireproof coating. The coffering on the underside of the roof is turned outward to the face of the roof in the form of a flange. The rectangular spaces between the rims appear gray and generate a rhythm like that of a frieze on a Greek temple. The frieze of the roof can be read as an abstract variation of a metope-triglyph sequence. It shows the coffer grid and reveals its inner structure. The motif of the temple is transferred to a steel construction; in other words, the materiality and the detailing conform to the spatial design.

The materiality of the threshold space is defined by the light-colored, homogeneous, and sharp-edged granite surface and the fine black coffered steel ceiling. The layer in between is open on four sides. The recessed glass facade is fitted as unobtrusively as possible. Depending on the vantage point, the glass can allow everything on the other side to be seen or can provide a strong reflection of the surroundings on the viewer's side. The material is utilized as a thermal separator

and subordinates itself to the steel skeleton and the natural stone plinth. Consequently, it serves a separating function yet does not affect the concept of a continuous threshold space. The elegant, light fabric curtain suggests a stage; the threshold space becomes a stage in a theater. The curtain hangs immediately behind the glass facade and allows for division of the threshold space into an inside and an outside half. When the curtains are closed, the threshold space can be divided, but the use of a sliding curtain puts a clear emphasis on flexibility.

Fig. 51: Contrast in materials

Elevation



Floor plan

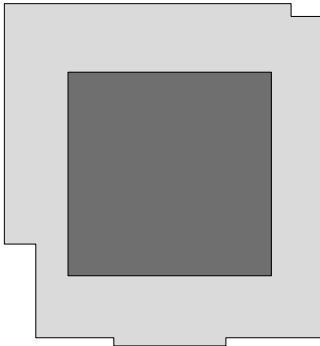
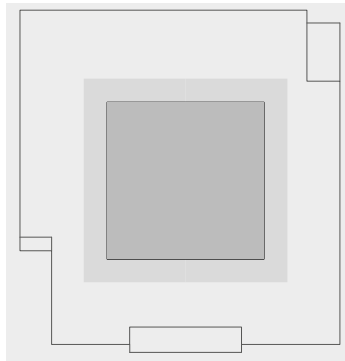


Fig. 52: Threshold space in daylight

Elevation



Floor plan



The high degree of transparency of the recessed, wraparound glass facade leads to an appearance that varies widely depending on the respective light conditions and the interior. The differences are particularly noticeable between daylight and darkness. During the day, the glass body seems rather dark; the black roof determines the lighting quality (fig. 52). At the same time, the fact that the glass is on all four sides creates a transparency that prevents an impression of blackness.

Without sunlight and under the influence of artificial light, the contrast is inverted; the light granite floor reflects the light of the interior lamps (fig. 53). Nighttime has the effect of strongly activating access to the threshold space. The glass body gleams like a jewel. The in-between space becomes discernible, while the vessel that hosts the viewing of art becomes visible and extends an invitation to step in.

Furnishings

The interior of the threshold space is characterized by emptiness and clarity. A defined empty space is created. The main axis of the threshold space, which can be experienced on the broad outdoor staircase, determines the position of the built-in components in the interior of the threshold space (fig. 54). The central area remains largely empty and offers space to enter into.

The components are tiered in height (fig. 54). On the main axis, the visitor first passes by the low, unimposing steel railing, then the 2.8-meter-high cloakrooms, one-third as high as the overall clearance, and finally the installation walls, which almost reach the ceiling. These elegantly clad plumbing and utility walls form a separating joint to the roof. Furthermore, they allow a full view, as their short sides are foreshortened. This clever arrangement of the built-in components gives the visitor a feeling of expansiveness and breadth that maintains the essential emptiness of the threshold space.

Fig. 53: Threshold space under artificial lighting at night

Elevation



Floor plan

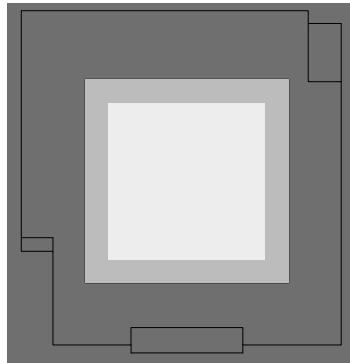
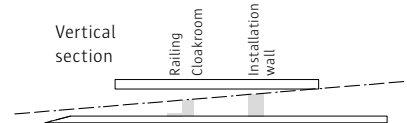
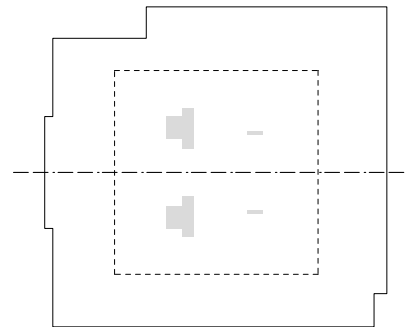


Fig. 54: Tiered heights of threshold space furnishings

Vertical section



Floor plan



The flexible furnishings of the threshold space serve the principle of spatial opening by inviting visitors to sit down at the side. They can let their gaze wander from the threshold space toward the city and become aware, as they sit among the works of art, of being in a state of betweenness. From the interior, as though sitting on a podium, they experience the surrounding city as a panorama.

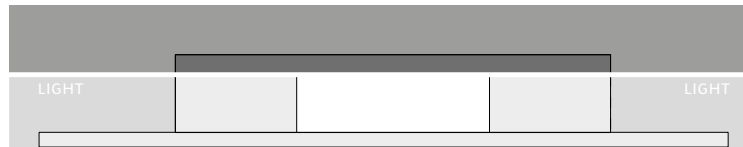
Some artists have explicitly explored the threshold space of the Nationalgalerie; that is, they have attempted to appropriate the interior in such a way that the visitors experience the introduction to the building through the art installation. The interior changes its atmosphere, then, from being a space that contains art to being an art space. The threshold space offers artists exciting opportunities, as the clear spatial structure presents itself as a neutral vessel for spatially showcasing diverse artistic concepts.

Examples of this manner of working with the space are Jenny Holzer's LED tickers in *Installation for the Neue Nationalgalerie*⁸³ (fig. 55) or Keith Sonnier's installation *Ba-O-Ba Berlin*. Holzer made use of the structure of the Neue Nationalgalerie by installing her LED strips on the grid of the

⁸³ Ibid., 677.

underside of the roof. In 2003, Sonnier created a light space reminiscent of the “Mondrian effect.” A new space with its own color structure is set up, one that uses the stark geometry of the space-defining elements of the Neue Nationalgalerie as an outline for the composition.

Fig. 55: *Installation for the Neue Nationalgalerie* by Jenny Holzer



Summary

These analyses show how intensively Mies van der Rohe explored spatial transition. On close examination it becomes clear that each of the six spatial parameters contributes to the examination of the threshold. The description of the Neue Nationalgalerie threshold space shows the importance that he attached to it and the effort with which he formulated the transition step by step. Mies van der Rohe affords the visitor successive steps for entering the architecture. He maintains strict control of the anticipation by weighting the directions of the approach and very precisely relating the individual transition zones to one another. Within the threshold space, the transitions are designed to be shallow and hardly perceptible. The threshold space is successively contained and closed, but it retains its connection to the outside.

First the visitors are collected in a free and open environment on the flat terrace that relates to the center. As an intermediate layer, the mediating peristasis is inserted in order to connect the terrace to the pavilion. This hall, with its space for special exhibits, is the last spatial link to the city, to the outside, in the spatial sequence. The lengthy access way to the permanent collection that is housed on the lower floor presents it as being worthy of protection. Distance is built up and with it suspense that makes the collection seem more valuable.

What is interesting is that Mies van der Rohe develops a new interpretation of architecture in his spatial design and, with the threshold space sequence described here, finds a new way of thinking about spatial access to art in a time dimension. The threshold space is not only a prestigious element of the Nationalgalerie, but also facilitates a new access to art. The works of art draw their strength in part from their relationship to the space, their position in the architecture, and the setting in the city. Through the various interplays between the art and the surrounding spatial context built up by the threshold space of the Neue Nationalgalerie, the visitors can develop a new approach. They can experience the space out of their own movement and motivation. They are in the flow of a stroll and are gently guided through the space.

Jenny Holzer's light installation⁸⁴ (fig. 55) can be considered a synthesis of the threshold space composition. The threshold space becomes visible. The LED tickers conform to the grid of the coffers and complete a further layer. The roof as the upper delimiter of the threshold space is given another layer of meaning through the moving texts that emit their orange light. The glass facades on the four sides reflect the tickers and extend the grid beyond the terrace. The moving words seem to run off into the city and onward into infinity. This optical planar extension of the upper threshold space delimiter strengthens the motif of the inviting intermediary layer that welcomes the visitor to the art space. The space above the terrace is given a roof made of light.

The Neue Nationalgalerie building addresses the task of providing access to art. This primary function accepts compromises regarding the high light intensity in the glass pavilion, a factor that makes it difficult to display some exhibits. The threshold space is given a representative role and is an invitation to view art. The distance that is built up to the permanent collection found deeper down should not be judged as being without a function, but should rather be understood as an access pathway. The terrace with its sculptures on exhibit provides a preparatory space for anticipation. Step by step, the visitor reaches the innermost part of the museum.

In summary, the Neue Nationalgalerie can be described as threshold space architecture. The design thrives on the sensitive transition from zone to zone and the pull of the threshold.

⁸⁴ Ibid., 646–658.

Museu de Arte de São Paulo (MASP)

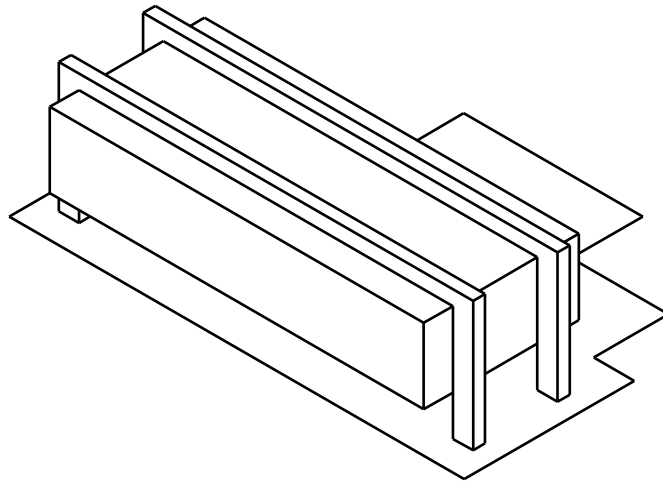
São Paulo, Lina Bo Bardi, 1957–68

The structural engineer Joaquim Eugênio de Lima, who donated the property to the city, demanded that the line of sight be kept free from the Belvedere Trianon to the lower-lying part of the city and onward to the Cantareira Mountains. The idea for the MASP goes back to an initiative of Assis Chateaubriand, who chose São Paulo as the location for the development of a Brazilian art collection and therefore initiated the construction of the new building.

The architectonic shape is based on a huge body suspended from two thick red square handles. The body is 70 meters long, 29 meters wide, 14 meters high, and raised 8 meters off the ground (fig. 56). The two handles each consist of two columns and a beam and have been recessed five meters from their side of the building. The cuboid is suspended along its long side and is perceptible as a distinct body.

The plaza under the suspended core of the building forms the basis for the architecture and at the same time the upper delimiter for the additional functional units in the lower levels that extend like terraces and take advantage of the sloped topography of the site. The second basement houses the library, the restaurant, and the auditorium. The theater and an exhibition room can be found on the first underground level. The aboveground body houses temporary exhibitions on its lower level and the picture gallery with the permanent collection of the MASP on the upper level. Between the upper and lower levels of the building lies a public square that the city's inhabitants and visitors can use as a viewing platform.

Fig. 56: Cubature of the architectonic shape



Delimitation

The tectonic relationship is evident from the structure of the suspended body. Outside the threshold space, the columns are surrounded by narrow water mirrors. These reflect the red columns and make them appear to extend into infinity. The stark change in materials emphasizes the rectangular terrace surface and makes the cuboid shape of the threshold space more easily legible.

The cuboid body of the threshold space can be perceived as a whole because the latter is related to the museum structure as a clearly delineated, suspended volume (fig. 59). The shape of the threshold space is determined by the museum structure and is dependent on it. The threshold space has the effect of a doubling of the museum structure. This relationship between empty and solid space forms a unit. The shadow thrown by the upper structure provides an optical doubling of the created space. On sunny days, a sharp-edged shadow can be seen on the surface of the plaza, which very graphically reinforces the connection between the space-defining planes.

Fig. 57: Delimitations of the threshold space

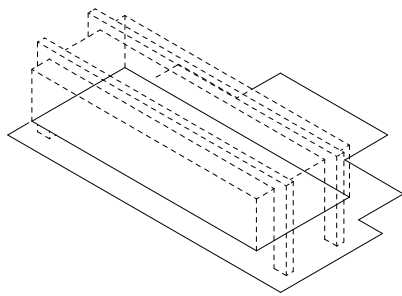


Fig. 58: Body of the threshold space

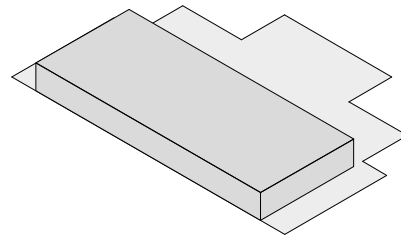
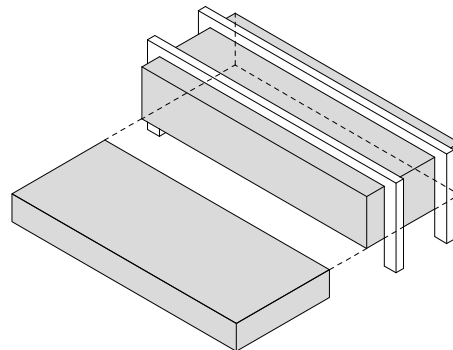


Fig. 59: Body of the threshold space—body of the museum



Sequence

The approach to the threshold space is determined by the open, magnanimous gesture of the space. It is open on all four sides, extending an invitation to step in. You enter via the amply open longitudinal side that stands in strong contrast to the adjacent street frontage (fig. 60a).

The shorter sides are inaccessible because of the water pools. What is important is the view through and the presentiment that you will be able to look down into the valley. The delimitations of the threshold space frame the view. Lina Bo Bardi managed to grandly raise the mass of the structure and to draw the visitor under the building (fig. 60b).

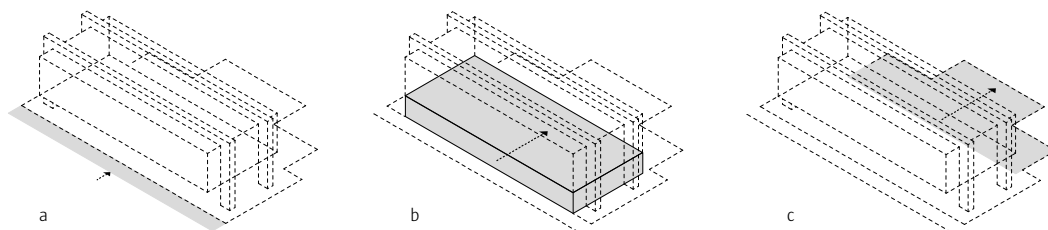
There is no doubt in the minds of visitors that they are in a public space. The pavement of the sidewalk is widened by one meter in the area of the museum, so that the public sidewalk runs under the museum structure. The paving of the MASP is raised with a slight edge of four to five centimeters. This detail reinforces the unconscious act of stepping in. Passersby already find themselves within the aura of the MASP and its threshold space when they simply walk by. This first arrival is ideal as a generous prelude that welcomes visitors.

As soon as visitors are under the museum structure, they feel its weight. This feeling constricts the space and helps them to focus their perception on the threshold space. Almost casually, they notice the inconspicuous stairway and elevator that are located to the side and are designed to encourage them to make their way upstairs. The city opens itself to visitors in that the view of it becomes an overview (fig. 60c). The clear cubature of the threshold space makes the visitors feel the city particularly clearly from this void.

Whoever turns towards the stairs or the elevator intends to move either upwards or downwards. The flight of stairs that leads to the upper levels seems a better choice and runs parallel to Avenida Paulista. The subsequent second set of stairs leading upward is at a ninety-degree angle and faces the valley (fig. 66). By stepping onto the outdoor staircase that leads upstairs, visitors begin to traverse the threshold space in its vertical dimension. The change in direction on the stairs again retraces the two main axes of the threshold room and also emphasizes arrival and view.

Suddenly and abruptly, you find yourself in a small antechamber within the museum structure. The threshold space is no longer present and there is no reference to it. You have left the threshold space and entered a new spatial context.

Fig. 60: Threshold space sequence



Geometry

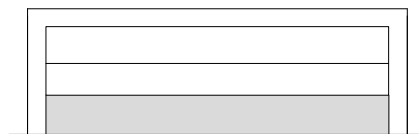
The geometry of the threshold space is determined by the clear cubature of the large, horizontal rectangular block. The block is 70 meters long, 28 m wide, and 8 m high (fig. 61). The shape is clearly distinguishable in and of itself. Recognition is aided by the relationship to the museum structure, since both spatial bodies share the same base area. The volume of the museum body is approximately twice that of the threshold spaces and lies directly above the empty space. The proportion of two to one makes the building structure weigh heavily upon the threshold space.

The structure of the threshold space is based on a cuboid three-dimensional grid, slightly extended in height, with dimensions of $7 \times 7 \times 7 + 1$ meters. The proportions of the length, width, and height of the void are ten to four to one (fig. 62). This strict ratio gives the body a tranquil stability. Even the recessed handles work with the $7 \times 7 \times 7 + 1$ module and thus form a fourteen-meter-wide in-between space. The longitudinal cantilever is only reduced by the depth of the column.

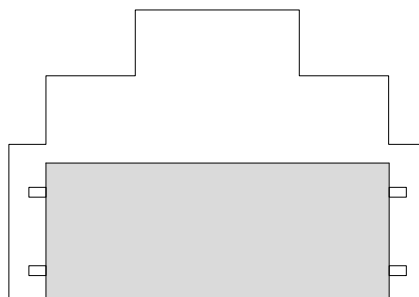
The organizational principle for the threshold space seems to be so important that it even defines the cross sections of the handles in order to enter into a relationship with them. The cross section measures approximately half of seven meters in its height and a third thereof in its width (fig. 60).

The central position of the threshold space in relation to the architecture is also worthy of mention. Both in its vertical dimension and with respect to the terrace and the park on the opposite side of the street, the threshold is at the geometric center of the architecture.

Fig. 61: Right-angled cubature of the threshold space

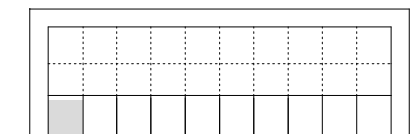


Elevation

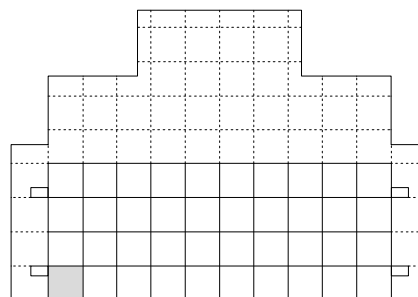


Floor plan

Fig. 62: Grid of the threshold space



Elevation



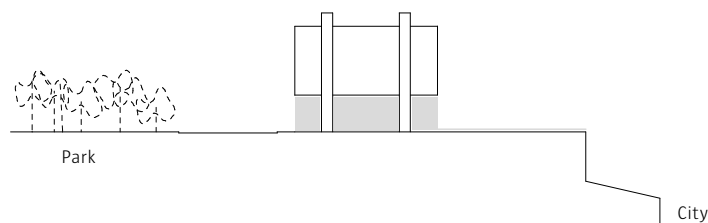
Floor plan

Topography

In terms of urban planning, the threshold space guarantees a free view or “belvedere” from the park into the lower-lying city and vice versa (fig. 63). This meeting point is reminiscent of the “Trianon” but without its elitist designation. The threshold space functions as a new city gate or city entrance.

Moreover, the Vão livre do Masp is also an agora, a public meeting place where you can listen to others and have a “break in the city.” Joaquim Eugênio de Lima felt reminded of the pauses in John Cage’s compositions. The void of the MASP is designed as a public threshold space, one that creates an important space for extremely diverse purposes. Given the climate in São Paulo, it is an exterior space that is particularly appropriate for concerts, exhibitions, demonstrations, and markets. These events can take place in the cool shade and with natural ventilation. The air in the threshold space is cooled with the help of the water pools and the wind. When there is no special event, the threshold space functions as a striking meeting point, tourist destination, and viewing platform. Furthermore, the cultural functions of the MASP itself enrich the threshold space as a location.

Fig. 63: Threshold space as a “belvedere”



Materiality

The undersurface of the museum structure, that is, the ceiling of the threshold space, is done in medium gray exposed concrete. The plaza is tiled with light-colored rectangular granite paving stones (fig. 64). Although the surface of the square is designed as a street space and does not use the same material as the undersurface of the museum block, there is a clear connection between the two because of their gray tone and the similar character of the materials. The degree of “massing,”⁸⁵ or how the material is distributed, reinforces the unity of the two surfaces. The longitudinal cracks between the paving stones are emphasized in the stretcher bond and run parallel to the museum block like the lines left on the exposed concrete by the form boards. Both surfaces are divided into small sections, but taken in totality they offer a visually calm, unified surface.

The distinctive delineating surfaces form a strong contrast to the red supports and the open sides. The supports, despite their strength and mass, appear as fine graphic elements.

⁸⁵ László Moholy-Nagy, *Von Material zu Architektur* (Mainz: Florian Kupferberg, 1929), 33, 48.

Once you are in the threshold space, the surrounding city very naturally influences the atmosphere inside the space. The city is framed, so that different views of the city form a backdrop for the void like that of a stage. The surroundings, with their changing cutout sections, seem to lie directly next to or even inside the threshold space. For the most part, the threshold space is perceived as an open body that allows views through it. Only when the approach is from the valley does the void instead appear to form a dark foundation for the oblong block (fig. 65).

Fig. 64: Materiality of the threshold space

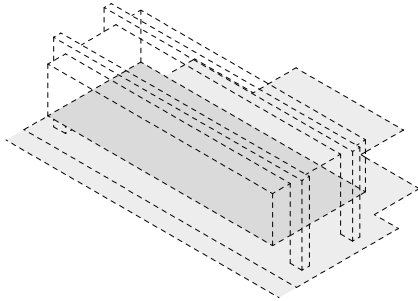
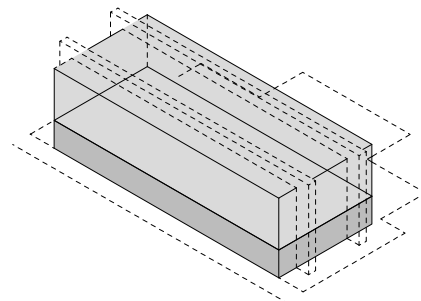


Fig. 65: Body of the threshold space as a foundation

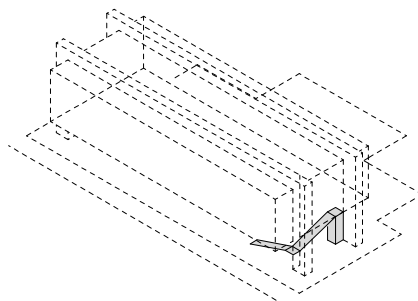


Furnishings

Any decoration of the empty space was intentionally given a subordinate role. The stairway and the elevator are the only—unimposing—finishing elements (fig. 66). They attract attention only insofar as they are the sole features to be found in the threshold space. When the stairs were being planned, the first design was larger and more welcoming. However, any ostentatious representation was avoided.⁸⁶ The staircase presents itself as a folded-down section of the bottom floor slab of the museum block.

The glass barriers that were subsequently designed and retrofitted in front of the bottom of the stairs are perceived as a disruptive element that prevents intuitive stepping into the building. What is more, several newly installed security cameras are noticeable because they have been very unfortunately positioned on the undersurface of the concrete ceiling.

Fig. 66: Staircase in the threshold space



⁸⁶ Olívia de Oliveira, Lina Bo Bardi and Mark N. Gimson, *Subtle Substances: The Architecture of Lina Bo Bardi* (Barcelona: Gustavo Gili, 2006), 268–272.

Summary

The Vão do Masp represents a very direct threshold space extending a clear invitation to enter. Visitors find themselves exactly in the middle of the functions and at the center of the architecture. The threshold space takes on the central role of a hub or node in this design.

The threshold space achieves a special significance because of its history. It is reminiscent of a belvedere, the body of which it presents in abstraction. The belvedere can be found in the void without being physically present. The donation of the property on the condition that the space originally taken up by the belvedere would remain empty increases the value of the space because of this protected legal status. The threshold space becomes a place of its own, on the one hand linked to the museum, but on the other hand in possession of its own dynamism, significance, history, and anchoring in the city.

In her architectural design, Lina Bo Bardi was able to group the functions around the free space and thus to position the Vão do Masp in the center of the design. The complete opening up of the space is understood as a gesture and makes it logical to approach the art directly and spontaneously. The design has been spoiled by the new security concept that keeps the visitors waiting and does not guide them smoothly upstairs or down. Furthermore, the fact that the surveillance cameras have been installed in conspicuous locations and thus disturb the void is evidence that the threshold space has not been understood in its design concept.

The *raison d'être* of the void is the clear cubature that results from the corresponding block lying on top of it and the visual opening in all four directions. There is a fascination in the adamant emptying of the space. The threshold space lifts the solid body, additional functions are driven into the underground levels, and an inconspicuous staircase allows for accessibility. Lina Bo Bardi has created a square with the character of a room, one which can spin its magic for every manner of use. The comfortable climate provides for a pleasant stay in this exterior space, inviting the many different public uses that have been mentioned here. When empty, the Vão do Masp seems to be a vessel or a frame for the city of São Paulo. When the people of São Paulo fill it, they seem to have adopted this place as a microcosm of their city.

