

Analysis of Correspondence between Mystical Concepts and Geometric Motifs in Sheikh Safi al-Din Ardabili World Heritage Architecture, Ardabil, Iran

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Abstract: The Sheikh Safi Ardebili complex is of great importance in terms of Islamic architecture. In this building, all the different techniques of decoration are mixed together, from paintings on plaster to mosaic tiles and glazed tiles, and even the oldest brickwork technique. The sanctity of art among the architects and artists of the Safavid period has led to the creation of architectural masterpieces. The influence of the mystical teachings of these artists on the use of various geometric motifs in the architectural works of the Safavid period is inevitable. The connection between the mystical meanings of numbers and geometric shapes, as well as mathematics, with other crafts, is inevitable in creating architectural works. Architectural motifs are not only decorative but also reflect a monotheistic worldview and a tangible manifestation of mystical behavioral concepts. The main purpose of this research is to examine the geometric motifs in the motifs of the tomb of Sheikh Safi al-Din Ardebili (recognizing shapes and numbers) and then the possibility of their semantic connection with mystical themes. The research method is descriptive-analytical, based on library studies and field observations. In addition to revealing the connection between mystical behavior and architecture, examining the Sheikh Safi complex from a mystical perspective provides a basis for a deeper understanding of the interaction between the mysticism of geometry and the architectural forms used in this building. The use of numbers and numerical symbols in mysticism refers to the mystery of the universe and the semantic connection between mystical thoughts, nature, mathematics, and geometry, which are reflected in the architectural decorations of the Sheikh Safi complex. The combination and rotation of various knot devices create different geometric patterns in the architectural decorations of this complex. The movement of different geometric patterns around a main axis (circle, dome, and rotating shapes) is a symbol of the connection between the components. The integration and continuity between the components and the entire building a symbol of the connection of the universe to the divine world.

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1. Introduction

In the Safavid period, when mysticism and art were formed in a common context of religious and spiritual thought, the manifestation of this connection between meaning and form can be observed in religious and ritual architectural works. Among these works, the Sheikh Safi al-Din Ardebili complex has a special place, because it is not only a sacred and pilgrimage site, but also a building whose spatial structure and decorations serve to express mystical concepts and spiritual conduct.

The geometric motifs in the dome, the porcelain room, and other parts of the complex depict manifestations of the human journey from plurality to unity and return to the divine principle. Considering the importance of this complex and the place of geometric motifs in expressing

mystical and mystical meanings, the present study attempts to achieve a deeper understanding of the relationship between form and meaning in Islamic architecture by analyzing the correspondence of mystical concepts with the geometric motifs of the architectural elements of the Sheikh Safi al-Din Ardebili complex. The reality of geometric shapes is necessarily the basis of any kind of cryptic meaning of shapes and diagrams, from the letters of the alphabet and numbers in all languages to the most complex and seemingly strange cryptic forms. Although it is easy to understand that these symbols can have numerous and infinite applications, it is also not difficult to understand that such geometry is not only not about pure quantity; on the contrary, it is fundamentally qualitative (Guenon, 2005: 6-7).

In the book *Sense of Unity*, Ardalan has interpreted geometric patterns as eternal and exemplary forms that can, through spiritual interpretation, guide the deep-thinking mind from the appearance of the pattern to the mysterious, mystical truths within it. Infinitely expandable geometric patterns are a symbol of the esoteric dimension of Islam, and this Sufi concept: "The endless plurality of creation is the grace of existence that emanates from the One: plurality in unity" (Ardalan and Bakhtiar, 2011).

Mathematics in the form of numerical equations and applied graphic geometry has many uses in the architectural industry. This research aims to reach mystical concepts based on the analysis of numbers and shapes of geometric patterns in the motifs of the Sheikh Safi al-Din Ardebili tomb complex. Analyzing the motifs used in the Sheikh Safi complex from a geometric perspective, in addition to revealing the connection between mystical behavior and architecture, can provide a basis for a deeper understanding of the interaction between mysticism, geometry, and the architectural motifs used in this building. To prove this hypothesis, the main questions of this research are as follows:

1. What numbers and geometric shapes are obtained from the geometric analysis of the motifs used in the Sheikh Safi tomb?
2. What is the relationship between the geometric patterns used in the decorations of the Sheikh Safi tomb and the mystical concepts of numbers and geometric shapes?

