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## Symbiosis of Inside and Outside in Architecture of the Naqsh-e Jahan Square

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### Abstract

**Statement of Problem:** Architecture can be defined as the art and practice of providing a balance between inside and outside spaces. It is thus possible to explore the traditional architecture as a treasure of knowledge and experience of the predecessors from a new perspective. It is assumed that the symbiosis of the inside and outside has changed in the Isfahan-i architecture as a heritage of the Safavid period, a major period of Iranian architecture. **Objective:** The present paper mainly aimed at the spatial and physical analysis of special buildings of the Naqsh-e-Jahan Square in terms of status, factors, the inside-outside symbiosis, and the role of each in the development of urban identity and the architecture of this historic complex.

**Methodology:** This is a descriptive-analytical study through library and field research with the aim of developing the architectural thinking and design. **Conclusion:** The results of the study indicate that the relative preference for urban spaces and landscape over the particular characteristic of each building. Nevertheless, there is a balance between inside and outside with the relative importance of inside in each building. The increasing importance of urbanism, urban development, and focus on urban complexes instead of single buildings as the product of an architect's creativity during the Safavid period are all examples of the special attention to the "outside", which can be attributed to the display of government power and competition in the Islamic world. The integration of the bazaar with public buildings in a new form and the combination of columned porches and monuments in large dimensions and multi stories are both among the innovations of Isfahan-i style, resulting from a change in the attitude towards the inside-outside relationship in architecture. In addition, the significant role of entrance in terms of both meaning and function in this period can be considered as an emphasis on the display of boundaries and hierarchy in architecture. The most important element of the interactive region and transition area where the inside and outside are intertwined.

### Keywords

Symbiosis, architecture, Inside and Outside, Naqsh-e-Jahan Square.

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## Introduction and Statement of Problem

The dichotomy of “inside” and “outside” in philosophy, art, and architecture has not been emphasized directly and independently in the works of writers before Hegel (1810). However, Hegel expressed the characteristics of a work of art in terms of theme and form with a novel dialectic and categorized the history of art into three distinct periods, including symbolic, classic, and romantic periods. By regarding architecture as a symbolic art and implicitly valuing the interior space and the appearance of architectural works, he discussed the status of each in some periods and styles. According to Hegel, “the work of art is a result of unity of form and intellectual theme (content); that is to say, the unity of the subjective spirit and objective spirit... The architecture is the most complete art that can represent this form of balance between theme and form” (Ahmadi, 2013: 106). Other scholars such as Giedion (1987), Zevi (1945), and Grütter (1997), influenced by Hegel’s works, and some other philosophers, such as Fichte and Schelling, classified the works of Western architectural history based on the inside-outside relationship as the relationship between their space and form. Giedion (1987) considered the distinction between the outside and the inside as the main foundation for understanding the architectural space. He believed that the space or the wall between the inside and outside was practically introduced to architecture and urban design with the wavy walls developed by Borromini. Norberg-Schulz considers the two terms “inside and outside” to be beyond the usual meaning of their cognitive or topological position and not be qualitative or quantitative, and believes that “the “inside-outside relationship” is one of the most fundamental questions in the art of place, or architecture, which is neither resolved by drawing and description, nor is it a static phenomenon” (Norberg-Schulz, 2012: 211). It seems that the relationship between mass and space and, consequently, the inside-outside relationship in architecture need particular attention in Iranian architecture. It is assumed that the answer to the problem lies as a treasure of knowledge and experi-

ence from past in traditional architecture. The main questions the present study seeks to answer are, “Has the symbiosis of the inside and outside transformed in the Isfahan architecture of the Safavid period as a major period of Iranian architecture?” “How was the nature of this transformation?” Therefore, the main goal is to explain the inside-outside symbiosis in architecture of the Naqsh-e-Jahan Square. Finally, the results of the study will be presented with the achievements.

## Background and Significance of the Study

The long conflict between inside and outside has taken the form of interaction in the Western contemporary architecture. The actual inside-outside relationship was formed through new ideas such as free plan and elevation, as well as modern elements such as glass and concrete. Wright, one of the leading architects in organic architecture, emphasized the physical inside-outside relationship in architecture, which is a general and comprehensive relationship. According to him, “A building should appear to grow easily from its site and be shaped to harmonize with its surroundings.” Sullivan argued that “a building should respond to its own particular environment, just as a plant would grow naturally, logically, and poetically out of all its conditions... The external effects are like internal intentions”. Le Corbusier also believes that “the plan proceeds from within to without; the exterior is the result of an interior.” Nonetheless, Wright’s biological comparison is sort of limiting as the growth of a plant is affected by special environmental forces that transformed with own genetic growth system.” (Venturi, 1977: 82). Arnheim emphasized the importance of this issue in various fields of humanities and art, and considered both the design and adjustment of inside-outside relationship to be unique to architecture. “No problem is as inherent to architecture as that the architect must consider both the inside and outside to be related. Briefly, this means that both must be considered as components of one concept “(Arnheim, 1966: 3). The mentioned cases are general schema in the background of the

Western architecture. Through the present paper, spatial and physical analysis of the buildings of the Naqsh-e-Jahan Square in terms of the symbiosis of inside and outside and the role of each in the development of the architecture of the complex can be effective in revealing the status of the subject in Iran.