Museum für angewandte Kunst

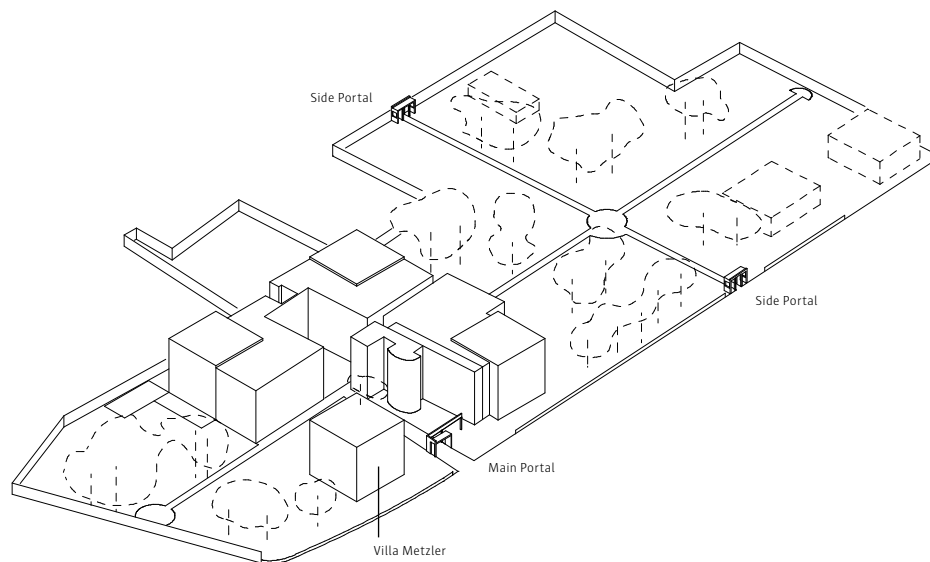
Frankfurt am Main, Richard Meier, 1979–85

The basis of the collection is a treasury of sample pieces that served as a craft matrix.⁸⁷ The collection was given to the city of Frankfurt in 1921, and in 1967 it was moved to Villa Metzler. In 1979 the city sponsored an architectural competition to build a new home for the collection. Among the requirements was the preservation of Villa Metzler and of the park with its mature trees.

When visitors approach the building, which as a rule happens from the street called Schaumainkai parallel to the Main River, they first see the park and a few white building fragments. The shape of the building is divided, it seems almost dissected, and is held together at its core by the surrounding structure of a square field. This figure is divided into quarters and has been developed based on the geometry of Villa Metzler. The three connected fragments of the new building embrace the old building in an L-shaped floor plan. Entrance to the complex is oriented both parallel and perpendicular to the flow of the Main. The architectonic shape is determined by the cubic form of the individual white bodies, which are perceived as an open grouping (fig. 67).

In total, the museum provides approximately 4,900 square meters of exhibition space. The ratio between temporary and permanent exhibition space is 650 square meters to 4,250 square meters.

Fig. 67: Cubature of the architectonic shape



⁸⁷ Barbara Mundt, *Die deutschen Kunstgewerbemuseen im 19. Jahrhundert* (Munich: Prestel Verlag, 1974), 242.

Delimitation

On the outside boundaries of the property, Metzler Park is enclosed in fragments of walls from Villa Metzler and low, oblong natural stone blocks. The delimitation is interrupted by portals that provide access to the park. The portals present themselves as “in-between space sculptures” that connect the system of paths on the Museumsufer (museum embankment), as a linear landscape park, with the park including the museum building (figs. 68 and 69).

The park as a spatial body derives from the large volume formed by the mature, protected trees. Paths were laid out to relate to the trees. In terms of its height and its fragmentary form, the new building subordinates itself to the park. There are three portals: two on Schaumainkai and one on Metzlerstraße. The two smaller entrances are opposite one another and positioned directly on the edge of the park. The large main entrance is set back from the sidewalk as a building fragment.

Fig. 68: Delimitations of the threshold space

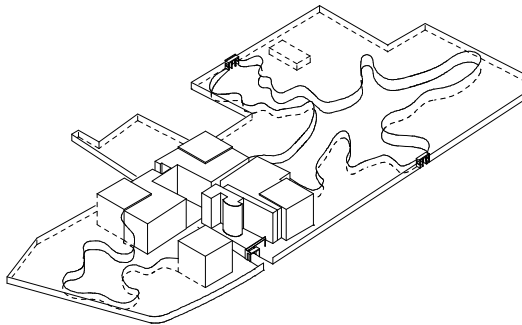
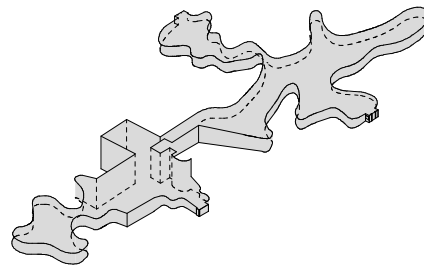


Fig. 69: Body of the threshold space



The smaller portals are designed as a framework open on five sides. The space-defining elements are orthogonal supports and beams (fig. 70). The long side serves as the entrance. On the short sides, the portals are delimited by two panels with one square opening each. Four supports with a square cross section divide the rectangular base area into a square in the center with inside dimensions of 2.20 by 2.20 meters and two rectangles with inside dimensions of 1.50 by 2.20 meters. The open roof consists of beams that rest on the supports. The outer beam is twice as high as the inner one and accentuates the entrance side like a tympanum. The creeping ivy helps to define the space.

The main portal is connected to the building, yet it is perceived as a wide, independent spatial body. It is composed of three panels and a frame that create a generous opening with an inner width of 5.35 meters and a clearance of 3.95 meters (fig. 71). In the front section, the horizontal plate rests on the two side pieces. The frame is aligned with the rotated U; the upper beam forms the connection to the building. There is a gap between the front and rear sections, providing views both upward and to the right.

The low boundary between the park and the urban space is defined by a thirty- to thirty-five-centimeter-high curb of red sandstone. This curb disappears, however, in the area immediately in front of the new white structures. The boundary line changes to a flush, embedded line in the same materiality. The portals are separated from the flat wall by a gap of thirty-five centimeters.

Fig. 70: Delimitations and spatial bodies of the side portals

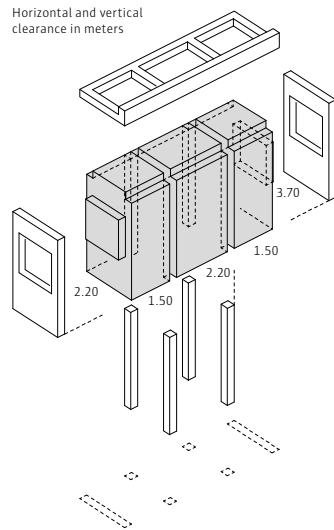
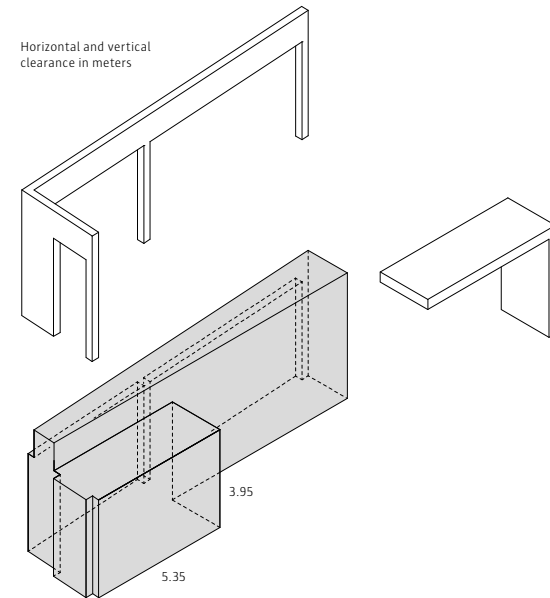


Fig. 71: Delimitations and spatial bodies of the main portal



Sequence

The portals are small stations situated between public street space and park space. The spatial sequence develops out of the visitor's choice of entrance portal, as only one can be chosen to reach the museum area. The spatial gesture of an opening without a door or a gate is an invitation to enter. The portals shape the entrances as part of the "urban fabric."⁸⁸ The museum complex in the park becomes intuitively accessible. As you traverse one of the portals, the space is contained and constricted for a moment. The openings in the portals frame the views like landscape paintings that widen step by step. The framed landscape is showcased. The portals mark entrance to the museum space.

With its indented position, the main portal seems to press the street space, as a path, into the property (fig. 72). As soon as visitors have turned into the path, a new perspective is created with a vanishing point in the park. In terms of their field of vision, they find themselves on the axis of the complex and can see Villa Metzler to the left and the new building to the right. The portal structures the visitors' views. The closer they come to the portal, the clearer it becomes that they are in a new area. The surroundings are only briefly hidden. The closed left side blocks out Villa Metzler for a moment. The right side, which provides an opening, very subtly guides the visitors' gaze to the glass facade of the building on the right. The openings of the portals cause the views to swing back and forth. The portal takes on the role of an oversized camera looking for images.

After the visitors have traversed the portal, they find themselves, still searching, in a swing to the left. The convex line of the structure guides them to the entrance door. The entrance is inconspicuous and almost hidden. The revolving door, which can be securely locked, shows whether the museum is open or closed. The visitors are intuitively accompanied to the entrance.

⁸⁸ Norbert Huse, *Museum für Kunsthandwerk Frankfurt am Main* (Berlin: Ernst & Sohn, 1985), 7.

Fig. 72: Threshold space sequence (main entrance)

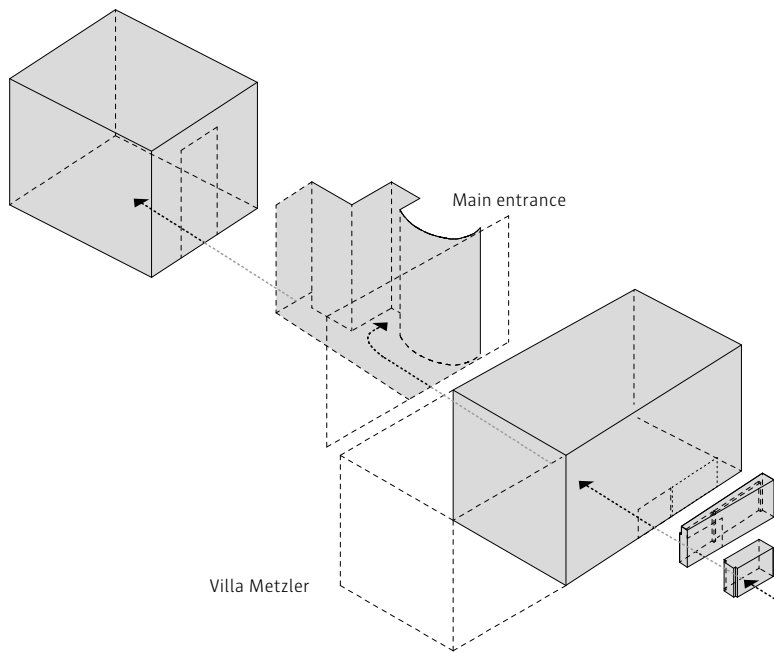


Fig. 73: Orientation of main portal and paths

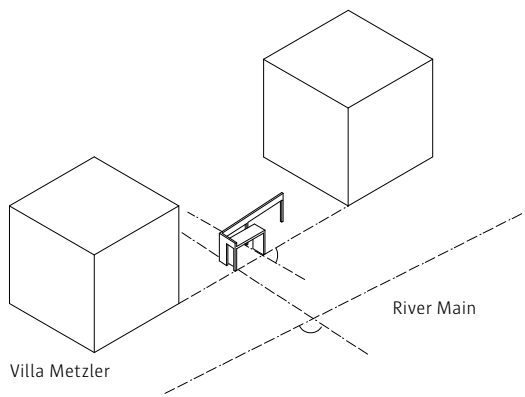


Fig. 74: Main portal with 1.10 m × 1.10 m grid

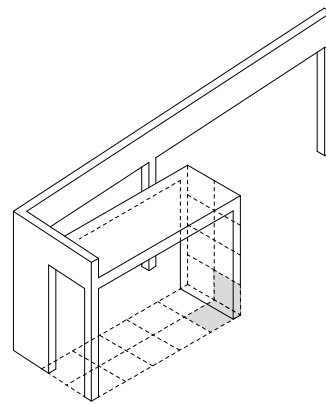
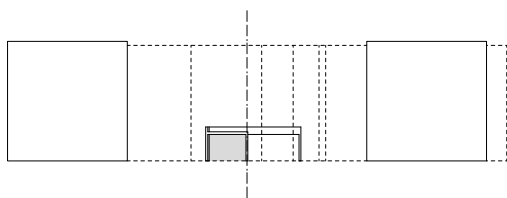


Fig. 75: Axis of symmetry, main portal—museum



Geometry

The geometry of the design is very important in this case, as the grid of the entire museum complex deals with the preexisting system of organization. Throughout his design, Richard Meier works with a grid of 1.10 by 1.10 meters, which is a result of the measurements of the punctuated facade of Villa Metzler. The orthogonal grid of Villa Metzler is used for the 2.20-meter-wide system of paths in the park and also for the outer alignment of the portals (fig. 73). In addition, the second system, which diverges from the first by 3.5° as determined by the course of the Main River, structures the central entrance axis with the main portal.

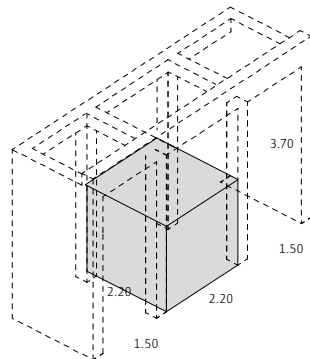
The central access way is still 5.50 meters wide at the main portal (figs. 73 and 74). The path narrows like a wedge and lets visitors immerse themselves in a heightened foreshortening. This funnel seems to accelerate each visitor's entrance and produces a pull. On the axis of the hidden revolving entrance door, the path is only 3.80 meters wide.

The main portal lies on the axis of symmetry of the entire building complex (fig. 75), whereby the entrance that opens up lies asymmetrically next to the axis and creates a spatial proximity to Villa Metzler. For each closed side panel of the main portal there is an opening on the other side (fig. 74). As a result, views can swing back and forth between Villa Metzler and the entrance to the museum.

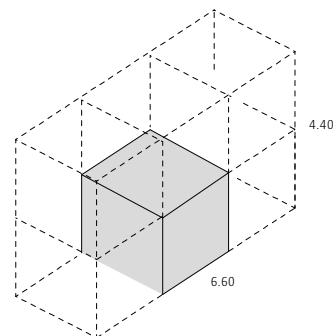
At the ends of the paths, the two side portals work as a pair to indicate the park entrance. This interconnection is reinforced by the symmetrical organization of the park. There is a fountain on the axis between the portals. The positioning is reminiscent of city gates, which also have narrow side openings and a broader central one (fig. 76a). The mirror symmetry along the axis of the path places the focus on the middle walkway. With the exception of the raised beam, the building shape is also almost longitudinally symmetrical. This double symmetry creates a calm, clear entrance to the park. The threshold space shape of the small portals can be seen as made up of six equal cubes (fig. 76b). These inscribed cubes give the standing cuboid a certain calm and clarity.

Fig. 76: Application of module in side portal, 2.20 m × 2.20 m × 2.20 m cube

a: internal measurements in meters



b: exterior measurements in meters



Topography

The site of the park is one of special significance to Frankfurt. In his “Aims of the Design,” Richard Meier describes the function of the park as that of a “bridge” (fig. 77).⁸⁹ This motif of connecting also applies to the continuation of the public promenade of the Museumsufer with its row of plane trees. The result is a park as a public space that connects and continues the urban space in many directions. The grid of Villa Metzler and the alignment along the Main are used as superimposed organizational systems and anchor the directions of the site into the new designs. The portals, as entrance identifiers, reinforce the linking effect by accentuating the directions and making them spatially comprehensible. From the opposing portals, located at lower-lying points, the path rises steadily to the higher-lying fountain. This rise in the terrain underscores the direction toward the museum.

The history of the park gives the site its particular identity. The impressive age of the trees is abundantly clear from their height and the thickness of their trunks. Villa Metzler is an exceptional building for having survived the destruction of most of the city of Frankfurt during World War II. The park also provides special vantage points toward the new Frankfurt and its high-rises. The past eras are legible and show a visitor who traverses the park his or her “presentness.” Meier believes that the constructed space has a lot to live up to. “Here the task of the architect is to stimulate the museum visitors to encounter not only the art of the architecture but also the objects on exhibit.”⁹⁰

Fig. 77: Park as a “bridge”

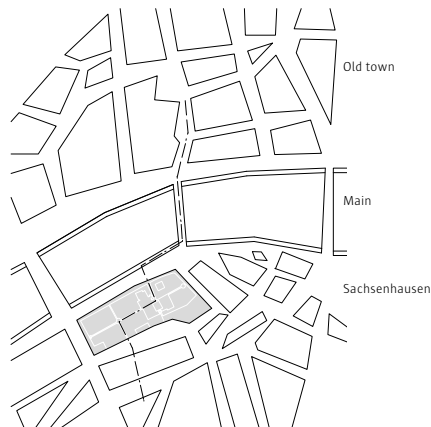
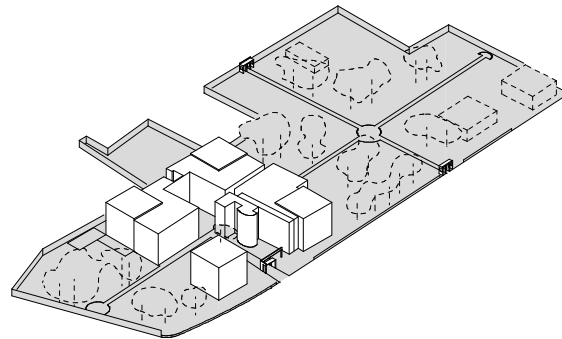


Fig. 78: Contrast between architecture and park space



⁸⁹ Richard Meier, *Museum für Kunsthandwerk: Architekten Wettbewerb für den Erweiterungsbau* (Frankfurt: Hochbauamt der Stadt Frankfurt am Main, 1980), 13.

⁹⁰ *Ibid.*, 52.

Materiality

It is the contrast between the architecture and the park setting that determines perception of the spatial design of the threshold space. The architectural elements are white and sharp-edged. They are composed of simple geometric forms. The portals are made of reinforced concrete and plastered in white. The colors in the park setting, on the other hand, depend on the changing seasons. The tulip trees, with their bright orange-red blossoms, even add a touch of color. The interplay between the materiality of the architecture and the elements of the landscape can be experienced particularly well on a stroll through the park in sunshine (fig. 78). The fragmentary elements are points to aim at in their geometric positions on the network of paths. Furthermore, the white surfaces of the portals serve as projection surfaces. When it is windy, the swaying shadows dapple the structures with an atmospheric silhouette of the park vegetation.

The outer boundary of the park has a curb of red sandstone. It references the materiality of the wall and the foundation of Villa Metzler. The last part of the curb in front of the portals has the same form but in granite, creating a gentle transition to the white plastering of the portals.

In addition, the geometry influences the atmosphere of the threshold space. The tiling pattern is intentionally easy to distinguish and the reference to Villa Metzler is deliberate. The paving stones are 55 by 55 cm squares (fig. 79). The second courtyard even contains the cubature of the entire Villa Metzler as a negative space (fig. 80). Meier turns around the relationships to the ratios of the volumes; the proportions of the villa become the guide for the interior space. This relationship formulates another interesting transition. The threshold space is an independent spatial continuum that plays a decisive role in determining the shape of the new building.

Furnishings

The portals, the distinctive trees, the furniture, a fountain, and the objects on exhibit form the furnishings of the threshold space. Each of these elements maintains its individuality to a certain extent yet is subordinate to the logic of the threshold space. The positioning of the furnishings arises out of the strict geometry of the park.

Fig. 79: Tiling pattern of the threshold space

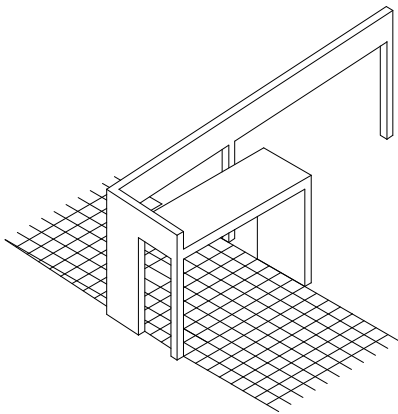
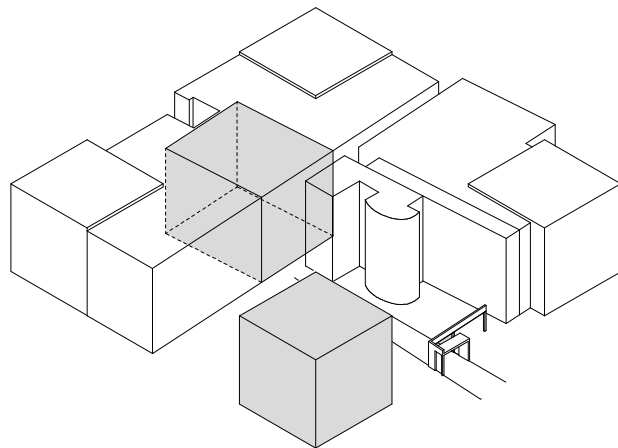


Fig. 80: Cubature, Villa Metzler and courtyard



Summary

For the most part, the threshold space is defined by the park and the portals. The portals set up on the edge of the park can be characterized as “threshold points” in an area of threshold space that is defined by the park. This dialogue of transition arises from the intention to form a bridge within the urban fabric of the city of Frankfurt. The connecting element should be distinguishable as a new building block and should hold the structural elements within its boundaries together. Nonetheless, the park is highly porous and relinquishes its strong cohesion in particular on its edges in order to allow for access. This visually open and permeable edge is accentuated by the design of the portals. In a particularly striking manner, they portray public and permanent access.

“This exterior space mediates not only between the old villa and the new building but also between the museum and the park, and finally between the museum and the city as a whole. It is a fundamentally distinct element of the complex. All paths come together here at the entrance to the museum, those from inside the building and those from outside.”⁹¹

With his threshold space sequence, Richard Meier designs a *promenade architecturale* as conceived by Le Corbusier. Similar to Le Corbusier, he first leads the visitor along his building. What is noticeable is the difference in their structuring of the spaces. Richard Meier does not work with the Modulor. Instead, he refers back to the Villa Metzler. The classical proportions are even applied in the interior measurements of the portals and the second courtyard. The unified structuring establishes a grid for the entire park, providing a common basis to contain both old and new architecture.

The strength of the transitional space lies in exposing and emphasizing the past eras of the city space. It picks up the existing, knits it together and connects it to the new. The threshold space tells the story of the site. It is a narrative threshold space. The clear geometry makes it possible to perceive and to comprehend the design of the new spaces.

“If one of the postulates invented by the Modern Movement of the 1920s—to which Meier felt himself indebted—was the diffusion of inside and outside, then this diffusion is taken one step further here. Exterior facades become interior facades and vice versa; transitions blur in an ingenious system of layers.”⁹²

⁹¹ Richard Meier, “Museum für Kunsthandwerk in Frankfurt,” *Baumeister* 82, no. 8 (1985), 26.

⁹² Peter Rumpf, “Museum für Kunsthandwerk,” *Bauwelt* 76, no. 20/21 (1985), 767.

Fondation Cartier

Paris, Jean Nouvel, 1991–94

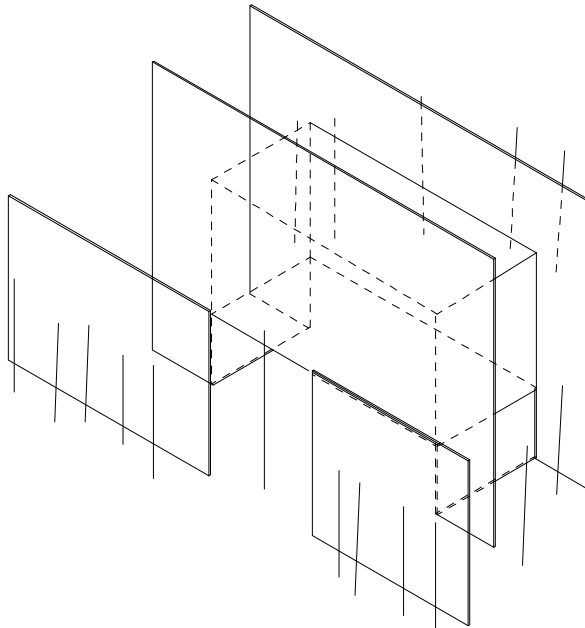
The Fondation Cartier was founded in 1984 and has a long-term commitment specifically to support contemporary artistic movements.

The character of the property is strongly influenced by the centuries-old trees and a magnificent cedar of Lebanon that was planted by the writer François-René de Chateaubriand in 1823. The context is a neighborhood that was developed in the nineteenth century.

Glass is the material that dominates the architectural design of the building. Not only the eighteen-meter-high screen, which delineates the street facade of the building as well as the building line, but also the front, rear, and side facades of the building itself are made of steel and glass (fig. 81). This materiality is combined with the powerful presence of the trees. In particular the cedar of Lebanon provides a counterbalance to the glass screen. The spaces created in the building are defined by three horizontal layers that generate in-between spaces parallel to the street frontage. These gradations into the depth of the site form open and closed spaces linked to the park.

As for functional units, in addition to the eight full aboveground office floors, the Fondation Cartier provides another seven underground levels. In total, the building contains 6,500 square meters of net floor space. The gallery rooms on the main floor and the first underground level form the heart of the building.

Fig. 81: Cubature of the architectonic shape



Delimitation

The visually open threshold space of the Fondation Cartier is a park that is divided into four zones by three vertical glass screens (fig. 82). The in-between spaces, including the trees, create a rhythmic sequence (fig. 83). The glass panels form staggered layers into the spatial depth of the lot, so that the entire threshold space between them is viewed from the street as a diffuse whole. The neighboring properties delimit the sides of the threshold space.

With their smooth, sharp-edged surface, the glass panels define almost cubic spatial sections, but because of the high degree of transparency, the spaces are not clearly delimited. The trees that stand in between counterbalance the precise glass surfaces; they form a forest. The transparency, the reflections, and the free areas of the transitional layers form a space that at times provides extremely penetrating views into the depth of the site.

The threshold space appears to be an open area, the transparency of which affords views into what is to come. The space is expanded; it dissolves visually. Confusion arises as a result of the reflections. The clear delimiting surfaces recede not only due to the transparent glass, but also because of the combination of layers, gaps, and overlaps in interaction with the glass panels.

