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Semantic and Syntactic Dimensional Analysis of Rural Wooden Mosque Architecture in Borçka

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Abstract: Religion is one of the most important factors in architectural shaping. The concepts or sub-concepts that make up religion have a different language that each designer wants to explain. This language is presented semantically and syntactically through the architect and the user interprets this fiction mostly with its syntactic dimension. The findings of this study provide valuable insights into modern mosque design by establishing a connection between belief systems and architectural expressions. Moreover, the study contributes to heritage preservation efforts by proposing a framework that links historical values to contemporary practices. In this study, it is aimed to analyze the effects of the belief concepts in the Islamic religion by analyzing the semantic and syntactic dimensions in rural wooden mosque architecture. Starting from the assumption that abstract values have a language in shaping, the principle of semiotics was utilized to reach concrete results. How the concepts and principles are determined in the semantic and syntactic dimensions of semiotics are explained. In the examination of the semantic dimension, 5 concepts from the concepts of belief in the Islamic religion, namely wahdaniyet, survival, knowledge, power and hereafter, were discussed. The syntactic dimension was analyzed under basic design principles. The semantic and syntactic dimensions of the sample wooden mosques were analyzed, interpreted and analyzed through architectural drawings, interior and exterior visuals. These analyses provide practical strategies for translating abstract religious principles into tangible design elements, enhancing their applicability in both educational and professional contexts. As a result, the concepts that emerged in the analyzed examples and the indicators of the sub-concepts belonging to these concepts were presented. It is suggested that the determined analysis model can contribute to design education in design departments and provide convenience to designers and researchers. The model also serves as a tool for creating mosque designs that respect cultural identity while addressing contemporary needs. This research is important in terms of being a reference for the concrete expression of the concepts that we cannot see in architectural formations but we can feel that they exist.

Keywords: semiotics; semantic dimension; syntactic dimension; basic design principles; rural mosque; religion; architecture of religion



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1. Introduction

There are some factors that we cannot define, see or feel but we guess that they exist. The main purpose of this study is to reveal and interpret these factors through

a mosque, one of the religious architectural building types. The factors of architectural space that can generally be seen, heard, perceived, measured and felt have been studied. The problem of the study is that the formal and chronological development and changes of beliefs, architectures formed by beliefs, the thought in their creation, the effect on space, construction, decoration and structure have not been studied systematically and scientifically enough. The findings of this study provide actionable insights for architects, educators and preservationists. By bridging the gap between theoretical concepts and practical implementation, the study supports the design of mosques that not only adhere to cultural values but also address modern functional requirements.

The study is based on the assumption that religious concepts affect architecture and that religious concepts have a language. Based on the verses in the Qur'an, it is aimed to determine the reflections of the basic concepts in the Islamic religion on religious architecture or in other words, its effect on shaping. For this purpose, the semantic and syntactic analysis of religious concepts on rural wooden mosques, which are becoming fewer and fewer in number today. This framework facilitates the integration of traditional values with modern architectural needs, ensuring the sustainability of religious heritage sites. Addressing the values in the formation of rural mosques, reviewing the components of their creation and clarifying their settings facilitates a clear path to a sustainable mosque design for the future. Religion has been an important part of the human condition for 5000 years. All spiritual beliefs have aimed to shape the human spirit and leave a lasting mark on people [1]. The Concise Oxford Dictionary defines religion as belief in a superhuman controlling power, especially a personal God or gods who demands obedience and worship [2]. Religion combines a system of representations (beliefs, myths, dogmas, etc.), an organisation (churches, sects, denominations, etc.) and rituals. It is defined as an organisation that incorporates beliefs, rules of life and forms of worship belonging to a transcendent or cosmic order. Religion, in terms of the history of religions, is a set of moral rules that a community has, a holy book, a prophet or a founder, a belief system that usually includes the concept of God and a set of moral rules that it tries to fulfil with its worship in accordance with this system. Religious culture is characterised by symbolic elements which are common features of cultures [3,4]. In this respect, expressions such as Egyptian, Greek, Hindu, Buddhist, Christian and Islamic architectures mean that the structures in that culture were formed by being influenced by the symbols specific to those religions. Architectural forms are of symbolic origin and are generally common in cultures characterised by the title of religion [5–8].

Religion is one of the most important factors shaping architecture. Each religion has its own religious places [9]. The massiveness of the pyramids, the symbol of eternity, reflects the Egyptian view of an unchanging universe, the ideal of bringing people closer to heaven by making temples rising to the sky in steps in ziggurats and Mayan temples, the balance seen in Greek temples built for God reflects the ideal of balance in Greek philosophy and the upward rise of gothic cathedrals, which are seen under a miraculous effect with their thin, elegant structure, is an expression of an orientation towards God [10]. Religion has produced complex philosophies, a vast and impressive literature and awe-inspiring and dazzling works of art [2,11].

Religions are classified in various ways. Joachim Wach divides religions into founder religions, traditional religions, Gustave Mensching divides them into national religions and universal religions. Annemarie Schimmel also divides religions into three as primitive tribal religions, national religions and universal religions. Another classification of religions is as follows: Religion based on religious rites and ceremonies, religion based on prophets, mystical religion. Islamic scholars divide religions into true religions, false religions or divine religions based on revelation and natural religions not based on revelation [12].

Attempts have also been made to categorise religions into groups according to the distribution of their adherents on earth, their concept of god, their founders, etc. Some of these are as follows:

A.

1. Tribal religions: (Religions of primitives)
2. Religions of peoples or nations: (Ancient Egyptian, Greek, Roman, Germanic religions; Judaism, Shintoism, etc.)
3. World religions: (Islam, Christianity, Buddhism, Chinese religions, etc.)

B.

1. Polytheistic religions: (mostly religions of antiquity)
2. Monotheistic religions: (Islam, Christianity, Judaism)

C.

1. Nature religions: (Religions of primitives)
2. Ritual-theoretical religions: (Ancient Indian and Ancient American religions)
3. Religions of the law: (Judaism)
4. Revelation religions (Islam, Christianity)

D.

1. Moral religions: (Confucianism, Taoism)
2. Religions with prophets: (Buddhism, Islam, Christianity, Judaism)
3. Mythic religions: (Primitive religions)

E.

1. Religions with a book: (Most religions other than primitive religions)
2. Religions without a book: (Primitive religions) [13].

Today there are five major religious traditions: Judaism, Christianity, Islam, Buddhism and Hinduism. There are also numerous smaller groups of religious traditions, some of which are subdivisions of these five traditions and some of which are completely unrelated to them [2,5,14].

With the hypothesis that beliefs, which are an important factor in architectural shaping and the concepts belonging to them can be read on the buildings; Islamic religion and mosque, one of the types of religious architectural structures, were discussed in this study.

2. Islam Religion

To emphasize the impact of religious categories on architectural symbolism and design, the discussion of religious classifications has been streamlined. The focus is placed solely on categories relevant to mosque architecture. Joachim Wach classifies religions as founder religions and traditional religions, while Gustave Mensching divides them into national and universal religions. Annemarie Schimmel categorizes religions into three groups: primitive tribal religions, national religions and universal religions. These classifications provide a critical foundation for understanding the reflections of religious beliefs in architecture. Islam, as a revelation-based religion, falls into the monotheistic category. This highlights that Islamic architectural symbols are deeply rooted in the concepts of unity and tawhid.

Religions have influenced the formation of architecture both directly and indirectly. For instance, monotheistic religions tend to produce simple and orderly structures, whereas polytheistic religions often lead to more complex and richly symbolic designs. Like other monotheistic faiths, Islam has shaped its ritual spaces and aesthetic elements under the guidance of divine revelation. The use of ornamentation, spatial organization and light in mosque architecture exemplifies this influence. This study explores the impact of Islam

on architectural forms, particularly through a semantic and syntactic analysis of rural wooden mosques.

3. Islamic Philosophy

Islam means complete submission to Allah Almighty and submission to His will. Therefore, the architect should express the same submission that can be achieved through ‘scientific tevhid’ and ‘practical tevhid’ in his design decisions regarding Islamic buildings [15–17].

The origin of Islamic art is based on its association with the worldview of Islam [18].

Çam (2019) [19] identified factors affecting the development of Islamic art as:

Factors arising from the structure of the Islamic religion itself (theology, jurisprudence, mysticism),

Contact with neighboring and ancient cultures,

Climate and material conditions,

Experience and technological development,

National, local and personal aesthetics.

Çam (2019) [19] analyzed the character and content of Islamic art as:

The escape from realism,

Contemplation and geometry,

Balance between nature and the supernatural,

Belief in a transcendent God and transcendent art,

The mortality and dreaminess of worldly life,

Sufism,

The inevitable beauty of death.

He analyzed these elements under the heading of realism in architecture.

Spatial arts in Islamic culture are based on the main characteristics related to Islamic arts [20,21]. These basic features are listed below:

Abstraction: The modification of nature, as exemplified in the arts of space, is divided into at least five major categories.

Coating

Change of Materials

Changes in Structures

Changes in the Content

Variation of the Uncertainty of the Function

Unity/Modules

Consecutive combinations

Repeat

Dynamism

Complexity [22].

For Muslims, the purpose of art is to lead us to think and remember Allah [23]. There are ‘Islamic symbols’ that represent many meanings that are grasped and understood by the viewer. These symbols overlap with the traditions of other fine arts in terms of aesthetics and meaning, as well as Islamic cultural considerations [22,24,25]. In Islamic architecture and the Islamic city, many opinions point to the existence of certain common principles [26]. These principles include the principle of ‘vahdet’ and an order determined by ‘şeria’, the inward-looking, central spatial schemes and the measured and respectful texture of the house series determined by neighbor law, the transience of the worldly and the reflection of humility before God on the use of materials and scale [27]. However, there are similar relationships as well as differences in Islamic architecture [28,29]. Most scholars

try to attribute the principles of Islamic art to the temporary nature of all occurrences in the world [24,27,29–35]. Islamic architecture is generally designed to remove the barriers between nature and the sacred, enabling religious life and sociality [30,34,36–41]. Islam is based on three sources: the Kur'an, the sunnah of the Prophet and the written and oral teachings of Islamic jurists [42]. There are some concepts that unite religions, which are defined as celestial religions based on the revelation sent by God. These concepts include the concept of God, the concept of the prophet as God's messenger, the concept of the book as God's commandment and the concept of the ahiret [43]. In Islam, worship consists of actions performed in order to fulfill one's obligations to God and to thank Him for His blessings. Worship means submission, obedience, i.e. 'surrendering one's mind and heart'. The other side is the fulfillment of human rights and obedience to God's commands, which is called virtue or in the narrower sense, 'deeds and morals' [44,45].

In this study, the concepts of vahdaniyet, beka, ilim, kudret and ahiret, which are concepts related to faith, are analyzed. These concepts were formed by using the verses in the Kur'an, literature review, expert opinions and dictionaries. Mosques are one of the architectural structures in which worships are performed and experienced, which contain these religious concepts in the semantic dimension.

4. Mosque

The mosque is at the heart of Islamic life, with its interior space, defined by walls, porticoes and arches, being the most crucial element in Islamic architecture. Since the 7th century, Islamic architecture has developed across diverse regions, including the Middle East, Anatolia (Seljuk, Ottoman), North Africa (Tunisia, Algeria, Morocco), Spain and many parts of Asia [9,11,46,47]. In Islamic societies, one of the most important duties of rulers was the construction of large mosques and complexes, which were not only religious centers but also symbols of sovereignty [31,39,48]. The mosque, shaped by religious requirements, is seen as a reflection of Islamic values and expressions [18,30].

The Qur'an introduces a decisive rule in the formation of the mosque: the obligation to pray. Prayer, while private in nature is also a collective act, bringing the congregation together in unity [49,50]. The preferred practice of congregational prayer emphasizes social integration and religious solidarity. When people pray together, it becomes not only a physical act but a symbol of social unity and collective humility [31]. Beyond its role as a place of worship, the mosque also serves as a meeting space where current events are discussed and decisions are made [42,49]. Additionally, it functions as a center for religious education and provides shelter for the homeless, offering zakah and food distribution to the community [42]. The mosque fosters humility, order and obedience, teaching its community to move away from pride [44]. It is also a place for spiritual rest, where individuals can find peace and solace [18].

Key architectural features of the mosque include the mihrab (the niche indicating the direction of Mecca), the minber (the pulpit for the Friday sermon) and the minaret (used for the call to prayer) [49,51–53]. In larger mosques, elements such as the muezzin mahfili (a section for the muezzins) are also present [44,54–56]. In Ottoman mosques, additional elements include the outer courtyard (harim), the inner courtyard (harem), prayer sections (sahın), the last congregation area, fountains, muvakkithane (timekeeping rooms), imam and muezzin rooms, musalla stones and wc facilities [47].

The mosque's architecture also symbolizes the relationship between the worshiper and the Divine. In the act of prayer, a person submits to Allah, touching their forehead to the ground, symbolizing humility and servitude. This interaction with the space conveys the sacred presence of the Divine, as the minimalist interior fosters a sense of spiritual focus [14]. The empty space, with its simple yet profound design, evokes a sense of

holiness that contrasts with the often chaotic world outside [57]. This emptiness also directs attention to the unseen, as entering the mosque requires the symbolic act of removing shoes, reinforcing the sacred nature of the space [18].

When analyzing mosque architecture, the transverse development of the mosque plan is evident. This is a functional design choice to effectively arrange the prayer rows [31,58]. The layout encourages long ranks of worshippers, ensuring unity in collective worship. The Ottomans expanded upon this by incorporating a central dome, which became a significant feature of mosque design, symbolizing the unity of the faithful under the divine presence [59]. The central dome, while unifying the worship space, also serves to elevate the spiritual experience by guiding the worshiper's attention to the cosmic realm.

In Ottoman architecture, key architectural elements such as the dome, vaults, arches and columns are fundamental in defining the spatial organization of mosques. The dome symbolizes the firmament, with its octagonal base representing the Throne and the angelic realm, while the square or rectangular base reflects the earthly world [60]. The minaret and dome are symbolic elements of the mosque, representing divine beauty (*jadal*) and divine majesty (*jalal*), respectively [61]. These architectural forms serve as manifestations of Tawheed, the oneness of God, penetrating the physical world through the symbolic use of space [18].