### **Methodology and Theoretical Framework**

According to the theoretical nature of the subject, the paper explains the characteristics of the buildings by using first the information collected through library and field research and then in a descriptive-analytical manner. Therefore, the most important factors in this study are examined through content analysis after selecting the samples. Structural variations in theories related to the issue of inside and outside and their relationship have been often derived from philosophical attitudes toward the subject of human and architectural space. Hence, the paper first discusses the problem from two new theoretical perspectives.

### **Investigating the problem with the approach of phenomenology and fuzzy logic**

phenomenologists typically see themselves, in their role as recognizer, as phenomenon in exactly the same sense as the phenomenon, and study the subject as it exists without any pre-assumptions and rules. "Understanding a phenomenon is possible only from inside, and who stands outside can never fully understand it" (Pakzad, 2014: 35). Moreover, phenomenologists have more focused on subject like place and space than other aspects of environment and architecture. In a symbolic interpretation, Schulz considered inside and outside as "two side of the same coin" and regarded the interaction between inside and outside forces as an interpretation of a specific environment or function<sup>2</sup>. This interpretation represents the relationship, dependence, and ultimate unity of two forms of an object. Unlike him who believes that the natural environment is the basis of the place, Relph (2010) has started his study with human experience and suggests that the relationship between insiderness and its experienced opposite, outsiderness,

is a fundamental dialectic of human environmental experience and behavior. Therefore, through different degrees of insiderness and outsiderness, different places take on different identities for different people, and human experience takes on different qualities of meaning and feeling<sup>3</sup>. Bachelard considered the dialectic of inside and outside in architecture as to have the sharpness of the dialectics of 'yes' and 'no', the decisive dialectic, which decides everything. "Philosophers, when confronted with outside and inside, think in terms of being and non-being. ... 'inside' and 'outside' are the weak repetition of in and out" (Bachelard, 2013: 257-258). Semanticians, under the influence of religious and mystical teachings, prioritize internal issues: "An allegory of the inside-outside relationship is part of the broad interpretation of mystical semantics in Islamic architecture. In this analysis, introversion matches the inside orientation toward God (tariqa) and the outside world (sharia), and the priority of the former over the latter" (Nasr, 1981: 191-192). Given the relative nature of the main variables and the fact that there are cases where there is no boundary or a distinct space between the inside and outside of architectural and urban buildings, there is a need for fuzzy analysis. "Fuzzy sets are based on three qualitative breakpoints: full membership [inside], full non-membership [outside], and the crossover [transition] point, where there is maximum ambiguity. In fuzzy logic, it is important to address this ambiguity" (Ragin, 1987: 158, 159). Therefore, the nature of the area, the level, or the point of transition from the outside to the inside and vice versa must be examined, regardless of whether it is a boundary, link, or whatever. The aim is to identify and clarify the existence or non-existence of in-between elements and their type (surface or space). Then, it is possible to focus on the architectural qualities of the elements, including material, texture, motif, and so on, will represent a sort of inside-outside interaction. By taking the component of time and historical development into account, the way and the course of the transformation of their symbiosis is also determined. According to

this logic, it can be concluded that the inside of everything is equal to its outside in the most fuzzy state or position. “The more something is like its opposite, the more fuzzy it is. In the most fuzzy state, there is something equal to its opposite “(Panahi, Mokhtabad Amraei & Karimi Khiavi, 2009: 59).

According to the subject, one can refer to them as “position” based on verbal tags. According to the second principle of the fuzzy method (principle of connectivity), no member of an architectural system

can exist without an active connection and multilateral relationships with other members and organs. It is thus deduced from Table 1 that, no point in a work of architecture is not absolutely interior or exterior but more inside or outside. Moreover, the transition region not only includes the transition point but also the surrounding areas in the communication network. The number of organs and spaces in this area indicates the complexity of the relationship and the possibility of the evolution of the inside-outside symbiosis.

Table 1. The overall grading of insiderness (or outsiderness) in architecture based on fuzzy method. Source: authors, 2016.

Tag & Position	Inside the inside	Transition or Interface Region					Outside the outside
		More inside	Relatively inside	Transition point or level	Relatively outside	More outside	
Grade or Value	99%	83%	67%	50%	33%	17%	1%

### Factors affecting the inside-outside relationship in an architectural space

The factors affecting this relationship are the same factors affecting the formation of architecture. There are two relatively inconsistent but interconnected tasks in architecture. On the one hand, it must provide shelter for residents that protects them against adverse environmental forces with a safe and friendly inside environment. On the other hand, it must create an environmentally consistent outside environment that is visually effective with messages inviting, inhibiting, informative, and warning. Inside and outside architectural spaces are not possible to dissolve completely both practically and theoretically, and an element cannot be both inside and outside, although the inside and outside are immediate neighbors. Accordingly, the in-between elements and spaces reconcile two contradictory goals. According to Bachelard, “Seen from the inside, without exteriority, existence can only be round.” (Arnheim, 2007: 127). The concepts of “inside” and “outside” and the inside-outside relationship in spaces are different in different cultures. “An environment built on any scale is a cultural code representing the social institutions that create and nourish that environment” (Lang, 2012: 202). Rapoport stated that in a

Maya village the relative lack of distinction between cognitive categories such as nature and house, house and house, and person and person is reflected in the absence of sharp boundaries between landscape and village, inside and outside, and so on very differently to the sharp and strong boundaries of an Indian village or Moslem or Yoruba city<sup>4</sup>. Perhaps, the two factors of culture and climate have a great impact on the formation and quality of this relationship. “Unlike the way a Western man sees the inside and the outside as two different things, a Japanese sees his home as a unit that includes his garden and house” (Grütter, 2007: 176).

