

Original Research Article

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بررسی اسلوب خط و تمهیدات بصری کتیبه گریوار بقعه دوازده امام یزد

## Examining the Script Style and Visual Arrangements of the Grivar Inscription in the Davazdah Imam Mausoleum of Yazd

### Abstract

**Problem Definition:** The Davazdah Imam Mausoleum of Yazd is one of the oldest buildings with inscriptions in Iran. The Grivar inscription of this building is Ornamental Kufic, which, unlike the simple Kufic, does not follow specific rules, and many innovations and modifications are made in it. Despite the high visual richness, the mentioned inscription has been deprived of formal analysis, while any but structured changes of the letters, the acceptance of complex forms, and additional elements make it worthy of further analysis. The current research seeks to find the answer to the following question: "what are the structural, visual, and formal characteristics of the Davazdah Imam Mausoleum of Yazd, and what rules did the designer establish in its design?"

**Objective:** This research aimed at identifying the structural and visual features of the Grivar inscription, such as writing style, proportions, and principles used in its composition.

**Research Method:** The present research was carried out using a descriptive-analytical method, and the data was collected through library studies and field surveys.

**Results:** The results showed that distancing from the legibility of words, exaggerating the shape of letters and basic proportions, is a method to achieve beauty and induce concepts beyond the literal meaning. However, the application of formal changes does not only mean losing the order and rules of script, but the designer has established certain principles and policies under the changes, to where maintaining the independent identity of the letters has been one of the primary design criteria.

### Keywords

Ornamental Kufic, Grivar Inscription, Davazdah Imam Mausoleum of Yazd, Script Style

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## Introduction

In the Islamic period, script gained a lot of value, and besides the importance of recording Quranic verses and prayers, it also gained a lot of social value and sanctity. Texts in Islamic Iranian art can be divided into two general categories: writing or reading texts and graphic or drawing texts. In the first type, which includes writings for sending messages, etc., calligraphy is the second priority and trying to facilitate reading is a higher priority, such as Naskh Script. The second type is texts with a focus on design, in which, in the first place, not following the script rules, but beauty, maintaining unity and uniformity, and interaction with other elements of the page, are the most important concerns of the designer, and readability is of second or even third importance. Unlike the first type, all the scripts in this category cannot have a specific name. Even two examples of works will not have structural similarity with each other. The second type can be seen in many inscriptions of buildings, utensil and industries, beginnings of manuscripts, coins, fabrics, etc. Ornamental Kufic script, which is placed in the second category, was considered a very important factor in Islamic art, two centuries after Islam. The ornamental transformation of Kufic inscriptions continued until the end of the 5<sup>th</sup> century A.H. From this time onwards, the Kufic script became merely ornamental and lost its major function, which was to create communication and convey ideas. It can be said that the greatest developments of Kufic scripts and its diversity have occurred in the stucco (plasterwork) and brick inscriptions of the Seljuk and Ilkhanid periods. After the Mongol period, this growth trend began to decline<sup>1</sup>. An example of the use of Ornamental Kufic can be seen in the Davazdah Imam Mausoleum of Yazd. This building is one of the oldest and well-known buildings with inscriptions in the country (dates to 429 A.H.) and in terms of its architectural style<sup>2</sup> and decorations, it has a special importance and is very famous among Islamic architecture researchers in the world. Among its luxurious decorations, which have remained after a thousand years with minimal interference, colored inscriptions, paintings, plinth stucco, and embossed stucco frame can be mentioned. In particular, there is an inscription in the Ornamental Kufic script in the Grivar part of the dome, which is as unique as the building itself. Beauty is obtained from the relationship between order and complexity, and the mentioned inscription is an obvious example of the manifestation of this definition of beauty, however, it has been deprived of visual and structural investigations. The purpose of this research is visual and formal analysis of this neglected but precious inscription of Islamic art and architecture to reveal the features hidden in the heart of its structure, such as writing rules, proportions, and principles used in its composition. Besides introducing more of this rich heritage to the world, this study hopes that by removing the inadvertency, the face of this refreshing sleeping beauty will appear again from the layers of environmental damage. To this aim, the present article seeks to answer the following question: «what are the structural, visual, and formal characteristics of the Davazdah Imam Mausoleum of Yazd, and what rules did the designer establish in its design?»

## Research Method

The current research is conducted based on library studies and field surveys, and is done using a descriptive-analytical method. The approach is qualitative and in order to collect the images of the inscription, which were the primary source of the research, first, the inscription was photographed despite being placed at a very high altitude and on a completely curved bed. For an accurate analysis, the images were subjected to perspective modifications and computer reproduction. Then, besides the general analysis of the

inscription, each letter was categorized in tables to examine the visual arrangements and principles established in their design.