The mosque is fundamentally a gathering space under a dome or open sky, designed for communal prayer. Its design, free of altars, icons, or images, emphasizes the transcendence of God beyond human imagination [51,62]. In rural mosque architecture, region-specific materials, techniques and design features reflect the local social, economic and cultural contexts [63,64]. The choice of materials, the layout and ornamentation programs reveal insights into the regional identity, helping interpret the local physical and cultural characteristics [40].

This study seeks to explore the semantic dimension of religious concepts in rural mosque architecture by analyzing the basic design principles in the syntactic dimension. The relationship between functional design, symbolism and regional context is critical for understanding the full significance of these architectural forms.

5. Material and Method

5.1. Study Area

Artvin province, located in the Eastern Black Sea region of Turkey, was selected as the study area. The Eastern Black Sea region has always been a center of attraction for various ethnic groups throughout history as a center of attraction due to its climate and fertile soils, as well as being a hard-to-reach and protected region due to the Black Sea mountain range forming a natural border geographically. With the formation of the Muslim population during the Ottoman period, mosque architecture also emerged in the Eastern Black Sea region. Rural mosques, which resemble traditional Eastern Black Sea houses in terms of material, size, proportion and façade, exhibit a unique character outside the centralized practices of the Ottoman period. Artvin is surrounded by Ardahan from the northeast, Erzurum from the southeast and south, Rize from the west, the Black Sea from the northwest and Georgia from the north. Borçka district, where the mosques examined are located, is a district on the east of the Black Sea region, on the Artvin-Hopa Road, on the banks of the Çoruh River. It borders Hopa to the west, Artvin and Murgul to the south, Şavşat to the east and the Republic of Georgia to the north (Figure 1).

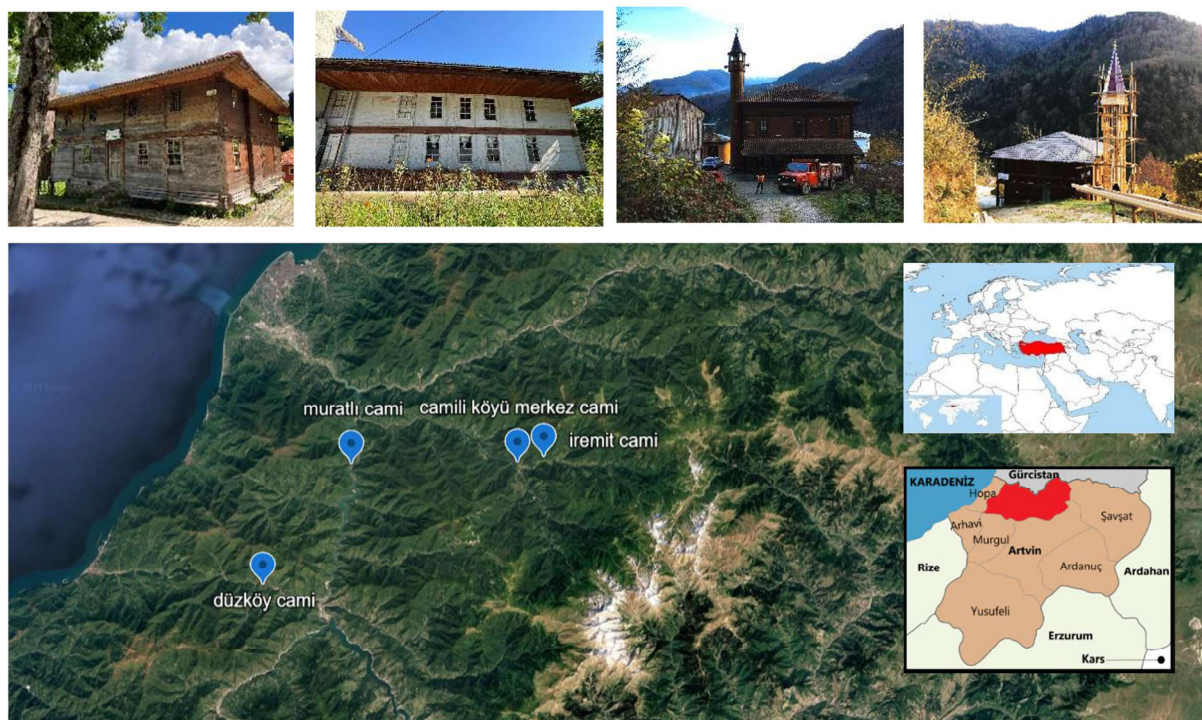


Figure 1. Locations of the mosques in the study area (Google earth), images of the mosques examined [65–67].

Artvin province is one of the rural settlements where the wooden building tradition is intensely seen. Thanks to its dense forest areas from the past to the present, it has gained a unique identity with its architecture created using wooden materials. The historical mosques built by the residents of the villages reflect the characteristics of the civil architecture of the region with their rectangular plan, hipped roofs and wide eaves. The abundance of forest areas due to climatic characteristics is one of the reasons for the widespread use of wooden materials in architecture. However, due to the rainy and humid climate, wood and stone were generally used together.

5.2. Selection of Samples

The identification study was conducted using external observation, interview techniques, field studies and literature review. Four mosques, which reflect the architectural characteristics of the period in which they were built, were selected for examination. These mosques contain a variety of architectural details, have survived to the present day and have maintained their original features. They are dated to the 19th century and were constructed using the masonry-wooden system in Borçka District, Artvin Province. The mosques examined include İremit Mosque, Central Mosque, Muratlı Mosque and Düzköy Mosque.

5.3. History

It is known that the Hurrians established a state in a large region starting from 2000 BC. Later, the region was controlled by the Urartians, Cimmerians (720–714 BC), Sakas (655 BC) and later the Arsacids, according to various sources. The Byzantines dominated the region from 576 AD, the Islamic Army arrived in 645 during the reign of Caliph Osman and the Umayyads, Khazar Turks and Bagratids followed. After the establishment of the Great Seljuk State, Artvin, Borçka, Şavşat, Yusufeli and Ardanuç joined the Seljuk lands in 1063. Later, the region came under the control of the Mongols and the Ottomans during Yavuz Sultan Selim's governorship of Trabzon. Following the Ottoman-Russian War of 1877–1878, Borçka, along with Kars, Ardahan, Artvin and Batum, was separated from Anatolia and

placed under Russian control. After this date, Borçka and its surroundings experienced frequent wars. After the Treaty of Mondros, Batum, Artvin, Borçka and the surrounding areas were occupied by the British and following their departure, Georgians entered the region. The Georgian rule lasted until 9 February 1921. In 1921, Borçka, Aravindan its surroundings were definitively reunited with Turkey.

5.4. Method

This study is based on the assumption that religious concepts influence architecture, implying that these concepts have a language. The study aims to determine how basic Islamic religious concepts are reflected in religious architecture and their effect on spatial formation. The principle of semiotics was used to identify the reflection of religious concepts on religious architecture.

5.5. Semiotics

Berger interprets semiotics as the science of signs, what they are and how they function and primarily how meaning is organized [68,69] emphasizes that the communication between the architect and the building is actually a communication between the architect and the user through the building. He states that the architect often abstracts signs from their meanings and utility qualities when making stylistic decisions during the design process and primarily engages with their syntactic functions. Aksoy [69] illustrates the architectural communication process as a relationship between the vertices of a triangle and highlights the existence of a sequential relationship between the architect and the building, alongside the design and realization activity and the perception and utility relationship between the building and the user (Figure 2). When the environment is viewed as a source of information, the structures or the totality of structures created by the architect can be interpreted as signs transmitting information.

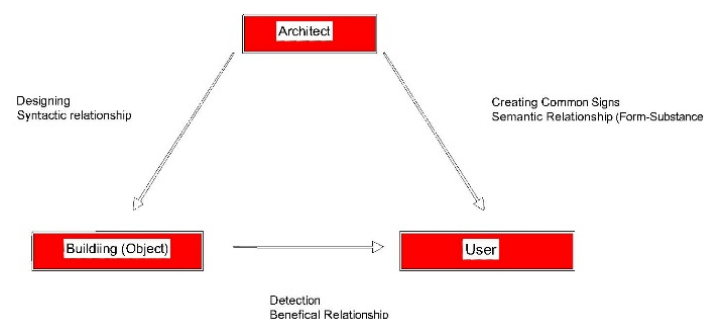


Figure 2. Architectural communication process [69].

In terms of the theory of signs, a sign is divided into three components: Syntactic, Semantic and Pragmatic. Syntax refers to the structural/logical organization of the sign and serves as the core element. Meaning encompasses syntax and examines the relationship between the sign and reality. Utility incorporates both meaning and syntax, analyzing the effects of the sign on the users of the symbol systems it conveys [69–76]. Charles Sanders Peirce’s three-element, transphysical theory sees the sign as an element of relation and divides this relation into three classes:

1. The single-element relationship of the signifier—the relationship between itself, its formal structure and the environment in which it is realized: Syntactic Level or Syntactic Dimension.
2. The two-element relationship of the signifier—the relationship between itself and the object it represents or replaces: Semantic Level or Semantic Dimension.

3. Three-element relationship of the sign; the relationship between itself, the object it represents or replaces and the user/interpretation: Useful Level or Useful Dimension [77].

As an environmental signifier, an architectural work has the function of both being a unique signifier and of communicating. The distinctive sign of a building:

1. The material/existing properties of the symbol with emotional activity,
2. The meaning that takes root in the social consciousness and creates an image,
3. It includes information about the origin of what is shown (ilim, philosophy, religion, politics) [78]. A building built in a historical period shows all the ways of thinking, hearing, feeling and living of that period (Figure 3), [79].

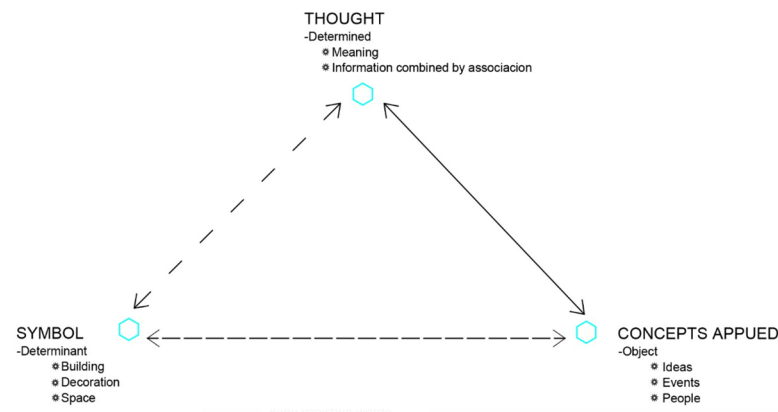


Figure 3. Semiotic triangle [80].

In order to interpret architecture in terms of semiotics, the concepts of signifier and signified must be applied to architecture. In terms of visual communication in architecture, signifiers are meaningful strings or forms, spaces, areas, masses, features such as rhythm, color, texture; signifieds are elements such as iconographic meanings, aesthetic meanings, architectural ideas, understandings of space, social beliefs and lifestyles, functions, actions, commercial purposes, technical suitability [81]. In terms of semiotics, architectural structures do not communicate anything on the surface if they do not have a communicative purpose [58,82]. The signifier of the architectural sign is also the function that the signifier makes possible in practice. He calls such signs signifiers sign-function and states that they bear witness to a double movement that needs to be analyzed and analyzed. According to him, wherever there is society, every use becomes its own signifier [83].

5.6. Creating the Research Method in the Context of Semiotics

Based on the assumption that religion affects the shaping of the building in architecture, it is thought that the basic religious concepts and subheadings (obtained in the literature review) affect the architectural structures or are reflected on them and can be easily read by the user. The question of which concepts and how wooden mosques are influenced and how they are influenced by these concepts, is explored in this study. To address this, the study aims to identify and sample mosques and to question the effect of the concepts and subheadings of Islam, derived from the literature review, on these examples. The aim here is to bring abstract values into concrete forms and results. In the study, two dimensions of semiotics—semantic and syntactic—were utilised in order to reveal the place of the basic concepts in Islamic religion within the structure, the meanings they have gained and how they are conveyed.

In obtaining the data, on-site observation, examination technique, photography, interviews and literature study were used within the scope of fieldwork.

The concepts in the semantic dimension were analysed based on the literature, versand interviews with field experts, considering the basic concepts in Islam under the category of belief (faith). The belief-related concepts in Islamic religion analysed are the concepts of Allah and ahiret. The concepts related to belief in Allah are vahdaniyet and beka, which are the attributes that define the essence of Allahand ilim and kudret, which are the attributes that reveal the relationship between Allah and the universe. The concepts of belief (faith) in the Islamic religion analysed are given below:

The concept of Allah: vahdaniyet, beka, ilim, kudret

The concept of ahiret

The concepts related to the belief in Allah that were analysed:

Among the attributes that define the essence of Allah: vahdaniyet, beka

Among the attributes that reveal the relationship between God and the universe: ilim, kudret

1. The Concept of Vahdaniyet

The concept of vahdaniyet is that the Almighty Creator is one and only in His essence, attributesand actionsand that He has no equal, likeness, or partner. Since God Almighty is completely supernatural and completely different from His creation, Islamic artworks reflect the eternity of the Supreme Creator, the servitude of all finite things and the remembrance of the reason for the existence of human beings. This can only be realized through the perception of the fact that God Almighty is indescribable and ineffable and is very different from His creations [22]. The fact that Muslims pray every day facing the Ka'bah is a single direction of orientation in unity. It has been stated that the orientation of the axes of the mosques towards the Ka'bah with the mihrab constitutes a single and great symbol of tawheed. With this orientation, one reaches tawheed and becomes one in thought, movement and gaze. Keleş et al. [84] emphasized that the main dome in places of worship is the focus of prestige in terms of architecture and engineering, as well as the center where the attention of those attending a worship or meeting is concentrated. They noted that domes give the building a sacred atmosphere with a mysterious void effect.

2. The Concept of Beka

In Islamic belief, Allah is eternal and not subject to mortality; He exists beyond time and space. Architectural works of art in Islamic culture reflect the idea that the infinity of the Almighty Creator is profoundly different from the finite nature of creation [22]. In Islamic art, particularly in mosque architecture, continuous lines are often used to convey a sense of infinity. These forms are interconnected, without interruption and flow through the entire architectural space [85].