Components other than culture, climate, and function can give an identity to the inside-outside symbiosis, including construction techniques, architect’s creativity, intention, and economic-political feasibility, the effectiveness and role of each of which are a function of spatial-temporal conditions of occurrence. They are also interdependent. “in practice, it is impossible to separate the meaning, the function, and the physical aspect of a phenomenon. Durability can be examined in all the three cases” (Pakzad, 2003: 108). The factors affecting introversion as a fundamental aspect in Iranian-Islamic culture and architecture are possible to consider from five perspec-

tives according to five factors: a) the role of historical patterns; b) the role of climate in creating a central courtyard pattern; c) the role of defense in introversion; d) the separation of the entire human-made space based on gender in Islam; e) mystical analysis” (Nari Qumi, 2010: 70). Falamaki divided the factors affecting an architectural space into “architectural mixed branches” without priority: “functional, structural, form-conceptual, physical, and environmental link” (Falamaki, 2007: 141). By referring to Aristotle’s Ten Categories and reducing them to six categories (essence, relation, quantity, quality, action,

and affection) equal to “construction, context, form, meaning, function, and volition,” respectively, using them as criteria to classify architectural trends<sup>5</sup>. Although there may be other definitions and concepts in introducing components and factors, “the existing theories of inside-outside relationship can be summed up in three categories: perceptual-semantic, functional-behavioral, and physical-environmental factors” (Eini Far, and Ali Niaye Motlagh, 2014: 58). According to different divisions and theories, the factors and variables that affect the architectural inside-outside relationship are as follows (Table 2) :

Table 2. Factors affecting the architectural inside-outside relationship. Source: authors, 2016.

<b>Fundamental Factors</b>	Body	Form	Visual aspects of architectural form - geometry and organizing principles - shape and decoration
		Structure	Technique and methods of construction - materials - economics and financial wealth
	Meaning	Perception	Culture - Sense of place and work’s message - visual relationships - symbol and sign
		Intention	Architect’s creativity - Individual behaviors – politic and intention of creator
	Efficiency	Environment	Climate - context and texture
		Function	Spatial plan and organization - social systems and behaviors - security and comfort - gender

The factors in the fourth column of the table can affect two or more variables of the six variables in the third column. The approach adopted will contribute to their impact. For example, culturalists such as Rapoport considered the role of “culture” more important than other factors. “Since meanings, like the environments that communicate them, are culture specific and hence culturally variable? (Rapoport, 2012: 24).

An important part of architectural meanings lie in the between function and body or the inside and the outside. In other words, to place a great emphasis on the outside and to consider the form as to be important, or vice versa, the lack of attention to external appearance, both will undermine the meaning. The meaning here represents a mental perception consisting of beauty, pleasure, belonging, calm, and trust, which are similar to the components of the identity of place. It may be assumed that this is another ex-

pression of the interaction between city and a work of architecture. However, the novelty of this idea is that, firstly, the interactive or in-between space can be the point of position transformation and hence the place of the plurality of meanings, which means its greater importance for those architects who focus on charm, beauty, and meaningfulness; secondly, there is no meaningless point within the area between the inside and the outside, and meaning merely become more clear where the reflections of the two poles in each other are neglected or one pole is taken less important, although the diversity and plurality of meaning decrease in this interpretation. The numbers on the left of the diagram below are also a fuzzy expression of the course of meaningfulness in the mixture of form and content in architecture. Hence, no point is of zero value or worth 100%. The highest semantic value is understandable in the inside-outside interaction and the form-function balance (Diagram 1).

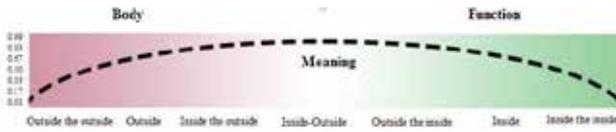


Diagram 1. The zoning of the architectural inside and outside in terms of body, function and meaning. Source: authors, 2016.

### Importance, status, and organs of the interactive region in architecture

Intermediate space between the inside and outside in architecture is, in the simplest case, a wall or partition without spatial specifications. In this case, the lowest level of synopsis is possible to be formed. Nevertheless, the in-between space replaces the partitioning form and becomes almost an essential part in the architecture within the architectural evolution and complexity. “In-between spaces are essential for the recognition of objects. The independent recognition of objects is not possible without such spaces. In addition, the in-between spaces play a key role in the relationship between elements... The type of in-between space is a function of three factors: size, proportion, and form of each component (walls)” (Grütter, 2007: 226).

Without recognizing any of the phenomena and elements and the resulting perception, it is not possible to recognize the relationship between them. “All languages and symbolic systems are complex communication systems that are usually the basis of human knowledge and thought, whose most basic feature is spatial organization through communication systems” (Hillier & Hanson, 1984). In addition to lifestyle patterns and climatic comfort playing essential roles in the formation of “inside-outside spaces” such as garden room, central courtyard, summer house with a magnificent view, front platform, balcony, patio, terrace, and columned porch, Skinner discussed three categories, i.e. cultural memory, aesthetics, and psychology, as arguments which create in-between spaces in different dimensions and designs according to their level of importance in one place. “In his essay ‘The Natural Imagination’, Wilson argues for the existential power of ambiguous inside-outside spaces.