### **Research Background**

Although this inscription is mentioned in many sources, in fact, in no research, it has been examined specifically from the visual structure point of view. Probably, the only specialized reference about the Davazdah Imam Mausoleum is a book entitled «A Thousand Years of Stability» written by «Abuee» (2009), which has almost completely examined the historical aspects, architectural structure, and restoration measures of this building. In the decoration section, he only talked about the content and themes of the inscriptions, the type of script, and the materials used. «Monuments of Yazd» by «Afshar» (1995), «Islamic Inscriptions of Yazd City» by «Danesh Yazdi» (2008), «Review of Inscriptions of Yazd Buildings» by «Quchani» (2004) are among other sources for the general introduction of this inscription. However, regarding the studies that have tried to explore the visual structure of Islamic decorations and inscriptions in Iran, we can refer to some sources. In the article entitled «Study of the inscriptions and decorative arrays of the Khwrazmshahi Grand Mosque of Gonabad», «Sheikhi and KholusiRad» (2019), studied the visual structure of the arrays of the Khwrazmshahi Grand Mosque (early 7<sup>th</sup> century A.H.), including geometric, plant, and animal motifs in the brick and stucco decorations, as well as the inscriptions of this mosque. The article entitled «Decoration and Visual Structure of Kufic Letters in the Mausoleum of Arslan Jazeb» by «Zabolizadeh and Sheikhi» (2022), examined the form and structure of letters and associated decorations in Iranian Kufic script, which is a combination of calligraphy and painting, while in the 5<sup>th</sup> and 6<sup>th</sup> centuries A.H., it led to the creation of a new script in Khorasan area. In the article entitled «Structure and Characteristics of Ornamental Kufic Inscriptions in the Seljuk and Ilkhanid Periods», «Makinejad» (2018) investigated the general structure and capabilities of Seljuk and Ilkhanid inscriptions and did not analyze the details of the letters. In the article entitled «Analysis of the structure and visual characteristics of the Kufic inscriptions of Imamzade Abdullah of Shushtar», «Salehi, Khazaei, and Ahmad Panah» (2020) examined the entrance facade of this building, which has several inscriptions in simple Kufic script and a combination of simple and foliated Kufic script, and has a relatively simple structure compared to the Grivar inscription of the Davazdah Imam Mausoleum. In sum, the principles and values hidden in the design of the Grivar inscription in the Davazdah Imam Mausoleum of Yazd, because of the many historical, geographical, and stylistic differences with other historical buildings and inscriptions, which require different analyzes and conclusions, make it worthy of further research and reflection, and this research has tried to compensate for the lack of structural and visual analyzes as much as possible.

### **The visual structure of the inscription of Davazdah Imam Mausoleum of Yazd**

**1. General Structure:** Although there have been a lot of interferences on the architecture of the Davazdah Imam Mausoleum of Yazd, the most exquisite decorations, which have been created since about a thousand years ago, have had the least interference on the structural and architectural elements (Abuee, 2009, p. 111). The inscription examined in this building (See Figure 1), which includes Ayat Al-Kursi and the verse after it, has been divided into eight equal parts, and has rotated around the octagonal Grivar of the dome; That is, it starts with **بِسْمِ اللَّهِ** from the beginning of one side and ends with the phrase **الْعَلِيِّ الْعَظِيمِ** at the end of the eighth side. One manifestation of the accuracy and value of the mentioned

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inscription, which makes it worthy of further investigation, is that in the division of two verses along the eight sides of the Grivar, the distribution of the parts of the inscription is uniform and accurate in such a way that the end of the second verse ends right at the beginning of the *بِسْمِ اللَّهِ* in such a way that it is difficult to find its beginning and end. This form of placement causes a visual and chain-like connection of all the letters, and as a result, creates the feeling of endless and circular turn around the central axis of the dome. The structure of the inscription's components, which are also effective in the upward and overall movement of the inscription, leads the eye towards the center of the dome, which will be further investigated. The entire inscription is surrounded by relatively wide bands at the top and bottom. These bands, created by non-level stucco with the inscription, are painted in a dark color and appeared as a frame for the inscription. Therefore, they create more emphasis and beauty, stability and strength of the inscription (See Figure 2).



Figure 1. The location of the Grivar inscription in the Davazdah Imam Mausoleum of Yazd and a close-up view of it. Source: Authors.