Geometric patterns and figures, with shared characteristics, express unity in infinity and diversity within that unity. The circle, representing the ideal expression of the unity of the universe, symbolizes an endless formation centered around the divine. It is through continuous movement that unity within multiplicity is expressed [86,87]. Star motifs, along with other geometric shapes and polygons, come together to form intricate compositions, emphasizing the endless nature of Allah's existence. The human eye struggles to follow the complex zigzagging of these regular lines, illustrating the eternal and infinite nature of Allah—without beginning or end.

The regular compositions on the mosque domes are designed to evoke the concept of kudret (power) and the cosmic order that reflects the existence of the Almighty Creator. According to Islamic belief, Allah is not a tangible entity but an abstract one and this is reflected in the abstract nature of the forms and patterns in Islamic art. In Islam, humanity is considered transient and human beings are valuable only as creations of Allah—there is no glorification of the human form.

Islamic art, with its geometric compositions, muqarnas (stalactite vaulting), ornamental designs and stylized miniatures, became a unique expression of spirituality and transcendence [19]. These artworks serve to evoke the concept of infinity beyond time and space, directing the viewer's thoughts toward the eternal nature of Allah. Through contemplation of these infinite patterns, the viewer's belief in God is reinforced and art thus becomes a tool for spiritual reflection and reminder [22].

3. The Concept of İlim

Knowledge, in its essence, means to know. The knowledge of the Almighty Creator encompasses everything and it is fundamentally different from the knowledge of His creations. Allah's knowledge does not increase or decrease; it is complete and all-encompassing. Nothing exists outside of His knowledge. With His eternal attribute of knowledge, Allah knows everything that will happen, when it will happen and what states it will go through—even before any being exists. Opposite to knowledge, concepts such as ignorance, heedlessness and forgetfulness are unimaginable in the context of Allah's nature [22].

Although mosques are not educational institutions like madrasas, where formal learning and research take place, they serve a broader purpose. Mosques are not only places of worship but also centers of gathering and information. They are places where current events are discussed, debates occur and religious education is provided.

4. Concept of Kudret

When examining the concept of might in the literature, the dictionary definition of might refers to the ability to afford, to do something in a measured and planned way, to plan, to know its value, to determine the quality, quantity and shape of something, or to narrow its sustenance. When attributed to Allah, it signifies the ability to do what He wishes within the framework of wisdom, without any deficiency or excess [45].

Özel (1998) [88] noted that Ottoman mosques built in the name of sultans were magnificent and monumental. However, these mosques symbolized the divine kudret of Allah above all else, rather than the earthly might of the ruler. There is nothing beyond the reach of the Almighty Creator's might. Everything in the universe occurs through His kudret. Architecturally, circular domes symbolize unity and harmony within the infinite universe. Especially monumental and powerful mosques were constructed in the name of many rulers, reflecting the divine might above all.

5. The Concept of the Ahiret

It is a word that means the last, the next, the last day, the end of this world and the new and eternal life that begins with death after this world. It means that which comes after, the next time or the last. The Day of Judgment includes issues such as the Day of Judgment, the Day of Resurrection, the blowing of the surah, the resurrection of people, the giving of the books of deeds to everyone, the weighing of deeds, the accountability of everyone for their deeds in this world, intercession, the queue, heaven and hell [44,50,89,90]. The good will be in eternal peace, protected from the fire, which the Kur'an calls the life of paradise. In Paradise there are many things that human beings value. These are chosenness, honor, virtue, beauty, comfort, various pleasures and mutual love. There is eternal flavor, eternal joy and happiness. There is no sorrow and pain. There is comfort and eternal security. There is joy and gladness in unending life. A perfect reign, every conceivable and inconceivable flavor and blessing are in heaven. Life in paradise is eternal and beautiful [17,89,90]. In Islamic culture, the art of garden design is characterized by imagination and an effort to present elements other than nature. The Islamic garden is a formal place where horticulture and water culture are applied together to create stylized and eternal structures. The Muslim

gardener does not try to preserve or create the wild, though sometimes beautiful, nature. Instead, trees and shrubs are planted, pruned and cultivated to form symmetrical and never-ending structures. Unlike the earthly environment, a place organized in this way is reminiscent of paradise. Water and plants are never presented in their rough, natural state. A spring does not flow unimpeded down the mountainside, nor is there a natural bed of a spring or stream in the garden. The treatment of these materials reflects the Muslim desire to transform the object and the environment into an expression of their Islamic identity and an example of eternal structure [22].

The 5 concepts (vahdaniyet, beka, ilim, kudret, ahiret) among the belief concepts in the Islamic religion were searched on the examples of rural mosques belonging to the Ottoman Period and in determining the indicators of these concepts, concepts in the semantic dimension and basic design principles in the syntactic dimension were utilized. Çakıroğlu [91] examined the concepts in the semantic dimension in the model he developed in determining the reflections of the concepts he examined from the basic concepts in the Islamic religion in religious architecture; the sub-concepts obtained from the verses in the Kur'an based on the literature, the sub-concepts determined as a result of interviews with experts, the sub-concepts obtained from the explanations based on the literature according to the type of building, the adjective pairs in Michelson's book titled Behavioral Research Methods in Environmental Design under the name of emotional response concepts and the adjective pairs in Ertürk's [70] doctoral thesis titled An Experimental Study on the Perception of Architectural Space. Çakıroğlu (2006) [91,92] defined the sub-concepts obtained from the explanations based on the literature according to the mosque building type of the concepts handled in the semantic dimension as worship, congregation, gathering, togetherness, knowledge, spaciousness, peace, trust, kudret, cleanliness, cooperation, sharing, friendship, love, respect, tolerance, guidance, might, majesty and endurance. In this study, based on the literature, verses and interviews with experts in the field, 26 sub-concepts that are thought to be relevant to the subject among the sub-concepts determined by Çakıroğlu [91] were discussed in the research of the reflection of religious concepts in rural mosque architecture (Tables 1 and 2).

The sub-concepts obtained from the concept of belief (iman) in Islam and the antonyms of these sub-concepts are based on the information obtained from the literature review, interviews with experts and given in Table 1 [93–95].

The concepts in the syntactic dimension were analysed under the basic design principles. The analyses based on the principles have been handled in the plans, facades and interiors of the building. The basic design principles in the syntactic dimension are given below.

Symmetry, Dominance, Rhythm, Balance, Contrast, Koram, Harmony, Unity

Basic design principles were utilised in order to find the expression of the semantic dimensions of the selected concepts of vahdaniyet, beka, ilim, kudret and ahiret in the spaces of İremi Cami, Merkez Cami, Muratlı Cami ve Düzköy Cami in the sequential dimension. Symmetry, dominance, rhythm, balance, contrast, koram, harmony and unity principles of basic design principles were used to evaluate these five sacred concepts [31,54,55,68,96]. After the spatial analyses, a visual presentation was prepared with a diagram including the basic design principle-principles in which each sacred concept is expressed.

Table 1. The concept of faith in Islam and sub-concepts related to this concept.

Concepts Related to Faith (Belief)		
Concepts	Sub-Concepts	Opposite Concepts
God	Vahdaniyet - unity, uniqueness	- shirk, associating partners, pluralism
	Beka - eternity - immortality - continuity - persistence	- finiteness - mortality - finiteness, discontinuity - transience, mortality
	İlim - to know	- ignorance, lack of knowledge
	Kudret - power, authority	- weakness, powerlessness, impotence
Ahiret	paradise - resurrection - armageddon (gathering place) - account, inquiry - unique - beauty, goodness, happiness, affection, love - peace - reward - eternal, permanent, permanent, everlasting, everlasting, immortal, perpetual life - eternal comfort - good deed - bright, spacious, open	- world
	hell - unique - ugliness, evil, unhappiness - restlessness, distress, sadness - punishment - eternal, permanent, permanent, everlasting, everlasting, immortal, perpetual life - discomfort - sin - dark, gloomy - off, stiffness, dullness	

Table 2. Sub-concepts-principles in semantic dimensions.

Semantic Dimension		
Sub-Concepts		
Unity, oneness/ Shirk, associating partners, pluralism	Eternity, immortality, permanence/ Transience, mortality, finitude	Infinity/ Finality
Continuity, continuity/ Finiteness, discontinuity	Warm, welcoming/ Cold, inhospitable	Kudret, authority/ Kudretlessness, helplessness
Beauty, goodness, love, respect, Happiness/ Ugliness, evil, unhappiness	Peace, soothing, restful/ Restlessness, unsettling	Answer/ Sin

Table 2. *Cont.*

Semantic Dimension		
Sub-Concepts		
Effective, potent, assertive/Ineffective, ineffective, unpretentious	Free space, unlimited, void/Limited, enclosed space	Durability/Indurability
Rhythmic, harmonious/Rhythmic, dissonant	Community, cohesion, togetherness/Loneliness	Orientation/Disorientation
Discipline, order, balance/Chaos	To submit, to surrender/Rebellious	Knowledge, wisdom/Ignorance, ignorance
Bright, spacious, open/Dark, gloomy, closed	Sacred, religious, spiritual/Unholy	Heavy/Light
High/Low	Empty/Full, whole	Dynamic/Flat, boring, monotonous
Mystical, mysterious/not mysterious	Inwardly oriented/Outwardly oriented	

6. Basic Design Principles

6.1. Symmetry

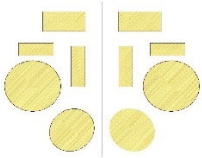
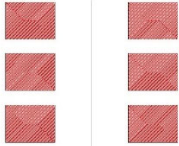
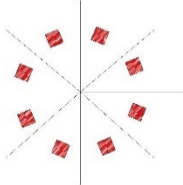
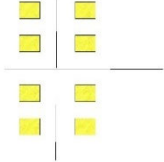
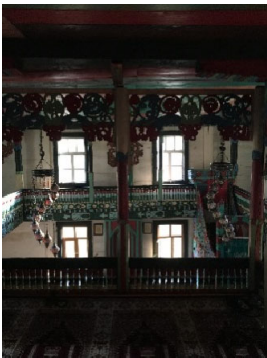
The symmetry of a shape when it is reflected around an axis is called axial symmetry. For example, when a circle is divided in half by a line through its center, both halves are identical. Reflection symmetry is the symmetry that occurs when a shape is reflected around a plane. For example, when we divide a square in half horizontally or vertically, both halves are identical. It is important in terms of balance and aesthetics in design. The human eye focuses on symmetrical shapes more quickly and these shapes are more easily remembered. By using symmetry, designers can create visually appealing and balanced designs. However, symmetry is not a design principle that should always be used. It can be used in whole or in part, depending on the designer's experience and the purpose of the design. Bilateral symmetry is defined as the arrangement of equivalent elements on a common axis. Radial symmetry is the balanced arrangement of elements equivalent to two or more axes intersecting at the center point. In natural shaping, radial symmetry is usually formed by the combination of a small number of elements (Table 3).

6.2. Dominance

Dominance at the scale of a building or settlement occurs when one or more of the basic design elements is used more dominantly than other elements. This dominance manifests itself through various basic design principles such as color, form, line, scale, texture, contrast and differences in the façade, between masses or in the settlement. Within an architectural arrangement, a form or space can be given a different dimension (small or large) from all other elements in the arrangement and dominate the others. Forms and spaces can also visually dominate the arrangement by being clearly different in shape from the others. Emphasis consists of the combination of dominant and secondary elements in a space, building or settlement. The dominant element or groups of elements dominate the arrangement and make a strong impact. If there is a dominant element participating in the organization, it helps to direct attention in that direction, thus arousing excitement in the viewer and increasing its attractiveness. Dominance is often achieved through contrast. Within the organization, space, buildings and building groups can be made dominant by creating differences in form, size and location. These features are created as follows:

- Special dimension-measure; an architectural arrangement can be given a different dimension from all other elements, indicating its importance and making it dominant. This sovereignty is visualized by the different size of the element. In this order, the form can be small or large in size. Although it is small, it can also dominate the arrangement with its well-defined place.
- Shaping different from others is the formal differentiation of form or space from other elements in the composition. They can visually dominate the arrangement by being clearly different in shape from the others. This differentiation is possible through the use of contrasting forms of geometry.
- Favorable and strategic location has an important place in the composition of form and space with its strategic location among other features. The hierarchical importance of placements or locations for form and space is classified as the boundary of the linear arrangement/axial arrangement, the central element of the gazing arrangement and the focal point of the central/radiational arrangement (Table 4).

Table 3. Bilateral view (symmetry), radial view (symmetry) (views from sample mosques).

Symmetry Principle			
			
			

6.3. The Principle of Rhythm and Repetition

It is defined as the repetition of the basic design elements of a design and composition at certain intervals. Rhythm and repetition is a preferred design principle in spatial organizations and facade arrangements. Regular repetition of basic design elements gives organizations a rhythmic effect. Repetition can be categorized under three sections: exact repetition, variable repetition and intermittent repetition [96]. In space organizations and facade arrangements, the objects that are repeated may not always have the same shape, size, color and texture. A rhythm can be achieved by repeating elements of the same or similar size, texture and shape. For this reason, considering that repetition grouped as full repetition, repetition, variable repetition, intermittent repetition may not always be possible in architectural applications, it is considered more accurate to adopt only the principle of rhythm without going into subheadings and to determine that repetition exists if the design element is used more than once in the arrangement (Table 5).

Table 4. Dominance by special size, dominance by difference in form, dominance by favorable, strategic location (views from sample mosques).