Fig. 82: Delimitations of the threshold space

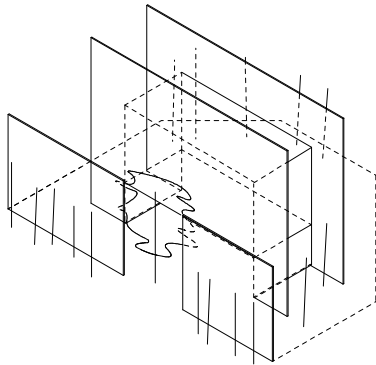
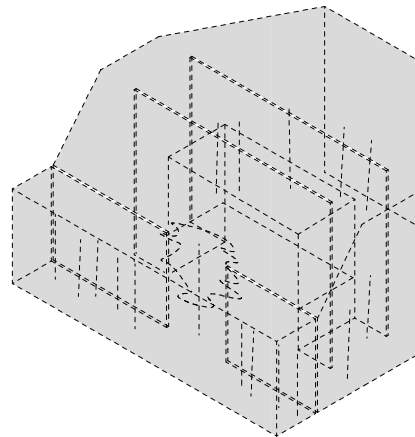


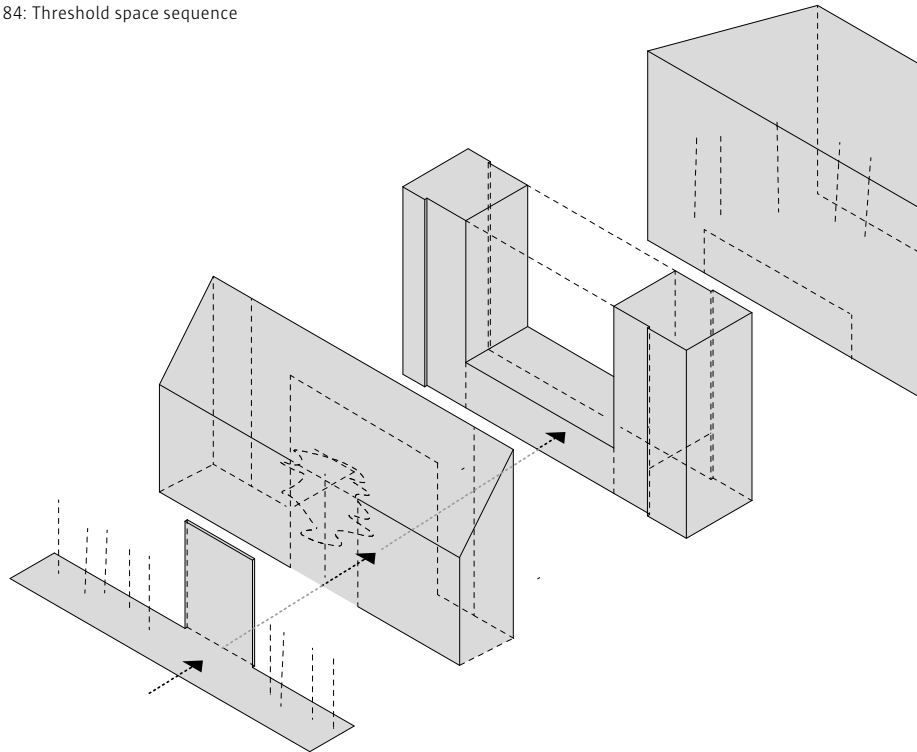
Fig. 83: Body of the threshold space



Sequence

The area in front of the first divided glass screen forms the prelude to the staging of the threshold space (fig. 84). Although the visitor standing on the sidewalk between the rows of trees of Boulevard Raspail is not yet on the Fondation Cartier property, this space introduces the progression of the sequence. The row of trees in front of the first screen can be perceived as the first element in the sequence of trees and glass panels. Thus, the aura of the building radiates beyond the property boundaries. The spatial connections are intensified by the mirroring of the glass screen, which allows visitors to perceive the street space as a projection. The street space as a projection is superimposed onto the perception of the Fondation Cartier park.

Fig. 84: Threshold space sequence



The alternation between glass panels and trees, which creates a sense of depth, is important for a further, deeper immersion. In addition, the large cedar serves as an important central point of reference. Here, the street screen is naturally designed to be more open; it divides into a left and a right section. It is possible to cross through the glass facade at a right angle to it. The open gap is sealed with a low gate unit made of semitransparent steel mesh. This threshold space closure can be recognized as a door.

The next section is between the frontage screen and the first glass screen of the building. Visitors enter under the cedar; the space is constricted but provides diverse views. This area offers clear orientation, as visitors can either head straight toward the sliding door or follow the path to the left or right past the glass facade into the park. Regardless of whether visitors enter the park or go directly into the building, they are still in a transition situation. They never lose contact with the park, not even when moving through a climate-controlled area.

The threshold space sequences are defined by a progression of vertical layers. There are alternating layers of trees and glass panels. The spatial zones are organized between the glass panels and thus enclosed in the layering (fig. 85). Architecture and nature take turns. Gaps in the framing of the glass panels and an opening of the glass elements on the main floor break apart the clear boundaries and generate an additional transition. The sequence of the three glass panels and the trees creates the following rhythm:

T – G – T – G – T – G – T.

Geometry

The successive in-between spaces give the threshold space an ordered, tiered arrangement (fig. 86). The sequence of the glass screens, the geometry of which is based on squares, defines in-between zones of increasing depth (fig. 87). The steady expansion of the threshold spaces in terms of depth and height results in a special effect in the perspective. The spatial staggering operates with a square grid.

The first screen functions as a mediator between the neighboring buildings and the upcoming thirty-one-meter-high screens. The increasing depth cleverly counterbalances the effect of perspectives and presents the rhythm as a regular, comfortable beat. The nearly triangular shape of the lot creates a virtual vanishing point that in turn intensifies this effect (fig. 88). The geometric ordering of the glass panels generates a certain pull for the threshold space.

The sliding door is not positioned in the axis of reflection in the H-shaped floor plan, rather it is set to the right and reduces the mirror symmetry (fig. 89). This shifting emphasizes the effect of the panels by softening the strict symmetry of the floor plan. The space-defining elements can be broken down into square sections. The distinct geometric shape is thus recognized and makes the opening gesture clear. The opening in the first screen seems to be the logical result of the left and right panels being moved to the side. The cedar fits exactly into such a square.

Fig. 85: Arrangement of the rows of trees

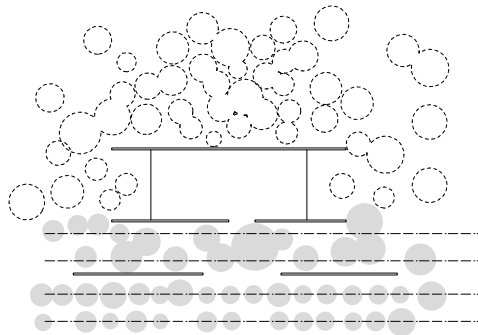


Fig. 86: Spatial tiering of the threshold space with square grid

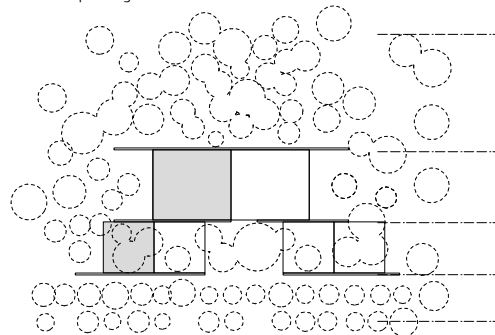


Fig. 87: Square system of glass panels

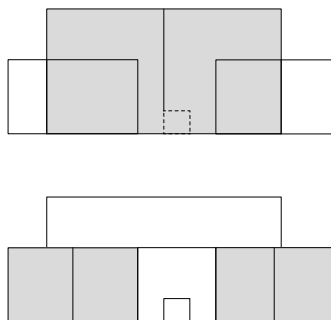
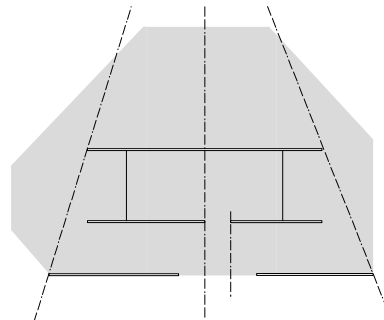


Fig. 88: Axes and vanishing points of the threshold space



The glass elements are organized into equal modules in all the glass screens, emphasizing the cohesion of the spatial sequence (fig. 89). The strict spatial ordering is continued in the sequence of the rows of trees. The trees behind the screen that is closest to the street are set in a row, parallel to that of the plantings near the street. In some cases, a mirror image has been planted (fig. 85), so that the arrangement described in the section on “Sequence” is established.

Topography

Seen in vertical section, the threshold space lies in the middle of the building, between the office floors above and the parking levels below. In horizontal section it fills out the entire lot and criss-crosses the building. There is the potential to open up the gallery space on the eight-meter-high main floor, making this penetration particularly evident.

The park and the famous cedar had already been identified and were to be conserved (fig. 90). Framing the space as he does, Jean Nouvel grounds the site even more definitively. The site is staged, as apparent in the case of the cedar. The space-defining elements envelop the cedar and form an exceptional place. The cedar seems to open up the front glass screen to make space for itself. The second, but much higher, screen behind the cedar forms the background. The cedar is seen as a strong motif that on one level is framed by the steel and glass construction and on a second level is perceived as a figure.

The scenic effects resulting from the different times of day and different light intensities are captured in Philippe Ruault’s series of photographs.⁹³ One photograph is taken from a higher perspective and presents itself as frontal view. It is not based on the human perspective in the urban space, and indeed cannot be experienced by humans, but rather presents an idealized view. Because of its frequent publication, this picture has become an icon for the building. The cedar in front of the iridescent glass screen is recognized and remembered as both a place and a motif.

Fig. 89: Gridwork of the facade

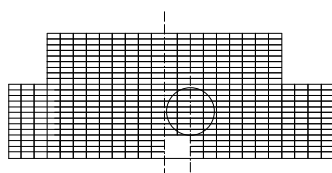
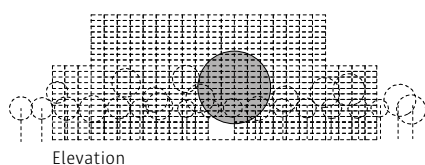
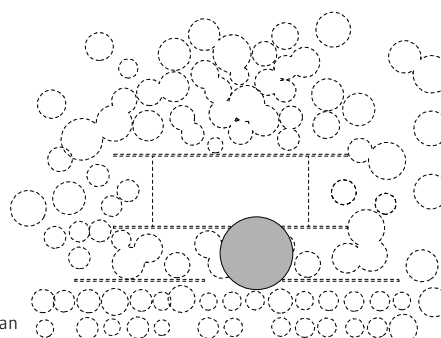


Fig. 90: The cedar marks the spot



Elevation



Ground plan

⁹³ Philippe Ruault, “Fondation Cartier” <<http://www.jeannouvel.com/english/preloader.html>> Accessed May 18, 2014.

Materiality

The materiality of the threshold space is characterized and defined by the glass. The steel construction recedes into the background and forms a fine setting for the glass panels. This means that the threshold space profits from the ambiguity of the material and can use it to reinforce its own ambiguity. Glass suggests openness, transparency, and visibility, but at the same time it creates a strong, smooth crystalline space-delimiting plane that can very definitely separate inside and outside. Jean Nouvel achieves true transparency with the free positioning of the glass panels and at the same time takes advantage of the reflections that project doublings.

As a further important aspect contributing to visual transparency, openings have been created in the glass facade. This direct link breaks down the stark delineation and connects the space. As a result, the three glass panels with the layers of trees in between create a threshold space that strongly links the inside and outside. Visitors are left wondering whether they are now outside or inside; they are in between, in the threshold space.

Seasonal changes in the trees greatly influence the diverse atmospheres of the threshold space. With lush green foliage, the trees create a forest atmosphere. The green branches that grow through the openings in the glass screens blur the panel-like space definition and form a continuous volume. In winter, on the other hand, the branches seem fragile and make the glass appear strong and hard. The layers weaken this effect. Furthermore, the glass planes function as projection surfaces that pick up the changing coloring and lighting contexts of the surroundings. As a result, the glass screens are presented as a huge picture (fig. 91).

Furnishings

An attempt was made to integrate the threshold space equipment into the design (fig. 92). The elevator for cars, for example, which appears as an unobtrusive little box, was accommodated in the open design. The problems associated with the complicated entry and exit were accepted in order to avoid dividing the in-between space by a ramp down to underground parking. The visitors' unencumbered experience of space was more important and determined the traffic patterns.

A similar approach was used with the closures. The gate was technically executed as an inconspicuous half-transparent wall that does not compete with the space-defining elements. The wall is recognizable as a gate and can be pushed to the side. The clear structure of the building creates a certain emptiness in the threshold space, making it seem entirely devoted to art. The trees here reinforce the sense of outside that is omnipresent in the threshold space.

Fig. 91: The threshold space as an image

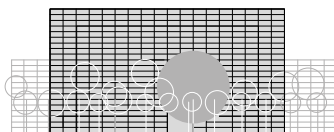
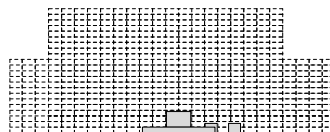
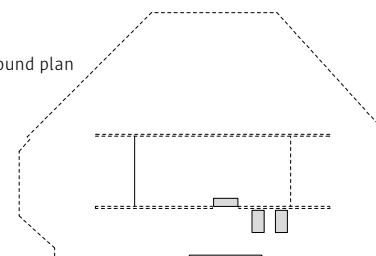


Fig. 92: Threshold space equipment

Elevation



Ground plan



This contrasts with the wind screens that have been cleverly fitted into the design of the panel-like glass screens. Even when the oversized side panels are open, the wind screens can remain closed and form a firmly set element.

Summary

The materiality of the space-defining elements and the vegetation growing in between determine the character and the atmosphere of the threshold space. Glass, the transparent material of the project, creates a strong, visible transition. It affords views through the spatial delimitations in order to give the user an impression of what is to come; visitors are encouraged to stroll about. The reflections are designed to cause gentle confusion that connects inside and outside.⁹⁴

Jean Nouvel explained this effect in an interview with Jean Baudrillard: “If I look at a tree through the three glass planes, I can never determine if I’m looking at the tree through the glass, in front of it, behind it, or the reflection of the tree. And when I plant two trees in parallel, even accidentally, to the glass plane, I can’t tell if there’s a second tree or if it’s a real tree.”⁹⁵

In the execution of the project, the aim is to utilize glass based on the structural characteristics of the material and taking it to its limits. The delicate glass screen and the large sliding elements demonstrate the capabilities of the material. In addition, the vagueness, interpretability, and fuzziness of glass are used to organize the threshold space. The leitmotif of the building is the ambiguity of the material in the threshold space and experimentation with that ambiguity.

Nouvel characterizes the leitmotif in a conversation with Baudrillard: “My buildings try to play with the effects of virtuality, appearance. Viewers wonder if the material is present or not. We create virtual images, we create ambiguity.”⁹⁶

These ambiguities are by no means coincidental; instead they are sensitively planned to intentionally leave the user in an intermediate state. He or she is awake and in a state of anticipation as to what is to come.

Nouvel creates a layered threshold space that extends an invitation to enter by allowing us to peer into its depths. He calls his architecture “the phantom in the park.”⁹⁷ The park, for its part, functions as a transition element; it gives the project a public aura that is, however, checked by the glass facade. With the sequence described above, the glass layers achieve a logical progression that mediates between entering and strolling. The possibility of moving the glass facade of the main floor is also a technical realization of the concept of a layered transition. For Nouvel, the space-defining elements are not massive, impassable walls. They are flexible and transparent and thus make an opening possible. And so the stroll is for the most part guided by the light, the trees, and the art exhibited.

⁹⁴ Baudrillard and Nouvel, *The Singular Objects of Architecture*, 17–20 (see n. 5).

⁹⁵ *Ibid.*, 8.

⁹⁶ *Ibid.*, 62.

⁹⁷ Jean Nouvel, “Fondation Cartier” <<http://www.jeannouvel.com/english/preloader.html>> Accessed May 18, 2014.

Casa da Música

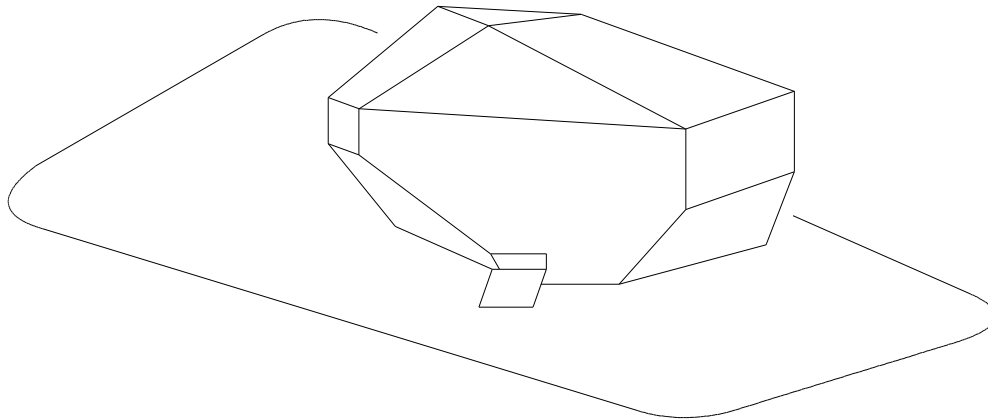
Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005

The city of Porto had the opportunity to present itself as the European Capital of Culture in 2001 and in this context it sponsored an architectural competition for the Casa da Música.⁹⁸ The building is home to three orchestras and offers space for amateur performances and a music school.

The concert hall building has a sharp-edged structural body of light-gray exposed concrete and is positioned in the middle of the site (fig 93). Its geometric form can be described as that of an irregular polyhedron composed of different-sized closed space-delimiting facets. The complex geometry encompasses a long cuboid that indicates an only faintly recognizable central axis. The legibility of the “inserted body” is reinforced by the change in material on the facade in the form of two greenish shimmering glass surfaces. The brash and multifaceted interior provides a contrast to the stark and homogeneous exterior. The auditorium is visually linked to the exterior space along its shorter side, which means the audience can see the city as a backdrop to the orchestra.

There are two concert halls in the building, a large one with 1,200 seats and a small one with 350 seats. In addition, there is space for various facilities, including rehearsal rooms, recording studios, a children’s room, a cyber music space for experimental music, VIP areas, restaurants, and underground parking.

Fig. 93: Cubature of the architectonic shape



⁹⁸ Gerrit Confortius, “Endlosräume und grobe Schachtel,” *Bauwelt* 96, no. 21 (2005), 24.

Delimitation

The plaza around the structural body fulfills the function of a city square and opens itself up to the surroundings with a clear edge along its boundaries. The open effect is achieved by eliminating distinct sidewalks and extending the material of the site to the curbs. This means that the exterior threshold space has an open boundary on all sides. The interior threshold space is delimited toward the outside by the complex, sharp-edged cubature of the structural body (fig. 94) and on the inside by the outer surface of the two cuboid concert halls (fig. 95). The lower surface is composed of—occasionally tiered—rectangular and trapezoid surfaces.

The interior part of the threshold space cannot be perceived as a whole; it lies hidden from view (fig. 96). Nevertheless, the dramatic form serves as preparation for the experience of space. The facade thus takes on the role of contact point between the exterior and the threshold space. On the inside of the threshold space, the interior surface of the outside shell is visible. The threshold space is made up of staircases, a passageway, and two vitrines. In traversing it, you experience the space as continuous. The vitrines function as an interface between the threshold space and the outside. Two large, powerful glass surfaces delimit the narrow, high space between outside and inside.

The exterior staircase develops out of the logic of the interior. The stairs indicate entrance and represent a threshold element that, as an extension of the design, has been unfolded.

Fig. 94: Spatial bodies, exterior delimitations of the threshold space

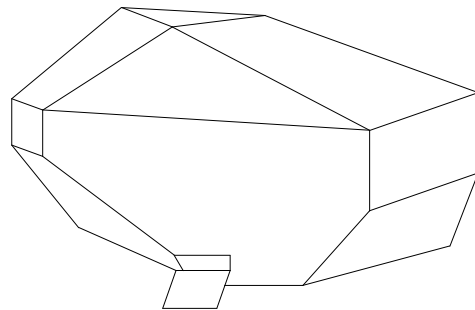


Fig. 95: Interior delimitations of the threshold space

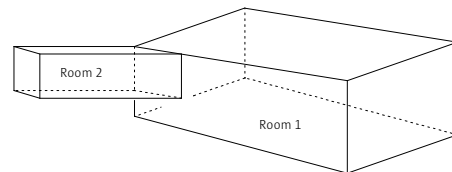
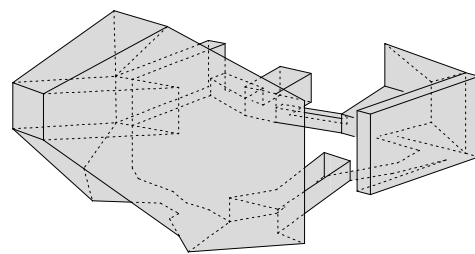


Fig. 96: Body of the threshold space



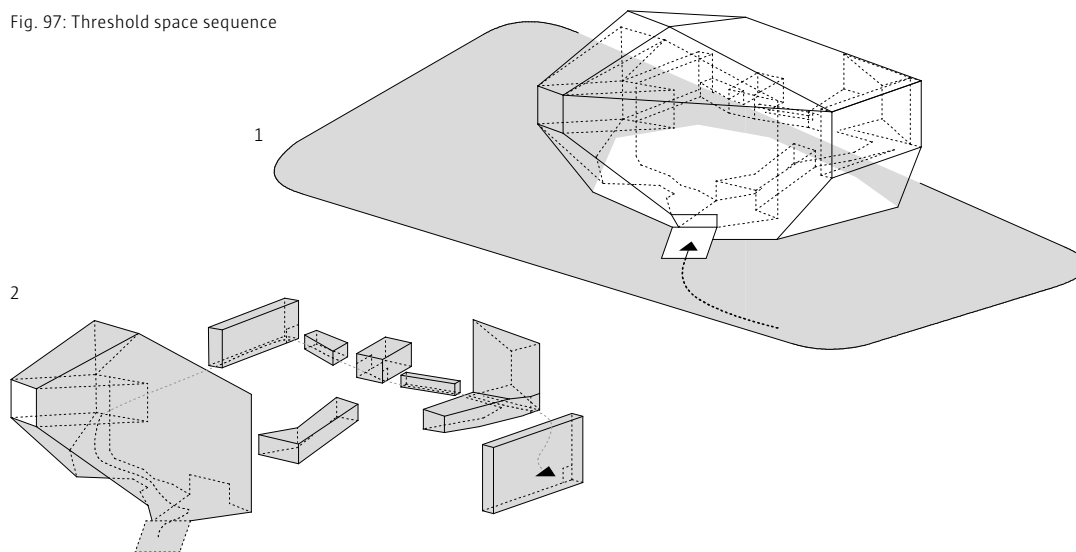
Sequence

The initial approach is via the welcoming expanse of the ring-shaped plaza (fig. 97). This surrounding area makes the relationship to the centrally positioned structural body clear and gives the user an overview of appropriate dignity. The feeling is of having already entered the sphere of the structural body, as the paving of yellow natural stone encircles the structure like the brim of a hat or an elegant ruff. The annular band makes it possible to arrive from every direction. On circling the building, the visitor discovers the only protruding element, an inconspicuous lateral stairway. The stairs, a minimal transition element, lead the visitor directly into the structural body. Thereafter, there are no thresholds and no doors to be opened in order to enter the interior.

The spectacular foyer, an interior threshold space, offers the visitor two views and two paths. One path leads along a passageway straight through the building under the main hall/auditorium, while the other rises immediately and leads along the inside of the shell to the concert halls. This broader path leads directly upward and makes the visitor aware of the weight of the Grand Auditorium that lies ahead and to the right. The visitor is then guided above the small concert hall and further up between the facade and the main hall, eyes also directed upwards.⁹⁹ The flights of stairs end on one of the two high points of the threshold space. This narrow, high-ceilinged platform is delimited by the two transparent surfaces, the narrow side of the main concert hall and the outer facade. The visitor is now midway between the city and the concert hall. The two equally large glass panes offer clear views either inward or out.

The passageway leads the visitor, once again closely guided, to the opposite side. There is then a turn to the right and individual flights of stairs leading to the other narrow side of the Grand Auditorium. Again, as on the other short side, the visitor finds him- or herself between the city and the auditorium, this time with a view of the plaza. The two paths are connected into a ring with the help of inconspicuous passageways that lie between the other two rooms. The sequence forms a spatial continuum that encircles the box-shaped main concert hall.

Fig. 97: Threshold space sequence



⁹⁹ Ibid.

Geometry

The shape of the threshold space is essentially that of a ring, but one with substantial transformations both in its width and in its height. On one side the ring is radially connected to the plaza by the exterior staircase (fig. 98).

The geometry of the transitional space is very complex and cannot be decoded without the help of spatial representations. The complex form of the seamless intermediate spaces results from the interplay of the various angles at which the outer facets of the shell are tilted combined with the shoebox-shaped auditorium (fig. 99). The ordering of the threshold space is based more on the dramatic progression of the spatial sequence than on an apparent geometric operation. Both paths proceed via a clear turn to the right in order to reach the vitrines between the auditorium and the city (fig. 100).

The geometric design could be read as the facet cut of a diamond. The auditoriums are clear geometric cuboids that, taken together, form the inner matrix and the outer vertices of the figure. The threshold space wraps itself around the regular boxes as an outer body. On the sides, irregular polygons delimit the boundaries by connecting the outer points of the two concert halls.

Fig. 98: Ring-shaped threshold space

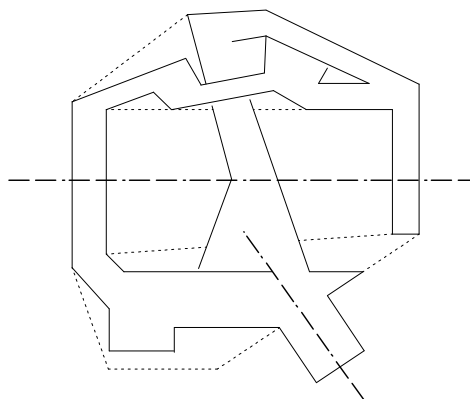


Fig. 99: Rectangular concert hall

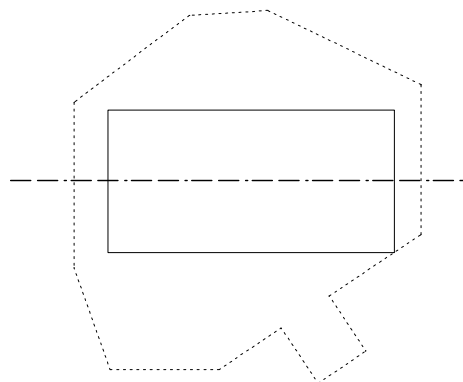
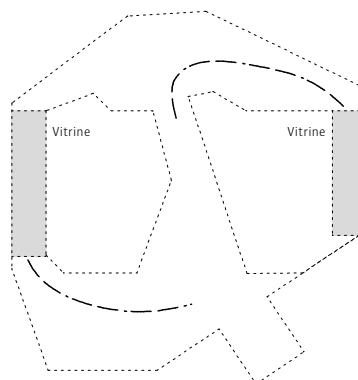


Fig.100: Threshold space geometry



Topography

The threshold space presents itself as an independent, upward-sloping landscape and deploys a dramatic path to mediate from the level of the city to the raised position of the music room. The level upon arrival is that of the city, as established by the surrounding plaza (fig. 101). The visitor is intentionally “picked up” at this level by the welcoming staircase and led directly into the interior. The two paths guide the visitor to the two respective narrow sides with the vitrines of the main hall, which, at a height of twelve meters at the front end and sixteen meters at the back end, establish two spaces. The vitrines allow for views back toward the city and link these very directly to the main auditorium (fig. 102). The visitor is situated in a place between music and the city.

