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## **Communicative Model in Modern Japanese Architecture**

### **Abstract**

The article is devoted to the revealing and characterization of the central categories that spatial perception of architecture in Japan is based on. Provided analysis of those categories leads to understanding its role in forming the image of traditional Japanese architecture; which also gave the explanation of the structures and shapes of contemporary Japanese architecture. To underline this statement, meaningful works of three notable modern Japanese architects were selected. A special attention is given to the revelation how in order to produce the communicative act between the viewer and himself, those architects use the categories of emptiness, interval and shadow in their buildings according to their own perception of space.

Social existence of the person requires an ability to communicate and collaborate with other human beings and to build on this foundation the basic structures and institutes. The art for its contemporaries assumes the role of the leading transmitting mechanism by which the information transferring and interaction is provided.

Architecture is considered as a special form of art, organizing and assembling the masses of material in space. According to art theorist Umberto Eco, the architecture represents a special kind of communicative system (Eco 1998: 203–207). The minimum unit of the system includes the communicative act. To reveal the paradigm of how the architecture is able to transmit the information and provide social interactions we must define the so called communicative model. In each communicative act

there is a *sender* as well as *receiver* of information, in terms of architecture those are the architect and the individual or the society.

The architect uses the materials (concrete, wood, glass) – *transmitting means* – to create a certain shape, according to the *idea* he has to transmit by his building, which represents *the message*. Moreover, there is a *code*, which is necessary to link the idea to the building.

The components of the communicative model are permanent, but the content can change, depending on historical context.

Form of architectural work contains internal communication and the way of interaction of material elements and the spaces between them works of architecture and the environment, according to sensory perception. The main problem of forming the architectural environment in European tradition is the interactions of space and masses – the foundation on which the architecture as language system is based on. In the immediate experience of the artist and the spectator mass and space are almost inseparable, their interaction is the mainstay of artistic influence architecture.

But there is no such pattern in Japanese architectural tradition. Three central categories, that spatial perception of architecture in Japan is based on, are the following: *emptiness, interval and shadow*. These categories due to the stability of the application can be regarded as invariants of Japanese culture (Konovalova 2011: 433).

It is important to bear in mind that these categories fully exist in close interactions and gain strength only with exposure to their complementarity. As a unit they form a meaningful and artistic field, which reflects the continuity of traditions for Japanese people. This is confirmed by the latest architecture that shows its connection with the tradition not only formally, but on another – perceptual – level, involving semantic and aesthetic components. The most notable modern architects, while creating their pieces, tend to maintain a sense of space, historically bred by Japanese culture. Proposed set of spatial categories bears symbols and meanings that constitute the essence of Japanese culture.

Architects insert their works in the cultural context, taking full advantage of the artistic possibilities offered by the combination of such categories as “emptiness”, “interval” (*ma*) and “shadow” for organizing architectural space. However, each master demonstrates his point of view by using traditional iconic spatial categories in his own way, according to his notion, what becomes a distinctive feature of their professional path.

In order to disclose the triad of these fundamental spatial categories we have to look into the history and trace their origins, content and artistic value in medieval Japan, and its contemporary forms.

Buddhism brought in an important concept of the Absolute and gave the category of “emptiness” a new matter. Emptiness in Buddhism has no negative meaning, on the contrary, it is the substance reconciling all contradictions. It is perceived as unlimited and indefinable. According to religious beliefs, while merging with emptiness, one merges at the same time with Buddha and finds Him in the essence of himself. The consequence of such religious beliefs was that emptiness has become one of the most meaningful points in art.

In the technology of ink painting, inherited from China, some areas on paper or silk remain intact, creating “emptiness”. These clear areas embody a kind of interval or innuendo thereby stimulating the viewer’s imagination. Emptiness seems as a boundless space, which is the beginning of all things, from which the ideas and forms arise. That means that the forms and ideas are enclosing and existing in an empty space, without certain embodiment though. As the result, emptiness has an influence on emotions and feelings, perceived by human subconsciously as the model of the universe.

The aesthetic values of Japanese culture were strongly affected by this philosophy and its seeds were noticed in all kinds of fine arts, including traditional Japanese ones (*ikebana*, *chadō* etc.) and urban planning. It is manifested broadly in the architecture as well. Katsura Imperial Villa ensemble (built in the 17<sup>th</sup> century) conveys subtle harmony of Japanese aesthetics. The empty space of its interiors possesses the basic artistic sense.

While creating an atmosphere of calm and concentration, the feeling of emptiness will accompany visitors in tea house. The place that defines philosophical mood of the ceremony is represented by *tokonoma*. It is the only “decoration” of the tea room, in which a roll of monochrome painting and a bouquet of flowers are placed.

In traditional Japanese house it is impossible to see things piling up in the rooms. Therefore, if you remove the *fusuma* and *shōji* (sliding doors) inside the house, it will be only one canopy over the empty space. The infinity and depth of space, the aesthetics of simplicity and expressiveness is highlighted owing to the category of “emptiness”.

In Japanese culture at the level of world perception there is a ground that is capable of combining the opposites, which are mutually exclusive –

kind of a “grey area”. Eastern philosophers were avoiding unambiguous definitions, they believed that it would stop the movement of thought, and used allegories instead. In other words, in Eastern way of thinking the hint was significantly more effective than directly speaking words. Perhaps, this negative attitude to any extremes and contrasts in Japanese culture has led to the situation when the so-called grey area – the central link of thinking structure – has come to play a leading role.