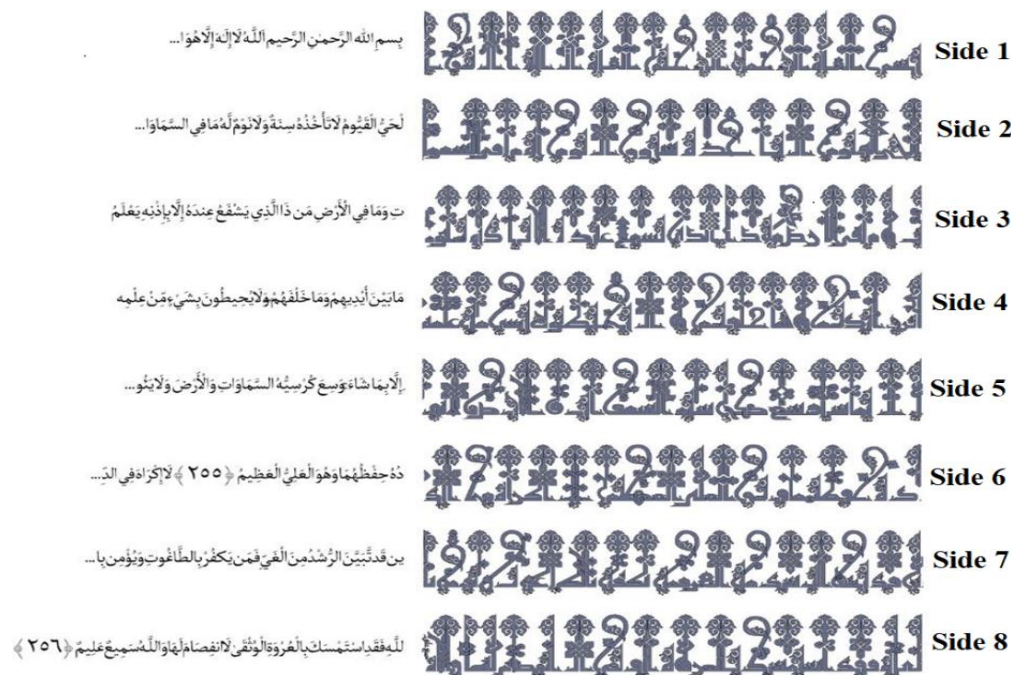


Figure 2. Computer reconstruction of the eight sides of the inscription in the Davazdah Imam Mausoleum along with the Arabic text of each side. Source: Authors.

**2. The Structure of Components:** In the Ornamental Kufic, the letters are decorated in different ways, for which four categories can be listed based on the type of decorations: 1. Bannai Kufic which is completely geometric and simple, 2. Simple Ornamental Kufic, 3. Moqaad or knotted Kufic, 4. Floriated Kufic (with plant motifs) (Ashrafi, 2018, p. 89). In another category, it can be divided into smaller groups: 1. Simple Kufic, 2. Angular Kufic 3. Leafy Kufic (Movaraq) 4. Floriated (Mozahar), 5. Knotted Kufic (Moqaad), 6. Complex Kufic (Moashaq), 7. Movashah Kufic 8. Round Kufic, 9. Ornamental Kufic, and 10. Iranian Kufic or Piramooz (Grohman, 2004, p. 7). The most important reason for this variety and different the Kufic script is the different levels and spaces of the architecture. Basically, in inscriptions, the Kufic script takes shape and character according to the size and proportions of the architectural space, and for this reason, it is not possible to consider certain and fixed rules for all of them. However, the script of the Twelve Imams Mausoleum is floriated and knotted, so we have to analyze its structure in order to find out how its elements are related because in order to go beyond the stage of describing each work of art, these definitions must be analyzed formally (Barnet, 2020, p. 169). The current inscription comprises several vertical movements, most of which are extensions of the inscription letters. By stretching the letters upwards (which have two conceptual and decorative aspects), two components, one geometric in the middle and another plant at the end of the stretches, are joined to them. In general, the structure of Ornamental Kufic inscriptions in historical monuments of Iran can be divided into three main parts, which are: «Writing system», «Geometrical system», and «Plant system», respectively (Makinejad, 2018, p. 17) (See Figure 3); Of course, not all inscriptions necessarily have all three parts. Each of these three systems has specific features in different inscriptions, which will be further analyzed in the following sections about the three systems of this inscription.

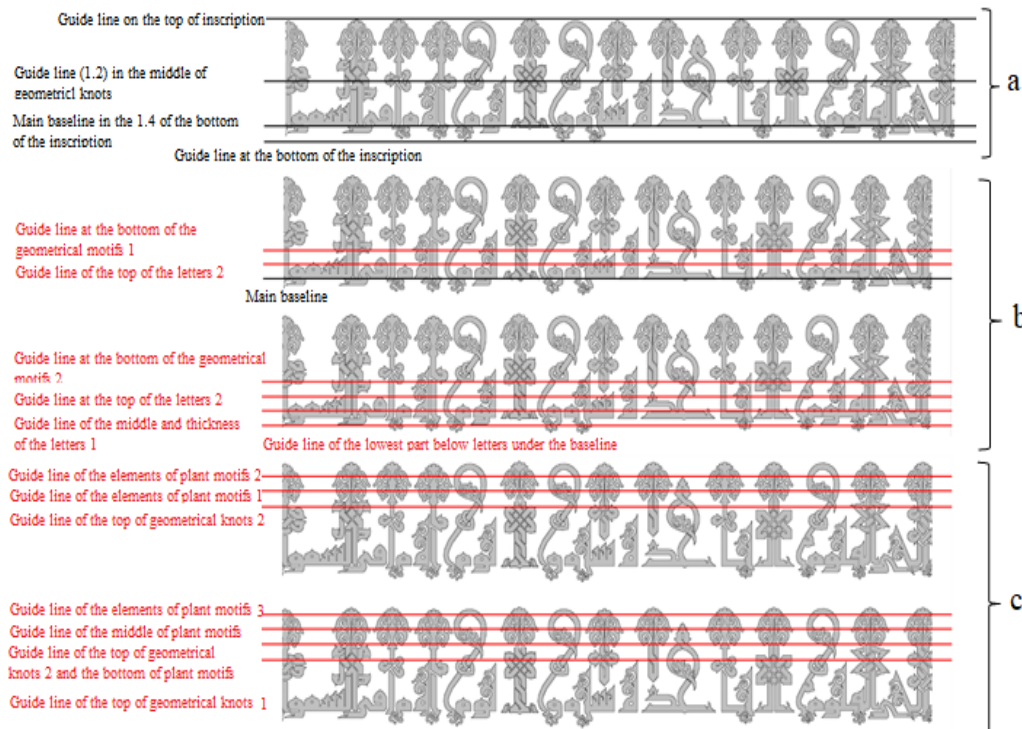


**Figure 3.** The general layout of Ornamental Kufic inscription components in historical monuments of Iran. Source: Authors.