2. Research background

The study of the connection between Islamic mysticism and the art of architecture is one of the areas that has attracted the attention of many researchers in recent decades. Many researchers have analyzed geometric patterns and decorations in Iranian religious architectural works on a case-by-case basis and have pointed out the influence of Islamic mysticism on knotwork, inscriptions, and geometric patterns, but most of these studies have generally examined all patterns (vegetable, geometric, and animal).

The author of the book "Islamic Geometric Patterns" teaches step-by-step methods for drawing Islamic geometric patterns, and also explains their historical and mathematical origins (Broug, 2008). The book *Sacred Geometry* is one of the most well-known sources in the field of sacred geometry. It shows how geometric shapes (circle, square, triangle, pentagon, spiral, etc.) have had symbolic and spiritual meanings in different cultures and religions (Lawlor, 1982). Seyyed Hashem Hosseini (2011), in his article "Decorative and Conceptual Use of the Shamsa Pattern in the Collection of Sheikh Safi al-Din Ardebili", has examined the different types of Shamsa, including five-pointed, six-pointed, eight-pointed, ten-pointed, twelve-pointed, sixteen-pointed, and twenty-pointed stars used in the Shiite-Sufi collection. In his thesis, Rajabi I studied the basic structure of the arrays and motifs of the tombs of Sheikh Amin al-Din and Sheikh Safi al-Din and the symbolic concepts hidden in them using a descriptive and analytical-comparative method. Moradiyan Ghojeh Bagloo and Abdullahi Fard (2022) have studied the structural analysis of the geometric knots used on the tomb chest of Sheikh Safi al-Din Ardebili in their article.

Parvizi and Ardestani (2024) have studied the influence of archetypes in an article on the formation of the physical structure of the Sheikh Safi collection. main purpose of writing the article entitled "Achievement and Drawing of Hidden Geometry in the Structure of the Inscriptions of the

Sheikh Safi al-Din Ardebili Collection" is to achieve and draw the hidden geometry in the structure of the inscriptions of the Sheikh Safi al-Din Ardebili Collection, as well as their interpretation and analysis to express the direct relationship between geometry in the heart of the inscription and the concepts hidden in its texts (Abdollahi Fard and Seifi, 2024).

Despite these studies, most previous research has either focused on the technical and aesthetic aspects of geometric motifs or has dealt with mysticism in Islamic architecture in general. A comparative study between mystical concepts and the geometric system in the decorations of the Sheikh Safi al-Din Ardebili Collection has received less comprehensive and analytical attention. Therefore, in this research, an attempt has been made to refer to the mystical thoughts of the great mystic Sheikh Safi al-Din Ardebili, to identify the components of geometric motifs and their connection with the mystical concepts of numbers in the architectural decorations of Sheikh Safi's tomb should be reexamined and analyzed.

3. Materials and methods

To recognize and analyze geometric motifs in architecture from a mystical perspective, first, the concepts of numbers and shapes are examined, relying on ancient texts and the theories of past mystics. Then the correspondence of these concepts with numbers and geometry used in the architectural decorations of Sheikh Safi's tomb is discovered. Therefore, the research process consists of two parts: first, recognizing the use of numbers and geometry in architectural decorations, and second, the relationship of these matters with the symbolic aspects of mystical concepts.

Data collection was carried out in two ways: library and field. In the library section, theoretical sources related to mysticism, philosophy of art and aesthetics, symbology and sacred geometry, as well as previous studies on the collection of Sheikh Safi al-Din Ardebili, have been examined and analyzed. In the field section, empirical data have been collected by direct observation, visual perception, and analysis of geometric motifs in the characteristic spaces of the collection, including the dome house, the China house, the shrine house, and the courtyards.