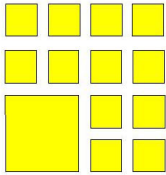
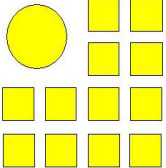
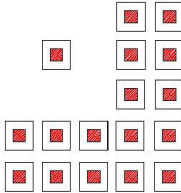
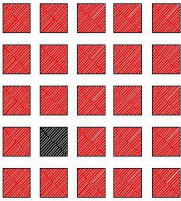
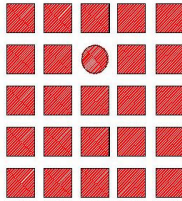
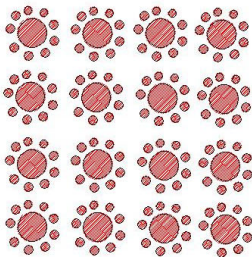
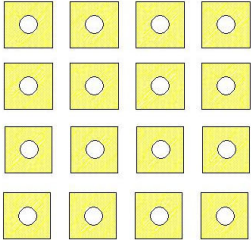
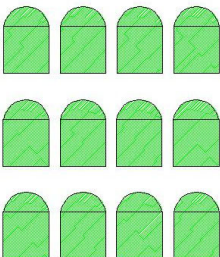
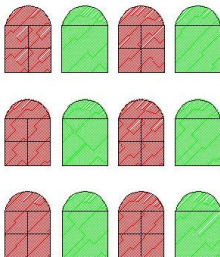
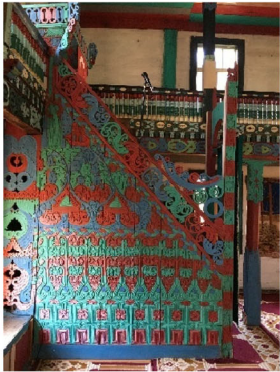
Principle of Dominance					
					
					

Table 5. Examples of organizations created with the rhythm principle (views from sample mosques).

The Principle of Rhythm and Repetition					
					
					

6.4. Balance

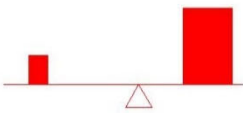
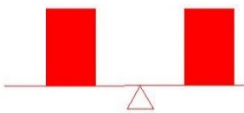
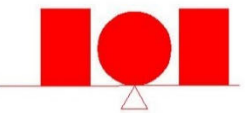
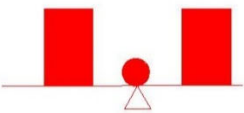
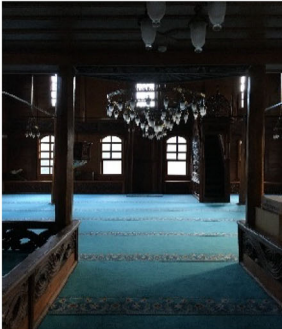
Visual balance occurs as a result of the comparison of design elements such as color, value, texture, direction, spacing and size. If the forces and the space they create are of equal strength and spatial kudret, a balance is achieved. However, this balance is perceived as tensionless, static and lifeless. However, for a living organization, the movements are different in terms of their optical dimensions and qualities, that is, they are opposite in

direction, weight and qualities; however, if they are of equal strength in terms of spatial fields, a dynamic balance is achieved.

Symmetrical balance is a type of balance based on the perspective around a center or an axis. This balance is achieved by placing items of equal value on both sides. It provides a precise, stable and established balance, but its kudret to sustain interest is low or it can be monotonous. Depending on the position of the elements in the composition with each other and in the whole, it allows the attention to focus on the central area or axis.

Asymmetrical balance is the balancing of one or more elements on either side of an axis by elements with different or opposite characteristics. Asymmetrical balance does not provide a clear and unambiguous balance in design arrangements like symmetrical balance, but instead creates movement. It allows the design to be mobile, dynamic and even exuberant and gives a flexible understanding (Table 6).

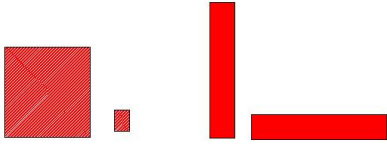
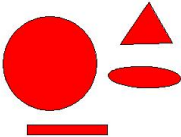
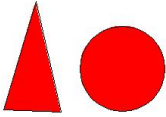
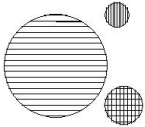
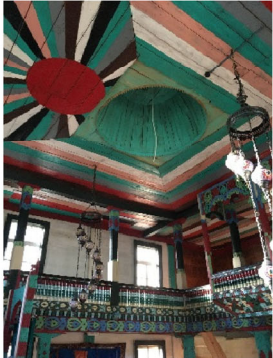
Table 6. Symmetric balance, asymmetric balance (views from sample mosques).

Principle of Balance			
			
			

6.5. Contrast

When contrast is overused in an arrangement, it becomes difficult to establish a cohesive relationship between elements, leading to a perception of disorder and incompatibility. However, when contrast is applied in a balanced way, or when various contrasting elements are combined in appropriate amounts, it can create thought-provoking, unexpected effects on the viewer. This evokes excitement and vitality, making the design more engaging. Contrast is an expression of diversity. When used consciously and thoughtfully within a design, contrast contributes to unity rather than chaos. In architectural applications, contrast gives the structure liveliness and makes it visually appealing. To make a building interesting, it is essential to incorporate contrasts—such as vertical versus horizontal elements, open spaces versus solid forms—that capture the viewer’s attention [96]. Contrast is crucial because it adds dynamism and draws focus. To infuse vitality into a facade or interior, one or more design elements can be juxtaposed against others to create a harmonious yet striking contrast (Table 7).

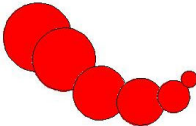
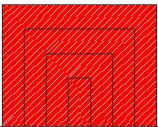
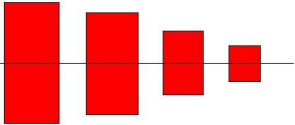
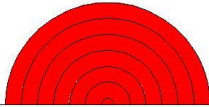
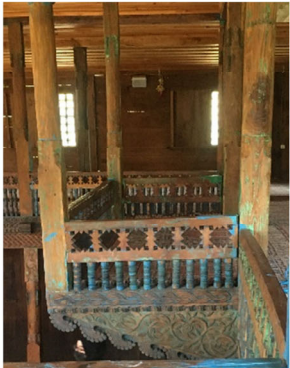
Table 7. The concept of contrast (views from sample mosques).

Principle of Contrast			
			
			

6.6. Koram

The use of koram enhances the coherence and impact of a design. Additionally, when used correctly, koram provides the viewer with a visual sense of balance and order. Therefore, it is essential to apply koram effectively when creating a composition. There are three main types of koram: axial, centraland peripheral. Axial koram refers to the alignment of elements along a defined axis, which can be a straight, curved, or broken line. One or more types of koram can be combined within a design to achieve the desired effect (Table 8).

Table 8. Axial measure koram, central measure koram (views from sample mosques).

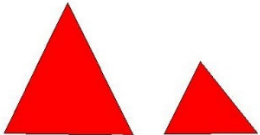
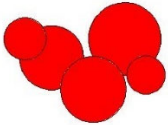
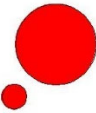
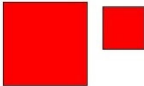
Axial Measure Koram, Centric Measure Koram			
			
			

6.7. Harmony

Harmony can be defined as the common or approximate similarity, softness, relatedness and conformity between the parts that make up a whole. In a design, shapes arranged

adjacent to each other or at specific intervals are perceived as harmonious when they are similar to their surroundings or to each other in terms of elements such as size, form, texture and color. This similarity in size and style creates a sense of unity in the arrangement. It is important not only to seek physical conformity in objects but also to consider functional conformity, thought style conformity and other aspects. If the arrangement of elements in a design creates a sense of unity that extends across the entire structure, there is a harmony of thought and style. In this case, both the individual parts of the structure and their relationship with the whole reflect unity, achieved through a consistent style. The materials used in the design, including how they are processed and colored, should also be in harmony with each other. Just as every designer and artist has a unique style, there are styles associated with specific periods. By examining a building, it is often possible to identify the period or designer it belongs to (Table 9).

Table 9. Harmony (views from sample mosques).

Harmony				
				
				

6.8. Unity

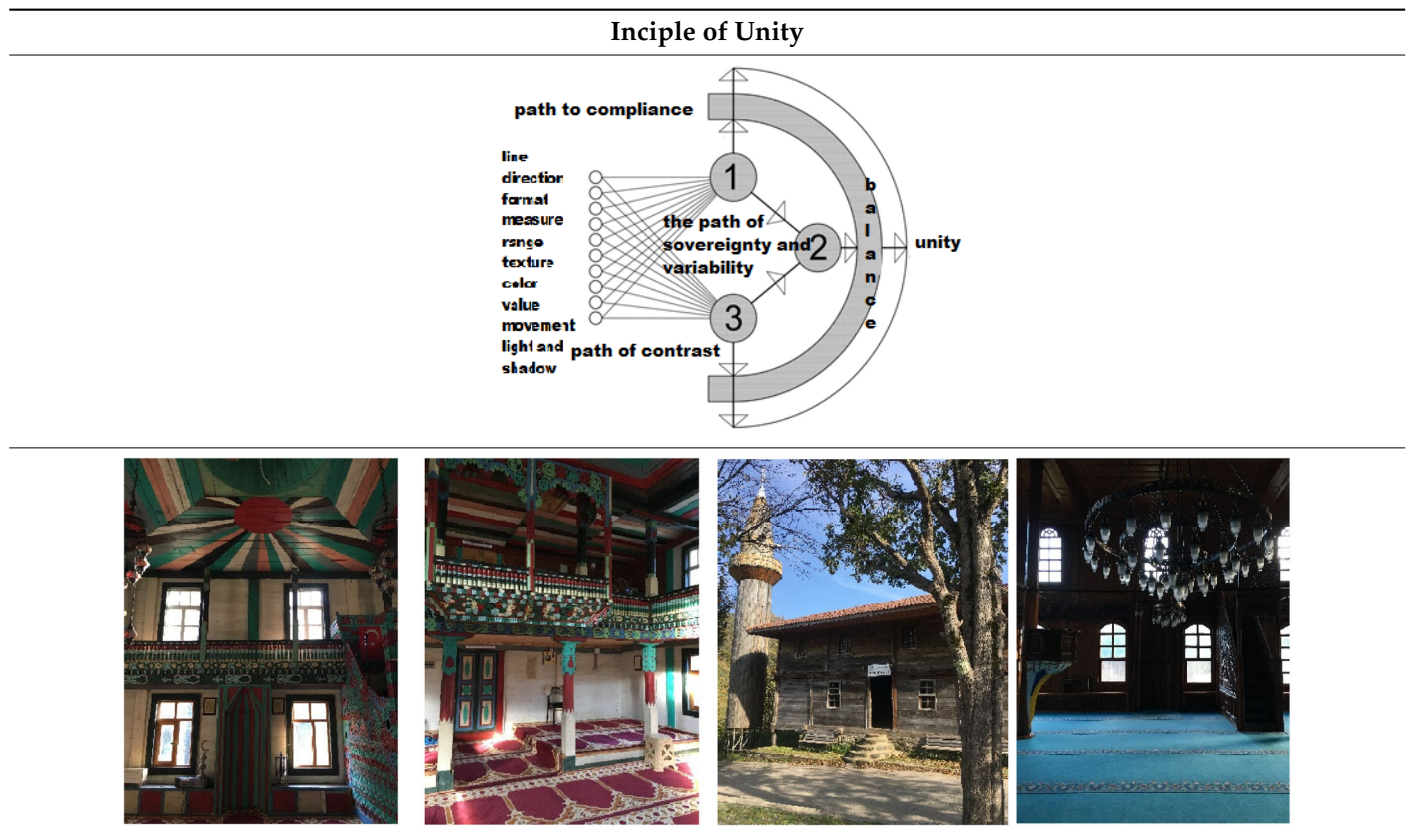
It is seen that harmony, contrast and dominance are effective in the path to unity and repetition plays a strengthening role in this effect. While asymmetrical balance and various forms and dimensions are interesting, symmetrical balance and repetitive forms and dimensions are perceived as more monotonous. In a design, there are three paths to unity and unity.

- In the path of harmony, the principles of repetition, appropriateness and correspondence are utilized in order to achieve unity. Unity can be achieved through harmony of form and measure.
- In the way of dominance and variability; it is easier to reach unity. The principle of dominance is also used. Unity can be achieved with the dominance of measure and shape variability.
- In the way of contrast; the principle of contrast can also be used to achieve unity in the design. Unity can be achieved through form harmony and measure contrast [96,97].

There are three main types of unity: static unity, dynamic unity and unity of ideas and styles. Static unity is passive and static, while the structure is fixed and immobile. It also facilitates success in shape-ground expressions with elements or units that are repeated in a

certain order and the constancy of the circle curve. In an organization, the type of unity of all parts arranged in accordance with the main idea of the unity is called unity of idea and type. With a main idea such as achieving a vertical or horizontal effect, or with the effort of the details to create a stylistic unity with the whole organization or among themselves, the arrangement of all the parts included in the unity in accordance with the main idea of the unity occurs (Table 10).

Table 10. Diagram showing the routes to the union (views from sample mosques) [98].



In this study, the concept of belief (iman), one of the basic concepts in the Islamic religion, was examined and the concept of belief (iman) and its sub-concepts were analyzed semantically and syntactically. 26 sub-concepts in the semantic dimension and 8 principles in the syntactic dimension are shown in Table 11.

Table 11. Concepts-principles in semantic and syntactic dimensions.

Semantic dimension			
Formatting principles	Sub-Concepts Analysed Depending on Basic Concepts and Emotional Reactions in the Kur'an		
	Unity, oneness/ Shirk, associating partners, pluralism	Eternity, immortality, permanence/ Transience, mortality, finitude	Infinity/ Finality
	Continuity, continuity/ Finiteness, discontinuity	Warm, welcoming/ Cold, inhospitable	Kudret, authority/ Kudretlessness, helplessness
	Beauty, goodness, love, respect, Happiness/ ugliness, evil, unhappiness	Peace, soothing, restful/ Restlessness, unsettling	Answer/ Sin
	Effective, potent, assertive/Ineffective, ineffective, unpretentious	Free space, unlimited, void/Limited, enclosed space	Durability/ Indurability

Table 11. Cont.