The threshold space creates a place for movement. It makes demands and lets us sense a continuous flow of motion while we stroll through it. In this way it establishes a strong contrast to the auditorium, which invites visitors to rest in the space. The complex geometry of the threshold space has the visitor wandering through a funnel-shaped space. The edges of the tapered cone space edges here encourage visitors to keep walking and offer them bold perspectives (fig. 103).

Fig. 101: Urban context

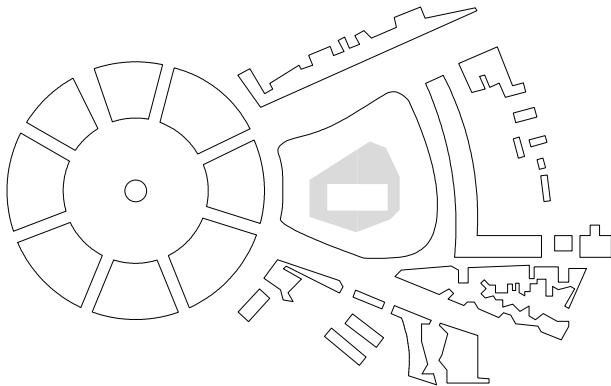


Fig. 102: Vitrines in the threshold space

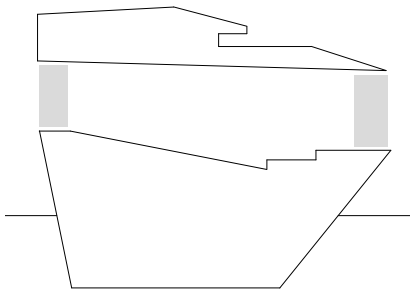
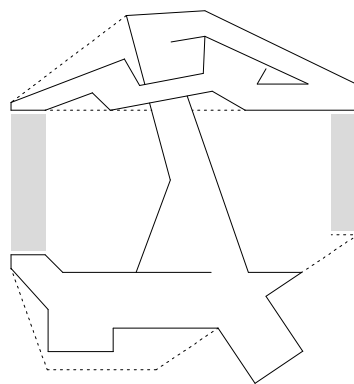


Fig. 103: Topography of the threshold space



Materiality

Both the exceptional spaces inside the structural body and also the plaza stand out in their particular color and their striking texture. The urban square is extravagantly paved in yellow travertine slabs and can be used for outdoor concerts (fig. 104). It sets itself apart from its surroundings. The inner finishings of the auditorium and of the other rooms are very individual, colorful, and sometimes even sumptuous. The threshold space, with its simple gray design, stands in clear contrast to the atmospheres engendered by these spaces that have been defined in such a complex manner. The material design thus defines the threshold space in particular as a neutral in-between zone. Its quality changes with different light intensities. The vitrines, in particular, can be strongly influenced both by sunlight from outside and by artificial light from the auditorium (fig. 105), so this area of the threshold space can be wrapped in the respective light of the moment. Through the day, natural light defines the threshold space. During the performances, the zone changes because it is supplied with artificial light from deeper inside. The atmosphere of the concert hall also determines that of the in-between zone. The vitrines shape the two highlighted, staged areas of the threshold space (fig. 106).

The artificial light with which the threshold space is equipped confirms the principle of contrast to the functional spaces. Low-priced fluorescent tubes have been installed with perforated metal-plate coverings. This simple style reinforces the effect of the ephemeral and of service to the functional rooms in the building.

Fig. 104: Materiality of the threshold space

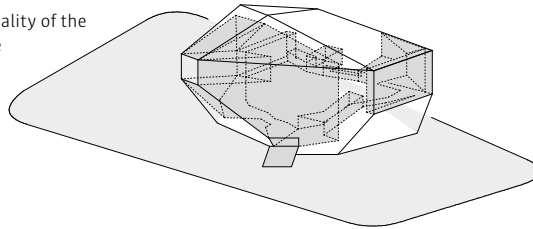


Fig. 105: Atmospheric link between vitrines and large concert hall

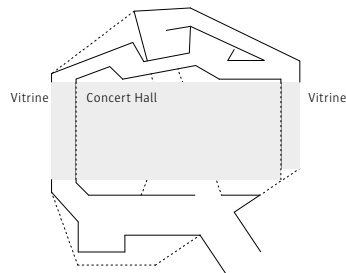
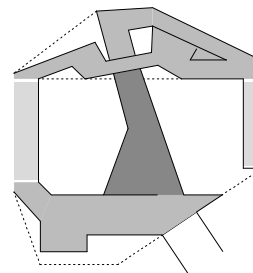


Fig. 106: Distribution of light in the threshold space



Furnishings

Various counters are unobtrusively organized in the interior of the threshold space. As simple boxes made of matte translucent acrylic, they serve as projection objects that can absorb and reflect diverse colors and brightnesses according to differing light intensities. They are integrated into the stream of movement and thus help to serve the main purpose of the threshold space. The special stations are distributed over the entire length of the space and appropriate it inconspicuously and casually. The dissolution of the main door as a threshold space closure is of particular interest. The sliding door is pushed aside to let the outdoor staircase continue directly into the interior of the building.

Summary

The composite threshold space is a complex spatial sequence composed of a number of smaller spaces strung together to form a circle. The result is an open spatial ring. This design has parallels with the Embassy of the Netherlands in Berlin. There, as well, the inner entrance route, staged as a dramatic path with various changes in direction, rises to a higher level. In Porto, the *promenade architecturale* ends on a rooftop terrace. Rem Koolhaas calls the promenade a “traject.” In contrast to the embassy, the Casa da Música can open its traject completely for public use. This design concept makes it possible to experience the building fully even outside performance hours. The threshold space works directly as an agent for the music and organizes access to it.

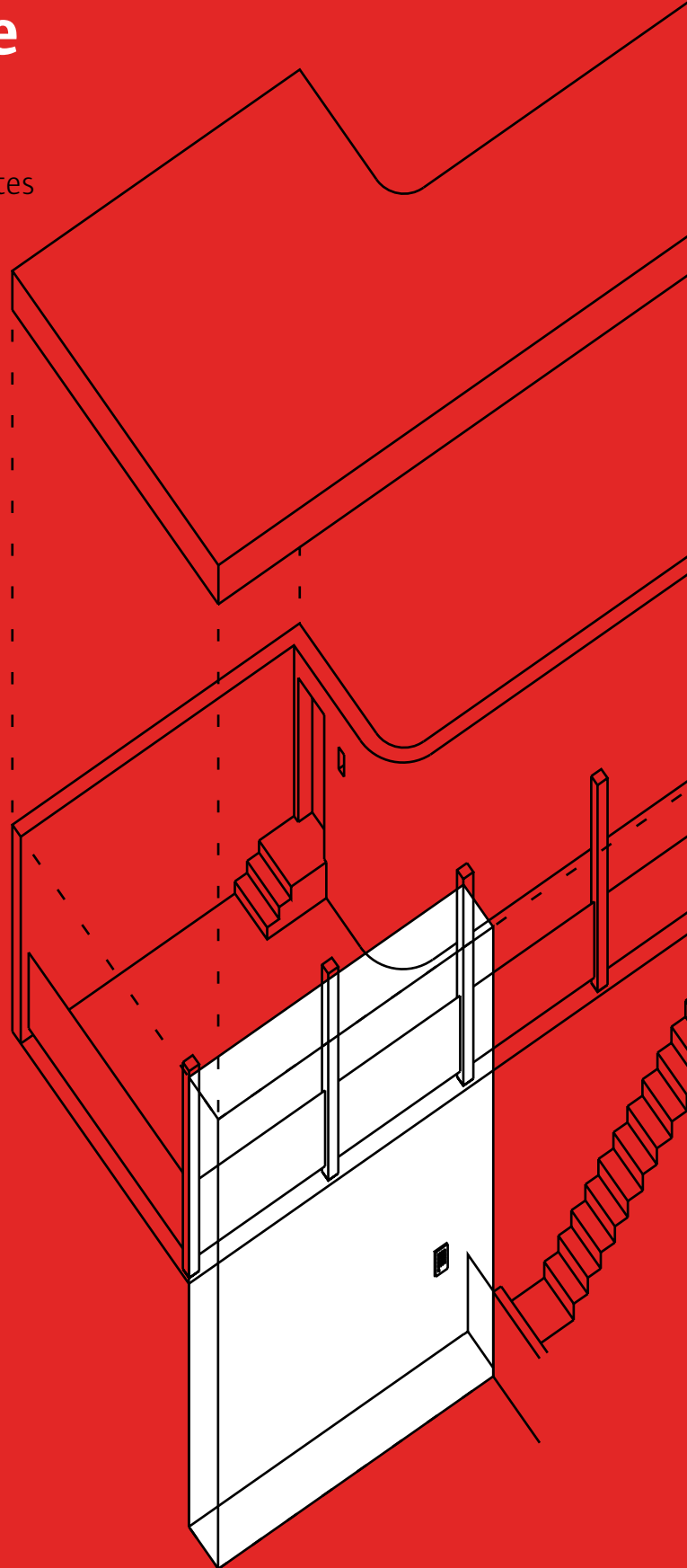
One of the most important aspects to mention regarding the design of the threshold space is its materiality. The differences and contrasts in the materials are a strong expression of in-betweenness. The plaza made of natural stone, with its lavish surface, its topography, and its planned relationship to the building, becomes a place for music. As a further concert area, the exterior is planned as an open space that not only contrasts with its surroundings, but also forms the base area for the threshold space. This threshold space is simply, brightly, and rationally executed, whereas the finishings of the auditoriums and the other functional rooms are elaborate, playful, and colorful.

What is unusual is the strong delimitation of the interior threshold space, which builds up a certain distance to the visitor. The smooth facade provides a strict separation between inside and outside. The architectural partnership OMA aims to use precisely this distance to arouse curiosity. The building could be compared to a plane that has landed or a ship that has run aground and can no longer leave the site. The relatively small staircase suits the threshold space both in the design concept behind it and in its execution, and makes this design relationship visible on the outside. The stairs seem to be an element that has been folded out from the building. As a reduced, obstacle-like threshold, the simple and short flight of steps mediates between inside and outside. The sliding door opens the “spaceship” in the morning and then links the interior and exterior without a threshold. During opening times, there is no door to be opened. In winter, a transparent curtain is pulled across to maintain an opening. The opening into the building can be understood as an open keyhole that is an invitation to enter and experience the spectacular form of the spatial continuum. In comparison with the free, open plaza and the auditorium, the internal threshold space presents itself as a dark space. The space is constricted and makes entry into it a physical experience. Your position in a state of betweenness becomes very evident.

The pull of the threshold space should also be emphasized. This pull urges the arriving visitor to move intuitively upward towards the music. The threshold space never loses contact with, proximity to, or its orientation towards the concert hall. It wraps itself as a path around the auditorium and lifts this place for music upward.

Threshold Space Design Tools

Counterbalancing Pairs of Opposites
Phases and Organization
Sensitive Guidance
Essence and Potential
Application and Outlook



Counterbalancing Pairs of Opposites

For each of the given architectural examples, the focus is on a threshold space that has its own particular conceptual design, one that can be derived from the set of six spatial parameters used in the above descriptions.

As a first step, the results of the analysis of the individual parameters are compared for the selected architectural examples. The application of the spatial parameters has revealed extreme characteristics in the respective descriptions of the architectures, demonstrating analogies in the design strategies. The presentations and comparisons that follow here are designed to describe the spatial parameters with the help of pairs of opposites. The descriptions also focus on the functionality of the various technical thresholds and evaluate whether the technical execution of the threshold space reinforces its design concept. The aim of this procedure is to generalize the differences that have been determined and thus to gain a closer understanding of the essence of a threshold space. Furthermore, the interplay between the extremes appears to be particularly characteristic of a threshold space and places it in a unique position based on its very ambiguity. An attempt will be made to explain how a space can be simultaneously opened and closed.

The second step is to correlate and evaluate the comparisons of the respective ambiguities and to present the results in the overall context. A balance in the ambiguities is demonstrated, one that becomes apparent in the dynamic, balanced forces at work in the selected threshold spaces. Subsequently, the chronological sequence of individual phases is presented as an integral aspect of a threshold space and a system is devised. Finally, areas of application are introduced and an outlook is presented.

Open—Closed

Each of the threshold space parameters is used to examine the architectural examples and identify analogies in their strategies, and for each a position is determined between the poles of “open” and “closed.” For this classification, the general pair of opposites, “open” and “closed,” is modified and defined to suit the spatial parameter in question. The following pairs of opposites have been derived for the various threshold space parameters:

Delimitation: *open—closed*

Sequence: *freely selectable—guided*

Geometry: *free—ordered*

Topography: *independent—embedded*

Materiality: *neutral—distinctive*

Furnishings: *unobstrusive—self-contained*

Delimitation

In connection with the analyses of spatial definition, insights can be gained into the opening and closing of a space. A threshold space opens itself in various ways—either more or less, both visually and ultimately also spatially—to its surroundings. The spatial delimitations can cause the threshold space to appear quite open or, in contrast, the threshold space can appear to close itself off from its surroundings and present itself as closely bounded (fig. 107). Spatial containment is of particular significance in terms of energy efficiency, as the shell can be closed more easily. Open spatial bodies in the form of unheated exterior spaces can generate transitions. In parts of the world where low temperatures are not experienced, exterior spaces can more easily

be infolded into the inside of a building. A comparison of Le Corbusier's Carpenter Center and his Mill Owners' Association Building clearly demonstrates this phenomenon. The delimitations of the threshold space can be seen as a reaction to the different climates in Cambridge, Massachusetts, and Ahmedabad.

The Neue Nationalgalerie is an example of a flat threshold space that is open in all directions and has clear boundaries only on the inside (fig. 108). The Museu de Arte in São Paulo (MASP) opens its exterior space to the city in a similarly extensive way and forms a clearly delimited threshold space body whose two long sides extend a generous invitation to enter. The open space that is offered in both cases, the Neue Nationalgalerie and the MASP, is clearly read, understood, and used as public space.

Fig. 107: Delimitation: *open—closed*

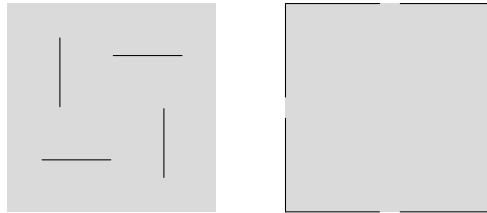
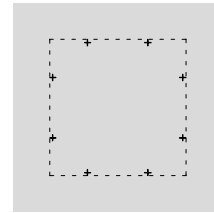


Fig. 108: Open threshold space, Neue Nationalgalerie, Berlin



Le Corbusier employs a basically similar strategy in Cambridge, although the threshold space is smaller and different in terms of its geometry. The Carpenter Center threshold space also shifts the boundary of the city space, is strongly connected to the public space, and is itself perceived as public space. However, in the case of the Carpenter Center, the penetration of the space makes it possible to wander through the entire building on the S-shaped exterior ramp. A similar strategy can be found at the Museum für angewandte Kunst (MAK) in Frankfurt. There the threshold space body can be called “porous” and is linked to the city space by the portals. The park, however, is more definitely bounded by its low wall and it is clearly delimited as a protected public space. The vegetation is very apparent from outside the park and is not framed by the wall. Monitoring the park is virtually impossible; the security of the public space derives from social norms. The sense of responsibility for public spaces is reflected in the founding of the organization called “Freunde des Museumspark” (friends of the museum park)¹⁰⁰ in Frankfurt.

While the Casa da Música in Porto opens itself up broadly and in all directions with its wide, ringlike plaza, similar to the Neue Nationalgalerie, it hides the interior sections of the threshold space and announces them in a relatively inconspicuous way with the small exterior staircase. The Casa da Música only opens its interior threshold space at one point. As a result, warm or cool air can be carefully controlled and kept inside. It is easy to achieve access control.

In the case of the Fondation Cartier in Paris we have the following situation: visually, the visitor is led close to the threshold space and its aura, but physically, he or she is kept at a “layered” distance. The threshold space suggests an expansive spatial opening. Jean Nouvel's strategy is the creation of an open space. This space exists as an open picture and is only open at one point and with securely monitored access. This combination of solely visual opening and spatial closing facilitates easily organized access control.

¹⁰⁰ Freunde des Museumspark, “Unsere Forderungen” <<http://www.freunde-des-museumspark.de/>> accessed March 2014.

Sequence

Comparisons of the sequences of a threshold space, that is, the order of the various spaces as you move through them, can differentiate between freely selectable and guided paths. This analysis determines the extent to which the architectural experiences follow a predetermined order and whether there is only one path of motion through them (fig. 109). Furthermore, in addition to these differences, certain analogies can be found between the individual threshold space sequences.

Fig. 109: Sequence: *freely selectable—guided*

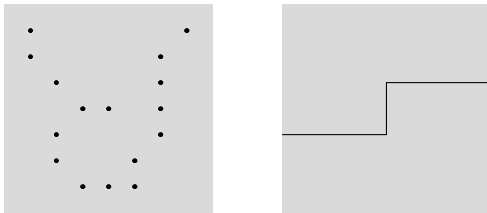
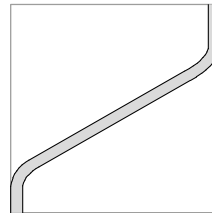


Fig. 110: Guided sequence, Carpenter Center, Cambridge



In the works by Ludwig Mies van der Rohe and Lina Bo Bardi described here, both architects planned to let the visitors choose their own access paths. The threshold spaces of both the Neue Nationalgalerie and the MASP allow visitors to approach the buildings from various directions and do not predetermine a specific path. Visitors can allow themselves to be guided by possible stimuli. The security concept of the Neue Nationalgalerie maintains this approach by carefully concealing the video surveillance equipment and having security personnel stroll through the building as though they were visitors. The unplanned path provides space and time for the unexpected in terms of spatial perception. The path the visitors seek and select while they are in the threshold space changes dramatically and is newly structured. Directions are only very vaguely predetermined, affording freedom and scope.

At the Fondation Cartier, the first experiences are of spatial enclosure as you arrive and gain access to the inside at a single point. Thereafter, the threshold space can be freely explored. The privatized public space offers a system of paths in the park, but this system provides great flexibility and freedom to choose a path. The design concept behind the pathways in the park of the MAK in Frankfurt clearly determines how architectural experiences in the threshold space are anticipated. While variations are possible given the multiple portals, the anticipation that is built up clearly demonstrates accessibility to the visitors and shows them the way. The portals function as frames for the paths and guide the visitors to the “correct” axis.

The Carpenter Center unequivocally predetermines the approach of the visitor, leaving no choice in the matter (fig. 110). The pathway creates firm guidance similar to that of railroad tracks. As in a procession, the spatial experiences in the threshold space are thought out, planned, and always reproducible. This design concept was born not out of the desire to exert control but rather the wish to sharpen spatial perception, as demonstrated by the fact that, despite the clear pathway of the ramp, it was difficult to retrofit it for security control. Access to the interior was meant to be open and immediate.

The threshold space of the Casa da Música could be considered a combination of the designs of the Neue Nationalgalerie and the Carpenter Center. Rem Koolhaas follows a principle of openness for the initial approach, channeling visitors who arrive from different directions with the ringlike

plaza that surrounds the building. The threshold space within the Casa da Música, similar to the pathway in the Carpenter Center, strongly predetermines the route and leads the visitor directly to the music rooms. Rem Koolhaas also leaves the visitor little flexibility regarding the order of the spatial experiences. The path imposes itself on the visitor and ends in an exceptional space. Along the way there are opportunities to make purchases or to linger for a moment. The stations orchestrate a type of social control, eliminating the need for a security company to operate in the area. The cafés, the ticket sales counter, and the shop take over monitoring functions on the side.

Regardless of whether the path is more guided or more freely chosen, access to the building is usually visible from a distance. Around the Neue Nationalgalerie, the Casa da Música, the MASP, and the Carpenter Center, the surfacing functions as a barely perceptible threshold. In all these cases, accessibility is easy and recognizable from a distance. Similarly strong symbolism can be seen in the portals of the MAK or the door of the Fondation Cartier. The threshold space body spreads out in front of the approacher.

All of the given examples allow for more or less free approaches. The initial arrival is organized in a generous way with a ring-shaped plaza at both the Neue Nationalgalerie and the Casa da Música. The Carpenter Center achieves a comparable context for initial arrival with the section of ramp that has no side rail. Visitors to the Fondation Cartier or the MAK are spatially enclosed and thus keenly experience their initial arrival. Movement is slowed down by various spatial means, whether a spatial constriction, as in the portals of the MAK, or the incline of the steps to the Casa da Música and the ramp to the Carpenter Center. This slowing down helps to provide a good overview of the architecture and the available routes. The more recent examples allow for the incorporation of access control measures. Such a system is difficult to incorporate at the Carpenter Center. The resulting redesign of the entrance is indicative of the dilemma. At the Neue Nationalgalerie, the threshold space and the artwork displayed within it are carefully supervised by security personnel.

The last step to be considered for all the architectural examples can be seen as the announcement and perception of the spaces that ultimately await the visitor. In the Casa da Música, you can almost feel the weight of the auditoriums when you climb up through the threshold space. A similar physical relationship to the building can be felt at the MASP: the “flying” museum body hangs over the visitor. Le Corbusier also clearly announces the studio spaces by anticipating the curves of those spatial bodies with the path of the ramp. While Mies van der Rohe and Richard Meier are more subtle in guiding the visitors’ last steps into the interior and the functional spaces, they leave no doubt as to what can be expected.

Geometry

The spatial geometry of a threshold space is the structure that essentially determines how the space is ordered. In extreme cases, the threshold space geometry may be hardly recognizable, presenting itself as free geometry. At the other extreme, the structure is very strict and ordered (fig. 111). In the latter case, spatial organization can be traced back to recognizable geometric shapes.

The threshold space of the Casa da Música is made up of a very complex geometry. It is hardly possible for a visitor to decode it. The climbing stairway that widens and narrows provides continuity. Nevertheless, no repeated, consistent geometric form can be ascertained.

Fig. 111: Geometry: *free—ordered*

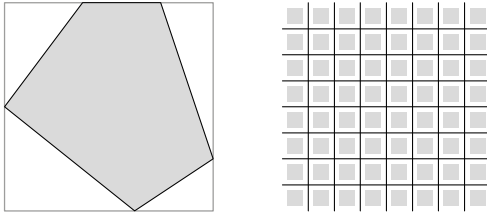
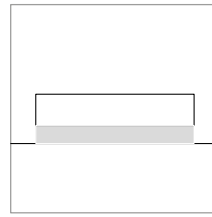


Fig. 112: Rigid geometry, MASP, São Paulo



The free S-shape of the Carpenter Center ramp makes the visitor appear to glide seamlessly and gracefully through the given space. It adapts to the surrounding system of streets and also mediates between differing heights. Richard Meier works more strictly with the geometry of the park and Villa Metzler, applying it to the threshold space and then allowing the organic softness of the vegetation to superimpose itself on the strict order that results. In several places, sections of space can be found that are based on the square structure of Villa Metzler. The threshold space of the Fondation Cartier also presents itself as a park, one whose ground plan is strictly structured by the layered, tiered spatial delimitation of the structural body.

The threshold space of the Neue Nationalgalerie is strictly and distinctly determined by an omnipresent cubelike module. The space-defining elements conform to the readable squares in both the plan and the view. Lina Bo Bardi does not outperform the Neue Nationalgalerie in terms of the clarity of her threshold space structure, but the simplicity of the MASP's spatial shape is unrivaled. The cuboid of the threshold space forms a simple counterpart to the oblong box shape of the museum body (fig. 112). Both architectures work with the clear readability of cubic volumes. It is interesting to note that both the roof of the Neue Nationalgalerie and the museum body of the MASP are approximately eight meters from the ground and provide the spaces under them with their clear cubature.

Topography

With regard to the topography of a threshold space, we can distinguish, speaking in terms of space, between independent and embedded sites (fig. 113). At one end of the spectrum, the threshold space forms its own self-determined space in relation to the architecture as a whole, which can be used and perceived accordingly. At the other end, it can be embedded as a place within the architecture and be less present and readable as an independent space.

Fig. 113: Topography: *independent—embedded*

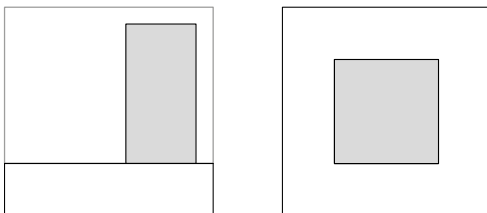
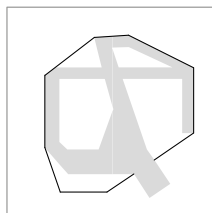


Fig. 114: Embedded space, Casa da Música



The creation of the void in the MASP is particularly unusual. This uncommon space, a special place in the city, is probably the architectural example which demonstrates the greatest flexibility and independence of all; it can be appropriated again and again for changing public uses. In earlier days it represented a secluded, private space. This exclusivity still resonates today, despite the paradox of the public context. The space even has its own name: Vão do Masp. The threshold space of the Neue Nationalgalerie is similar; it offers itself as a public stage for the city. Naturally, its central position is a deciding factor in its strength. Visitors are welcomed in the middle of the architecture. The Carpenter Center threshold space leads the visitor into the center of the architecture in a similar way.

The Carpenter Center ramp manages to provide both independence and integration. First it creates its own place, which achieves independence thanks to its shape and its raised position. Nonetheless, the ramp fits into the urban context of the campus and is not only self-referential but rather offers itself as an embedded pathway. During the day, the Casa da Música also offers its threshold space to the public as a city space, but due to its location inside the building (fig. 114), it must first be discovered and is integrated in the architecture.

In Frankfurt, the threshold space, a seclusive place, tells of the history of the city and forms an urban park that is closely related and connected to the MAK. The park serves as a mediator on all levels and finds its identity in its artifacts and its surroundings. Although the Fondation Cartier threshold space is immediately visible, its spatial position marks it as contained by and embedded behind the glass panels. It is not so readily accessible.

Materiality

The materiality of the threshold space makes particular use of the tension between open and closed, or in other words neutral and distinctive (fig. 115). Usually, the aim is to provide the threshold space with a materiality that is not easily classified. Architects make use of the effect of changes in the appearance of the materials according to the time of day or the seasons. This means that the opposite poles of materiality in a threshold space run from neutral and subordinate to the overall design to distinctively dominant.

The MASP and the Neue Nationalgalerie form the extremes for discussing this aspect of threshold spaces. For her void, Lina Bo Bardi chooses inconspicuous materials that fit into the surrounding city space. No transition from the city space can be perceived. In the Neue Nationalgalerie, Mies van der Rohe plays with the materiality of a classic interior space, for example wood, natural stone, and leather. In this way, a contrast can be achieved through the use of distinctive materials.