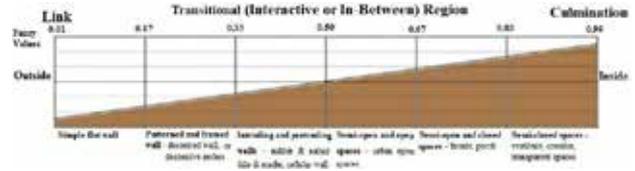


Diagram 2. Inside, outside, and interactive region in architecture. Source: authors, 2016.

Wilson suggests that spaces that can simultaneously be perceived as both external and internal may trigger a deeply moving aesthetic response.” (Skinner, 2003). With regard to natural boundaries, Alexander states that an interactive region is formed between different systems and phenomena that is as valuable as two regions separated. The principle of boundary is not only limited to outer edge of subjects. “Each part of each subject at any level is itself an independent object with a boundary. Boundaries also have boundaries. ... A single subject has many boundaries within its internal boundaries” (Alexander, 2013: 132-133). For him, peripheral smaller volumes can create boundaries in a three-dimensional volume, and there should be also a fit between “center” and “boundary”. The border should be of the same magnitude and importance as the center.

The inside-outside linking elements can be classified into two general categories: “separation walls” (whether decorative or structural) and “in-between spaces” (middle or intermediate). Due to their dynamic nature and high flexibility, in-between spaces like cell membranes are responsible for of receiving, interpreting, transforming, and converting the data. In rotation, the in-between space plays a role in the utilization of principles governing spatial relationships and the spatial organization of sets of elements.” (Baliyan Asl, Etesam, and Eslami, 2011: 68). Most scholars focusing on the aspects of form and space in Iranian architecture defined originality as to be based on spatial system and a continuous flow of space in urban structures. “A sequence of spatial links creates an organized system that allows both stability and change ... A link between two spaces inevitably follows the basic pattern of communication, transition, and culmination” (Ardalan &

Bakhtiar, 2011: 47); (Diagram 2).

According to diagram 2, the inside-outside symbiosis improves with the transition of elements from surfaces to volumes representing space. Furthermore, the number of elements used in the interactive region represents the spatial hierarchy, which is directly related to the importance and complexity of the inside-outside relationship. In fact, it is a set-up to prepare the users of the building both physically and mentally. According to the first principle in the fuzzy method (the principle of incompatibility), it is only possible to accurately define the boundaries and predict the role of components and, consequently, the behavior of the inhabitants using a fuzzy approach in complex architectural systems. In the middle of the diagram, where there are hybrid elements, which have both inside and outside properties, there is a balanced inside-outside symbiosis or interaction. These elements are examples of the third principle of the fuzzy method (the principle of homogeneity), representing the simultaneous existence of intrinsic similarities and differences between the neighboring and symbiotic elements of an architectural system (Fig. 1).

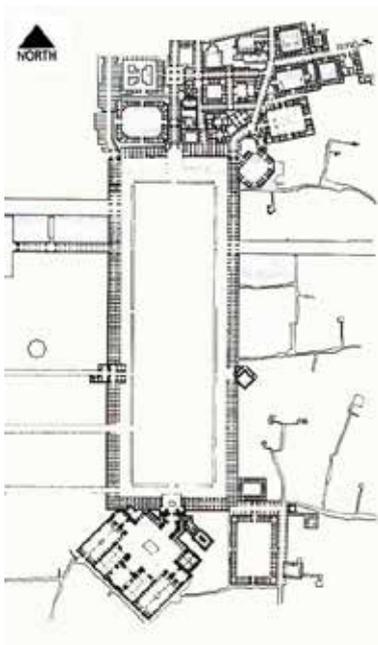


Fig. 1. Naqsh-e-Jahan Square. Source: Hillenbrand, 2001: 426.

## Development and Function of the Naqsh-e-Jahan Square

Important features of the Isfahan architecture were public passageways, squares, and buildings. The streets evolved following the closer relations between Iran and Western states, while the squares and public places were developed through the course of Iranian architecture. The governmental square of Naqsh-e-Jahan evolved through a competition with the Atiq Square in Isfahan using the features of other squares like Mozafarieh and Saheb Abad in Tabriz. This square has a longitudinal organizing axis and two lateral axes. The Qeysarieh Portal and the Shah Mosque are on the longitudinal axis, and the Ali Qapu Palace and the Sheikh Lotfollah Mosque are on one of the lateral axes (Fig. 1). The structure of the square was originally based on single-story porches, and upper stories were added later with an exhibitive function, which have completed the architectural proportions and strengthened their spatial identity. "This square is, in fact, a bazaar, a military field, a court, a polo ground, a stage for open air performances and competitions, a space for animal wars, and a very magnificent night-time playground and a very favorable environment for court amusements" (Hillenbrand, 2001: 424).