The data analysis method is based on qualitative content analysis and symbolic interpretation. In this process, geometric motifs are first identified and categorized, then they are matched with mystical concepts such as "monotheism", "multiplicity in unity", "movement from the exterior to the interior", and "levels of existence". Finally, through comparative explanation, the relationship between geometric structures and the principles of mystical thought is interpreted. The result of this method provides a deeper understanding of how the mystical worldview is reflected in the form of geometric forms and motifs of architecture, and especially in the enduring work of Sheikh Safi al-Din Ardebili's collection.

4. Results and discussions

Summary of data in Tables 4-12:

- 1) A unified form is obtained from the combination of simple geometric motifs used in the sculptures in Sheikh Safi al-Din Ardebili's collection. The geometric motifs of these unified forms end in the sun in the center. The sun is a symbol of divine ascension and a sign of the sun.
- 2) New forms emerge from the rotation and repetition of simple geometric forms around a fixed center.
- 3) New geometric forms are created in the corners and sides of the main geometric forms (regular forms).
- 4) The formation of geometric forms is based on the mystical interpretations of Sheikh Safi al-Din Ardebili.
- 5) Balance, symmetry, and central and axial symmetry, rhythm, and repetition are the main elements of the formation of geometric forms used in Sheikh Safi's collection.

The findings of this study show that the geometric motifs present in the architectural elements of the complex reflect the fundamental principles of Safavid mysticism, such as "monotheism,"

“multiplicity in unity,” “movement from the exterior to the interior,” and “the sacred order of the universe.” The repetition of geometric shapes, centrality in compositions, and precise proportions between components are all manifestations of the belief in divine order and harmony between the microcosm (human) and the macrocosm (the universe). In this regard, geometry is not only a structural system, but also a tool for expressing spiritual conduct and the experience of divine unity. The motifs, which are simple and symmetrical on the surface, narrate the journey of man from the world of material plurality to the level of spiritual unity. Such an understanding shows that Safavid architects and artists consciously used the language of geometry to express mystical concepts, and in this way, they transformed the art of architecture into a tool for explaining monotheistic thought.

5. Conclusion

In all geometric motifs, numbers in the form of suns and geometric shapes convey semantic and mystical messages. Numbers and geometry in the architectural elements of Sheikh Safi's tomb clearly express the mystical message of "unity in plurality" and "unity of existence", which, according to the teachings of Islamic mysticism, refer to the fundamental and semantic principle of "monotheism". In this collection, all geometric motifs have been used with reference to sacred numbers in Shiite mysticism. For example, pentagonal shapes refer to the five members of the Ahl al-Abbā', and the circle shape is a symbol of the sky. Most geometric shapes are the result of simple tools that, when rotated and repeated next to each other, form geometric frames. Safavid architecture can be considered a tangible manifestation of the connection between mystical thought and sacred art; an art in which geometry is considered a tool for expressing spiritual concepts and the human journey from plurality to unity. In Sheikh Safi al-Din Ardebili's collection, this connection between form and meaning has reached its peak; In such a way that every decorative and geometric element, beyond visual beauty, carries symbolic and divine concepts. As a result, it can be said that the geometric structures of Sheikh Safi al-Din Ardebili's collection are not merely visual decorations, but rather bear the symbolic language of Sheikh Safi's mysticism and are a mirror of the profound worldview of the Safavid era. This collection is an excellent example of the combination of "external beauty" and "inner meaning" in the art of Islamic architecture in Iran, where geometry, as a sacred language, becomes a bridge between earth and sky, and man and God.

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Contribution of authors

The first author was responsible for conceptualization, methodology, and final editing. The second author was in charge of design, illustration, and data collection.

Conflict of Interest

None

Material and spiritual supporters

None Support

Access to materials and data

The raw data of this study are available to the authors and can be accessed upon request through correspondence.

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