**Proportion in the arrangement of components**

The baseline is a line that is assumed to be regular and aligned. Different sources have listed a various number of baselines for the scripts, including «Sabzevari» refers to five baselines: The first is Ras ol-Khat (apex), the second is for the head of the letters د، ر، ص، ط، ع، ف، ق، و، the third is the middle baseline, the fourth is for the descender of the letters ن، ق، ی، ل، ص، and the fifth is related to the descender of ح، ع (Zeyl ol-Khat) (Sabzevari, 1993, p. 132). However, generally, the number of baselines depends on the type of script and the desire of the scribe (Mosleh-Amirdehi & Jabari, 2016, p. 76), so there can be as many innovations as designers in distinct lines of the chair. The present inscription also has a defined and specific pattern for the order and coordination of the arrangement of the components toward its height and length. Besides the main baseline, other components are also arranged based on guide lines, and the designer has used a hidden pattern to find the location of the mentioned

lines and achieve eye-catching order and proportions. The main baseline, the top, middle, and bottom guidelines of the inscription are shown in Figure 4a. As can be seen, the baseline is at the bottom 1.4, which is a coefficient of the height of the inscription. In Kufic inscriptions, the emphasis is on arranging the elements above the horizon line and using more of this space for the width of the text. This issue is if in this inscription, the space of writing and decorative elements under the baseline occupies only about one-eighth of the height of the entire inscription (See Figure 4a). Accordingly, as much as possible, the ends of the letters have been moved to the baseline, and only the ends of some letters have been drawn under it as small horizontal appendages in some situations. This form of placement and the short distance between the extension of the letters and the baseline are such that they do not appear as a part of the letters in the general view (pay attention to the end of the letters «و» and «ى» in the phrase (الحى القيوم). The position of the other guidelines of the lower half of the inscription, which are all a factor of the total size and are the location of the writing components and some geometric knots, can be seen in Figure 4b. Figure 4c shows the guidelines of the upper half of the inscription, each of which is an indicator used to determine the location of the components.



**Figure 4. a.** Showing the main divisions of the height of the inscription of in the Twelve Imam Mausoleum (phrase: ... الحى القيوم لاتأخذه سنه و لانوم له ما فى اسموا ...) and the position of the baseline at its bottom 1.4. **b.** Showing the guidelines of the bottom half of the inscription. **c.** Showing the guidelines of the upper half of the inscription. Source: Authors.

### Writing system, formal, and structural changes

The «writing system» forms the lower part of the inscription, where the letters and words are arranged on the baseline and next to each other. As mentioned before, the script used in this inscription is Ornamental Kufic, which is a script without dots, and its main purpose is beauty, not legibility. At first glance, applying many changes to the letters by the designer to achieve this goal has caused the inscription the lack of sufficient readability and only looks like letters. The various forms of letters in [Table 1](#) are the proof of this claim. Although in Ornamental Kufic inscriptions, the reading of the inscription was not intended by the designer, but this does not mean that the text cannot be read, rather, reading it is not important in the first place. The framework and shape of the letters are preserved in the innovations because the structure of the alphabet must be kept and the innovation can be reached from the same overall structure ([Farid, 2021, p. 63](#)). In this inscription, the letters are not stretched in length, but the parts of the letters are as close as possible to each other and the horizontal elongations have disappeared (pay attention to the letters م، لام، س in

[Figure 3](#). One of the most prominent features of the letters of this inscription is its vertical stretching. In one division, two types of vertical stretching in this inscription can be seen: one is the stretching of letters and the other is pseudo-scripts. The letters are divided into two groups in terms of length: a group of letters that are naturally above the baseline and are stretched upwards, i.e. Etnabi<sup>3</sup> such as «الف»، «ل»، «ك»، «ط» and «ظ». In order to make it easier to express the contents, here we name these letters, which are drawn more elongated than normal, as «stretched letters». The second group of letters that originally sit on the horizon line or descend below it, not upwards. However, in the present inscription, they have climbed upwards by exaggerating the shape and because of applying formal changes. These letters are «ر»، «و»، «ح»، «خ»، «م»، «ن» and «ی» and they are called «exaggerated letters». Lack of proper distance between letters causes the unity of the line to disappear ([Highsmith, 2016, p. 46](#)). Although in different inscriptions, the designers used different creativity to fill the space between letters, here, the designer tried to choose the best way to unify the inscription through the continuity of the stretched letters. In the interpretations and similes of Moqtae letters, the letter «الف» is considered being an excellent example of «good formation (Hosne Tashkil)<sup>4</sup>» and has the highest qualities, including unity and perfection, while other letters always tend to these superior qualities ([Masoumzadeh Jozdani, Pourmand, & Khazaei, 2015, p. 69](#)). Therefore, the reason for the designer's emphasis on creating vertical stretching in «exaggerated letters» and making them look like a letter like الف is to fill the empty spaces between «stretched letters», to get a common face with «stretched letters», and as a result, to achieve unity and the present visual effect. [Table 1](#) shows these letters, which appeared with various designs throughout the inscription, individually, along with the intensity of stretching and exaggeration created. As can be seen, «stretched letters» only have a stretched state, but all «exaggerated» letters are used in both stretched and unstretched states throughout the inscription. It should be noted that in order to avoid chaos, completely identical letters and knots are listed only once at the table. It is noteworthy that the application of the mentioned changes, besides the high diversity of the letters of the Islamic alphabet in different positions of the word, despite the agent movement<sup>5</sup> and the existence of their general similarity, has caused a great variety of shapes in the letters of the inscription.