## Investigating the inside-outside relationship in the Sheikh Lotfollah Mosque:

Sheikh Lotfollah Mosque is located on the eastern side of the square (Fig. 1). "The building does not have the elements of a standard mosque, i.e. courtyard, upper-lateral porches, and minaret. Its form is more based on the long-standing style of the major tombs with domes (Fig. 2-5). There are very beautiful ochre arabesques covering the dome with its pointed profile. ... the inner surface is wrapped in a layer of colors; the plinth and some of the upper surfaces of the wall are covered with tiles with carpet motifs (Fig. 2); (Blair & Bloom, 2006: 213 & 216). The access from the hustle and bustle of the outside to the peace and quietness of the inside has been designed most skilfully and uniquely, by considering

its immediate vicinity of the square and responding to the challenge of the angle between the qibla and the square. The architect tried to create a design in such way “that the sides of the complex, or at least the shabestan, and preferably its courtyard, face the qibla, so that the person coming to pray not only does not need to find the direction of qibla, but also enters the place, while facing the qibla, where he sees the mihrab at the front of the shabestan on the opposite side “ (Raeeszadeh & Mofid, 1999: 106). The exterior of the mosque corresponds to its semi-private

function and is limited to the entrance gate and a view of the consistent dome. The architect’s creativity in the small building reached its peak. “The light preparation is one of the eye-catching features. In the base of the dome, there are windows at regular intervals with a pair of lattices, one internal and the other external, each containing embossed arabesques inside which there are empty and non-empty spaces in proportion (Fig. 2) as the light is refracted twice” (Pope, 1991: 219).

“In the spatial system of Iranian architecture, the

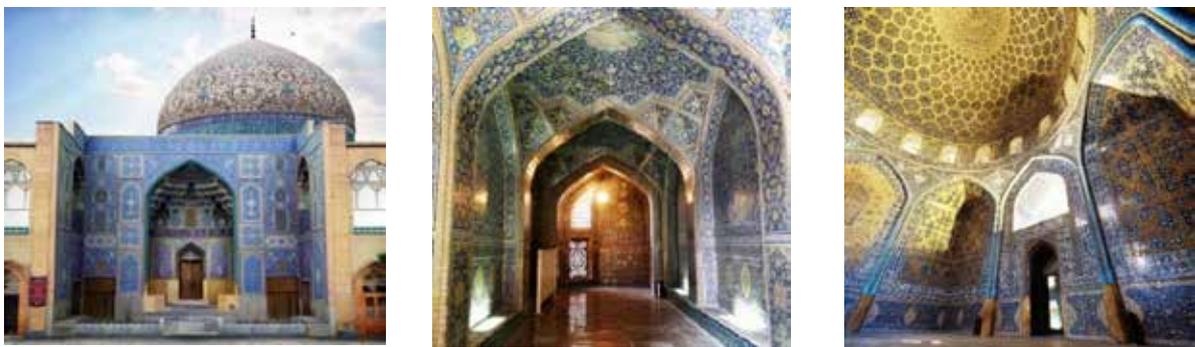


Fig. 2. The inside and outside of Sheikh Lotfollah Mosque, Isfahan. Source: authors, 2015.

boundary-linking space was developed as one of the most emphasized spaces somewhere between natural beauties and spiritual beauties” (Mirshahzadeh, Eslami & Einifar, 2011: 15). In addition to the special skill of the architect in creating a compact but competent structure, the main secret to the mosque’s atmosphere is the fit and exchange between two completely contradictory spaces, i.e. the Naqsh-e-Jahan Square and the space below the dome, as well

as the in-between spaces of the two places. In general, the transition from the outside to the inside can occur through a hierarchy of surfaces or spaces or their combination, which is a function of existential causes of a work of architecture. In this building, the inside-outside relationship based on the variation and sequence of in-between spaces and also the changes in visual aspects of the architectural form, such as light, color, size, direction, scale, proportion,

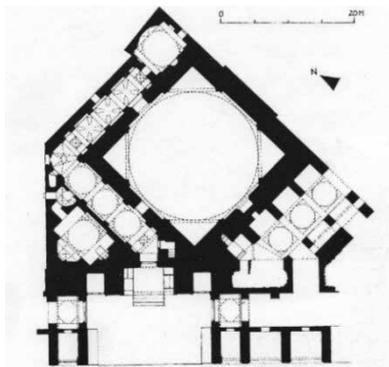


Fig. 3. Plan of the Sheikh Lotfollah Mosque. Source: Blair & Bloom, 2006.

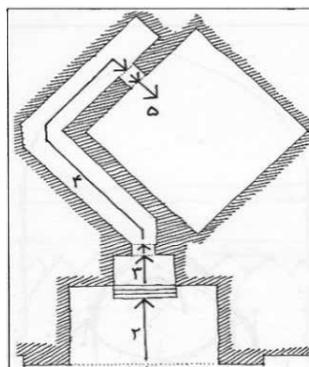


Fig. 4. Interactive region in the mosque. Source: Tavasoli, 1992.

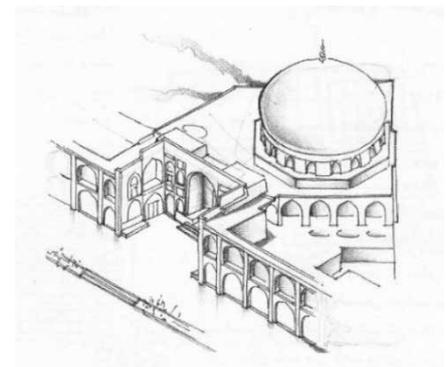


Fig. 5. A perspective of the Sheikh Lotfollah Mosque. Source: Memarian, 2011.

etc (Fig. 3, 4, 5).