Fig. 115: Materiality: *neutral—distinctive*

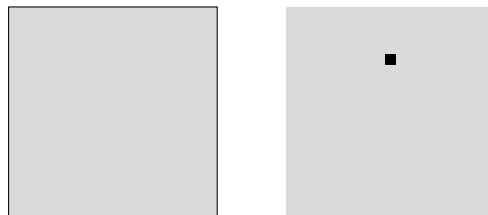
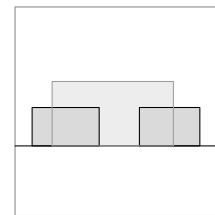


Fig. 116: Ambiguous materiality, Fondation Cartier, Paris



The threshold space itself is designed to be striking and liberates itself from its surroundings. The glass facade is executed as an open, transparent layer. Mies van der Rohe lets glass demonstrate its true transparency in its function as something to be looked through.

Experimentation with the material of between-ness is particularly evident in the use of glass. The Fondation Cartier, for example, plays with the capacity of glass to both close and open spaces at the same time (fig. 116). Pronounced transparency and reflections can make the threshold space appear as an open or closed spatial body.

The Casa da Música, with its silver gray tone, also achieves an ambivalent materiality that can capture various atmospheres. The neutrality of the material serves the design concept of the threshold space, as it lies between the function rooms with their distinctive finishes. A perceptible contrast emerges as the material of the threshold space recedes into the background. The threshold space is made into the most inconspicuous and neutral mediator possible in order to showcase the other spaces.

In the cases of the MAK and the Carpenter Center there is logically no difference in the materiality of the threshold space with respect to the design concept as a whole. However, the mutability of the exterior space is incorporated in the design. The vegetation in the park in Frankfurt is subject to dramatic changes, and similarly impressive transformations are experienced in the threshold of the Carpenter Center.

Furnishings

Threshold space equipment can be characterized at the one extreme as integrated and unobtrusive and at the other as self-contained (fig. 117). Designs for furnishings range from units concealed in the space-defining elements to visible objects. Integrated systems make open threshold spaces and various forms of utilization possible. Self-contained objects themselves define space and also play a larger role in the respective functions of the space. Technical thresholds such as video surveillance, intercoms, and mailboxes can be combined in self-contained objects, leading to technical advantages regarding the installation and production of the equipment. Moreover, information can be gathered at one fixed point and communicated to other locations.

In comparison with the other architectural examples, the void of the MASP, an exceptional space in the city, is likely the most flexible space due to its emptiness, its complete openness. There are no furnishings (fig. 118) apart from the inconspicuous staircase that folds down from above. The security cameras that were subsequently installed, however, are objectionable. The climate in São Paulo is suitable for staging various activities in the space, which is protected from the sun and benefits from relatively fresh air thanks to the neighboring park.

Fig. 117: Furnishings: *unobtrusive—self-contained*

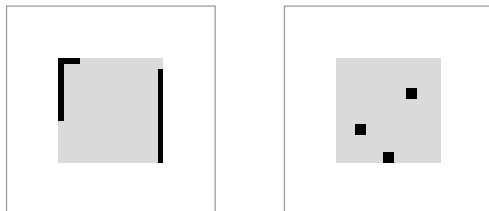
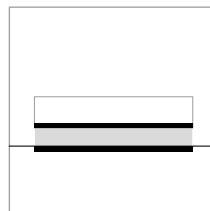


Fig. 118: Unobtrusive furnishings, MASP, São Paulo



The threshold spaces of the Carpenter Center, the MAK, and the Fondation Cartier serve first and foremost as path spaces. They essentially dispense with equipment and thus are an invitation to move around freely, to stroll, and to observe.

The Neue Nationalgalerie also features open space on its terrace, which can be used, for example, for sculptures, spatial installations, or performances. The furnishings are in the interior and are reduced to a minimum. Their space-defining effect is negligible given the overwhelming dimensions of the hall. In the Casa da Música, furniture for the basic functions is placed in the space to be seen as objects. The movement space in these areas is expanded by the additional functional spaces, for example a café.

Counterbalancing Ambiguity

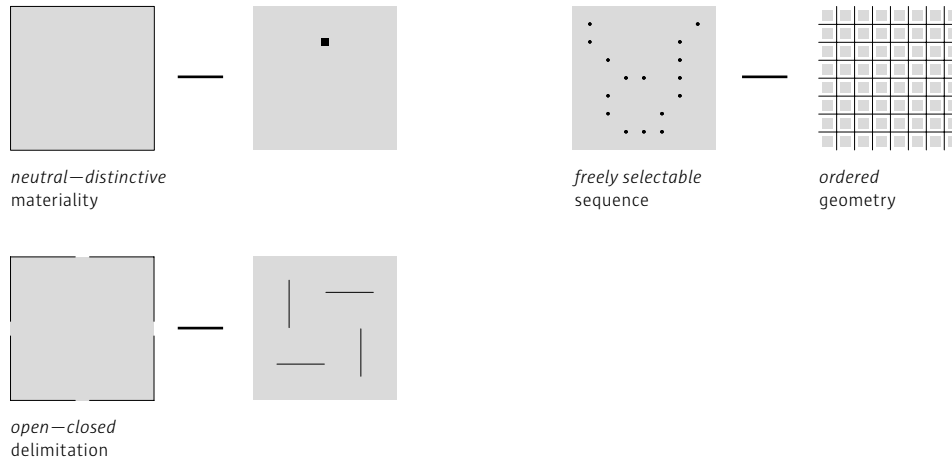
The pairs of opposites that have been identified help to define the individual spatial parameters more clearly and to compare them in a new way. The individual threshold space parameters are closely linked to one another, as is particularly evident in the case of sequence and geometry. The parameters can be seen as tools for developing a better understanding of individual aspects of an architectural and spatial design; they work together toward a particular comprehension and experience of space. In addition, attributes can be elicited from the descriptive analyses for each parameter. The insights thus gained can be compared in an abstract form.

Although the architectures are very different, analogies can be traced in their intrinsic logic and strategies with regard to the complex of interacting spatial parameters—delimitation, sequence, geometry, topography, materiality, and furnishings. When we examine the threshold spaces of the selected architectural designs separately, we see that, with respect to the spatial parameters, an “open” situation always counterbalances a “closed” one. One spatial parameter stands in contrast to a different parameter which tends to the opposite pole. Occasionally, an opposing attribute pair can be found within a single spatial parameter. For each attribute of a threshold space there is an opposing player. The complementary parameters either compensate for one another or the extremes are brought into equilibrium within a single aspect.

The pairing of attributes can perhaps best be seen in an analysis of the two parameters “geometry” and “sequence.” Often, strictly ordered geometry can be paired with a freely selectable sequence, for example in the cases of the Neue Nationalgalerie and the MASP. That is, clearly defined structures based on a grid find a dynamic balance in the flexibility of the paths through them and their usability. Conversely, the Carpenter Center balances free geometry with a strictly guided pathway. The free, complex form can be combined with a guided path while the strictly defined and guided path seems to allow for freer geometry. The free geometry of the Casa da Música, virtually undecodable for the visitor, also seems to seek a calming counterpart. Both the guided path and the strictly enclosed delimitation, the “hole” that serves as an entrance, help to achieve equilibrium with the complex form of the threshold space.

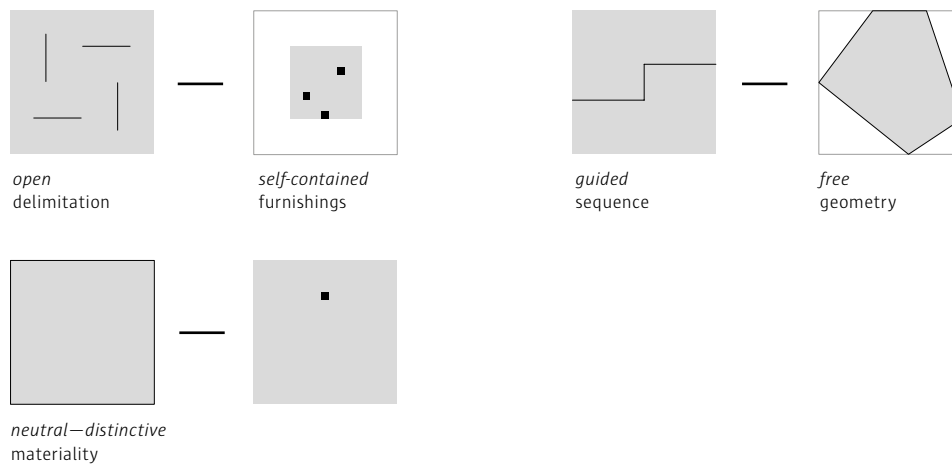
The Fondation Cartier demonstrates strong bipolarity regarding materiality itself. Here, the spatial parameter “materiality” need not be considered with any other parameter; it incorporates both extremes simultaneously (fig. 119).

Fig. 119: Counterbalancing attribute pairs—Fondation Cartier



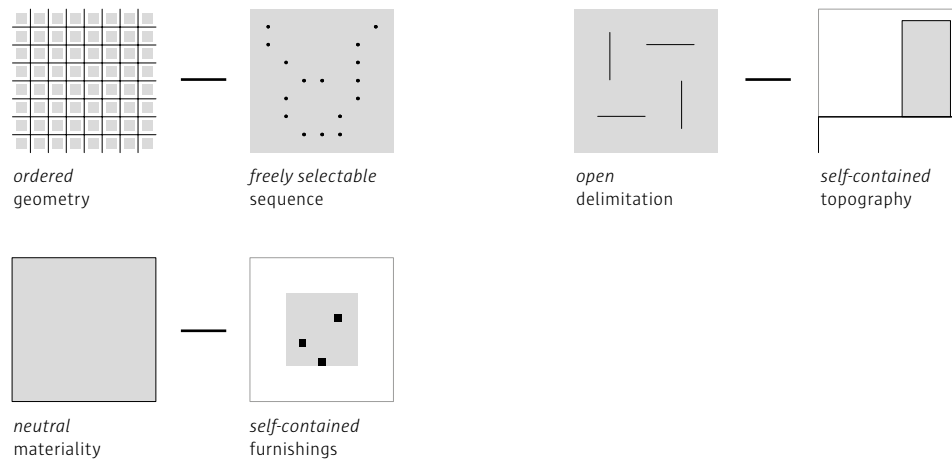
The MAK presents the park and its impressive trees as a striking threshold space with low boundaries. The park is visible and present from all sides and can only be entered through very self-contained portals. This sharp-edged architecture is in stark contrast to the organic growth of the natural park space (fig. 120).

Fig. 120: Counterbalancing attribute pairs—Museum für angewandte Kunst



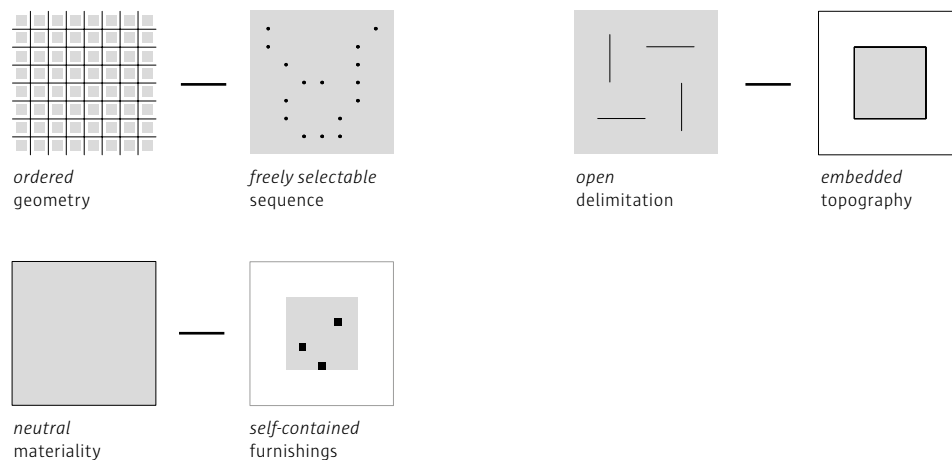
Analysis of additional pairs found in the case of the Neue Nationalgalerie shows, for example, the terrace that is open on all sides in combination with the self-contained topography of the prominent, exposed site. The materiality of the threshold space contains its own opposites, for example the dark black of the roof and the light white plinth. Also worth noting is the contrast between the monochromatic color scheme of the threshold space delimiters and the furnishings that have been installed, such as cloakroom elements in wood veneer or the green stone panels that hide drainage pipes and other utilities (fig. 121).

Fig. 121: Counterbalancing attribute pairs — Neue Nationalgalerie



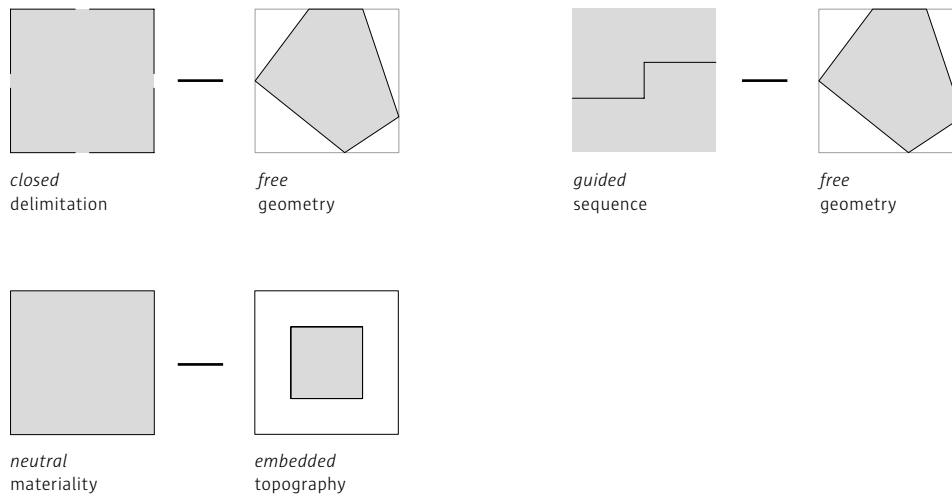
Looking at the position of the threshold space in relation to the architecture as a whole, the MASP is an example of a very central, enclosed location. This “enclosure” contrasts with the open boundaries of the threshold space. The Vão livre do Masp, as an empty open city space, demands to be filled in ever-changing ways (fig. 122).

Fig. 122: Counterbalancing attribute pairs — MASP



The threshold space of the Casa da Música is only guardedly open and finds its opposite number in the complex geometry of the foyer space, which allows for flowing, unhindered movement within the interior. This flow is reinforced by the form of the counters and other fixtures, such as the railings, which have been used to echo the funnel shape of the spatial design. While they are at least in part independent, self-contained objects, they are designed to be unobtrusive and to recede into the background. The materiality, namely the silver gray reflective surface of the Casa da Música threshold space, combines with the lighting to create an open atmosphere. This free, open materiality contrasts with the sharply closed boundary surfaces that embed the threshold space (fig. 123).

Fig. 123: Counterbalancing attribute pairs—Casa da Música

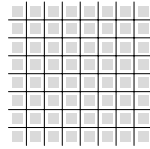


For each of the two extremes among the individual spatial parameters, then, an opposing player can be found (fig. 124). This bipolarity describes a state of suspension and of inner tension. The visitors do not generally perceive the individual spatial parameters one by one and match them to their counterparts, yet they can feel the balanced dynamics of the pairs of opposites and thus come to a better reading of the gestures of the design concept.

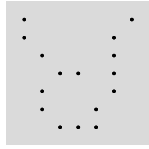
If at this point we turn our attention once again to the task and the purpose of a threshold and of a threshold space, the role of ambiguity becomes clear. Some ambivalence is essential to a threshold and it makes sense to anchor this ambivalence on several levels in the threshold space, to develop it, and to make it perceptible. The planner makes use of and experiments with ambiguity either intuitively or by choice. The pull from pole to pole of the opposite pairs of attributes can be used in the planning phase to design an attractive and harmonious threshold space that is integrated into the design as a whole. A certain tension is built up and consciously exploited between the contrasts and contradictions.

Fig. 124: Overview, counterbalancing attribute pairs

Neue Nationalgalerie

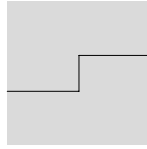


*ordered
geometry*

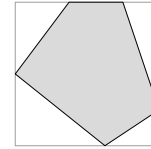


*freely selectable
sequence*

Carpenter Center for the Visual Arts

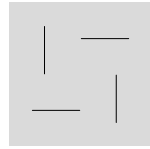


*guided
sequence*

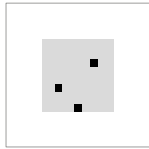


*free
geometry*

Museum für angewandte Kunst



*open
delimitation*

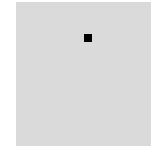


*self-contained
furnishings*

Fondation Cartier



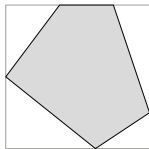
*neutral—distinctive
materiality*



Casa da Música

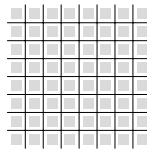


*closed
delimitation*

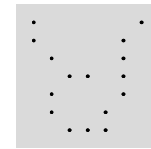


*free
geometry*

Museu de Arte (MASP)



*ordered
geometry*



*freely selectable
sequence*

Phases and Organization

The balance in ambiguity described here provides insights into the design concepts that are intrinsic to the threshold space. I will now describe the general sequence in which we walk through threshold spaces. Analyses of how the threshold space, regardless of its spatial configuration, is organized in the architectural examples show similar strategies and a common sequence. In addition to the tension-building counterbalances, a threshold space is strongly determined by the sequence in which space is experienced:

- Recognition
- Approach
- Reaching
- Arrival
- Orientation and Information
- Monitoring
- Exit

Fig. 125: Recognition

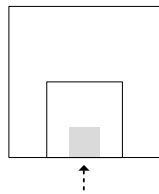


Fig. 129: Orientation and Information

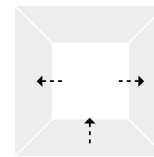


Fig. 126: Approach

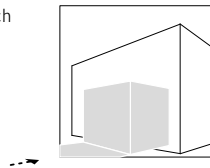


Fig. 130: Monitoring

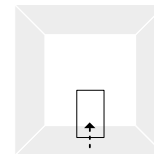


Fig. 127: Reaching

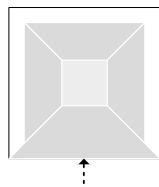


Fig. 131: Exit

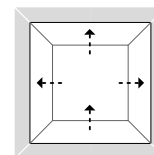
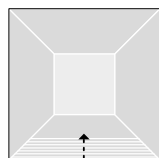


Fig. 128: Arrival



Recognition

The threshold space or a part thereof is distinguishable as an entrance (fig. 125). In the case of some architecture, the space-defining elements of the threshold space form a recognizable figure. The space itself may be understood as the entrance, as for example in the case of a plaza or a park. When the threshold space takes on the function of an entrance, it usually acts in the form of a perceptible symbol. This symbolism can be created together with the structural body of the architecture. It is explicit when the threshold space itself or space-defining elements of the threshold space can already be perceived from a distance. At times the body of the threshold space is distinct from the architecture. Such an emphasis on the threshold space shows parallels to the principle of the portico. The colonnade of the Pantheon serves as an archetype for many architectural designs. Entrance boxes shaped like sluices or locks and designed to function as windbreaks often formulate this principle as an abstract cube.

In the case of transparent facades, design considerations often lead to both the entrance and the closure being uniformly transparent. The geometry and/or the pathways are particularly called upon to make it possible to recognize the entrance.

Approach

Once the entrance has been identified, it becomes the destination to aim for on approach (fig. 126). The approach toward the entrance determines, among other factors, the direction of the path taken. The visibility of the threshold space body is a guiding force. It allows the user to perceive the entrance to the threshold space from a distance and to make his or her way toward it. Identifying the point of access gives you orientation and a sense of security; the path of approach is given direction. The Carpenter Center is a prime example of this process. Le Corbusier shapes the linear threshold space so strongly that it is the first element to be perceived. The threshold space is the unique feature of the Carpenter Center. The current relocation of the main entrance to the lower-lying ground floor thwarts the planned accessibility of the building and leads users who are unfamiliar with the Center to intuitively walk in the wrong direction. A threshold space is so strongly linked to its building that it cannot be moved without changing the building's design principles.

Reaching

Following the users' approach toward the threshold space, the space often appears as a "gesture of arrival" (fig. 127). Users are usually unaware that they have already reached the threshold space. This spatial first contact happens rather intuitively. Often, the threshold between the street space and the threshold space is hardly perceived. The demands of "universal design" are a particular attempt to dissolve this threshold. A barrier-free entrance is viewed as a spatial invitation. This experience of space can be accompanied by protective functions that make initial arrival more comfortable. Depending on the climate, it can be appropriate to use horizontal planes to protect spaces from rain or sun. Vertical planes are useful in blocking out wind or insulating against noise pollution, for example from traffic. In the cases of both the Carpenter Center and the Fondation Cartier, an approach by car has been integrated into the design of the sequence without disturbing how a pedestrian reaches the threshold space. The change in the mode of locomotion can take place in the threshold space.

Arrival

Arriving is generally associated with deceleration (fig. 128). Insofar as you ascend steps or ramps or notice a change in materiality, you are slowed down. Such thresholds can intentionally delay arrival. As you move more slowly, your sensory organs can comprehend the spatial context better. You can concentrate on the space and your senses can perceive it. This is an important moment for the threshold space sequence, as the focus is on physical experience of the space. You have bodily arrived in the threshold space.

Orientation and Information

At this point, most users now have a complete overview of the situation; they can orient themselves (fig. 129). Finding yourself in the threshold space means being able to get your bearings. This moment of having an overview makes it possible to arrive in the between-ness. Ideally, the possibilities of further spatial experiences are now clear. The paths that are possible can be recognized. Information counters, signage, and even works of art can support the process of orientation. These symbols form a dialogue with the space and must be incorporated in it in a sensitive manner.

It should be noted that transparent spatial boundaries that can truly be looked through have the ability to make a positive contribution to the orientation process because they provide glimpses of what is to come and in a very natural manner communicate necessary information.

Monitoring

Various types of equipment for access control are organized in a threshold space; there are thresholds that can operate in various locations as threshold space closures (fig. 130). Depending on the design concept, these monitoring points can be located on the outside edge, in the center, or on the inner side of the threshold space. Conspicuous technical equipment acts like a threshold and is usually considered troublesome when retrofitted into existing spaces. Alternatively, security service companies and video surveillance can take over monitoring functions. Surveillance of a space has an influence on its atmosphere. Users vary greatly in their assessment of it. There is as yet no clear evidence that video surveillance provides a greater sense of security and that as a result, it would be preferable to install a visible video system. Such a system distracts visitors from perceiving the space, and the function of the threshold space cannot be properly developed. The spatial prelude to the coming spatial experiences can be hampered if security control determines the atmosphere of the space.

It is important to note that access control can work in various ways. Spatial constriction can assume the function of steering guests in different ways. Another possibility is to use concealed surveillance cameras to monitor the entire threshold space from another location. This built-in, supposedly invisible threshold space equipment can, however, severely interfere with perception of the space; when discovered, the cameras provoke reflections on the reasons for installing such a hidden system. Guests generally feel more comfortable if they are served or informed by staff members. For this reason, it can be clever to integrate sales possibilities into this phase of monitoring and assisting with information.

Exit

Entrance into a space that is adjacent to the threshold space can be seen as the last phase of the threshold space sequence. This spatial experience can also be seen as an exit from the threshold space (fig. 131). The visitor leaves the threshold space and is prepared for the next spatial experience. This exit is generally perceived more as an entrance, as the threshold space becomes narrower and the space to come widens.

Leaving the building also happens in stages, as exiting usually progresses in a similar manner to entering. Even if the sequence of arrival is not identical to that of departure, the progression experienced is similar. The threshold space serves those leaving as orientation for the transition to the adjacent space.

Security controls usually have to monitor transition to the exterior space as they did during the entrance procedure, for example to prevent theft. Spatial constriction can function somewhat like a sluice, or cameras can provide general observation of exits from the threshold space. This is also the point where thermal separation between inside and outside is achieved with the help of threshold space equipment.

Sensitive Guidance

An examination of additional building types can help to expand on the principles established regarding sequences and pairs of opposites. The extended examination no longer deals with public buildings, as the conditions to be found there are too similar. Interesting new insights can be expected from an analysis of residential spaces, however, as they must provide their residents with a private realm, resulting in different roles for hosts and guests. Threshold spaces are particularly important in living spaces because the transition zones are the places where people approach each other. People often protect themselves in their private living areas and prefer to encounter others in semiprivate spaces, where the residents have control over their guests' depth of immersion. Many rituals are deeply associated with threshold spaces. As children we already extend our spheres of activity using the threshold spaces that are directly connected to our homes. Halls, stairways, streets, and yards are the first threshold spaces we actively explore.

In his chapter "The Between," Herman Hertzberger gives a powerful description of the task of a threshold as a space and focuses on the connection between the public and the private spheres:

"The threshold provides the key to the transition and connection between areas with divergent territorial claims and, as a place in its own right, it constitutes, essentially, the spatial condition for the meeting and dialogue between areas of different orders."¹⁰¹

The meaning of the term is clearest in the case of the original threshold, namely the entrance to a house. This is the place where the street space and the private space meet and are reconciled.