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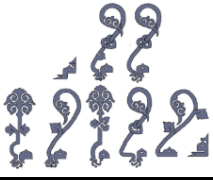




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**Table 1.** Representation of «stretched letters» and «exaggerated letters» and single knots created in the Grivar inscription of the Davazdah Imam Mausoleum. Source: Authors.

No	General classification of letters in terms of elongation	Letters	Non-final/Attached	Final/Attached	Exaggeration of elongation and degree of change
1	"Stretched letters" are letters that are naturally drawn to the top of the baseline.	الف			Low
		ل			Low
		ط ظ		-	Medium
		ی			Medium
2	"Exaggerated letters" are letters that are not naturally drawn above the baseline, but here are exaggerated.	ر			High
		و			High
		ح		-	High
		م			High
		ن			High
		ی			High

In addition, some letters can be seen that have had the least exaggeration and change of form in the inscription. These letters, which actually include the rest of the letters, are: «ف», «ق», «ه», «ع», «د», «س», «ش», «ت», «ب», «ث», «ص» and «ض», all of which, unlike the previous letters, do not inherently have a vertical stretch and have not been exaggerated in the design of this inscription. These letters, which are called «non-stretched letters», are displayed in [Table 2](#).



**Table 2.** Non-stretched letters in the inscription of Davazdah Imam Mausoleum. Source: Authors.

No.	Letter	Non-final/Attached	Final/Attached	Exaggeration of elongation and deformation
1	ف ق		-	Low
2	ه			
3	ع			
4	د			
5	س ش		-	
6	ت ب ث			
7	ص ض			

The question that is raised here is what was the criterion for choosing some letters under the title of «exaggerated letters» to create stretching. Are these letters chosen randomly, and if the answer is negative, did the designer choose the letters based on the position of the letters in the composition or randomly to apply this elongation? While giving a negative answer to this question, it can be said that by reflecting on the shape of the letters, it becomes clear that the condition for applying these exaggerated changes was to have at least one of these features: 1. The dissimilarity of letters and the possibility of distinguishing them from each other. For example, the dent of the letters «ب», «ت» and «ث» look very similar to the letters «الف» and «ل» when stretched vertically. The letters «س» and «ش» (which appear only at the beginning of the words in these verses) also interfere visually with «الف» and «ل» if the dents are stretched. Also, the letters «ص» and «ض» (because of the lack of dots in all the letters) have an inseparable resemblance to the letters «ظ» and «ط». As can be seen in **Table 1**, the letters «ن» and «ی», which have obtained permission to exaggerate, are not stretched at the beginning or in the middle of the letters so as not to interfere visually with the letters «ل». 2. Having at least one free component towards the top, front or bottom at the beginning or end of the letter. Another reason for choosing letters is their initial form. The letters are stretched that the presence of this condition creates the ability to apply stretching in them, unlike the Mahajer<sup>6</sup> letters such as «ه» and the letters «ف» and «ق», which do not have free forms at the beginning and have a closed space (stretching in the dent at the end of them also makes them look like «الف»). On the other hand, «ی», «و», «ن», «م», «ر» and «ح» are letters that are left at the end upwards or even downwards. It should be noted that despite having a free component at the end, the letters «ع» and «غ» cannot be connected to a vertical stretch because the ends of these letters are not facing up or even

forward and down (about the prohibition of stretching these two letters, in the knots section will be explained further).

### Pseudo-Scripts

In the art of the Islamic period, there was a type of decorative writing that did not have a writing function. They are letters that are not part of the writing, but because of familiarity with the abstract pattern of the Islamic alphabet, they are part of the inscription and are considered in the group of graphic writings or pictographs (Farid, 2021, p. 84). Many factors contribute to balancing an effect, such as distance, position, size, proportion, etc. (Ocvirk, & Burncayton, 2011, p. 315). Pseudo-scripts are also added to fill the empty spaces under the letters, in order to maintain rhythm and balance in the composition. These forms and the peak of their use happened shortly after the Mongol attack (Farid, 2021, p. 86). At first glance, they do not appear as parts separate from the letters, and without mastering the text of the inscription, it is not possible to understand their existence. As can be seen in Figure 5, the pseudo-scripts in the present inscription include the letters «الف» and «لا» and the decorations added to them are like other letters. It should be noted that, in order to avoid chaos, completely similar pseudo-scripts in the inscription are not given in the figure.



**Figure 5.** Right: types of pseudo-writings used in the inscription of the Davazdah Imam Mausoleum. Left: The combination of the word «يشفع عنده» in the inscription and the display of three pseudo-writings used at the top of it. Source: Authors.