### The inside-outside symbiosis in the Shah (Imam) Mosque, Isfahan

This mosque is located in the visual field of the Naqsh-e-Jahan Square, on the southern side (Figure 1). The tall fully-tiled portal of the mosque is like a mihrab in the square, as it invites the people outside to a safe and reviving environment in the mosque. The method used to “correct the deviation from the qibla” in this mosque made it an excellent example of Iranian mosques and architecture. The overall configuration reflects the fact that the building was built based on a plan with progressive geometry and full attention to context. The general features are four porches, the main dome, and two other ones at the back of the eastern and western porches. There are also two tall minarets like tall, patterned Timuri minarets, on both sides of the portal and on the south porch, which are vertical elements giving an identity to the complex.

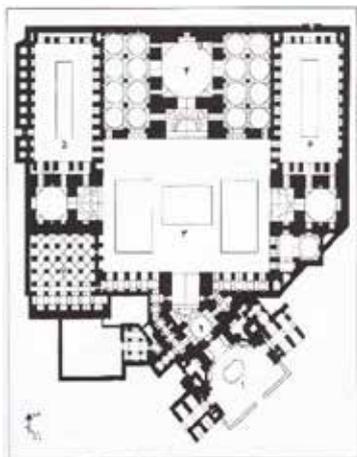


Fig. 6. Plan of the Imam Mosque.  
Source: Pimia, 2008.

closed spaces, an interesting doctrine for today's architecture (Fig. 7, 8, 9).

### The role of portal in defining the inside-outside relationship in religious buildings

Portal of mosques became important first in the Azeri style and then in Isfahani style, as it is among major extensions and changes of the older buildings. Especially during the Safavid period, shahs attached

The interconnection between the elements of the interactive region is a considerable feature of this building: “Movement and communication are facilitated everywhere and there is no obstacle anywhere. There are no stairs or handrails in the ground floor of the mosque. There are no closed doors, tunnel-like corridors, choir isles, and passageways, separate structure such as altar, exclusive space, and privileged platform. Just as there are no dedicated ceremonies, sacred objects, and religious hierarchy” (Pope, 1991: 211). The full-empty proportion is observed in the overall structure of the building, plus the highlighted importance of space with large spaces and dimensions in the Imam mosque. In a chessboard-like division, there is an open space (courtyard) for each domed space. The large central courtyard corresponding to the large south dome, the courtyard of the Sualaimanieh School corresponding to the western dome, and the courtyard of the Nasserri School corresponding to the eastern dome, all create a dynamic balance between open and

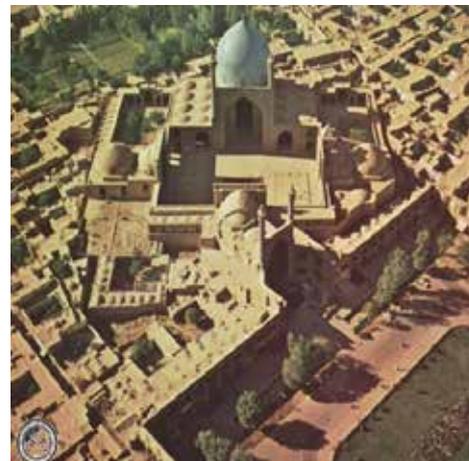


Fig. 7. An aerial view of the mosque.  
Source: www.google.com.

great importance to portals influenced by their Shiite beliefs, as the prophetic hadith, ‘Ana Madinah al-elm va Ali Bab-o-ha’, was a symbol of always-opened doors to good and blessing. The following points are worthy of attention regarding the position and relationship between portal and mihrab as examples of the outside and the inside (Fig. 8).

A) Hierarchy which is a principle of non-religious architecture in the Islamic period in Iran, was also

somewhat important in the evolution of mosques, especially during the Timurid and Safavid periods. In the hierarchy of spatial elements of a mosque or tombs, portal and mihrab are considered to be the first and the last element, and the rest of the elements are formed between them.

B) Perhaps the similarities between portal and mihrab

are based on Islamic teachings about the oneness of the origin of life and afterlife. In a new perspective, each phenomenon is, in its most fuzzy state, analogous and equal to its opposite in fuzzy logic. In other words, the beginning of a journey is similar to its end, although there are distinctions that maintain their independence. The portal of mosques, which faces an



Figure 8: Shabestan of the mosque. Photo: Mahboobi, 2015.

open urban spaces like square, street, or passageway, represents the function of the portal as a mihrab in that urban space.

### Governmental palaces in the Naqsh-e-Jahan Square in terms of the inside-outside relationship

Hillenbrand provided a classification based on the function of Islamic palaces: “The palaces are possible to divide with the following four titles: suburban palace, a mixed center for administrative affairs and royal life, a royal house (with fortifications) with an emphasis on other functions, and a small and temporary place” (Hillenbrand, 2008: 382). In general, there are two types of inside-outside symbiosis in the Safavid palaces; one is the relationship between the exterior of the palaces, especially entrance, and the interior spatial configuration; In Chehel Sotoun, there is a distinct difference between the appearance of the style and the rock mass behind the structure. In Ali Qapu, this empty-full contradiction was directly used, though not one after the other in a row, since the porch is squeezed between the rugged blocks of the ground floor and the second floor. Nonetheless, there is also the art of imagination that succeeds in bridging this designed vacuum to a certain extent. Who can expect a wavy dome with muqarnas behind

the frustrating appearance of Hasht Behesht that reduce the façade to something like a shell and blurs the building effectively and completely (Hillenbrand, 2001: 429). The second type is the relationship between palace and garden and environment in which it is located. “No report of the Safavid palaces cannot be complete without examining the environment in which it is located ... The intention is that the whole area acts as a wide palace where the existing buildings are only some of the elements. In some of such cases, building is a dominating element, while garden is so in other cases” (Hillenbrand, 2008: 429).