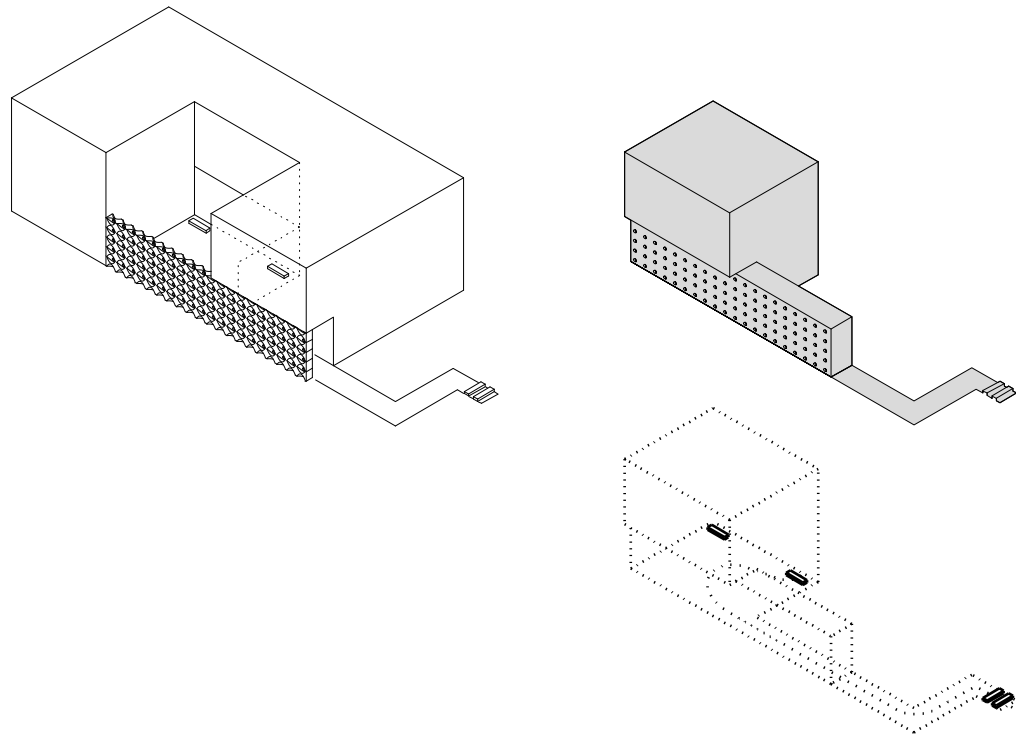
As part of a series of seminars on threshold spaces at the Bauhaus-Universität Weimar, it was possible to examine how desire for privacy influences the organization of threshold spaces in the context of residential space. The master's degree course in the 2013–14 winter semester with the subtitle "Privatsphäre aufbauen—in Privatsphäre eintauchen" (Building up a private realm—stepping into a private realm) had the task of analyzing the different scenarios that users could experience in the threshold space of their apartments or houses. The focus was on the form of the thresholds and the architectural features used to open or close the transition point.

A private home owner can use space-defining elements and thresholds to carefully control depth of immersion. Single-family homes provide many examples in which the threshold space is a representative for the building or, in other words, is used as a welcoming gesture (fig. 132). Guests and the owner all walk through a clearly planned sequence. Various thresholds can be integrated into this path. The thresholds can be created through a change in material that delineates a new territory. For example, a gravel surface provides guests with acoustic feedback. In addition, such a change in materiality is a natural means of deceleration, slowing down those arriving in the threshold space.

The path to a building or an apartment is also used in a multifamily residence for the design and planning of a clearly determined sequence. Here, communication devices with bells and intercoms are more commonly used to bridge the route or the distance. Additional camera and screen technology allows for communication that is essentially controlled by the host and that focuses on the arrival of the guest. The host is in a position of dominance and can plan in advance what is to be seen or heard of the guest. As guests in this sequence, we may well feel we are at the mercy

¹⁰¹ Hertzberger, 32 (see chap. 1, n. 32).

Fig. 132: Zivcec House



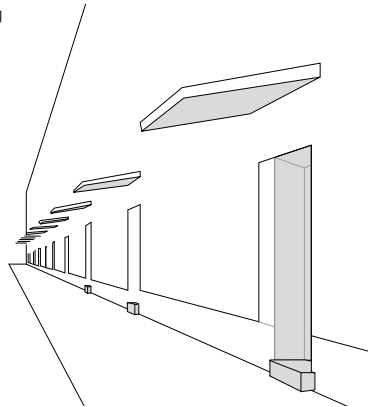
of the equipment and the host, yet we have to play by the rules if we wish to gain entrance to the next space. Since, however, most building owners and architects take a guest's sensibilities into consideration, they are interested in thresholds that function in a sensitive manner.

Positioning Thresholds

If we look at the sequence of a threshold space in its individual phases, it is clear that these phases also apply in residential spaces: recognition, approach, reaching, arrival, orientation and information, monitoring, exit.

Contrast with the surroundings is again essential in the *recognition* phase. The house, or access to it, must be perceptible to the approacher. The house number, a sign, a particular feature, or the color scheme can help new visitors find their way. Hosts can intentionally make the entrance more readable or less so in order to limit or expand their private realms. Architectural features such as rigid awnings (fig. 133) are guiding forces because their raised position makes it possible to see them from a distance. In cities with perimeter block development, an unusual facade can increase recognizability. It can achieve a long-range effect. In the case of detached homes, as with other types of buildings, the entire house, the trees, or the landscape can serve as a point of reference.

Fig. 133: Hellerhofsiedlung

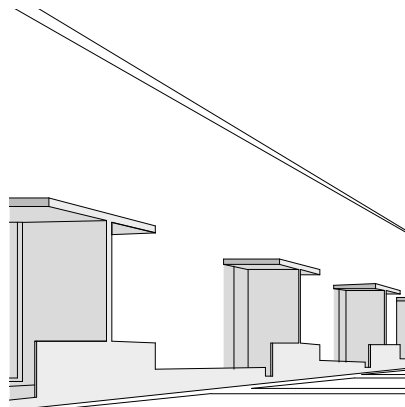


The *approach* usually follows without delay and most likely at an increased speed. If guests make use of a set of directions, distinctive features help them to head toward the house and its entrance. They are helped by the porch roof or a section of space that has been set back, as knowledge of its protective function against wind and weather accelerates their approach. It is important to note in this context that mobile navigation technology can greatly simplify the first and second phases. These electronic navigation systems are particularly helpful in neighborhoods with very similar-looking individual homes. However, the guest who is looking at the navigation device while driving or walking is less able to take in the atmospheric impressions of the surroundings.

The phase of *reaching* the home is characterized by communication and control. Guests expect to be welcomed, picked up, and perhaps even monitored. Thanks to new control technology with very small devices, surveillance is possible without the guest noticing it. In other words, the approacher can intentionally be monitored without being made aware of the fact. In apartment blocks, the place for information and control is moved forward in the sequence. In many designs, the passage is the space that is already used to begin, at a distance, with electronically controlled communication, ranging from exterior lighting regulated by a motion sensor to carefully controlled video surveillance.

This technology naturally has an influence on *arrival*. Apparently, many users prefer discreet, unobtrusive video surveillance equipment. Owners generally do not want to display the technology they are using to the guests who are being observed. At the point of arrival, architectural gestures of a threshold space also serve to protect against the elements. These protective measures, for example in the form of an open porch, create a pleasant atmosphere at the point of arrival, which is spatially framed in such a way that you could say the threshold has expanded (fig. 134). Therefore, guests do not need to “barge in” or “kick the door in.” This part of the threshold space is usually on the outside of a single-family home and is used as a space to be appropriated. In apartment blocks and residences, this appropriation is generally shifted indoors. For many, it seems to be especially important to take over the threshold space and use it as an opportunity for presentation, decoration, and communication. Personal objects are

Fig. 134: Römerstadt



demonstratively placed here as a clear extension of the living space, the home. Rituals of greeting often take place here. The tenants can encounter and welcome their guests. Social contacts with the neighbors are cultivated. Communication with the building follows the phase of arrival.

Guests inform and orient themselves. They search for the name in order to find the correct door or bell. Different technical thresholds can support this communication, sometimes in a very compact format as a station and sometimes distributed around the threshold space. Lighting plays an important role in this area. A user has arrived and would like quick orientation, perhaps in order to drop something off or make a delivery. Therefore, mailboxes should be integrated into the motion sequence. Deceleration is evident here: the person who arrives rings the doorbell, empties the mailbox, unlocks the door, or speaks into the intercom. As a rule, these movements of the hand or body are the last to take place in the exterior threshold space, as a door generally forms its termination. In larger multi-family modern architecture, the threshold space penetrates deeper into the building. In smaller residences, an inside threshold space, a windbreak or a hallway, sets itself off from the exterior area.

Private Realm

In terms of counterbalancing ambiguities, it may be noted that despite the strong desire for privacy, the spaces do not simply present themselves as closed; instead they often have an open area in front of them as an opposite pole. A balance is achieved between two very different threshold space areas. One part of the threshold space appears more or less open, the other more or less closed, a phenomenon that is very clearly demonstrated in Hannes Meyer's Laubenganghaus (balcony access building; fig. 135). The staircase is outside the building and appears closed despite its ample glass panels. The boundary of this space is unambiguous; the sequence is defined by the stair path, and the materiality is determined by the strong red of the bricks. Contrast is provided by the open design of the balconies. A fine grille forms a safety barrier and achieves an almost invisible delimitation. Motion is possible throughout the depth of the balconies. The user can weave back and forth between the wall and the railing (fig. 136).

Fig. 135: Laubenganghaus, cubature of the architectonic space

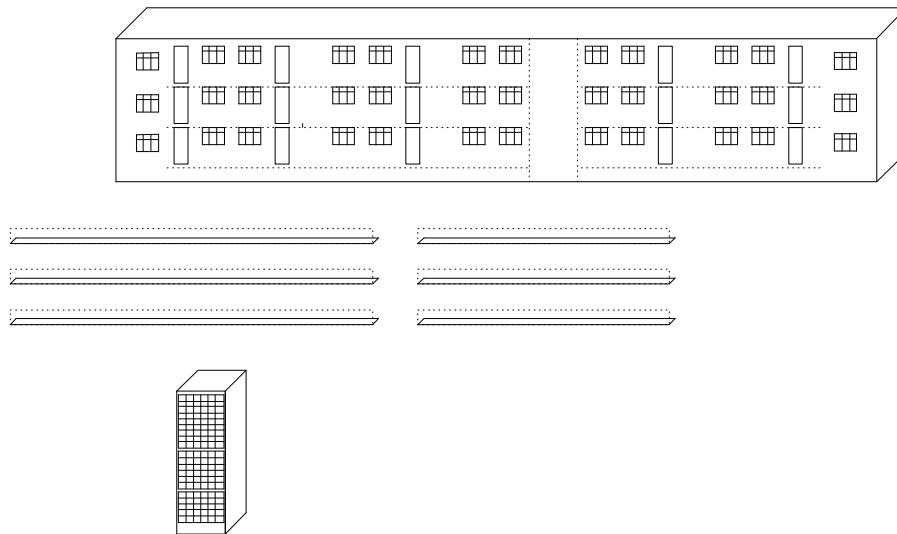
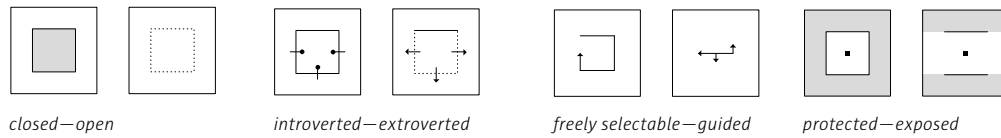


Fig. 136: Laubenganghaus, counterbalancing attribute pairs



A similar contrast can be found in the transitions in Ernst May's Römerstadt housing development. In the exterior space, the street space, boulevards, and porches create a very open social space that welcomes appropriation and produces a pleasant feeling of being next to one another. This graduated threshold space is in marked contrast to the interior transitions to private space. The hall presents itself as compact and closed. It is rectangular and must do without natural light. The protected private realm inside the house appears to confront the wide, open exterior threshold space. That is, the threshold space offers a step-by-step retreat into privacy and thus creates a private realm.

Essence and Potential

The analyses of the individual threshold space parameters provide insights into the essence and potential of threshold spaces. The carefully balanced ambiguities lead to an understanding of dynamic equilibrium in threshold space designs. The threshold space sequence and its individual phases demonstrate how the staging of the threshold space is experienced in time.

The analyses show that threshold spaces, as sensitive areas in architecture, have been planned with great care and precision and are thus indispensable to the overall architectural concept. A threshold space is a space for motion, approach, orientation, information, and control, and as such not only serves as a physical entrance but also offers itself to the user as a space for developing a better understanding of the design of the building as a whole. The design of a threshold space seems to take the demands of the human senses into account, in particular with regard to the kinesthetic sense and visual perception. It offers users the opportunity to arrive inside a building in steps and under guidance. There is a strong interdependency between preparation for the particular spatial experience of the threshold space and the process of making a building one's own. A threshold space is created from the continuity of the spaces and is thus an exceptional space of experience in modern architecture. Knowledge of the essence of a threshold space and its potential make it possible for users to more easily "get into" a building and "get their bearings." They can develop an awareness of the respective spatial design and compare this awareness to other spatial experiences.

In a threshold space we find an entrance, a transition, and access to architecture.

Spatial Potential

All architectural designs must deal with the concept of transition, regardless of the type of building. The spatial potential of a threshold space is as multifaceted as the architecture itself. The examples and analyses given here are designed to demonstrate and discuss this variety and to use it as a source of inspiration. Generous use of space for the threshold space sequences is evident in all the examples. The large area of space available to these sequences is in part responsible for their being able to address and deliver the transition in such sensitive steps.

The individual analyses demonstrate different strategies for the organization of transitions and the spatial experience to be offered in transitions between spaces that are perceived as being outside or inside. Users aim for the interior space ahead of them. What is crucial in this examination is the fact that there is no need for thermal separation of the interior space; above all, it should be able to communicate the feeling of "inside-ness." The threshold spaces in the examples provide access to an architectural experience and are themselves part of this experience. In each individual threshold space, outside and inside are linked using the defined design parameters with their contradictory tendencies. Between-ness becomes a key spatial experience.

Increased Complexity

It is probably only possible to respond to the increased demands on threshold space with an appropriately large space and by working step-by-step through the different demands along the sequence of the space. Architects need to design threshold spaces with careful, cautious attention to technical devices and to give special consideration to integrating the devices into the overall design of the threshold space.

Rem Koolhaas, for example, responds to increased complexity very directly in his plans for the Casa da Música by separating the arrival of cars and pedestrians, only to connect them to one other again within the interior threshold space. The surface of the plaza takes the form of an undulating layer that makes room for a driveway into the underground car park and also accommodates the approach of pedestrians. The interior threshold space functions as an arrival point for all visitors and is thereby the prelude to the concert. Experiencing this space is part of attending a concert.

Access Control—Energy Efficiency

Most modifications to entrances in older buildings have shown unfortunate responses to the design requirements of the threshold spaces. In order to preserve the architectural design of the space, systems are needed—for example electronic security systems—that can be integrated into it. Consideration should also be given to intelligently deploying staff in the entrance area to provide information to visitors and monitor the space. In the new city library in Stuttgart, for example, electronic systems are used to prevent the theft of books. This system facilitates direct, open access to the library. There are no hindrances to the experience of the threshold space.

The plans for the Casa da Música also provide deep insights into means of dealing with access control. The Casa da Música is very easy to close and control. The threshold space is located in the protective inside and allows for designated times of complete openness. An additional, translucent curtain that can be pulled across the small opening of the entrance in winter is a response to the need for energy efficiency. There is, at least, an insulating gap between the large glass layers in the vitrines, and their wavy shape does not provide clear visibility through them.

The Potential of Threshold Space Design

The selected examples demonstrate how sensitively a transition can be planned and the possibilities available to an architect to work against disregard for threshold spaces. Treatment of threshold spaces must deal with the increased complexity of the subject with regard to access control and energy efficiency in an effort to reconcile these demands with the spatial design of the architecture itself. Spatial integration of thresholds in the threshold space must be a central task in the design process. The examples show a broad spectrum of architectural means for organizing threshold spaces.

Knowledge of the complexity and ambiguity of the threshold space and the counterbalancing effects of the pairs of opposites presented here can facilitate sensitive threshold space designs that allow threshold spaces to perform their architectural functions.

So far, the term “threshold space” has proved to be of value. Using the term has made it possible to see, categorize, and evaluate transitions, access points, and entrances from a new perspective. A threshold space thrives on balanced forces spanned between delimitation, sequence, geometry, topography, materiality, and furnishing in anticipation of what is to come.

Application and Outlook

The concluding question concerns applying the knowledge that has been acquired. To what extent can the concept of a threshold space be put into practice? The term is used at universities and in the context of architectural theory. In a series of seminars, spatial analyses of architectural examples have identified and categorized threshold spaces. This focus has proved a novel way to reach a better understanding of the design concept of a building as a whole. The interplay between spatial experiences in experienced space and graphical analyses of presented space has led to impressive results in the form of diagrams. To be specific, students did research in an attempt to prepare themselves for an actual spatial experience and subsequently depicted the comparison in sketches. The range of building types selected was intentionally large in order to test and prove a wide application of the concept.

Analyses

Stadtbibliothek Stuttgart (Stuttgart city library),
Eun Young Yi, 1999–2011 (fig. 137)

Analysis: Lukas Bartke, Julia Naumann, Michaela Bottke, Li Juanchao

Altenwohnungen St. Antonius (St. Antonius apartments for the elderly),
Lederer + Ragnarsdóttir + Oei, 1998–2001 (fig. 138)

Analysis: Till Hoffmann and Xingmeng Wang

Weißenhof Stuttgart Rathenaustraße 3–5,
Le Corbusier, 1926–27 (fig. 139)

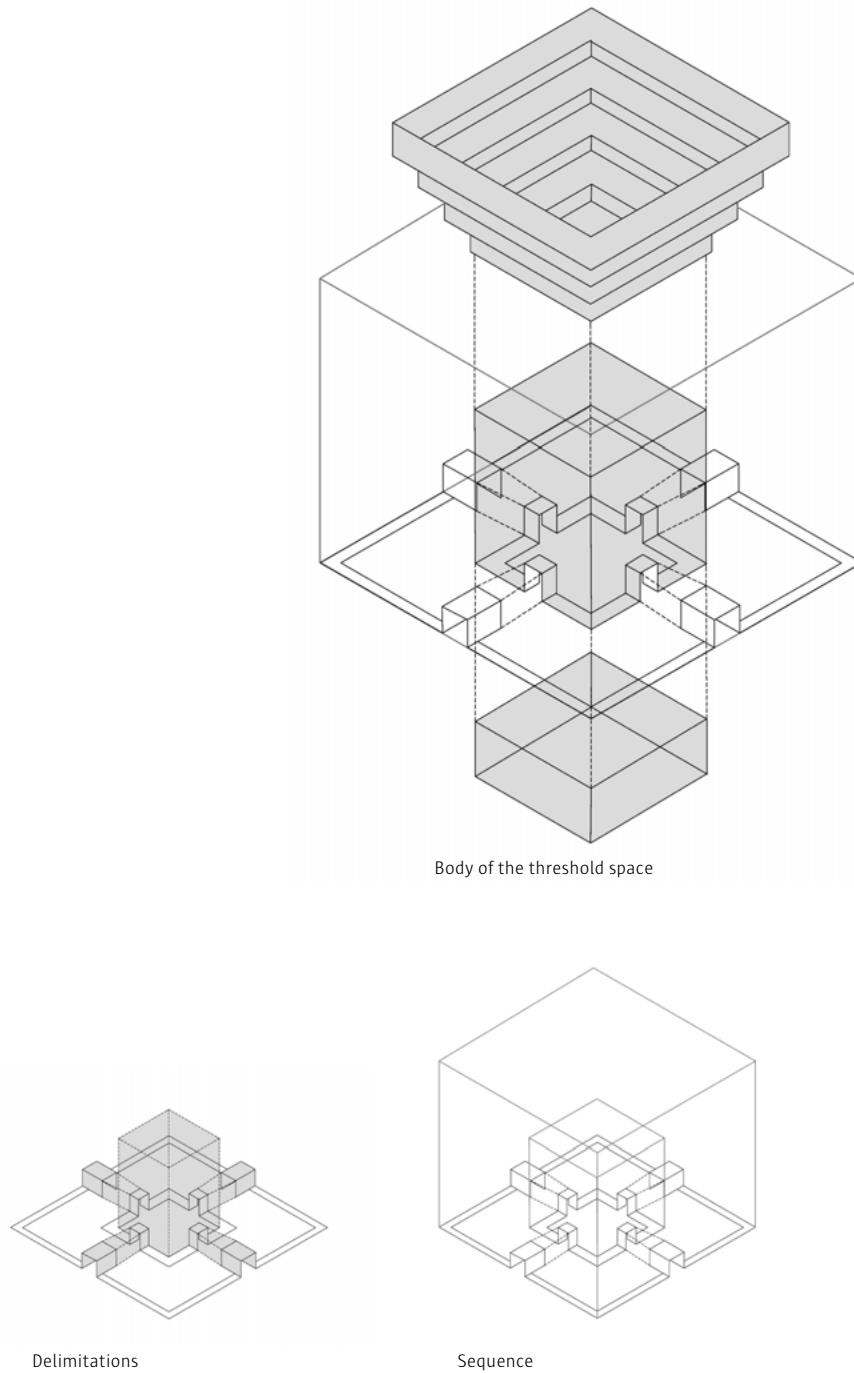
Analysis: Friederike Wollny

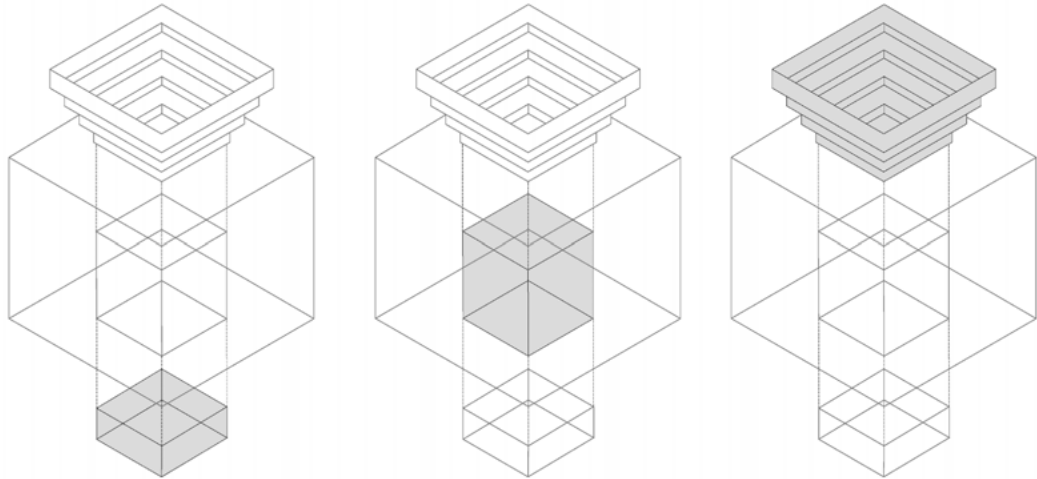
Furthermore, the phases in the organization of a threshold space that can be expected to occur when someone strolls through a threshold space were useful as principles for the design section of the seminars. The diagrams proved to be a source of inspiration and were of help in designing a balanced, well-organized threshold space (figs. 140–145).

Stuttgart City Library, Eun Young Yi, 1999–2011

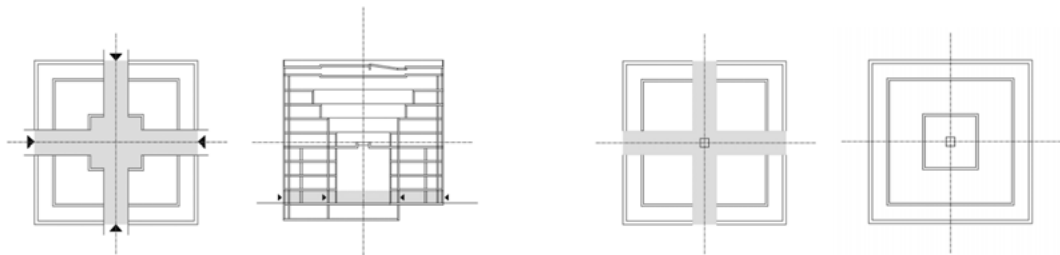
An empty, cuboid space lies in the center of the Stadtbibliothek Stuttgart. It is the most important element of the threshold space sequence. All of the other spaces relate to it.

Fig. 137



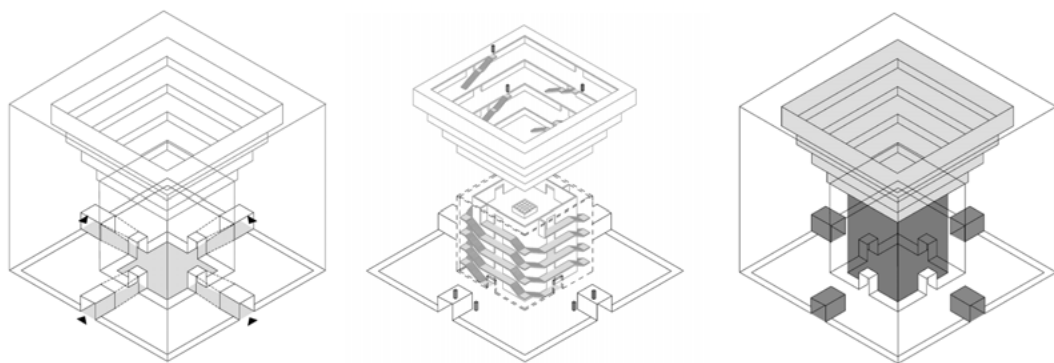


Geometry



Topography

Geometry



Entrances

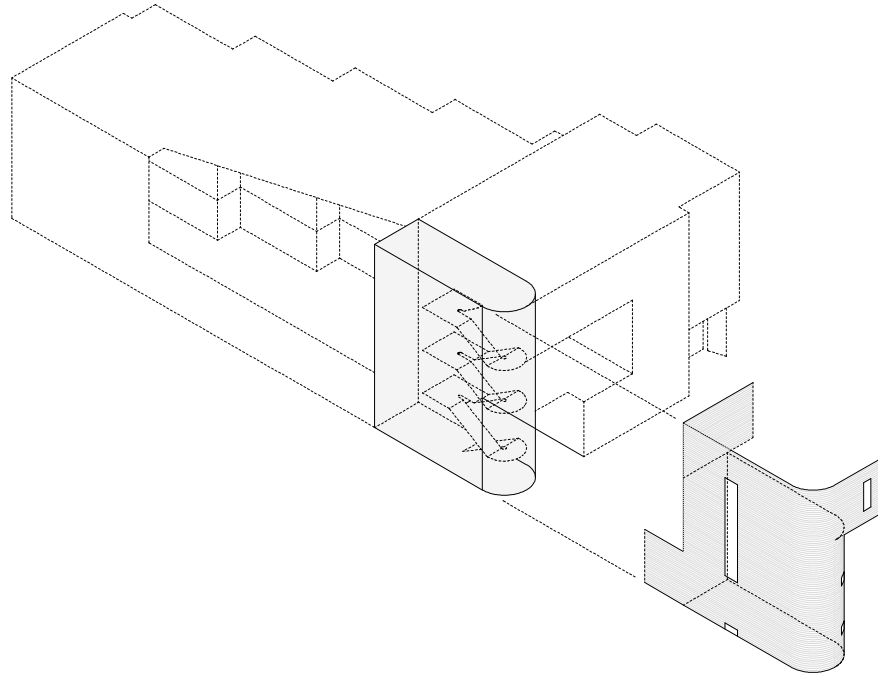
Furnishings

Materiality

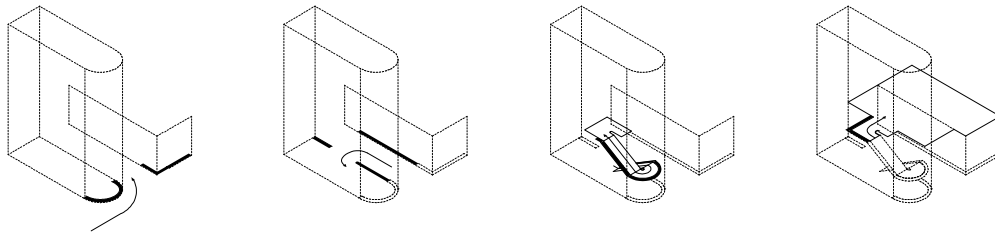
St. Antonius Apartments for the Elderly, Lederer + Ragnarsdóttir + Oei, 1998–2001

The shape and position of the staircase organize arrival. You intuitively follow the convex curves of the staircase body and reach the entrance.