Now a question arises that considering the inseparable similarity of pseudo-scripts and written forms in general, is it not possible to create a similar form structure for the inscription without exaggerating the letters and only with the help of pseudo-scripts and «stretched letters»? In response, it can be said that the preference of the designer was on the elongation of the letters themselves, because the pseudo-scripts include only about ten percent of the vertical elongation of this inscription. Although it is possible to fill the empty spaces by maintaining more readability and without exaggerating the letters, nothing can be as helpful as the letters themselves in order to instill the superior concepts hidden in the divine verses. Therefore, the application of exaggerated stretching in the letters is practical in order to create more capacity in earthly forms to accept more heavenly concepts.

### Geometric knots, frames, and rules

One of the important parts and turning points of the inscription of the Davazdah Imam Mausoleum is its geometric knots. These intertwined knots, which can be seen in various forms abundantly in the current inscription, can be divided into two general categories: 1. The knots in the middle part of the inscription (which are closely related to the vertical stretching of the letters). 2. The knots at the bottom of the inscription. However, behind this apparent complexity of knots, plans and ideas are hidden, which will be analyzed in the following section.

**1. Knots in the middle part of the inscription:** In the middle part of the inscription, a wide variety of knots can be seen. In fact, a knot is created in the middle of all the vertical stretches of the inscription (both in letters and pseudo-scripts). The number of stretches and as a result the total number of knots in the middle part of the inscription reaches 122, of which 106 knots belong to letters and 16 knots belong to pseudo-scripts. The aforementioned knots are created in three general ways: 1. Creating a single knot by twisting the vertical part of a single letter around its axis. These letters, which are 74 knots and include all «stretched letters» and «exaggerated letters» (+ pseudo-scripts), can be seen in **Table 1**. 2. Compound knots created by twisting the stretch of two adjacent letters. These knots, the letter الف is common to all of them, can be seen 43 times in the entire inscription, 41 times from twisting «الف» with the letter «ل» or vice versa and 2 times as an exception from twisting «الف» with «ك» and «و» has been created. The reason for this exception was to create a visual balance and maintain unity in the distance between the knots (See **Table 3**). In order to avoid chaos, the identical knots of two letters «الف» and «ل» are given only once at the table.

**Table 3.** Representation of inscription letters in the creation of compound double knots. Source: Authors.

No.	Constituent letters in the order of presence in the word	Knots created by combining two letters
1	«ل», «الف»	
2	«الف», «ل»	
3	«ك», «الف»	
4	«و», «الف»	

As mentioned in the previous section, the letters «ع» and «غ» are among the letters that do not have the condition of stretching upwards. This prohibition of changing some letters and the legality of the designer is if it is up to where the letter «الف» left it in contact with «غ» and created a knot with the letter «و» that comes after it and the rules of elongation of the previous section include it. This knot is the only such exception among all the knots of the inscription (See **Figure 6, right**). Another feature of these knots is that they have the same thickness as the text because of the length of the letters and their transformation into geometric motifs. These intertwined knots are placed in two general groups to draw angle, which has created visual order and rhythm in the inscription. This means that some follow the same rule in drawing, i.e. approximately 90 and 45 degrees, and some have a freer form.

The second type is less in the whole inscription and limited to heart-like knots. These two types of knots can be seen next to each other in **Figure 6, left**.



**Figure 6.** Right: Creating the knot «الف» with «و» and preventing it from mixing with «غ» in the word «الطاغوت». Left: Drawing extension of letters and attached knots in free angle and approximate angles of 45 or 90 degrees. Source: Authors.

3. Creating knots from twisting three adjacent letters: **Table 4** shows these knots, which reach a total of 5 knots, separately. The three-letter compound knots that are formed when three «stretched letters» are placed next to each other in a word are all related to placing the letters «الف» and «ل» next to each other. Only once, as an exception, the letter «ط» appears next to the two letters «الف» and «ل», which is the beginning of the word «الطاغوت» and these three have created a knot together (See **Table 4**).

**Table 4.** Compound triple knots created from «three stretched letters» adjacency. Source: Authors.

No.	Constituent Letters	Nodes created from the adjacency of three letters
1	«الف», «ل», «الف»	
2	«الف», «ل», «ل»	
3	«الف», «ل», «ط»	

The analysis of the knots in the middle part of the inscription shows the existence of defined rules in their design, which can be summarized as follows:

1. Naturally, only in «stretched letters» and «exaggerated letters» (See **Table 1**), the creation of knots can be seen, and none of the «non-stretched letters» (See **Table 2**) take part in creating knots.
2. If at least two «stretched letters» are adjacent, they must form a compound knot. The reason for the letters «الف» followed by «ل» in the formation of single and compound knots

is the frequency of these two letters in the Quranic text of the inscription. These two letters are also placed next to each other more than any other two letters and create knots.

3. Letters must be next to be merged. Except for the two letters «الف» and «و» in the word «بالمطافوت», the letter «الف» and «غ» did not form a knot due to not meeting the necessary conditions of «غ» in order to stretch vertically, and with the letter «و» after which is placed.

Also, nowhere in the inscription, the letters of two adjacent words have not created knots, in the sense that all double or triple knots belong to the letters of a single word, not adjacent letters in two separate words.

4. «Exaggerated letters» do not take part in the formation of compound double and triple knots. In other words, these letters have created only single knots in the entire inscription, and this was another rule defined in the inscription's design. It seems that the reason for this is the many changes in the form that «exaggerated letters» have seen, and perhaps avoiding their complexity and ambiguity more than before was the reason for this hindrance by the designer.