Basic design principles								
Symmetry	Dominance	Rhythm	Semantic dimension			Koram	Harmony	Unity
			Rhythmic, harmonious/ Rhythmic, dissonant	Community, cohesion, togetherness/ Loneliness	Orientation/ Disorientation			
			Discipline, order, balance/ Chaos	To submit, to surrender/ Rebellious	Knowledge, wisdom/ Ignorance, ignorance			
			Bright, spacious, open/ Dark, gloomy, closed	Sacred, religious, spiritual/ Unholy	Heavy/ Light			
			High/ Low	Empty/ Full, whole	Dynamic/ Flat, boring, monotonous			
			Mystical, mysterious/ not mysterious	Inwardly oriented/ Outwardly oriented				
			Syntactic dimension					

7. Findings

7.1. Examples of Mosques Examined

In the study; 4 wooden mosques belonging to the Ottoman Period in Artvin-Borçka district were examined. The mosques examined are İremet Mosque in Maralköy, Camili Village Central Mosque in Camili Village, Muratlı Village Mosque and Düzköy Mosque in Düzköy (Tables 12–19).

Maralköy İremet Mosque (1851): Situated in the historical Maçaheli region of Artvin's Maralköy in the İremeti neighborhood, this mosque is a two-story structure. The mosque features a harim floor on the ground level and a mahfil floor on the first level. The square-planned mosque is accessed from the last congregation space. A double-winged wooden door provides entry to the harim floor. Inside, a wooden staircase leads to the mahfil floor, which is supported by wooden uprights and is U-shaped. A separate staircase provides access to the mahfil from the harim floor. The basement is accessible from the side facade and includes storage and other rooms. The mosque combines a wooden masonry system for the harim and mahfil floors, while the basement features both wooden and traditional masonry elements. The interior showcases wooden components such as the mihrab and pulpit, which are painted in vibrant colors including red, turquoise, green, blue, black, white and pink. The mihrab is intricately designed with thin rectangular and triangular slats and the pulpit is adorned with various motifs such as rectangles, triangles, circles, S-shaped, C-shaped and floral patterns. The dome in the center of the mosque is designed as a truncated cone and is painted green.

The Camili Village Central Mosque (1855) is located in the village of Camili in Artvin Province, Borçka District, near the Georgian border. The mosque exhibits a design and style that shares common features with other wooden mosques in the Artvin region and the Adjara region of Georgia [99]. It has a roughly square plan, with two floors: the harim floor on the ground level and the mahfil floor on the first level. Due to the difference in elevation, the mosque appears two-storied from the entrance façade and three-storied from the façade with the mihrab.

Access to the mosque is through a double-winged wooden door from the last congregation space. Additionally, there is a single-wing wooden door on the east façade, though it is no longer in use. The mosque was constructed using a combination of masonry and

wooden masonry systems, with the wooden masonry system employed on the harim and mahfil floors. The roof features a sloping design on all four sides, with the last congregation area on the entrance façade covered by a single-sloping roof.

A cylindrical wooden minaret is located on the side façade, complementing the mosque's design. The building is well-lit, with large round-arched windows. The mihrab, pulpit, preacher's pulpit, mahfil and doors inside the mosque are adorned with intricate wooden motifs. The mosque's architectural elements—such as the door, mihrab, pulpit, preacher's pulpit, mahfil and dome—are all decorated with detailed carvings, including lattice work, pencil work and Bagdadi techniques. These decorations feature floral motifs such as leaves, flowers emerging from vases, S-C folds and rosebuds, as well as geometric motifs like arrows, lozenges, circles, rectangles, squares and triangles.

Upon entering the harim, visitors are struck by the brightness and the stunning woodwork, which creates a sense of awe. This space, with its artful wooden designs, offers a dramatic contrast to the green exterior, immersing the viewer in a unique aesthetic experience.

The Muratlı Village Mosque (1846) is located in Artvin Province, Borçka District, in the village of Muratlı, near the Georgian border on the banks of the Çoruh River. The mosque has a rectangular plan close to square dimensions, with a harim floor on the ground floor, a mahfil floor on the first floor and a basement floor constructed using masonry techniques. The harim and mahfil floors are built using a wooden masonry system. The entrance is from the last congregation, where steps lead up to the space, with two wooden doors providing access to the harim floor.

In the center of the mosque is a dome, one of the largest in the Artvin region. The ceiling is flat wood around the edges. A wooden mihrab, pulpit and sermon pulpit are placed opposite the entrance on the harim floor. Wooden stairs from the entrance lead to the U-shaped mahfil floor, which has a central pavilion projection carried by wooden columns. The roof is covered with a hipped design and has wide eaves. The minaret, located on the side, has a square base and a cylindrical stone body.

The architectural elements, such as the door, mihrab, pulpit, mahfil, sermon pulpit and dome, are richly ornamented with carving techniques. The most ornate part of the mosque is the pulpit, made of wood with intricate carvings. The mihrab is decorated with flower, medallion, leaf and bow motifs. The minbar, also carved in wood, features motifs such as a ship, moon and star, sword, knife, candlestick, scales, olive branch, key and medallion. The dome is painted white with slices of wooden slats in varying colors, including yellow, red, green and blue. A circular belly with a leaf motif adorns the center of the dome [100–102].

The Düzköy Mosque (1850) is located in Düzköy, Borçka District, Artvin Province. The mosque features a harim floor on the ground level, a mahfil floor on the first floor and a basement floor due to the land's elevation. The harim and mahfil floors are built using a masonry wooden system, while the basement is constructed with a masonry masonry system. The entrance to the ground floor is via a stone staircase leading to the last congregation, which has an L-shaped plan. A wooden staircase leads to the last congregation floor and the harim floor is accessed through a double-winged wooden door. Opposite the entrance, there is a wooden mihrab and pulpit.

The mahfil floor has a U-shaped plan and its ceiling is made of wood with a square belly in the center. The roof is a hipped design, covered with tiles. The mosque's architectural elements, including the door, mihrab, pulpit, ceiling core, mahfil, columns and window railings, feature relief, carving and cage carving techniques. Inside, the mihrab, minbar, mahfil skirt, railings, pavilion and ceiling are decorated with floral, realist, geometric and interlaced motifs in carving and relief. These decorative elements are painted in blue, green and yellow oil paints, creating a stark contrast with the original wooden exterior. The

mihrab and minbar are made of wood, with intricate carvings including inverted tulips in the mihrab and motifs such as hooks, waves and daisies on the minbar [103].

Table 12. Location of mosques in the study area.

İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 13. Schematic plans of the mosques in the study area [104].

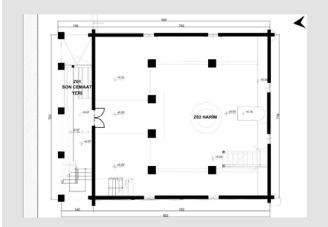
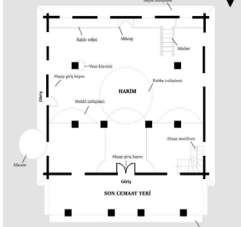
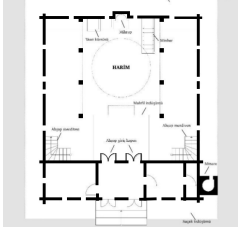
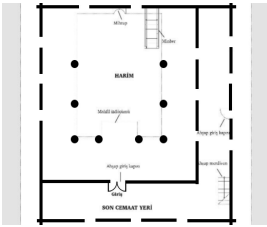
İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 14. Exterior harim floor photographs of the mosques in the study area.

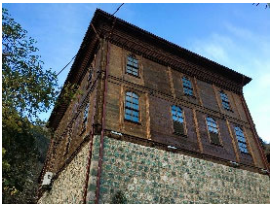
İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 15. Interior harim floor photographs of the mosques in the study area.

İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 16. Photographs of the interior of the mosques in the study area.

İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 17. Interior architectural elements in the mosques belonging to the study area—photographs of mihrab.

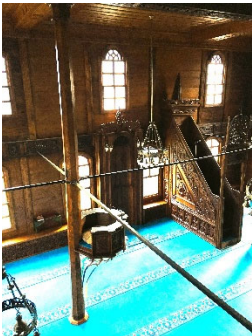
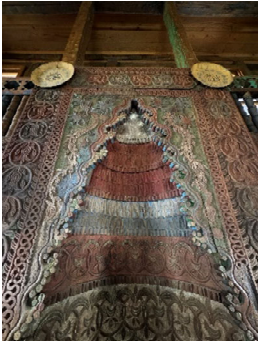
İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 18. Photographs of interior architectural elements -minbar in the mosques of the study area.

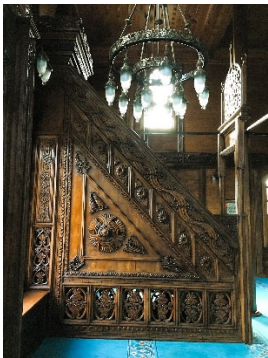
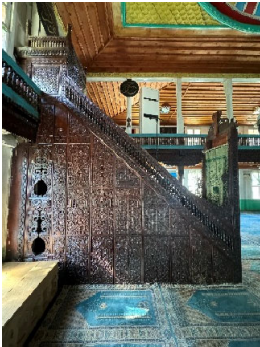
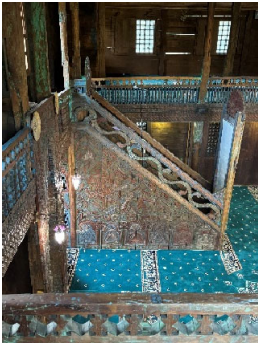
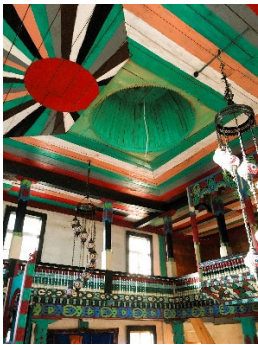
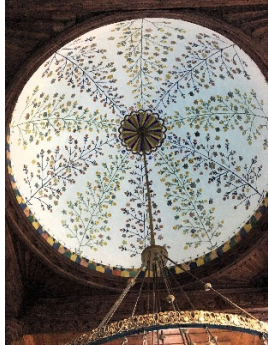
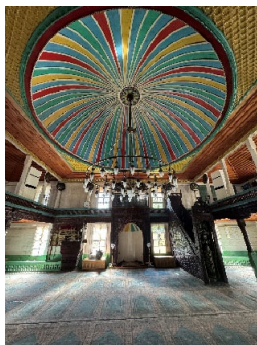
İremit Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

Table 19. Interior architectural elements in the mosques of the study area—dome/ceiling photos.

İremi Mosque	Merkez Mosque	Muratlı Köyü Mosque	Düzköy Mosque
			

7.2. Findings Regarding the Semantic and Syntactic Analyzes of the Concepts Examined

Based on the literature, 5 religious concepts selected among the concepts affecting religious architecture were analysed in terms of semantic and syntactic dimensions. Religious concepts were analysed in terms of concepts in the semantic dimension and in terms of basic design principles in the syntactic dimension.

The results of the semantic and syntactic analyses of the sub-concepts that make up the concepts in the examined examples according to rural mosques are expressed below.

1. Concept of Vahdaniyet, Semantic and Syntactic Dimension Relationship

As a result of examining the semantic dimension of the concept of Vahdaniyet in sample mosques; the central space with its inward-oriented central plan scheme has reached unity with a single dome in the Central, Muratlı and İremi mosques and with a square-planned navel in the Düzköy mosque. The dome and navel in the centre and the fact that all beings always come from Him and will return to Him (Cem realisation) mean unity and submission. Unity is also reached in the mosques examined with the integration of the functioning of the formations in the universe by forming a harmonious whole. Discipline is inevitable in the mosques of the Centre, Muratlı and İremi because worship is performed according to certain religious rules. The fact that the axes of the mihrab and the mosque are directed in a single direction represents a single and great symbol of unity. In this way, a spiritual intensity of gazes and intentions, facing and orientated towards the same place, is created. This mode of union and orientation leads to monotheism. In the Merkez, Muratlı, İremi mosque, the dome in the centre gives the building a sacred atmosphere with the help of a mysterious void effect. In the Düzköy mosque, this effect is also achieved with the square planned belly in the centre. The creation of a space that is quite closed to the external environment and the single dome in the centre, which forms the centre where the attention of the participants in a worship or meeting is concentrated, also provides an inward orientation. With the space in the centre, one abstracts oneself from the outside world and one's thoughts and reaches wahdat. The geometrical abstract ornaments and windows in the interior space present a rhythmic as well as regular texture.

As a result of analysing the semantic sub-concepts of the concept of Vahdaniyet and the basic design principles in which these concepts are expressed in the sample mosques; the data obtained are given in Table 20, Figure 4. Accordingly, the concepts of unity, discipline, order, balance, orientation, mysticism, mysteriousness, rhythmic, harmonious, sacred, spiritual and inward orientation reflected the principle of unity the most among the basic design principles (70%) and it can be said that it would be the right decision to analyse the principle of unity among the basic design principles in the formal expression of these sacred concepts in new sacred space designs. Similarly, the principle of conformity was expressed

mostly (60%) in the concepts of discipline, order, balance, orientation, mystical, mysterious, rhythmic, rhythmic, harmonious, spiritual, sacred and inward-oriented, which shows the sublimity of the Almighty Creator and the submission of all living beings before the Sublimity. It can be accepted that analysing the principle of conformity will be successful in the spatial-formal expression of the concept of sublimity in new sacred space designs. Submission and surrender were found to be effective with the principle of dominance (40%), one of the basic design principles. In the new sacred space designs to be made, it may be a better approach to emphasise spatial designs reflecting the principle of sovereignty in the physical expression of the concepts of surrender and submission. It was found that the principles of rhythm, contrast, symmetry, koram and balance (20–10%) were less effective in the expression of the concepts of Vahdaniyet in the syntactic dimension. It can be concluded that the reflection of these principles is less effective because the wooden material is emotionally closer to the person, warmer and embracing.

Table 20. Semantic and syntactic dimension findings of the concept of *Vahdaniyet*.