### The inside-outside symbiosis in the Ali Qapu Palace

Ali Qapu is the largest royal palace of the Iranian-Islamic architecture, which was built as an entrance by decree of Shah Abbas I in the early seventeenth century, which later became known as Shah Abbas’s “Mubarakeh Edifice”. It was here that the great monarch used to entertain noble visitors, and foreign ambassadors. “In the early stages of the construction of this royal town, the initial entrance was used with two functions: as a garden entrance and the other as the center of the government building complex. The style of this building in Iran was quite unusual, as it was almost a real skyscraper of six stories, in some

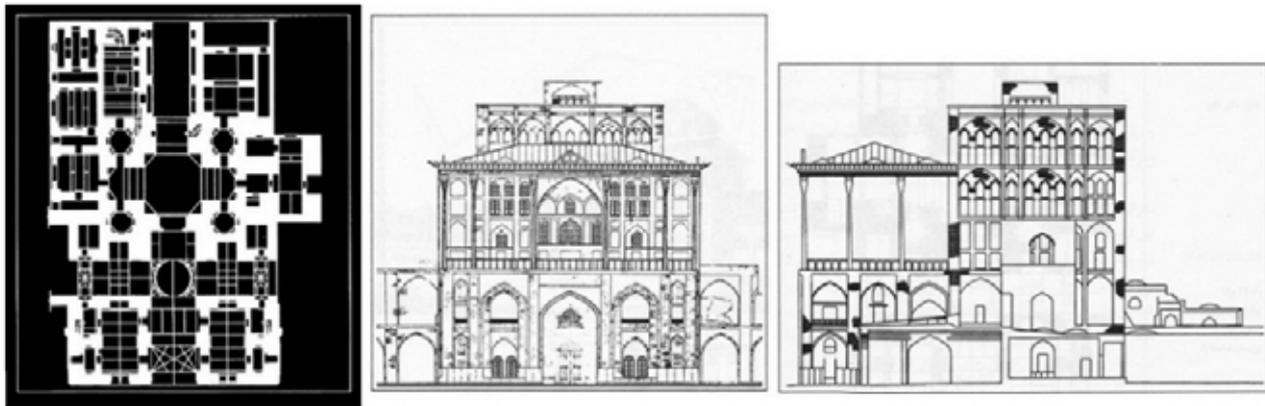


Fig. 9. From left to right: Plane, facade and a cross-sectional view of the building of the Ali Qapu Palace. Source: Pirnia, 2008: 301-302.

of which there were ten rooms” (Wilber, 2009: 92 & 97). This six-storey palace was built on a quadrangle plan with different patterns and decorations in each storey (Fig. 9).

According to Kleiss, the initial building of Ali Qapu dates from the Timurid period, which was in fact the main entrance to the palaces such as Ashraf Hall and Chehel Sotoun, to receive those who were not allowed to enter the palaces. “Ali Qapu is a palace with a magnificent gate dating from the Timurid

period. It was first built as a three-storey palace on Shah Tahmasp’s order. After the change of capital from Qazvin to Isfahan in 1598, Shah Abbas expanded it as it is today” (Kiyani, 2008: 302). The integration of the entrance door and the palace in this building may represent the renewal of its mythical and cosmological role as the gates of paradise and its multi-functionality. Mentioning the religious functions of entrance as a place of bow, prostrate, interaction, judgment, and sacrifice, Eliade consid-

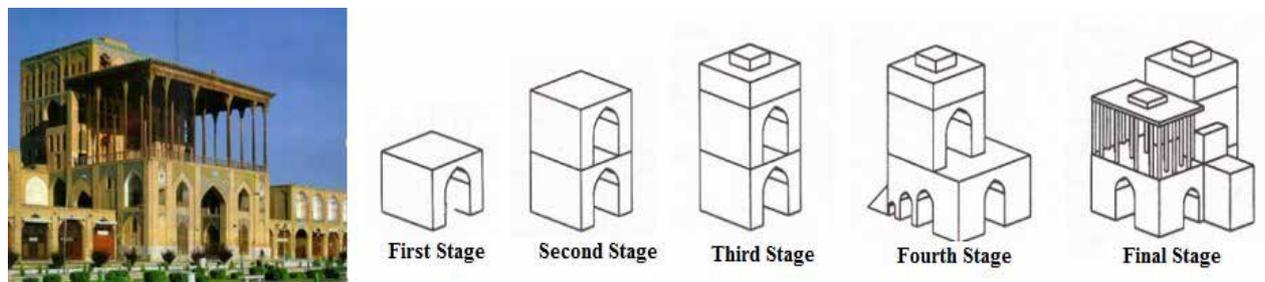


Fig. 10. The evolution of the Ali Qapu Palace. Source: Pirnia, 2008: 303, 306.

ered it both a symbol and a passage from a space to another.