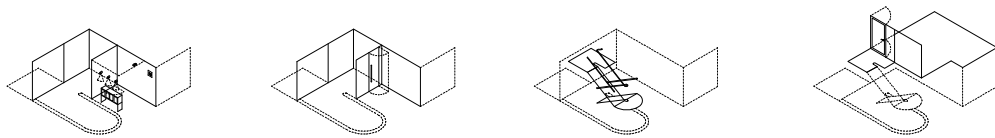
Fig. 138



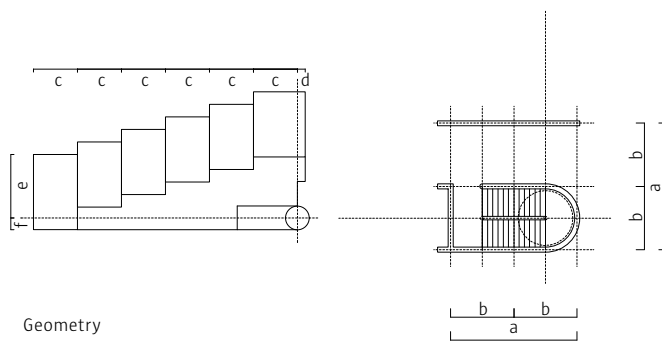
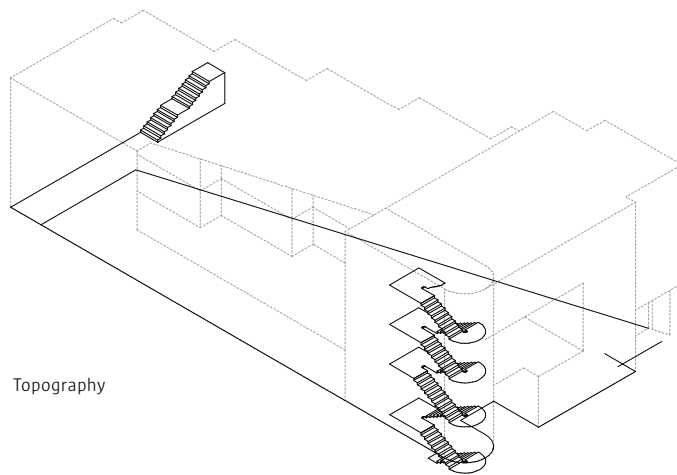
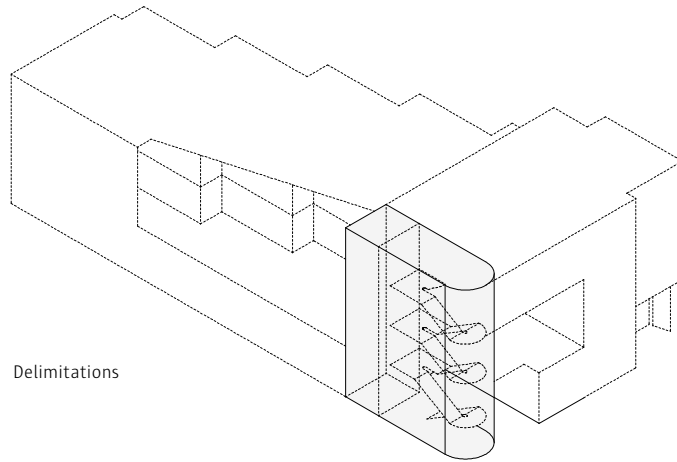
Materiality



Sequence



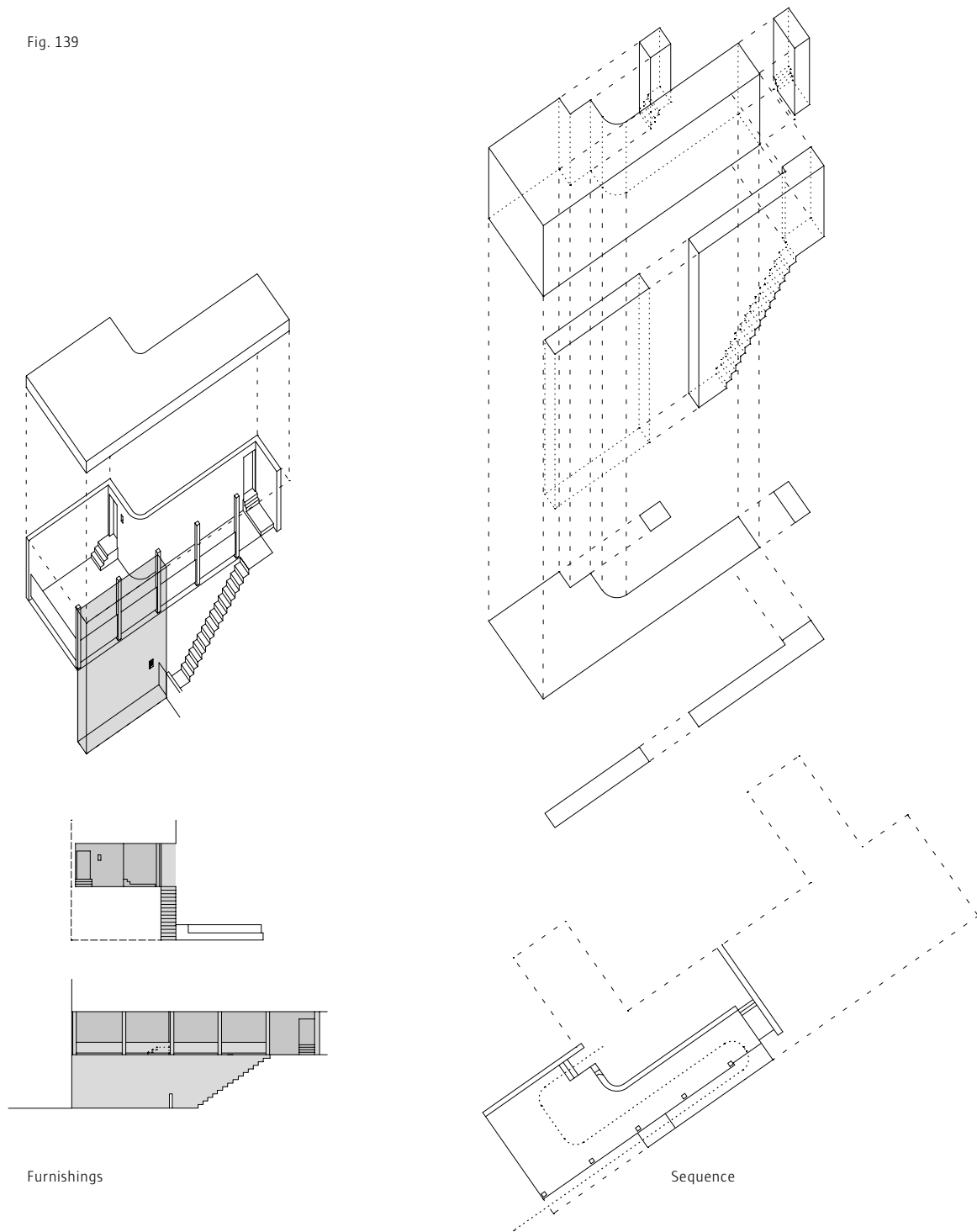
Furnishings



Weißenhof, Stuttgart, Rathenaustraße 3–5, Le Corbusier, 1926–27

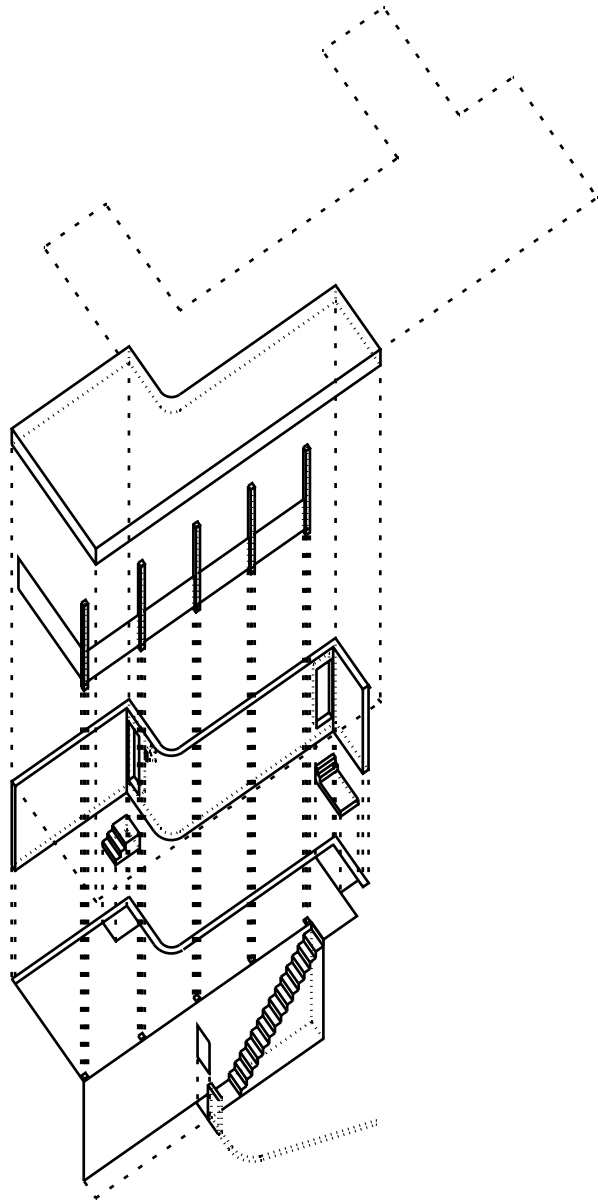
The threshold space is strongly influenced by the hillside location of the building. The long, steep staircase leads to the half-open area of the threshold space. The sequence takes the form of an S-shaped path.

Fig. 139

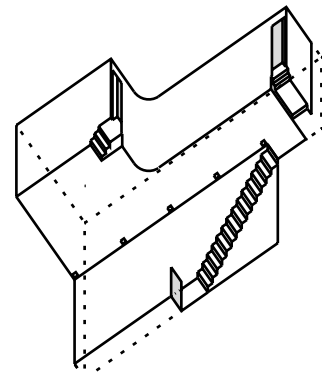


Furnishings

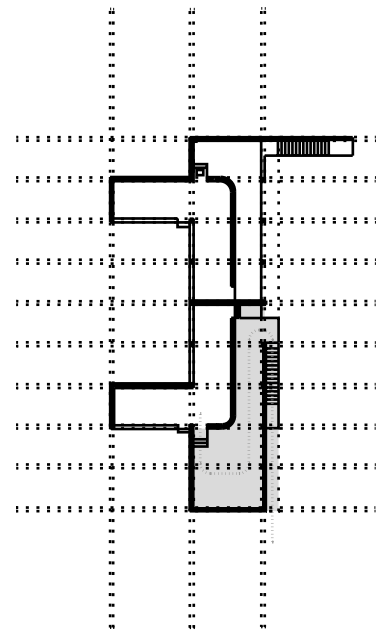
Sequence



Delimitations



Topography



Geometry

Threshold Space Designs

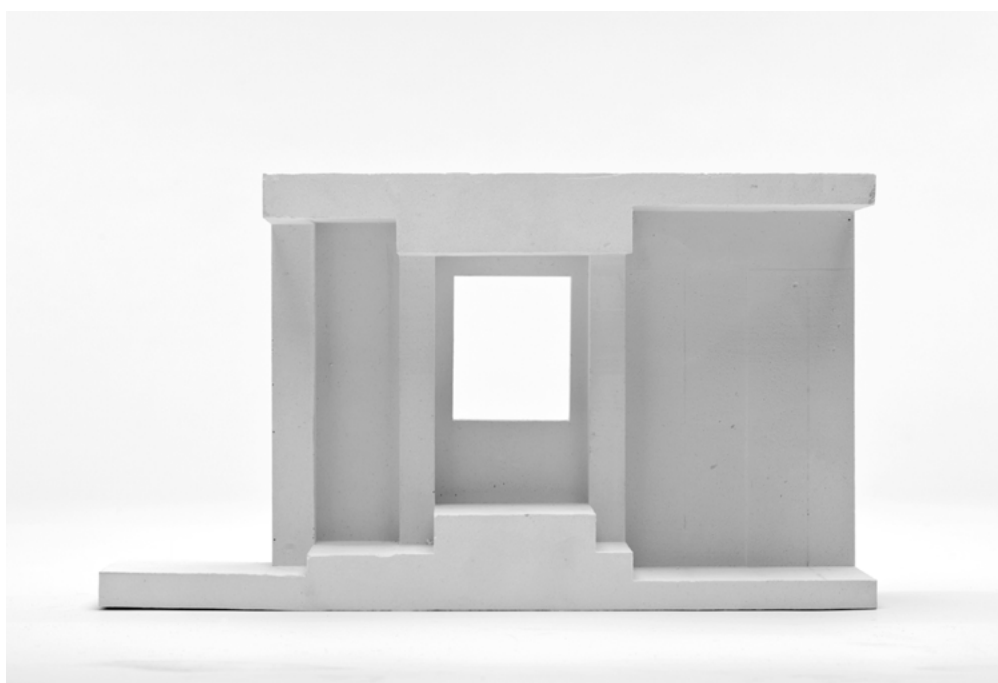
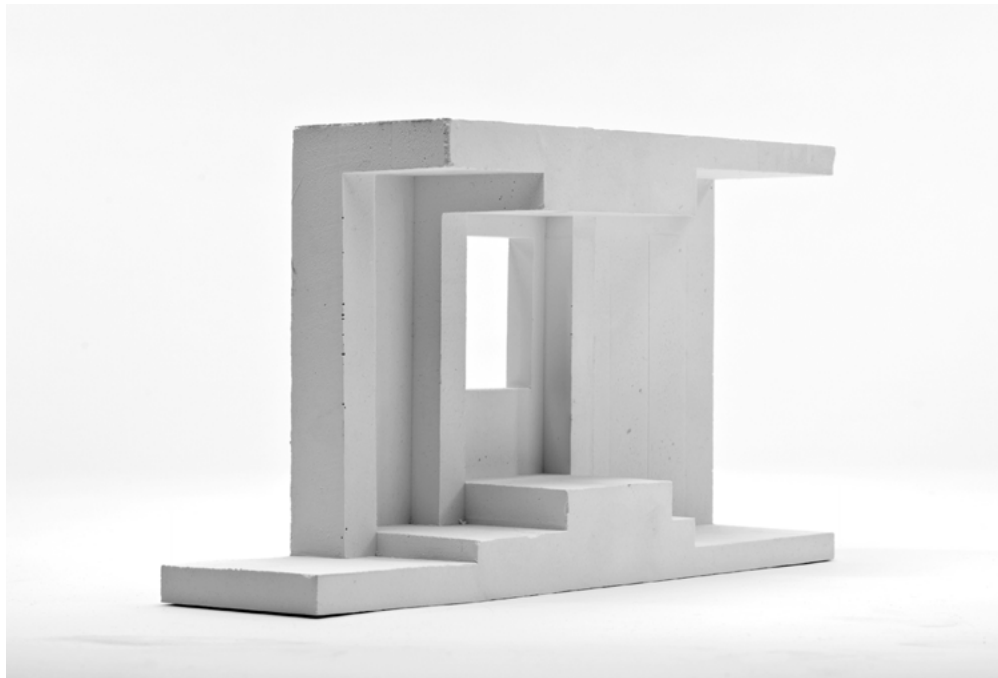
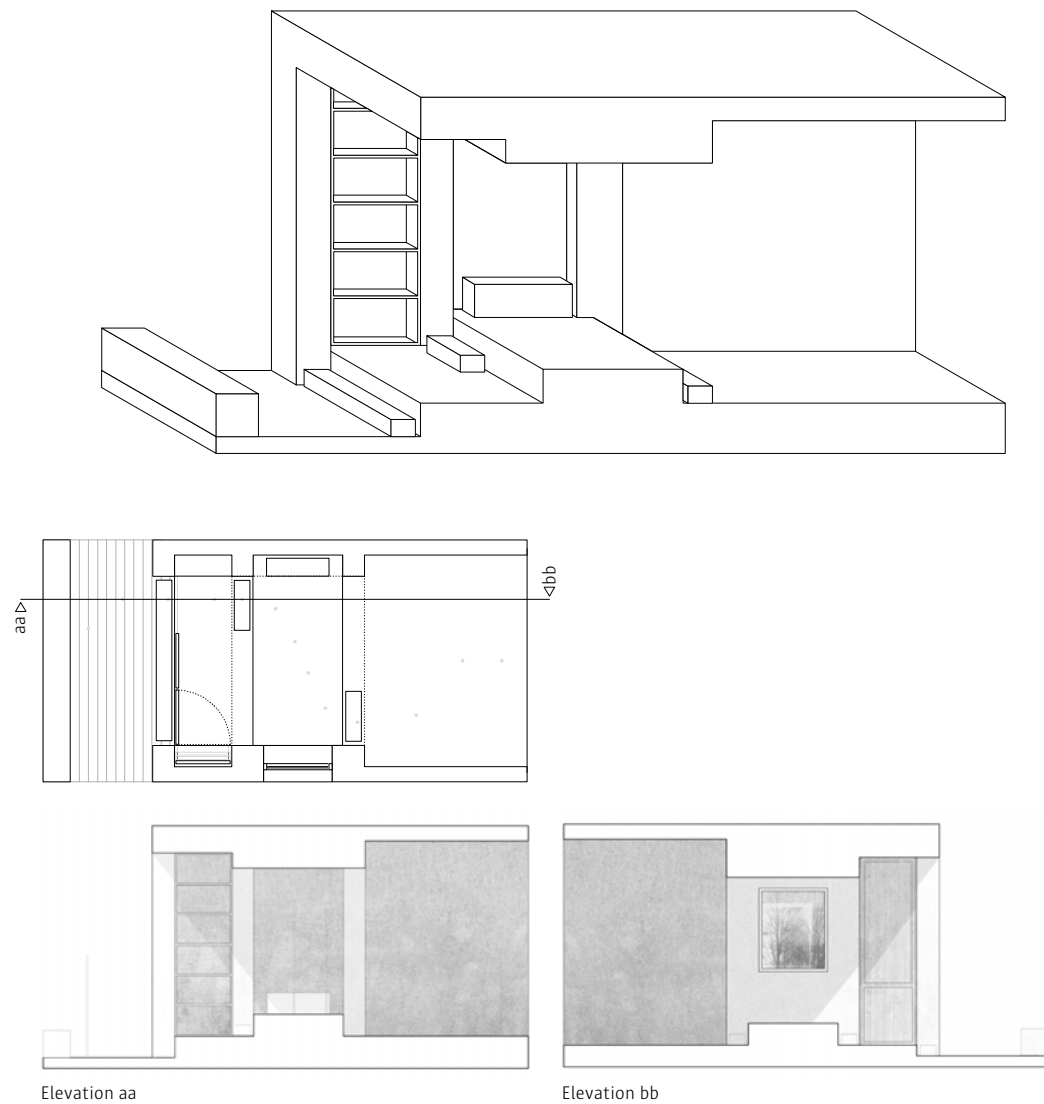


Fig. 140: Photos of model "Die Schwelle als Raum" (the threshold as a space)

The threshold as a space, Teresa Riethmüller

The fact that thresholds define space is taken literally in this threshold space design. A series of thresholds create a prototypical entrance. Some of them are placed on top of the flooring and thus highlight the steps. A picture and a view out in the center of the threshold space form a strong contrast to the spatial constriction. Furthermore, the furniture that is built into the sequence of the threshold space offers space for objects that users would like to drop off but that cannot be handed over to the recipient directly.

Fig. 141: Drawings "Die Schwelle als Raum"



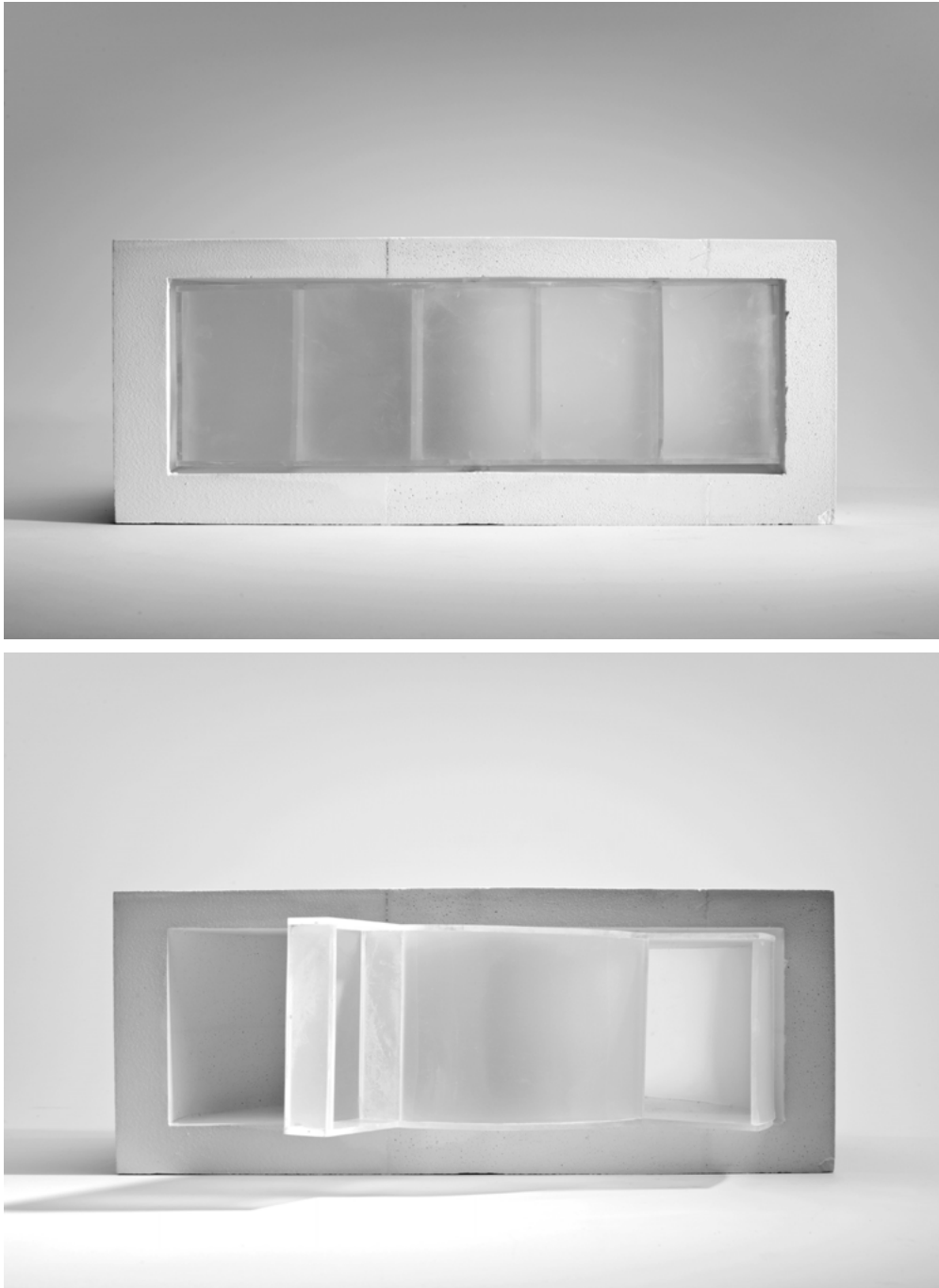
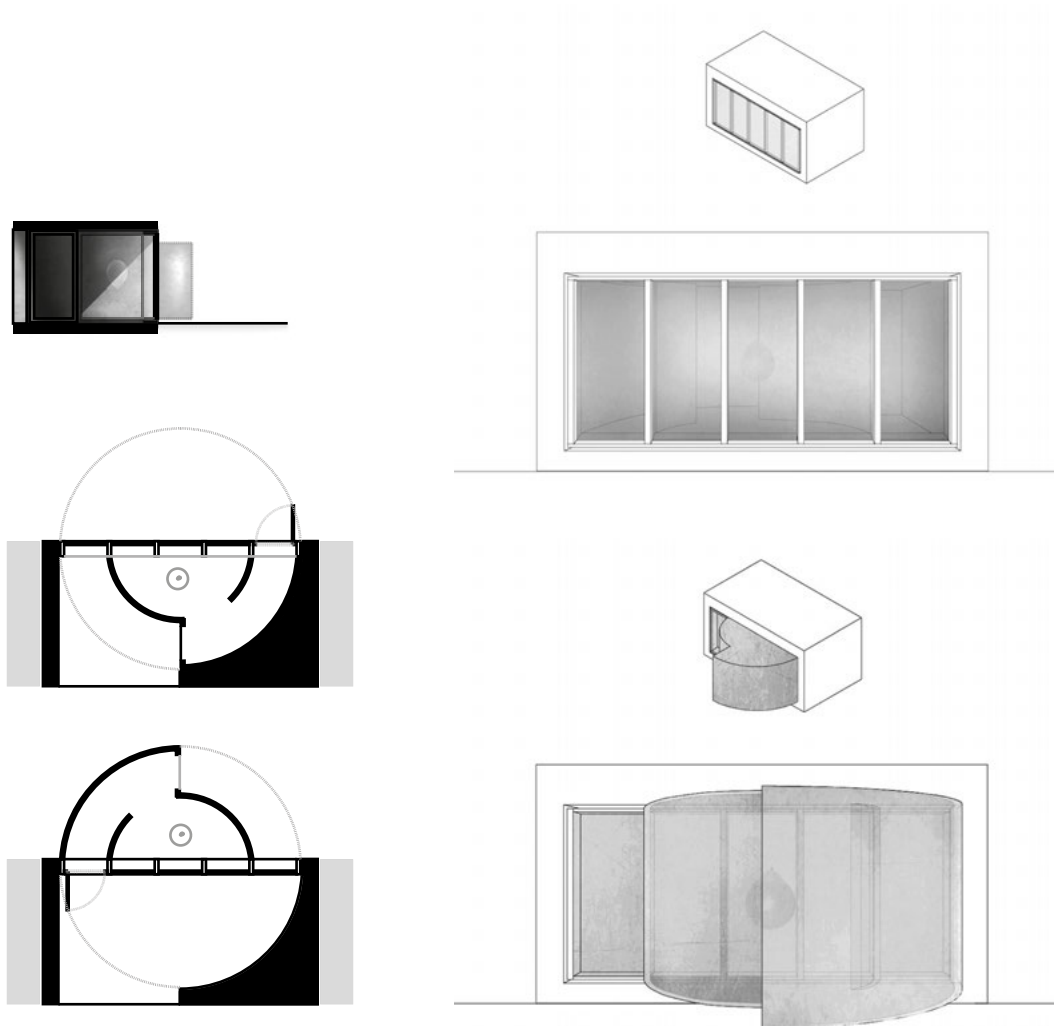


Fig. 142: Photos of model "Sirkel"

Sirkel, Adriaen Unger

The revolving threshold space is designed to be used as a special showroom. The floor plan of the spatial body is a semicircle that can communicate with the public space in two positions. One scenario provides for restrained use as a gallery, where matte glass panels structure the facade and present a closed state. When the revolving stage is turned out, it can relate directly and powerfully with the street space. A spatial cut-out provides access. On the inside, the “empty” semicircle offers a new interface for communication. Operation traces the geometric shape of a full circle.