The Semantic Dimension of the Concept of <i>vahdaniyet</i> and the Basic Design Principle(s) It Refers to								
Concepts in Semantic Dimension	Basic Design Principles That Can Be Expressed in the Syntactic Dimension							
	Symmetry	Dominance	Rhythm	Balance	Contrast	Koram	Harmony	Unity
Irem Mosque, Camili Köyü Merkez Mosque, Muratlı Köyü Mosque, Düzköy Mosque								
Oneness-unity								
To submit—to surrender								
Discipline-order-balance								
Orientation								
Unlimited-space-free								
Mystical-mysterious								
Rhythmic-compatible								
Dynamic								
Holy-spiritual								
Inward orientated								

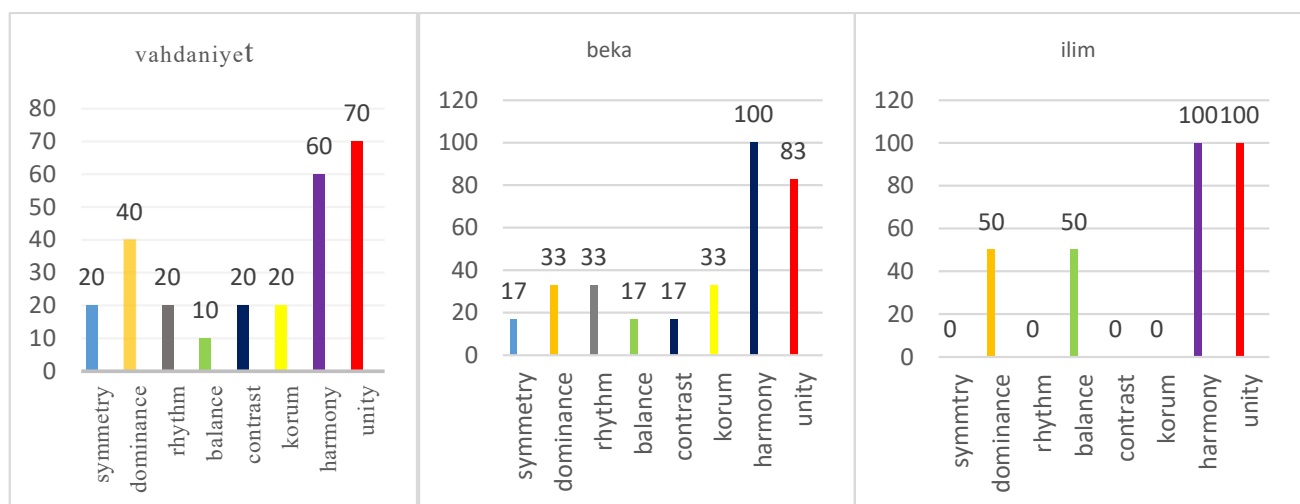


Figure 4. Vahdaniyet, beka, ilim -basic design relationships.

2. Semantic and Syntactic Dimension Relationship Findings of the Concept of *Beka*

As a result of examining the semantic dimension of the concept of beka in sample mosques; the concepts of temporary and mortal are seen in the Central, İrem Mosque, Camili and Düzköy mosques, which are examined with the windows on the facade and the wooden

material chosen as the building material. The shape and figure with ornamentation on the harim and mahfil floors have become abstract by avoiding realism without imitating nature as it is, thus reminding supernatural concepts by moving away from the world; an atmosphere that tries to seek Allah beyond the material realm and aims to take the viewers to infinity and the divine realm (mysticism) has been created. The geometrical abstract ornaments on the walls, parallel, symmetrical, diagonal, intertwined, circulating bands and windows of the same form and size present a texture that has no end (infinity) with its rhythmic as well as continuous repetition. The symmetry seen in mosques indicates discipline.

As a result of examining the sub-concepts of the concept of beka in the semantic dimension and the basic design principles in which these concepts are expressed in the sample mosques; the data obtained are given in Table 21, Figure 4. Accordingly, the concepts of transience, mortality, finitude, infinity, continuity, discipline, order, balance, rhythmic, harmonious, mystical and mysterious reflect the principle of conformity (100%) and unity (83%) among the basic design principles. The expression of continuity and continuity, which is a sub-concept of the concept of beka, is not reflected in the principle of unity in the syntactic dimension. The principles of sovereignty, rhythm and coram were found at a rate of 33% and the expression of symmetry, balance and contrast at a rate of (17%), which reflects that eternal life, immortality, order and balance can be achieved by living in harmony and togetherness. Therefore, in the new sacred space designs to be made, it can be suggested that the principle of harmony and unity, one of the basic design principles, should be successfully solved in the formal spatial expression of the concept of beka, which constitutes eternity, immortality, permanence, infinity, discipline, order, balance, mysticism, mysteriousness, rhythmic and harmonious concepts.

Table 21. Semantic and syntactic dimension findings of the concept of *beka*.

The Semantic Dimension of the Concept of <i>beka</i> and the Basic Design Principle(s) It Refers to								
Concepts in Semantic Dimension	Basic Design Principles That Can Be Expressed in the Syntactic Dimension							
Iremit Mosque, Camili Köyü Merkez Mosque, Muratlı Köyü Mosque, Düzköy Mosque	Symmetry	Dominance	Rhythm	Balance	Contrast	Koram	Harmony	Unity
Eternity, immortality, permanence					■		■	■
Infinity		■				■	■	■
Continuity, continuity			■			■	■	
Discipline, order, balance	■			■			■	■
Rhythmic, harmonious			■				■	■
Mystical, mysterious		■					■	■

3. Findings on the Semantic and Syntactic Dimension Relationship of the Concept of *İlim*

As a result of analysing the semantic dimension of the concept of *ilim* in sample mosques; the fact that it serves as a place where people exchange information with each other is a concrete indicator of the concept of knowledge. The mosque is not only a place of prayer, but also a meeting place where the current news of the city is discussed and discussed, as well as a religious education and knowledge renewal (information) centre. The fact that the material used is less affected by natural conditions that it is strong enough to survive until today and that this feature is reflected in the appearance (durability) is like an indicator of solid foundations in knowledge and success.

As a result of examining the sub-concepts of the concept of *ilim* in the semantic dimension and the basic design principles in which these concepts are expressed in the sample mosques; the data obtained are given in Table 22, Figure 4. According to this,

knowledge, wisdom and endurance are mostly reflected in the principle of harmony and unity (100%). The principle of dominance and balance was expressed at a moderate level (50%) and the principle of symmetry, rhythm, contrast and koram was not expressed. In the new sacred space designs to be created, it may be considered more appropriate to successfully solve the principle of harmony and unity from the basic design principles in the spatial–stylistic solution of the concept of knowledge, wisdom and endurance sub-concepts.

Table 22. Semantic and syntactic dimension findings of the concept of *ilim*.

The Semantic Dimension of the Concept of İlim and the Basic Design Principle(s) It Refers to								
Concepts in Semantic Dimension	Basic Design Principles That Can Be Expressed in the Syntactic Dimension							
Iremit Mosque, Camili Köyü Merkez Mosque, Muratlı Köyü Mosque, Düzköy Mosque	Symmetry	Dominance	Rhythm	Balance	Contrast	Koram	Harmony	Unity
Knowledge, wisdom								
Resilience								

4. Semantic and Syntactic Dimension Relationship Findings of the Concept of *Kudret*

As a result of examining the semantic dimension of the concept of kudret in sample mosques; the building is a small mosque, low and open façades, wooden material gives a light image, although not as much as the permanent durable effect of stone material, the clarity in the form, the hipped roof on the roof and the gathering under a single roof (whole) is like a symbol of durability. The mosques, which are similar to rural housing architecture with their square plan and hipped roof form, emphasise the dominant kudret effect with the minaret and the success of focusing on a single point is an indication of being effective even on a small scale.

As a result of examining the sub-concepts of the concept of kudret in the semantic dimension and the basic design principles in which these concepts are expressed in the sample mosques; the data obtained are given in Table 23, Figure 5. According to this, kudret, authority, effective and influential, assertiveness, empty, light, low and flimsiness are mostly reflected in the principle of unity (100%). In the semantic expression of the concept of kudret, symmetry and correspondence principles were not used. The principle of rhythm, balance and harmony (67%) was found to be medium and above. Accordingly, in the new wood-based sacred space designs, giving more weight to the principle of unity in the spatial and formal analysis of the concept of might may be a successful solution.

Table 23. Semantic and syntactic dimension findings of the concept of *Kudret*.

Sub-Concepts of the Concept of Kudret and Related Concepts Basic Design Principles								
Concepts in Semantic Dimension	Basic Design Principles That Can Be Expressed in the Syntactic Dimension							
Iremit Mosque, Camili Köyü Merkez Mosque, Muratlı Köyü Mosque, Düzköy Mosque	Symmetry	Dominance	Rhythm	Balance	Contrast	Koram	Harmony	Unity
Kudret, authority								
Effective, potent, assertive								
Empty								
Lightweight								
Low								
Intolerability								

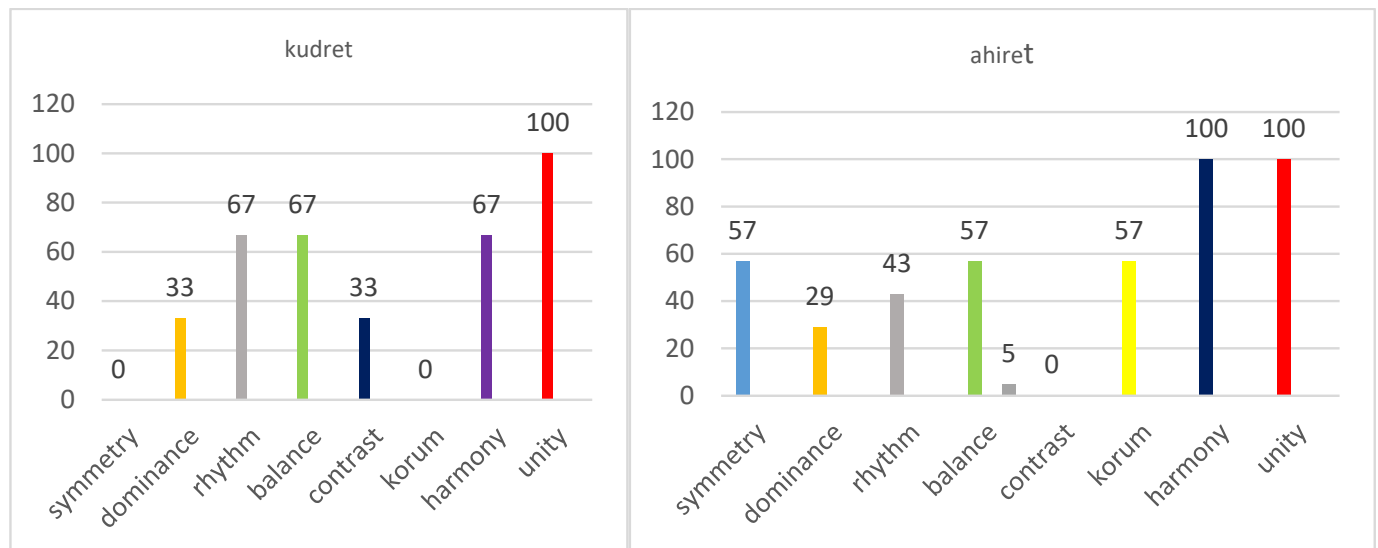


Figure 5. Kudret ve ahiret -basic design relationships.

5. Findings on Semantic and Syntactic Dimension Relationship of the Concept of *Ahiret*

As a result of examining the semantic dimension of the concept of the ahiret in sample mosques; in the interior space, which is highly isolated from the external environment, the human being, who is isolated from the outside world and breathes a different mystical air, moves away from the real world. With this distancing, the other world reaches the realisation of eternity. The central plan scheme with a small dome in the centre or focusing on the centre with a square planned core gives the feeling that the space is under the protection of a kudret. Mosques are places where people help each other, where love, compassion, respect and tolerance are provided. Due to the function of the space, besides fulfilling the desire to fulfil the obligatory duty (good deeds), it also provides the opportunity to worship collectively and communicate with different people (cohesion). An inviting atmosphere (warm, hospitable) has been prepared with the non-exaggerated building size and the wooden material used.

As a result of examining the sub-concepts of the concept of ahiret in the semantic dimension and the basic design principles in which these concepts are expressed in the sample mosques; the data obtained are given in Table 24, Figure 5. Accordingly, the concepts of beauty, peace, peacefulness, love, respect, restfulness, eternity, immortality, permanence, good deed, brightness, spaciousness, open, community, cohesion, unity, warmth and hospitality are reflected in the principle of harmony and unity (100%). In the semantic expression of the concept of ahiret, it was not expressed with the principle of contrast. Balance, koram and symmetry were expressed at a rate of 57%. Therefore, it may be more effective to successfully analyse the principle of harmony and unity in the expression of the concept of ahiret in new wooden sacred space designs.

Table 24. Semantic and syntactic dimension findings of the concept of Ahiret in İrem Mosque.

Sub-Concepts of the Concept of Ahiret and Related Concepts Basic Design Principles								
Concepts in Semantic Dimension	Basic Design Principles That Can Be Expressed in the Syntactic Dimension							
	Symmetry	Dominance	Rhythm	Balance	Contrast	Koram	Harmony	Unity
İrem Mosque, Camili Köyü Merkez Mosque, Muratlı Köyü Mosque, Düzköy Mosque								
Beauty, goodness, happiness, love, respect								
Tranquility, peaceful, restful								
Eternity, immortality, permanence								
Answer								
Bright, spacious, open								
Community, cohesion, togetherness (congregation)								
Warm, hospitable								

8. Conclusions and Recommendations

This study examined the semantic effects of the concepts of God (vahdaniyet) and the afterlife (ahiret) on the shaping of rural wooden mosque architecture in Artvin Province, Borçka District. Four rural wooden mosques—Muratlı, Camili Centre, İrem Mosque and Düzköy—served as the sample area for analysis (Table 25).

Table 25. Semantic and syntactic dimension findings in rural wooden mosques.