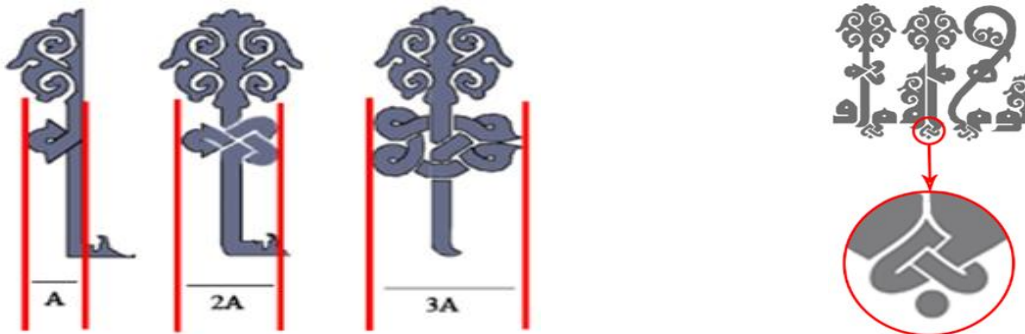
5. The order and priority of repetition of single and compound knots in the middle part of the inscription is not subject to any special rule, but the appearance of knots at regular relative intervals is one of the emphatic principles in its design. Based on this principle, the emergence of knots during the inscription has been realized based on one of these conditions: 1. «Stretched letters» have appeared as a single item that must necessarily form a single knot. 2. Two or three «stretched letters» appear side by side in one word, so they must form a compound knot. 3. The need for vertical stretching and, as a result, the knot, to maintain regular distances and visual unity between the stretches, where «exaggerated letters» appear in the stretched state along with the knot. In other cases, the designer uses these letters in short and without knots. In other words, the «exaggerated letters» were not drawn in the inscription when the density of the inscription prevented allocating enough space for them, so they were drawn short and without knots. 4. If there were no «stretched letters» or «exaggerated letters» with the mentioned conditions to maintain regular intervals in certain positions of the inscription, the pseudo-scripts appear with a single or compound knot according to the position. Although the use of pseudo-scripts is only 16 out of 122 stretches, but based on what was said, pseudo- scripts and «exaggerated letters» are responsible for maintaining the proportions between elongations in the middle and along the inscription. **Table 5** shows the state of knot acceptance in stretched, exaggerated, and non-stretched letters separately.

**Table 5.** Knot acceptance status in «stretched letters», «exaggerated letters» and «non-stretched letters». Source: Authors.

NO.	Letter shapes	Single Knot	Compound Double Knot	Compound Triple Knot
1	Stretched Letters	Yes	Yes	Yes
2	Exaggerated Letters	Yes	No	No
3	Non-Stretched Letters	Yes	No	No

6. Besides the previous case, the intelligent use of different compound and single knots by the designer has helped to maintain the proportions between them to where two knots can have different visual weight despite maintaining the same thickness of the script in the drawing. It means that they occupy more or less space compared to each other and visually look lighter or heavier. **Figure 7, Right** on the right shows the different knots created in the

letter «الف». Naturally, the smaller knot has been used in dense situations in order to prevent overcrowding.



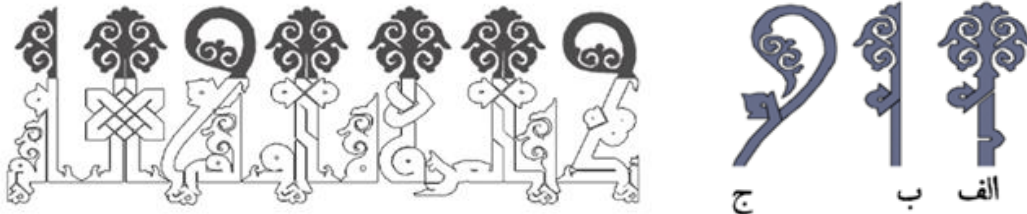
**Figure 7.** Right: Different size and thus in three different knots created in the letter «الف». Left: Showing the small identical knots in the middle of the letters and the place where they connect to each other under the line of the word «نوم له ما...». Source: Authors.

**2. Knots in the lower part of the inscription:** These small knots, which have a noticeable difference in size and thickness of the drawing script with the knots in the middle part, are all the same size and heart-shaped, at the bottom of the letters and tangent to the baseline (See Figure 7, left). These knots in the same row, which are among the few elements under the baseline, create a gentle rhythm and movement in this section and are connected to the letters in two ways. They are either in the middle of a letter or at the junction of two letters. The repetition distance of these knots is based on keeping the distance proportional to the previous and next knot and avoiding the accumulation of visual decorations, not just repetition in all letters and connections. It should be noted that the letters at the junction with the baseline must have the necessary width to create a knot, so a letter like «الف» has not been decorated with the mentioned knot due to not meeting the necessary conditions. The last point is that with a little reflection, the designer was forced to place these decorative knots under the baseline. Because placing only the end part of some letters under this line is limited (such as the end of the letter «غ»), it has caused a visual imbalance, and as a result, the lower part of the inscription is inelegant. Therefore, besides creating proper density in the lower part, the mentioned knots have created a suitable visual connection between this part and the upper part of the inscription.