Fig. 143: Drawings “Sirkel”



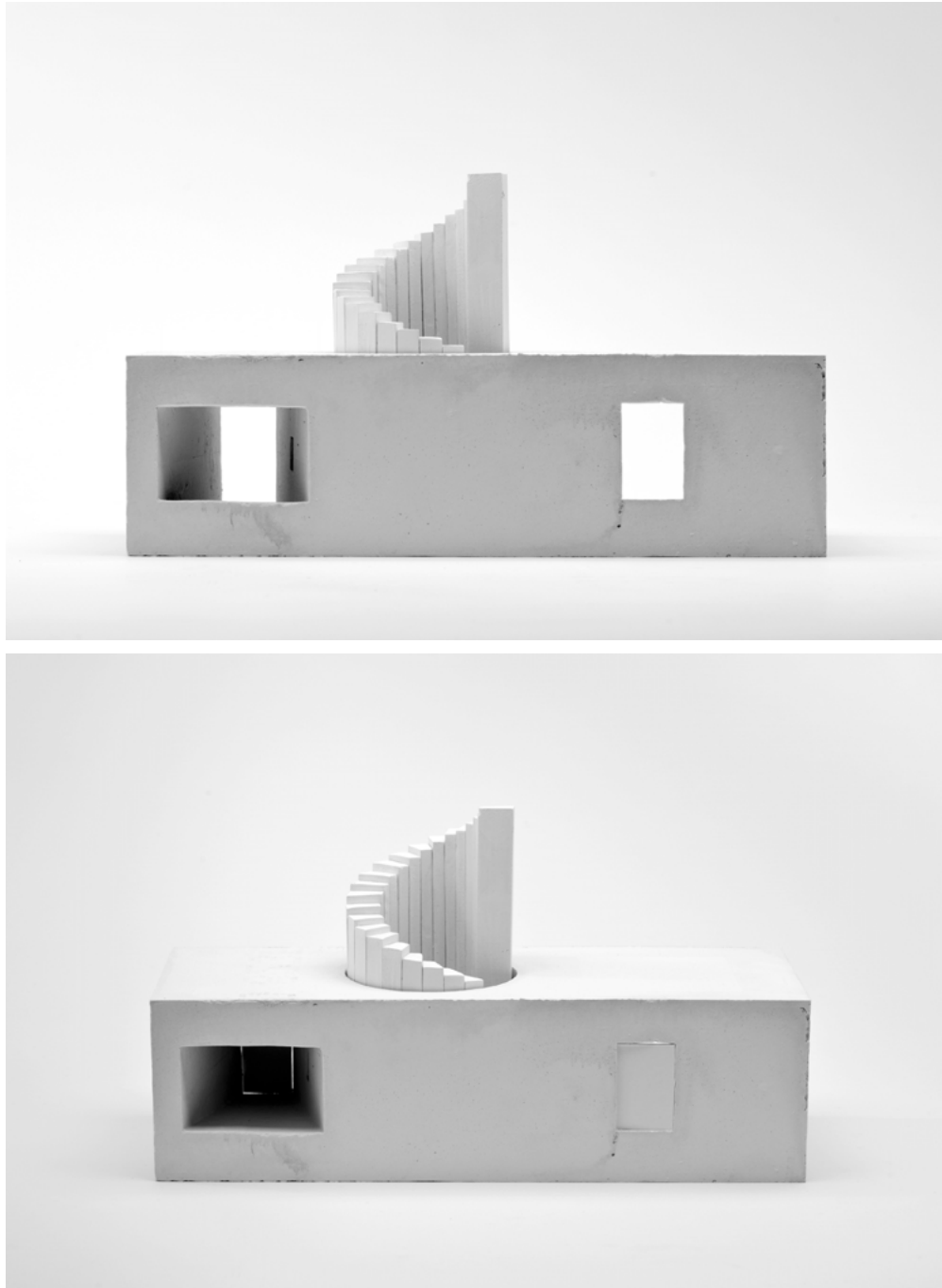
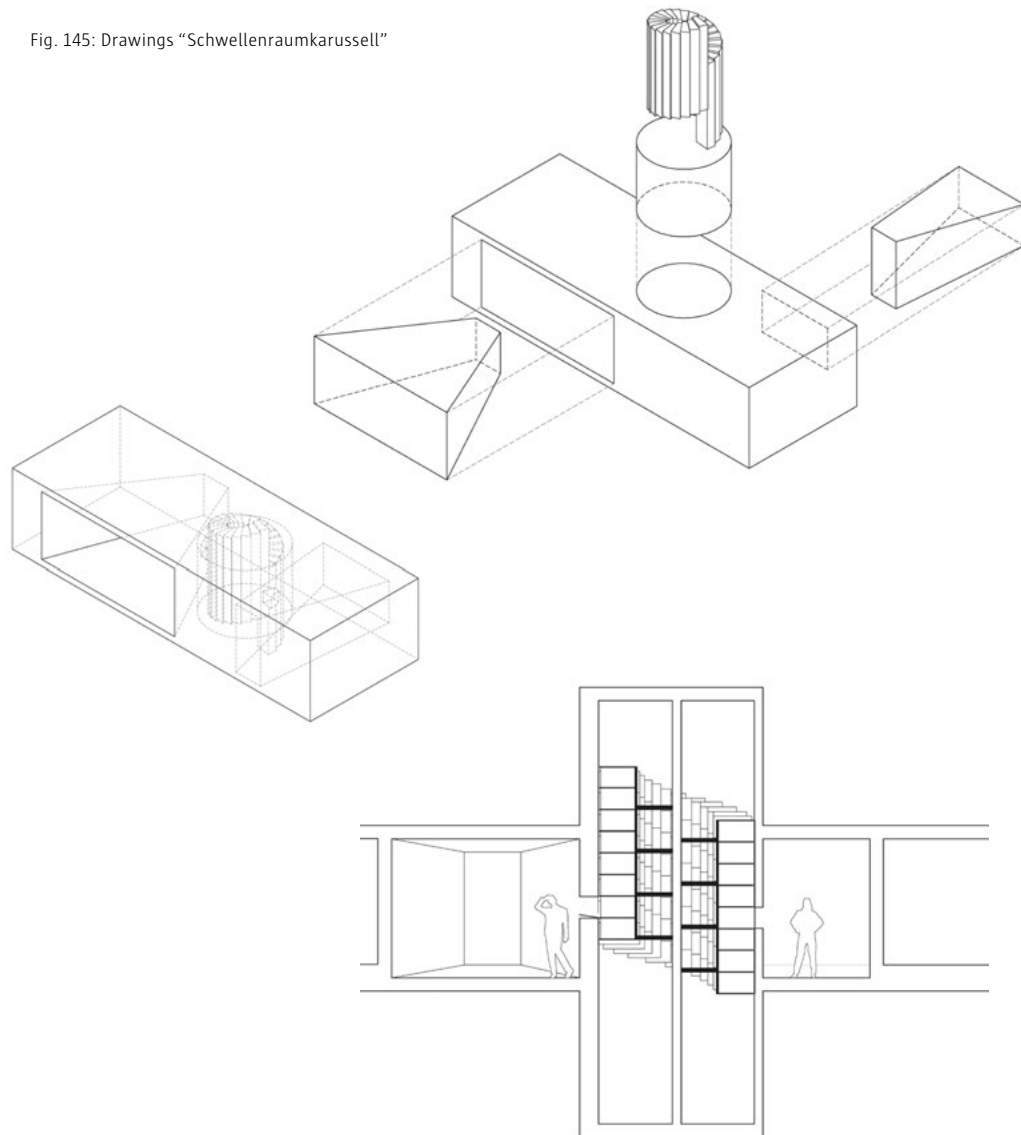


Fig. 144: Photos of model “Schwellenraumkarussell” (the threshold space carousel)

The Threshold Space Carousel, Julia Naumann

There are things we want to put down when we come home and there are things we need to take along when we leave home. Sometimes these are one and the same thing. Based on the film *The Truman Show*, with its extreme view of an exit as an entrance, this design separates the entrance and the exit in order to throw light on “depositing” and “taking along.” The exterior wall becomes a thick layer that houses the entrance and the exit as well as a connecting element. The connecting element consists of a revolving cylinder that can be opened toward both trapezoidal threshold spaces. It contains a drop off/pick up compartment for each tenant.

Fig. 145: Drawings “Schwellenraumkarussell”



Aspirations

In addition to providing a possible method of analysis, this work offers perspectives on a reevaluation of access points and spatial transitions. Plans for contemporary buildings and redesigns of existing buildings should devote more attention to strongly anchoring the threshold space in the overall design. The multiple modifications to the Carpenter Center show the negative consequences that can result from a lack of understanding of transitions. Its listing on the National Register of Historic Places did not protect it during the redesign process. The logical consequence would be to consider a form of protected heritage for threshold spaces. Exceptional threshold space sequences should be listed and given a protected status.

In the case of new designs, it would be helpful to include the threshold space in a space allocation program, particularly for entrance and access zones. Spatial transitions could then be more clearly identified and checked off in conjunction with the required additional functional areas, such as exhibition, waiting, and storage areas. The additional functions would be adapted to the different types of building and could confer on the threshold space the special manner in which it plays its role. It would be possible to clearly describe the phases of the threshold space sequence and the organizational context into which the functions should be integrated. The sequence, with its individual phases and threshold space devices, should be designed in such a way as to develop a better spatial transition in the schematic design and the design development. Ideally, a basis would be established for possible modifications and technical retrofitting. Sufficient space is of fundamental importance to a threshold space in order to prepare for, offer, and tender possible changes.

It is my hope that this examination of architectural transitions will be a source of inspiration and a practical tool for new designs and modifications to buildings. The use of the term “threshold space,” the method of analysis, and the diagrams are designed to encourage further thinking on the topic and to stimulate discussion. The diagrams and the corresponding text explanations can be read together or separately to develop an idea of the space in question. Both familiar and new threshold spaces can develop in our imagination and be strolled through there or in reality.

Appendix

Index

The Autor

Acknowledgments

Illustration Credits

Index

- A** ambiguity 30, 47, 50, 100–101, 110, 117–132
ambivalence 21, 45, 49, 51, 59, 68
anticipation 24, 78–79, 101, 112, 132
approach 20, 24, 26, 68, 85, 123, 128
appropriation 128, 130
aura 82, 96, 101, 111
- B** Benjamin, Walter 30, 35, 36, 47
between-ness 16–20, 28, 30, 65, 107, 124
between-ness, state of 26, 35–36, 50, 108
bridge 10, 92, 94
- C** city gate 84, 91
communication 59, 74, 116, 126–129
confusion 42, 96, 101
constriction 22, 26, 32, 64, 66, 113, 125, 141
curiosity 65, 74, 108
- D** deceleration 26, 113, 124, 126, 129
depth of immersion 126
door 21, 26, 47–51, 97, 113, 128–129
- E** entrance 20, 26, 48, 87, 103, 117, 123, 126, 127
entrance area 21, 26, 28, 50–51, 66, 132
entrance door 62, 64, 71, 89, 107
expectation 47, 49
- G** gate 22, 30, 50, 51, 89, 100
gate building 24
gate unit 97
- H** Hertzberger, Herman 31, 126
- I** immersion 17, 22, 36, 50, 82, 91, 97
in-between space 22, 71, 76, 83, 95–96, 98, 100
intercom 48, 50, 116, 126, 129

- J** Joedicke, Jürgen 16–19, 27, 32, 46
- K** keyhole 108
- L** Lederer, Arno 136–137
- M** main entrance 51, 68, 90, 123
Meisenheimer, Wolfgang 10
movement space 19, 20, 117
- N** narrowness. *See constriction*
- P** pathway 20, 49–50, 63, 68, 112, 123
peephole 50
porch 26, 128, 130
portal 20, 26–27, 68, 87–94, 111–113
portico 20, 25–26, 45, 123
preface 35, 47, 49
prelude 82, 96, 132
presentiment 82
privacy 16, 50, 59, 126–127, 129–130
procession 112
processional path 20, 22
promenade architecturale 32, 68, 94, 108
pull 26, 79, 91, 98, 108
- R** range of movement 16
representation 59, 65
revolving door 51, 71, 89–91
- S** security 68, 111
security, feeling of 51, 123, 124
security camera 85, 116
security concept 86, 112
security control 51, 68, 112, 124, 125
side entrance 61
sliding door 29, 70, 97–98, 107–108
social control 111, 113
social space 130
spatial continuum 19, 32, 93, 104, 108
sphere of activity 126
sphere 104
stepping in. *See immersion*
strolling about 17, 30, 78, 101
strolling through 17, 19, 58, 93, 106, 122, 123
- T** traject 45, 108
transparency 40, 44, 59, 76, 96, 100, 116
- V** video surveillance 48, 50–51, 112, 116, 124, 128
- W** welcome 126–129
windbreak 61, 101, 123, 129

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Illustration Credits

- Fig. 1 Acropolis, exterior spatial delimitations, based on the drawing in: Jürgen Joedicke, *Space and Form in Architecture* (Stuttgart: Karl Krämer, 1985), 35, Erechtheion, Parthenon Propylaea, Temple of Athena Nike
- Fig. 2 Acropolis, exterior spatial body
- Fig. 3 Acropolis, spatial sequence, Parthenon, statue of Athena, Propylaea, Temple of Athena Nike
- Fig. 4 Musée du Quai Branly, Paris, spatial sequence
- Fig. 5 Pantheon, spatial delimitations, based on the drawing in: Jürgen Joedicke, *Space and Form in Architecture* (Stuttgart: Karl Krämer, 1985), 59, portico, transitional element, main room
- Fig. 6 Pantheon, body of the threshold space, main room, Piazza della Rotonda
- Fig. 7 Gothic portal, spatial delimitations
- Fig. 8 Gothic portal, body of the threshold space
- Fig. 9 Japanese home, isometry based on sketches by Bruno Taut, raised level 40 cm
- Fig. 10 Japanese home, body of the threshold space with delimitations of the threshold space, shoe shelf, entrance door
- Fig. 11 Japanese home, floor plan, veranda, mat room, entrance
- Fig. 12 Japanese home, “extendible border,” exterior, interior
- Fig. 13 Arcade, spatial delimitations, block of buildings, stores, street space
- Fig. 14 Arcade, body of the threshold space
- Fig. 15 Present Continuous Past(s), New York, Dan Graham, 1974, threshold spaces in framed monitor, camera, monitor, mirrors, pasts
- Fig. 16 Passages, Portbou, Dani Karavan, 1990–94, delimitations of the threshold space and body of the threshold space, threshold, 27 m length, whirlpool
- Fig. 17 Threshold, Frankfurt, Bill Viola, 1992, delimitations of the threshold space and body of the threshold space, ticker, projections
- Fig. 18 Safely Maneuvering across Lin He Road, Guangzhou, Lin Yilin, 1995, body of the threshold space, Lin He Road, 20 m width
- Fig. 19 Fun House für Münster, Dan Graham, 1997, delimitations of the threshold space and body of the threshold space, transparent mirror glass elements, 2.5 m height
- Fig. 20 Fun House for Münster, Dan Graham, 1997, extension of the threshold space through reflection
- Fig. 21 Principle of the Threshold Space Machine, Weimar, Till Boettger, 2010, peephole mirror, camera, projector, threshold space
- Fig. 22 Threshold Space Machine, Weimar, Till Boettger, 2010, context, peephole mirror, camera, projector, threshold space
- Fig. 23 Walking through the Threshold Space Machine, Weimar, Till Boettger, 2010
- Fig. 24 Threshold Space Machine, Weimar, Till Boettger, 2010, The open system
- Fig. 25 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, cubature of the architectonic shape
- Fig. 26 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, delimitations of the threshold space and body of the threshold space
- Fig. 27 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, threshold space sequence, Prescott Street
- Fig. 28 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, threshold space sequence, Quincy Street
- Fig. 29 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, rotational symmetry of the threshold space
- Fig. 30 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, tangents of the threshold space, Prescott Street, Quincy Street

- Fig. 31 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, modular composition of the threshold space
- Fig. 32 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, openings of the threshold space
- Fig. 33 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, grid of the threshold space
- Fig. 34 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, entrance cube of the threshold space
- Fig. 35 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, contrast between threshold space and urban context
- Fig. 36 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, raised position of the threshold space
- Fig. 37 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, contrast of threshold space under artificial lighting
- Fig. 38 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, “roadside barriers” in the threshold space
- Fig. 39 Carpenter Center for the Visual Arts, Cambridge, Le Corbusier, 1961–64, plants in the threshold space
- Fig. 40 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, cubature of the architectonic shape
- Fig. 41 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, delimitations of the threshold space
- Fig. 42 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, body of the threshold space
- Fig. 43 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, threshold space sequence
- Fig. 44 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, symmetry of the threshold space
- Fig. 45 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, spatial balance in the threshold space
- Fig. 46 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, modular composition of the threshold space
- Fig. 47 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, squares of the threshold space
- Fig. 48 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, urban context of the threshold space, Potsdamer Straße, St. Matthew’s Church
- Fig. 49 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, visual framing, St. Matthew’s Church
- Fig. 50 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, raised threshold space
- Fig. 51 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, contrast in materials, elevation, floor plan
- Fig. 52 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, threshold space in daylight, elevation, floor plan
- Fig. 53 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, threshold space under artificial lighting at night, elevation, floor plan
- Fig. 54 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, tiered heights of threshold space furnishings, vertical section, floor plan, railing, cloakroom, installation wall
- Fig. 55 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, Installation for the Neue Nationalgalerie by Jenny Holzer, light

- Fig. 56 MASP, São Paulo, Lina Bo Bardi, 1957–68, cubature of the architectonic shape
- Fig. 57 MASP, São Paulo, Lina Bo Bardi, 1957–68, delimitations of the threshold space
- Fig. 58 MASP, São Paulo, Lina Bo Bardi, 1957–68, body of the threshold space
- Fig. 59 MASP, São Paulo, Lina Bo Bardi, 1957–68, body of the threshold space—body of the museum
- Fig. 60 MASP, São Paulo, Lina Bo Bardi, 1957–68, threshold space sequence
- Fig. 61 MASP, São Paulo, Lina Bo Bardi, 1957–68, right-angled cubature of the threshold space, elevation, floor plan
- Fig. 62 MASP, São Paulo, Lina Bo Bardi, 1957–68, grid of the threshold space, elevation, floor plan
- Fig. 63 MASP, São Paulo, Lina Bo Bardi, 1957–68, threshold space as a “belvedere,” park, city
- Fig. 64 MASP, São Paulo, Lina Bo Bardi, 1957–68, materiality of the threshold space
- Fig. 65 MASP, São Paulo, Lina Bo Bardi, 1957–68, body of the threshold space as a foundation
- Fig. 66 MASP, São Paulo, Lina Bo Bardi, 1957–68, staircase in the threshold space
- Fig. 67 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, cubature of the architectonic shape, Villa Metzler, main portal, side portal
- Fig. 68 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, delimitations of the threshold space
- Fig. 69 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, body of the threshold space
- Fig. 70 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, delimitations and spatial bodies of the side portals, horizontal and vertical clearance in meters
- Fig. 71 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, delimitations and spatial bodies of the main portal, horizontal and vertical clearance in meters
- Fig. 72 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, threshold space sequence, main entrance
- Fig. 73 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, orientation of main portal and paths, the Main, Villa Metzler
- Fig. 74 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, main portal with 1.10×1.10 m grid
- Fig. 75 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, axis of symmetry, main portal—museum
- Fig. 76 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, application of module in side portal, $2.20 \times 2.20 \times 2.20$ m cube, internal measurements in meters, exterior measurements in meters
- Fig. 77 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, park as a “bridge”
- Fig. 78 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, contrast between architecture and park space
- Fig. 79 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, tiling pattern of the threshold space
- Fig. 80 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, cubature, Villa Metzler and courtyard
- Fig. 81 Fondation Cartier, Paris, Jean Nouvel, 1991–94, cubature of the architectonic shape
- Fig. 82 Fondation Cartier, Paris, Jean Nouvel, 1991–94, delimitations of the threshold space
- Fig. 83 Fondation Cartier, Paris, Jean Nouvel, 1991–94, body of the threshold space
- Fig. 84 Fondation Cartier, Paris, Jean Nouvel, 1991–94, threshold space sequence
- Fig. 85 Fondation Cartier, Paris, Jean Nouvel, 1991–94, arrangement of the rows of trees
- Fig. 86 Fondation Cartier, Paris, Jean Nouvel, 1991–94, spatial tiering of the threshold space with square grid
- Fig. 87 Fondation Cartier, Paris, Jean Nouvel, 1991–94, square system of glass panels
- Fig. 88 Fondation Cartier, Paris, Jean Nouvel, 1991–94, axes vanishing points of the threshold space
- Fig. 89 Fondation Cartier, Paris, Jean Nouvel, 1991–94, gridwork of the facade

- Fig. 90 Fondation Cartier, Paris, Jean Nouvel, 1991–94, the cedar marks the spot, elevation, ground plan
- Fig. 91 Fondation Cartier, Paris, Jean Nouvel, 1991–94, the threshold space as an image
- Fig. 92 Fondation Cartier, Paris, Jean Nouvel, 1991–94, threshold space equipment, elevation, ground plan
- Fig. 93 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, cubature of the architectonic shape
- Fig. 94 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, spatial bodies, exterior delimitations of the threshold space
- Fig. 95 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, interior delimitations of the threshold space, Rooms 1 and 2
- Fig. 96 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, body of the threshold space
- Fig. 97 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, threshold space sequence
- Fig. 98 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, ring-shaped threshold space
- Fig. 99 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, rectangular concert hall
- Fig. 100 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, threshold space geometry, vitrine
- Fig. 101 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, urban context
- Fig. 102 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, vitrines in the threshold space
- Fig. 103 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, topography of the threshold space
- Fig. 104 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, materiality of the threshold space
- Fig. 105 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, atmospheric link between vitrines and large concert hall, vitrine, concert hall
- Fig. 106 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, distribution of light in the threshold space
- Fig. 107 Delimitation, open—closed
- Fig. 108 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, open threshold space
- Fig. 109 Sequence, freely selectable—guided
- Fig. 110 Carpenter Center, Cambridge, Le Corbusier, 1961–64, guided sequence
- Fig. 111 Geometry, free—ordered
- Fig. 112 MASP, São Paulo, Lina Bo Bardi, 1957–68, rigid geometry
- Fig. 113 Topography, independent—embedded
- Fig. 114 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, embedded space
- Fig. 115 Materiality, neutral—distinctive
- Fig. 116 Fondation Cartier, Paris, Jean Nouvel, 1991–94, ambiguous materiality
- Fig. 117 Furnishings, unobtrusive—self-contained
- Fig. 118 MASP, São Paulo, Lina Bo Bardi, 1957–68, unobtrusive furnishings
- Fig. 119 Fondation Cartier, Paris, Jean Nouvel, 1991–94, counterbalancing attribute pairs
- Fig. 120 Museum für angewandte Kunst, Frankfurt am Main, Richard Meier, 1979–85, counterbalancing attribute pairs
- Fig. 121 Neue Nationalgalerie, Berlin, Ludwig Mies van der Rohe, 1962–68, counterbalancing attribute pairs

- Fig. 122 MASP, São Paulo, Lina Bo Bardi, 1957–68, counterbalancing attribute pairs
- Fig. 123 Casa da Música, Porto, OMA, Rem Koolhaas and Ellen Van Loon, 1999–2005, counterbalancing attribute pairs
- Fig. 124 Overview, counterbalancing attribute pairs
- Fig. 125 Recognition of the entrance
- Fig. 126 Approach toward the entrance
- Fig. 127 Reaching the threshold space
- Fig. 128 Arrival in the threshold space
- Fig. 129 Orientation in the space
- Fig. 130 Monitoring in the threshold space
- Fig. 131 Exit from the threshold space
- Fig. 132 Zivcec House, Weimar, AFF Architekten, 2005, cubature of the architectonic space, delimitations of the threshold space, threshold space sequence
- Fig. 133 Hellerhofsiedlung, Frankfurt am Main, Mart Stam, 1929–32, recognition of the entrance
- Fig. 134 Römerstadt, Frankfurt am Main, Ernst May, 1927–29, arrival in the threshold space
- Fig. 135 Laubenganghaus, Dessau, Hannes Meyer, 1929–30, cubature of the architectonic space, staircase, balconies, apartments
- Fig. 136 Laubenganghaus, Dessau, Hannes Meyer, 1929–30, counterbalancing attribute pairs, closed—open, introverted—extroverted, freely selectable—guided, protected—exposed
- Fig. 137 Stuttgart City Library, Eun Young Yi, 1999–2011, analysis, Lukas Bartke, Julia Naumann, Michaela Bottke, Li Juanchao, delimitation, sequence, geometry, topography, materiality, furnishings
- Fig. 138 Apartments for the Elderly, St. Antonius, Stuttgart, Lederer + Ragnarsdóttir + Oei, 1998–2001, analysis, Till Hoffmann and Xingmeng Wang, delimitations, sequence, geometry, topography, materiality, furnishings
- Fig. 139 Weißenhof, Stuttgart, Rathenaustraße 3–5, Le Corbusier, 1926–27, analysis, Friederike Wollny, delimitations, sequence, geometry, topography, furnishings
- Fig. 140 Die Schwelle als Raum, Teresa Riethmüller, photos of model, Tobias Adam
- Fig. 141 Die Schwelle als Raum, Teresa Riethmüller, drawings
- Fig. 142 Sirkel, Adriaen Unger, photos of model, Tobias Adam
- Fig. 143 Sirkel, Adriaen Unger, drawings
- Fig. 144 Schwellenraumkarussell, Julia Naumann, photos of model, Tobias Adam
- Fig. 145 Schwellenraumkarussell, Julia Naumann, drawing

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