In Rural Wooden Mosque Architecture		
Sub-Concepts of Religious Concepts and Related Basic Design Principles		
	Concepts in semantic dimension	Basic design principles in the syntactic dimension
The concept of vahdaniyet	unity, unity	unity
	to submit, to surrender	dominance
	discipline, order, balance	symmetry, balance, harmony, unity
	orientation	coram, harmony, unity
	free space, unlimited, emptiness	symmetry, dominance, rhythm
	mystical, mysterious	dominance, harmony, unity
	rhythmic, harmonious	rhythm, harmony, unity
	dynamic	dominance, contrast, koram
	holy, religious, spiritual	harmony, unity
	inward oriented	contrast, harmony, unity
In the mosque examples examined, unity and harmony, which are among the basic design principles in the syntactic dimension as an indicator of the concept of Vahdaniyet, were most frequently seen.		
The concept of beka	Concepts in semantic dimension	Basic design principles in the syntactic dimension
	impermanence, mortality, finitude	contrast, harmony, unity
	infinity	dominance, koram, harmony, unity
	continuity, continuity	rhythm, koram, kontrast
	discipline, order, balance	symmetry, balance, harmony, unity
	rhythmic, harmonious	rhythm, harmony, unity
	mystical, mysterious	dominance, harmony, unity
In the examined mosque examples, harmony and unity, which are among the basic design principles in the syntactic dimension as an indicator of the concept of Beka, were most common.		
The concept of ilim	Concepts in semantic dimension	Basic design principles in the syntactic dimension
	knowledge, wisdom	balance, harmony, unity
	resilience	dominance, harmony, unity
In the examined mosque examples, harmony and unity, which are among the basic design principles in the syntactic dimension as an indicator of the concept of İlim, were most common.		

Table 25. Cont.

In Rural Wooden Mosque Architecture		
Sub-Concepts of Religious Concepts and Related Basic Design Principles		
Concepts in semantic dimension		Basic design principles in the syntactic dimension
The concept of kudret	kudret, authority	dominance, contrast, unity
	effective, potent, assertive	dominance, contrast, unity
	empty	rhythm, balance, harmony, unity
	lightweight	rhythm, balance, harmony, unity
	low	rhythm, balance, harmony, unity
	lack of durability	rhythm, balance, harmony, unity
In the mosque examples examined, rhythm, balance, harmony and unity, which are among the basic design principles in the syntactic dimension as an indicator of the concept of Kudret, were most frequently seen.		
Concepts in semantic dimension		Basic design principles in the syntactic dimension
Concept of ahiret	beauty, goodness, happiness, love, respect	symmetry, dominance, rhythm, balance, koram, harmony, unity
	tranquility, peaceful, restful	symmetry, rhythm, balance, koram, harmony, unity
	eternity, immortality, permanence	dominance, harmony, unity
	answer	harmony, unity
	bright, spacious, open	harmony, unity
	community, cohesion, togetherness (congregation)	symmetry, balance, balance, koram, harmony, unity
	warm, hospitable	symmetry, rhythm, balance, harmony, unity
In the examined mosque examples, harmony and unity, which are among the basic design principles in the syntactic dimension as an indicator of the concept of the ahiret, were most common.		

Key Findings:

The rural wooden mosques in the study exhibited distinct characteristics in terms of material use, size, proportion, interior space and exterior façade when compared to classical Ottoman mosque architecture. Unlike the monumental designs of the Ottoman Period, these rural mosques were smaller, more modest and detached, closely resembling the Eastern Black Sea rural housing architecture.

In terms of construction, the mosques shared similarities in materials, construction techniques and plan designs. They created a similar spiritual atmosphere through their simplicity and effective adaptation to the surrounding environment.

The interior spaces were distinguished by the transition between the exterior world and the afterlife, with minimalistic, non-ostentatious exteriors and ornamental, spiritual interiors that conveyed a sense of transcendence. Windows, approaching the floor, ensured visual integration with the environment, emphasizing the practical and grounded nature of prayer, which does not necessitate isolation from the outside world.

The mosques were all built in the 19th century using masonry techniques, predominantly featuring small-sized wooden materials. The facades and interior arrangements were similar, with the only significant variation being the ceiling styles: Düzköy mosque featured a wooden ceiling, while others, like Muratlı, İremi and the Camili Centre mosque, had domes constructed using the bağdadi technique.

Most mosques followed central, inward-oriented spatial schemes, contributing to the expression of vahdaniyet (unity) and cem (community) in their designs. The Düzköy mosque, with its flat ceiling, placed the center gradually inward from the ceiling, marking the centralization in the design approach.

Ornaments, such as medallions, rosettes, curved branches, acanthus leaves, geometric motifs and palmettes, were prominently carved into wood and applied without gaps, particularly on doors, pulpits, mihrabs, sermon pulpits and mahfils.

Syntactic Dimensions of Abstract Concepts:

The analysis revealed that the concepts of vahdaniyet, beka, kudret, ilimand ahiret were primarily expressed through harmony and unity (87%). Other principles such as contrast (13%) and dominance (36%) were less prevalent but still present. Symmetry and rhythm were key elements in representing the abstract ideas within the architectural design (Figure 6).

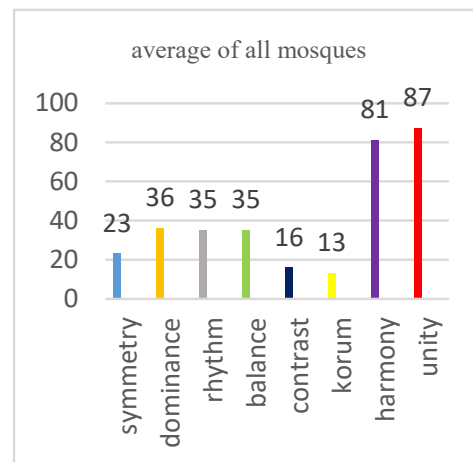


Figure 6. Average values.

The application of these design principles in religious architecture not only enhances the expression of sacred concepts but also contributes to the functionality and spirituality of the space.

Recommendations for Future Design:

Integration of Sacred Concepts in Design: Future mosque architecture can benefit from explicitly incorporating sacred concepts like vahdaniyet and ahiret into the design process. The study's findings suggest that using harmonious spatial arrangements and subtle contrasts can help create a spiritual and functional space.

Emphasis on Local Materials: Utilizing locally available materials, as demonstrated in the rural mosques, can improve the environmental harmony of new religious buildings and contribute to sustainability.

Simplicity and Ornamentation Balance: The study emphasizes the importance of maintaining simplicity in the exterior, while allowing for detailed ornamentation in the interior spaces. This contrast can reinforce the transition from the earthly realm to the sacred, enhancing the spiritual experience of the space.

Practical Applications for Contemporary Design: In contemporary mosque design, architects can utilize the principles of spatial harmony, simplicity and thoughtful ornamentation to create sacred spaces that serve both functional and spiritual needs. The incorporation of larger windows and natural lighting, for example, can allow for a visual connection with the surrounding environment, reinforcing the sense of connection between the spiritual and the worldly.

In conclusion, this study provides valuable insights into how traditional rural wooden mosque designs express deep spiritual concepts through basic design principles. These insights can serve as a guide for future mosque architecture, blending cultural heritage with contemporary needs while retaining their sacred character (Figure 7).

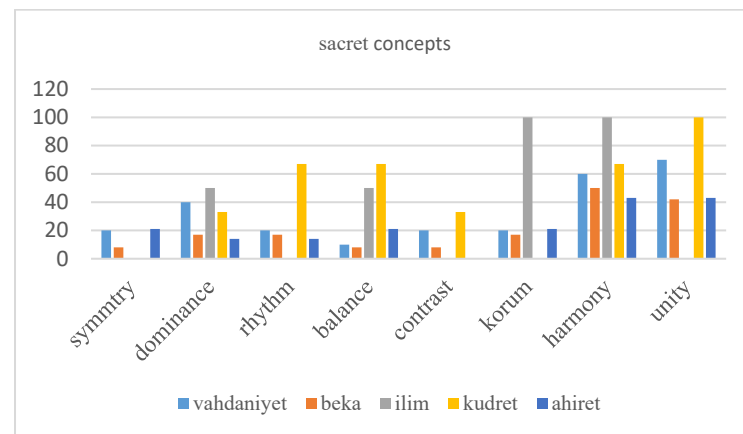


Figure 7. Sacred concepts with basic design principles.

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References

- Matracchi, P.; Habibabad, A.S. Prioritizing the effect of ‘Light’ in the religious places and environments with an emphasis on the sense of spirituality. *Ain Shams Eng. J.* **2022**, *13*, 101514. [CrossRef]
- Archer, P. *History of Religions 101 From Allah to Zen-Buddhism: Everything You Need to Know About the Important People, Rituals and Beliefs That Have Shaped World Religions*; Adams Media: Avon, MA, USA, 2014.
- Salimi, A.Y.; Salimi, A.; Pilehvarian, N.K. Position of Light and Water in Architecture and Philosophy of Art. *Turkish Online J. Des. Art Commun.* **2016**, *6*, 58–67. [CrossRef] [PubMed]
- Salimi, A.; Salimi, A.Y.; Pilehvarian, N.K. the Role and Impact of Religion on the Architecture of Mosques and Churches. *Turkish Online J. Des. Art Commun.* **2016**, *6*, 22–31. [CrossRef] [PubMed]
- Asefi, M.; Khasraghi, S.S.; Roders, A.P. Art and technology interactions in Islamic and Christian context: Historical approach to architectural globalization. *Front. Archit. Res.* **2019**, *8*, 66–79. [CrossRef]
- Li, W.; Liu, T.; Liu, H.; Li, Y.; Li, S.; Zhang, Y. Spatial distribution characteristics of Tibetan Buddhism principal-subordinate monastery systems in the Hehuang region. *Herit. Sci.* **2024**, *12*, 1–26. [CrossRef]
- Dumorties, B.; Adadağ, Ö.; Ergüven, E. *Dinler Atlası: İnançlar, İbadetler Ve Ülkeler*; NTV Yayınları: Frankfurt, Germany, 2007.
- Ataç, M. İslam Mimarlığı Kavramı Bir Geleneksel Kültür Kavramıdır. *Mimar Dergisi*. 1981, pp. 11–12. Available online: <http://www.mimarlikdergisi.com/index.cfm?sayfa=mimarlik&DergiSayi=225> (accessed on 9 December 2024).
- Biondo, V.F. The Architecture of Mosques in the US and Britain. *J. Muslim Minor. Aff.* **2006**, *26*, 399–420. [CrossRef]
- Çakıroğlu, B.; Engin, N. Dini İnanışların Mimariye Etkisi. *Dini Araştırmalar* **2014**, *17*, 67–92. [CrossRef]
- Askarizad, R.; He, J.; Ardejani, R.S. Semiology of Art and Mysticism in Persian Architecture According to Rumi’s Mystical Opinions (Case Study: Sheikh Lotf-Allah Mosque, Iran). *Religions* **2022**, *13*, 1059. [CrossRef]
- Tümer, A.; Küçük, G. *History of Religions*; Ocak Publications: Ankara, Turkey, 1997.
- Örnek, S.V. *100 Questions on Religion, Magic, Art, Legend among Primitives*; Gerçek Publishing House: Istanbul, Turkey, 2000.
- Zu, X.; Gao, C.; Wang, Y. Towards religious landscape: Protection of Tibetan Buddhist heritage in Aba Prefecture. *Int. J. Appl. Earth Obs. Geoinf.* **2024**, *130*, 103885. [CrossRef]