This building has been completed during about 100 years, the evolution of which is illustrated in Fig. 10. The sacredness of the entrance in the palace reveals the particular attention to the qualitative values of place and spatial elements that lack their status elsewhere. “The portal is between the outside and the inside, between public and private, between enmity and intimacy, between insider and outsider. The gates include the valuable experiences of connection

and disconnection, through which our destiny is built up and through which we move from one world to another. The first step to exit and the last step to enter the house also occur here” (Lang, 2000: 206). Von Meiss believes that elements such as thresholds that define inside and outside are indicative of the domination of the person or group in which they live and “any relationship between two places, or the inside and the outside, starts to develop from two independent points. This relationship includes both disconnection and connection, or in other words, distinc-

tion and transmission, interruption and continuity, boundary and crossing. Entrances and spaces of transition become “place” in turn: the places in which the world is overturned” (Meiss, 2007: 152).

## Conclusion

Some of the achievements of this study on the symbiosis of the inside and the outside in architecture of the Naqsh-e-Jahan Square are as follows:

- The increased importance of urbanism, urban development, and focus on urban complexes instead of single buildings as the product of an architect’s creativity during the Safavid period are all examples of the special attention to the “outside”, which can be attributed to the display of government power and competition in capital of the Islamic world.
- The creation of a contradiction between dark and narrow spaces, closed corridors and twisted entrances and openness, lightened and spatial elongation of the main courtyard, courtyards, and open courtyards; this is especially true in the twisted entrance to the Shah Mosque, the entrance hall of the Sheikh Lotfollah Mosque, and the entrance to the Chehel Sotoun Palace. In these buildings, the heterogeneity and sequence of spaces and elements being positive and negative (relative to each other) create a constructive and appealing balance. Therefore the combination and integration of the outside and the inside were possible masterly through the presence of opposite elements together and also the presence of outside elements in inside spaces.
- The use of similar geometric motifs, such as arabesques, girih tiles, and calligrams with consistent materials and colors, inside and outside of various structures, suggests a form of continuity and unity in the outside and the inside in architecture. Considering the symbolic status and the sacred value of geometric patterns as a translation of natural relations and cosmological laws, this affirms the presence of spiritual aspects of worldly life.
- The similarities between portal and mihrab in terms of form indicate a fuzzy relationship between visual aspects of the outside and the inside a building, which defines the degree of insideness or outsideness of each element.
- The “minaret pair” emphasizes concepts such as desire, ascension, and attention to the outside, whereas the dome with its closed form and direction accentuates the attention to its inside and center. The two elements reach a significant state of equilibrium while carrying opposite meanings (outside and inside).
- The relationship between the inside and outside spaces of the mosques or urban spaces is affected by their function. In general, the mosques can be divided into two categories according to their functional scale: a) those mosques that have local function or are only the place for a particular group and caste to payer, dissolved in their surrounding context. Some have open inside spaces and some do not have courtyards. B) The mosques that have trans-local and urban function, and, naturally with larger dimensions and larger body in accordance with their functional scale. Wide inside spaces, ease of access, and strong outside identity are features of such mosques, if they have a political-governmental role, in such mosques, the hierarchy of access is more tangible and their outside appearance and portal are more striking and distinctive.
- Though completed over consequence steps, Ali Qapu was possibly the first multi-functional high-rise building in Iran, unmatched for number of storeys and appearance. The courage used in its outside appearance and the demand for newer functions are admirable that has displayed a new form of inside-outside consistence in architecture. It is possible to understand a new volumetric composition, the coherence of the non-empty and empty surfaces, and the balance between innovation, individuality, and harmony with the general context of the square.
- The significant role of entrance in terms of both meaning and function in this period is considered as an emphasis on the display of boundaries and hierarchy in architecture; the most important element of the interactive

region (transition area) where the inside and outside are intertwined.

-In addition to the requirements for utilizing spaces, each functional building requires a certain type of interaction and relationship with its own context. Studies show that functional scale has often a direct relationship with the relationship according to the public and the private nature of the building; in other words, a public building designed to be used by many people has more interactive possibilities as compared to a semi-public building, such as transparency, flexible boundaries, and combination with environment, fluidity, and openness. Some buildings, which were built with the aim of providing privacy, concentration, and comfort, might have not followed this rule. In such cases, their relationship with the environment is subject to enclosure and lack of transparency despite their public nature (e.g. religious buildings), where it is also necessary to establish a relationship based on continuity and similarity in form.

### Endnote

1. Inside and outside: This combination refers to the interdependence, interaction, and relationship between the internal and external features of an architectural work. Each has a dialectical concept. The aim is to consider the interaction and relationships of two apparently contradictory factors but essentially related in architecture, which are also influenced by communication.
2. Book titled "Architecture: Presence, Language, and Place" by Christian Norberg-Schulz, translated by Alireza Seyyed Ahmadian, Niloufar Publications, Chapter 5: Morphology.
3. See Place and Placelessness, Chapter 4, Relph, Edward, 2010, translated by Mohammad Reza Naghsan Mohammadi, Kazem Mandagari, and Zahir Mottaki, Tehran, Armanshahr Publications.
4. Amos Rapoport is one of the most prominent figures in urban architecture and design, with different theories about space and environment, which emphasize the cultural dimension. Therefore, he is a prominent theorist in anthropology, in addition to the field of architecture and urban design.
5. For more information, see the book "Theoretical Basics of Architecture" by Abdulhamid Noghrekar, Chapter 4, and also Entrance in "The Course of Aristotelian Logic" by Ali Asghar Nejabat, Baqir al-Olum Research Center: <http://www.pajoohe.com/fa/index.php?Page=definition&UID=38094>
6. See also, Eliade, Mircea, 1961, "The Sacred and the Profane" Harper and Raw, New York.

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