### Plant Motifs

The components of the inscription in the lower and middle parts have similar components. However, this similarity reaches its maximum in the plant part above the letters. The upper part, or the «plant system», which has 122 vertical stretches, includes three main motifs that are repeated throughout the inscription (See Figure 8). The dominant motif, i.e. «الف» motif, reaches 81 numbers in the entire inscription. Motif «ب» is half of the same as the previous one, which is repeated about 14 times. The main reason for using the second motif was the lack of sufficient space because of the density of motifs. This motif cannot be seen at first glance due to its great similarity to the previous one. «ج» pattern, which looks different from the previous ones, has 27 pieces, a design similar to the head and neck of a swan from the

side view. This character, which is based on the previous half-motif and on a longer base, has reached a twisted form, and is placed at the top of all «stretched» and «exaggerated» letters, except for «الف», «و» and «ل». Therefore, apart from matching the form with letters and alternating repetition to maintain the balance of positive and negative space, there has been no standard for drawing it.



**Figure 8.** Showing the components of the inscription in the plant system. Source: Authors.

### **Conclusion**

By reflecting and focusing on the components of the Grivar inscription in Davazdah Imam Mausoleum of Yazd, each person will notice the elegance and precision hidden in its design. Using several lines has created a noticeable order in the inscription. According to the conditions, the letters have knots in the middle part, which are governed by special rules. These knots are intertwined like heavenly ivy, as if an unearthly artist carved them. By classifying the inscription letters in three different parts, the designer has issued the permission to apply vertical stretching in some and prohibited some from applying stretching. When the necessary conditions for stretching the letters are not fulfilled, the pseudo-scripts are used to create a visual balance on their labels, and this coherent whole is placed in such a relationship and proportion that the positive and negative spaces between the letters are evenly distributed throughout the inscription. These positive and negative spaces do not have the same shapes, but they are the same in terms of weight, and if a knot is moved or letters are closer or further apart, they cause irreparable damage. The stretching of the letters directs the gaze upwards and influences the unity and central focus of the tip of the dome. The same height of the rising stretches has helped convey the concept of balance, rhythm, unity, and vertical movement, and it also creates a horizontal movement around the perimeter axis of the dome. The similarity in the upper plant system, the middle geometric system, and the lower writing system of the inscription has caused the unity of the components along the octagon, and the contrast between the flat and round shapes has made the inscription even more beautiful. In the end, it can be said that the additional complex decorations, including geometric and plant knots, the application of exaggerated vertical stretching which has caused a change in the basic form of some letters, the drawing of letters at the same height, the drawing of various forms of one letter along the length of the inscription, removing the horizontal stretching of letters and the space between words, the similarity of the form of some different letters and not using dots are the factors that cause illegibility in the current inscription. This distancing from legibility is to instill concepts beyond the literal meaning and to achieve proportion and beauty in such a way that the letters (while maintaining legibility despite looking illegible) contain the highest heavenly concepts that the pen alone cannot express. However, the application of these formal changes does not only mean losing the order and rules of the script, but the designer has established certain principles and policies under the changes, to where preserving the

independent identity of the types of letters has been one of the main design criteria. The innovation and creativity that exists in the Grivar inscription of the Davazdah Imam Mausoleum can be a useful model in the present era. Again, using the rules applied in the design of this inscription, which seems to have been designed for all generations, and defining new functions for it can help to preserve and revive such works that reflect Iranian Islamic culture and identity.

## Acknowledgments

Undoubtedly, photographing historical inscriptions in the Grivar of a dome and re-creating it correctly, despite its length and many damages, will not be possible without the help of skilled and patient experts in this field. The authors of this article consider it necessary to express their gratitude for the efforts of Mr. Ehsan Rad, who sincerely helped us.

## Appendix

1. In order to get more information about the history of calligraphy after Islam in Iran, referring to sources such as «The Origin and Early Development of Floriated Kufic» translated by Mahnaz Shayesteh Far and «Coexistence of Image and Writing in Iranian Art» by Amir Farid, are suggested.
2. The most important feature of this building is its cornering, which is of the Tormbe Patkaneh type and the oldest existing example of this type, and it is considered an example for the later cornerings in the Razi style architecture (Hillenbrand, 2006, p. 291).
3. The different forms of letters have been divided by Islamic treatise writers into several categories, which include Etnab (alefat), Ahdab (falls), Navajez or Ezras (dents), Mahajer or Oyun (eyes) (Gacek, 2009, p. 43).
4. According to Ibn Moqleh, «good formation» is a rule in calligraphy about the principles and elements of writing letters and their connections in words, and includes straightness (Sath), roundness (Dowr), strength (Qovvat), slimness (Za'f), unreal lowering (Nozoul), unreal heightening (So'oud), real lowering, real heightening, release" (ersāl), blackness" and "whiteness" (sawād o bayāz) (Fazaeli, 1981, p. 77).
5. Sometimes there are similarities between parts of different letters, in the sense that a part of one letter is used in another letter and causes two or more letters to resemble each other. These common parts are called «agent movement» (Afshar Mohajer, Salehi, & Farid, 2016, p. 46).
6. Oyun (eyes) letters that have an eye-like cavity.

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