15. Cansever, T. *City and Architecture in Islam*; İz Publishing: İstanbul, Turkey, 1997; p. 6.
16. Alalheseabi, M.; Hosseini, S.B.; Nassabi, F.; Sedhpour, B.S. Analyzing Islamic Architecture Visual Quality in Bushehr City: Case Study: Religious Space Kazeruni Barhah (Hosseiniye). *J. Islam. Archit.* **2012**, *2*, 28–35. [\[CrossRef\]](#)
17. Şerif, M.M. *History of Islamic Thought*; Human Publications: İstanbul, Turkey, 1990.
18. Nasr, S.H. *Islamic Art and Spirituality*; İnsan Publications: İstanbul, Turkey, 1987.
19. Çam, N. *Art in Islam and Islam in Art*; Akçağ: Kazan, Turkey, 2019.
20. Ghanaati, M.; Azeri, A.R.K.; Ghanaati, F.; Hosseini, S.B. Role of Movement and Stillness Elements in Development of Iranian-Islamic Cities in order to Make Optimal Satisfaction in Human (Case Study: Bazaar, Mosque, House). *Procedia—Soc. Behav. Sci.* **2015**, *201*, 201–212. [\[CrossRef\]](#)
21. Wahdattalab, M.; Nikmaram, A. Investigation of Aesthetic Preference the Simplicity and the Complexity of the Visual Qualities of Motifs in Islamic Architecture. *Turkish Online J. Des. Art Commun.* **2016**, *6*, 1550–1566. [\[CrossRef\]](#) [\[PubMed\]](#)
22. Faruki, L.L.; Faruki, İ.R. *Atlas of Islamic Culture*; İnkılâp Publications: İstanbul, Turkey, 2022.
23. Ali, L.A.; Mustafa, F.A. Evaluating the impact of mosque morphology on worshippers' visual comfort: Simulation analysis for daylighting performance. *Ain Shams Eng. J.* **2024**, *15*, 102412. [\[CrossRef\]](#)
24. Ahmad, M.; Rashid, K.; Naz, N. Study of the ornamentation of Bhong Mosque for the survival of decorative patterns in Islamic architecture. *Front. Archit. Res.* **2018**, *2*, 7. [\[CrossRef\]](#)
25. Nejad, J.M.; Azemati, H.; Sadeghi, A.; Abad, H. Investigating Sacred Architectural Values of Traditional Mosques Based on the Improvement of Spiritual Design Quality in the Architecture of Modern Mosques (Case Study: Traditional Mosques in Iran). *Int. J. Archit. Eng. Urban Plan* **2019**, *29*, 47–59.
26. Almandrawy, M.A.; Sayed, E.; Ahmad, B. Islamic Art and the Identity of the Architecture Fundamental Design. *Int. J. Trend Sci. Res. Dev. (IJTSRD) Islam. Art Identity Archit. Fundam. Des.* **2022**.
27. Taib, M.Z.M.; Rasdi, M.T. Islamic Architecture Evolution: Perception and Behaviour. *Procedia—Soc. Behav. Sci.* **2012**, *49*, 293–303. [\[CrossRef\]](#)
28. Yücel, A. On Islamic Architecture. *Architecture* **1981**, *5*, 4–6.
29. Eilouti, B. An Interdisciplinary Framework of the Visual and Semiotic Language of Architecture: A Case Study of the Süleymaniye Mosque. *Int. J. Architecton. Spat. Environ. Des.* **2024**, *18*, 73–102. [\[CrossRef\]](#)
30. Elwazani, S.A. Sacral Qualities of Form in Mosque Architecture: Transformation of the Arts of the Kur'an into the Arts of the Mosque. *Am. J. Islam Soc.* **1995**, *12*, 478–495. [\[CrossRef\]](#)
31. Kuban, D. *Sinan's Art and Selimiye*; Türkiye İşbank Cultural Publications: İstanbul, Turkey, 2017.
32. Khan, H.-U. The Architecture of the Mosque, an Overview and Design Directions. *Expr. Islam Build* **1990**, 109–127.
33. Utaberta, N.; Asif, N.; Rasdi, M.T.M.; Yunus, M.Y.M.; Ismail, N.A.; Ismail, S. The concept of mosque based on Islamic philosophy: A review based on early Islamic texts and practices of the early generation of the Muslims. *Adv. Environ. Biol.* **2015**, *9*, 371–374.
34. Alnaim, M.M. The Architecture of Mosque Integration of Decoration, Functionality, and Spirituality: An Overview of Najd Region Mosque Architecture. *J. Eng. Res.* **2023**. [\[CrossRef\]](#)
35. Güzel, E. Quran Foundations of Islamic Art and Aesthetics. Master's Thesis, Selçuk University, Institute of Social İlims, Konya, Turkey, 2008.
36. Ramzy, N.S. Visual language in Mamluk architecture: A semiotic analysis of the Funerary Complex of Sultan Qaitbay in Cairo. *Front. Archit. Res.* **2013**, *3*, 338–353. [\[CrossRef\]](#)
37. Kharazmi, M.; Sarhangi, R. An Analytical Study of the Methods of Design and Geometric Constructions in Architectural Ornaments of the Friday Mosque of Forumad. *Nexus Netw. J.* **2016**, *18*, 275–310. [\[CrossRef\]](#)
38. Eilouti, B. Sinan and Palladio: A comparative morphological analysis of two sacred precedents. *Front. Archit. Res.* **2017**, *6*, 231–247. [\[CrossRef\]](#)
39. Sadeqi, S.; Ekhlassi, A.; Norouzian-Maleki, S. An analysis of structural aesthetics in architecture case study: Taj-Ol-Molk Dome, Jāme'h Mosque of Isfahan, Iran. *SN Appl. Sci.* **2019**, *1*, 570. [\[CrossRef\]](#)
40. Sujak, I.; Mazlan, I.M.; Azman, N.S.; Alias, N.U.A.U. Traditional Mosque Architecture: Portrayal of society sociology. *Environ. -Behav. Proc. J.* **2021**, *6*, 205–214. [\[CrossRef\]](#)
41. Kiessel, M.; Tozan, A. Mosque architecture in Cyprus—Visible and invisible aspects of form and space, 19th to 21st centuries. *Religions* **2021**, *12*, 1055. [\[CrossRef\]](#)
42. Serjeant, R.B. *Islamic City*; İz Publishing: İstanbul, Turkey, 1997.
43. Atay, Y.N.; Öztürk, H. *The Truth of Islam*; Ankara University Faculty of Theology Publications: Ankara, Turkey, 1995.
44. Yörükan, Y.Z. *Islam and the Principles of Islam with Verses from the Quran*, 1st ed.; T.C. Ministry of Culture Publications: Ankara, Turkey, 1998.
45. Topaloğlu, B. 'Kudret' TDV Encyclopedia of Islam; Türkiye Religious Foundation: İstanbul, Turkey, 2002; Volume 26, pp. 316–317.
46. Hasol, D. *Encyclopedic Dictionary of Architecture*; Yem Publication: İstanbul, Turkey, 2017.
47. Hasol, D. *Architecture*; Yem Publication: İstanbul, Turkey, 2019.

48. Mitias, M.H.; Al Jasmi, A. Form and function in the congregational mosque. *Estet. Cent. Eur. J. Aesthet.* **2018**, *55*, 2018. [CrossRef]
49. Grabar, O. *The Formation of Islamic Art*; Yapı Kredi Culture and Arts Publishing: Istanbul, Turkey, 1998.
50. Rahman, F. *Major Themes of the Qur'an*; University of Chicago Press: Chicago, IL, USA, 2009.
51. Bammat, N. The understanding of space in Islam, Science and Art. *Indones. J. Islam Muslim Soc.* **1987**, *11*, 3–4, 41–50.
52. Eldien, H.H. Evaluation of the influence of Mihrab shape on sound quality in Mosques. *J. Eng. Res.* **2024**. [CrossRef]
53. Dickie, J. *Allah and Eternity: Mosques, Madrasa and Tombs in Architecture of Islamic World*; Michell, G., Ed.; Thames and Hudson: London, UK, 1984.
54. Çakıroğlu, B.; Sağsöz, A.; Akat, R. Creating a method of reflecting the basic concepts of islamic religion in the Ottoman period religious architecture. *Int. J. Curr. Res.* **2017**, *9*.
55. Akat, R.; Çakıroğlu, B.; Bayer, I.R. The reflections of the concept of beauty in the religious architecture: The example of the Ottoman period between the 13th and 17th centuries. *Philos. Pap. Rev.* **2012**, *3*, 11.
56. Akat, R.; Çakıroğlu, B.; Çakıroğlu, E.O. *Geleneksel Konutlarda Dış Mekân Öğelerinin İrdelenmesi: Trabzon Ortahisar Ve Pazarkapi Mahalleleri Örneğinde*; Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi: Ankara, Turkey, 2024; Volume 25, pp. 256–270.
57. El-Darwish, I.I.; El-Gendy, R.A. The role of fenestration in promoting daylight performance. The mosques of Alexandria since the 19th century. *Alexandria Eng. J.* **2016**, *4*, 55. [CrossRef]
58. Gawlikowska, A.P. From Semantics to Semiotics Communication of Architecture. *Archit. ARTIBUS* **2013**, *40*, 50–61.
59. Günay, R. *Mimar Sinan and His Works*; Yem Publication: Istanbul, Turkey, 2002.
60. Joseph, R. The Semiotics of the Islamic Mosque Author. *Arab. Stud. Q.* **1981**, *3*, 285–295.
61. Al Fahmawee, E.A.D.H. Semiotics as an Approach to the Analysis of Symbolism in Islamic Architectural Arts. *Archit. Eng.* **2022**, *7*, 3–19. [CrossRef]
62. Metwally, E. Achieving the visual perception and gestalt psychology in sultan Hassan mosque building. *Open J. Appl. Sci.* **2021**, *11*, 21. [CrossRef]
63. Johar, S.; Ahmad, A.; Ani, A.; Tahir, M.; Tawil, N.M. Conservation Activities of Old Traditional Mosque in Malaysia: An Overview. *Sch. Hous. Build. Plan. Univ. Malays.* **2010**, *11*, 269–277.
64. Baharudin, N.A.; Ismail, A.S. Architectural Style of Da'wah Mosque in Malaysia: From Vernacular to Modern Structures. *Int. J. Built Environ. Sustain.* **2016**, *3*, 70–78. [CrossRef]
65. Available online: https://tr.wikipedia.org/wiki/Dosya:Map_of_the_Republic_of_Turkey.png (accessed on 9 December 2024).
66. Available online: https://en.wikipedia.org/wiki/Bor%C3%A7ka_District (accessed on 9 December 2024).
67. Ahmet, A. Available online: <https://www.borcka.bel.tr/sehrin-nufusu-ve-tarihi/> (accessed on 9 December 2024).
68. Ching, F.D. *Architecture: Form, Space, and Order*; John Wiley & Sons: Hoboken, NJ, USA, 2023.
69. Aksoy, E. *Mimarlıkta Tasarım İletim ve Denetim*; Gün Matbaası: İstanbul, Turkey, 1975.
70. Ertürk, S. *An Experimental Study on the Perception of Architectural Space*; Karadeniz University Press: Trabzon, Turkey, 1984.
71. Šijaković, M.; Perić, A. Symbiotic architecture: Redefinition of recycling design principles. *Front. Archit. Res.* **2017**, *1*, 7. [CrossRef]
72. Stankovic, D.; Kostic, A.; Nikolic, V.; Cvetanovic, A. *Form in Architecture and Principles of Design*; Архитектура Строительство Образование: Magnitogorsk, Russia, 2018; pp. 57–63. [CrossRef]
73. Gulati, N.; Kaur, P.D. Towards socially enabled internet of industrial things: Architecture, semantic model and relationship management. *Ad Hoc Netw.* **2019**, *91*, 101869. [CrossRef]
74. Simitch, A.; Warke, V. *The Language of Architecture: 26 Principles Every Architect Should Know*; Rockport Publishers: Pitman: Boston, MA, USA, 2014.
75. Eilouti, B. Concept evolution in architectural design: An octonary framework. *Front. Archit. Res.* **2018**, *2*, 7. [CrossRef]
76. Hewitt, E. *Semantic Software Design: A New Theory and Practical Guide for Modern Architects*; O'Reilly Media: Sebastopol, CA, USA, 2019.
77. Özek, V. *Determination of Sign and Symbol—Threshold Stage in Architecture*; Karadeniz Technical University Printing Workshop: Trabzon, Turkey, 1980.
78. Egenter, N. Semantic and symbolic architecture. In *Architural Anthropology*; Press Centrales: Lausanne, Switzerland, 1994; pp. 1–24.
79. Aydınli, S. *Aesthetic Values in Architecture*; İTÜ Faculty of Architecture Printing Workshop: Istanbul, Turkey, 1993.
80. Nasar, J.L. *Environmental Aesthetics: Theory, Research, and Application*; Cambridge University Press: Cambridge, UK, 1992.
81. Januszewski, W.S. Logic, Perception and Beauty—An Outline of the Modern proportion-based approach in Architectura. *Buildings* **2024**, *14*, 2266. [CrossRef]
82. Pietroski, P.M. *Events and Semantic Architecture*; Oxford University Press: Oxford, UK, 2004.
83. Bonino, D.; Corno, F.; De Russis, L. A semantics-rich information technology architecture for smart buildings. *Buildings* **2014**, *4*, 880–910. [CrossRef]
84. Usta, G.K.; Usta, A.; Tuluk, Ö.İ. *Visual Dictionary for Anatolian Turkish Architecture*; Sonhaber Printing: Trabzon, Turkey, 2001.
85. Enön, Z. *History of Settlements Lecture Notes*; KTÜ Publications: Trabzon, Turkey, 1987.

86. Fernández-Jiménez, A.; Puertas, F.; Sobrados, I.; Sanz, J. Structure of calcium silicate hydrates formed in alkaline-activated slag: Influence of the type of alkaline activator. *J. Am. Ceram. Soc.* **2003**, *86*, 1389–1394. [CrossRef]
87. Ögel, S. *Seljuk Face of Anatolia, İstanbul*; Akbank Publications: İstanbul, Turkey, 1994.
88. Özel, M.K. The Concept of Center in Religious Architecture (Religious Elements That Give the Place of Worship Its Center Identity). Master's Thesis, MSU, Institute of Science, İstanbul, Turkey, 1998.
89. Kılavuz, A.S. *Introduction to Islamic Faith and Kalam in Outline*; Ensar Neşriyat: İstanbul, Turkey, 2011.
90. Aydın, A.A. *İslâm'da İman ve Esasları*; İrfan Yayınevi: İstanbul, Turkey, 1986.
91. Çakıroğlu, B. Reflections of the Basic Concepts in the Islamic Religion on the Religious Architecture of the Ottoman Period (13th–17th Centuries). Ph.D. Thesis, Karadeniz Technical University, Institute of Ilim and Technology, Trabzon, Turkey, 2006.
92. Çakıroğlu, B. İslam dinindeki temel kavramların Osmanlı Dönemi türbe mimarisine yansımaları. *Türk Kültürü Ve Hacı Bektaş Veli Araştırma Derg.* **2022**, *101*.
93. Yalçın, C. *Dictionary of Synonyms, Antonyms, Homophones*, 2nd ed.; Tutibay Publications: Ankara, Turkey, 2002.
94. Parlatur, İ. *Osmanlı Türkçesi Sözlüğü*; Yargı Yayınevi: Ankara, Turkey, 2006.
95. Available online: <https://moonstar.indir.com/windows> (accessed on 9 December 2024).
96. Graves, M. *The Art of Color and Design*; McGraw-Hill Book Company, Inc.: New York, NY, USA, 1951.
97. Güner, L. *Basic Design*; İstanbul Technical University Printing House: İstanbul, Turkey, 1990.
98. Divanlıoğlu, D. *Basic Design, Design Elements and Principles*; Birsan Publishing House: İstanbul, Turkey, 1997.
99. Güngör, İ.H. *Basic Design*; Afa Printing House: İstanbul, Turkey, 1983.
100. Fidan, M.E. *Nigali Vadisi Camilerinin İç Mekân Tasarımı Üzerine Bir Araştırma*; DOKAP Bölgesi Uluslararası Sempozyumu: Trabzon, Turkey, 2017.
101. Taşkan, D. *Artvin ili Borçka ve Hopa İlçeleri Camilerinde Ahşap Süslemeler*; Sosyal Bilimler Enstitüsü: İstanbul, Turkey, 2011.
102. Çakıroğlu, E.O.; Çakıroğlu, B.; Taşdemir, T. Artvin'de bulunan tarihi camilere ait minber ve kapıların ahşap süsleme programı açısından değerlendirilmesi. *Artvin Çoruh Üniversitesi Orman Fakültesi Derg.* **2023**, *24*, 227–248. [CrossRef]
103. Aytekin, O.; Eserler, A.M. Ph.D. Thesis, Social Sciences Institute, Yüzüncüyıl University, Van, Turkey, 1996.
104. Coşkun, R. *Artvin Borçka'daki Yağma Ahşap Camilerin İncelenmesi ve İremit Camisi Koruma Projesi Önerisi*; Yıldız Teknik Üniversitesi Fen Bilimleri Enstitüsü Yüksek Lisans Tezi: İstanbul, Turkey, 2021.

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