In language the capacious concepts that convey the Japanese perception of the grey area appeared. At the same time, linguistic categories reflect the many facets of its semantic content. The concept of *ma* – the significant symbol of understanding space, also has a philosophical meaning – “to give the space a rhythm”. Japanese explain this concept in many ways. For example, in modern dictionaries *ma* is interpreted as: 1) a binding area; 2) an exchange zone; 3) an interval; 4) a pause in music or dance; 5) a moment of silence during the recitation; 6) convenient (favorable) time, the time change; 7) a room in the house; 8) empty space etc. *Ma* is also used as an adverb with connotation of “between”, “among”.

There are many definitions of *Ma*, but the general sense is the idea of pause and emptiness. *Ma* represents some of the blank areas that everyone can give, within certain limits, any meaning. This is “conceptualize spatiality” or “interspace” – the semantic gap in various spheres of culture, expressing hostility of Japanese to “contacting” antagonisms. More clearly *ma* is defined in one of the dictionaries of old Japanese language as: “a required interval between two consecutive things”. As a symbol *ma* is connecting, not separating. The hidden mystery of the connection finds its expression in mainstream art. In the performances of *No* theatre, when the image of grief or tragedy abruptly changed to joy, there is a compulsory moment of immobility. It allows to suppress inconsistency of antagonisms in order to combine them and produce a change of mood. This is the moment of expression of *ma*.

One of the most distinguishing qualities of Japanese architecture is its merger with the natural surroundings, which forms the principle of an “open building”. Although the house is located in an open nature area, it is completely closed for the eye of a stranger. There is usually a thick garden, planted along the perimeter of the house. It isolates the building even better than the stone wall with windows in European tradition, frequently facing onto a noisy street. The open gallery (*engawa*) encircling the traditional construction, hides rooms from the eyes of the stranger. The “grey area” is embodied in the traditional architecture as *engawa*, which

is intended to express the relationship between nature and architecture, and bring together various architectural groups (Kurokawa 1988: 53–54). Owing to *engawa* architecture in Japan is connected with nature; it opens the structure to nature and at the same time, includes the nature itself in the architectural construction. In other words, *engawa* takes a role of the interval between the outer and inner space. Such an intermediate zone between the interior and exterior natural environment in traditional houses is a multipurpose space for relaxation or taking visitors for a cup of tea. Moreover, visitors sitting in the gallery, are neither in the garden, nor at home. *Engawa* includes both spaces – here they mix and flow one into another.

It is also interesting how this “interval” function of *engawa* reflects on the choice of materials. Wood and bamboo used in its construction provide a smooth transition from the rocks, plants, herbs that fill the surrounding space to *shōji* and *tatami* made from paper and straw arranged in the interior of the house. The gallery connects two areas by using the particular materials and promotes continuity of internal and external spaces that are as vivid and diverse in their structure that can be considered as contrasting. Vegetation and rocks in their original natural form can be safely confronted with *shōji* and *tatami* – the hand-made product, but between them there is an interval – processed wood.

The “grey area” is primarily characterized by its darkness. Shadow is a compulsory content of a traditional house. There was no furniture provided in it, so it is basically a blank space surrounding dwelling rooms by shadow. The main semantic core in this case is focused on an empty *shadowed* space.

Desire to obscure, to hide an object from prying eyes can be found in the location of sacred architecture – *shintō* shrines in particular. German architect Walter Gropius after visiting two large pieces of East and West architecture – Ise Grand Shrine and Parthenon, tried to identify the spatial characteristics of structures and penetrate the basis of their differences. The comparison of these outstanding works of architecture will allow to reveal essential differences between Japanese and Western cultures.

This comparison is significant because both structures were erected in the period of transition from the heroes’ era to the era of state formation, and both are considered as symbols of their cultures. The difference between these two structures seems obvious. Parthenon is built on top of a hill to be visible to everyone, it bathes in sunlight, and is full of grandeur, while the shrine is surrounded by four tall fences and is hidden in the

middle of a thick forest (Okano 2012: 25–26). Hence, we can produce Parthenon as an evidence to man's confidence that he can conquer the nature. Western culture exists on the basis of the subordination of nature, its conversion and use for human needs. In order to create a perfect order of things, the Chaos must be overcome. This attitude gave birth to the existing opposition "nature vs culture" in the Western world. On the contrary, in Japanese culture the idea about the importance of the Chaos was formed. According to this idea, the Chaos gave life to all beings on the planet. In order to emphasize that the Japanese refer to linguistic forms that express the importance of enigma, depth – *oku* in Japanese language. This term has a lot of meanings, all of which show the desire of Japanese to "wrap up the object" or to move it away into the shadow. Furthermore, many religious *Shintō* ceremonies are conducted at night.

Indeed, if we compare Japanese culture with Western in this perspective, the fundamental differences show up. In Europe, the images formed by centuries have prepared individuals' minds for bringing forward the bright side of things. In Western mentality light is idealized, correlated with insight and symbolically seen as a source of knowledge, by which a man reconstructs the world. Shadow took a more modest place. Seeing how the shadow doubles objects of real life, led to the attribution of autonomous existence of it. At this point the term assumes a sharply negative connotation. The "shadow" in this case is seen as an insignificant reflection of the original.

At the worldview level, these differences clearly appear. In the European way of thinking all extremes are separated by precise boundary. As the result, the basic semantic units are the extremes exactly. Between black and white there is a grey zone, but the semantic content of this concept shows a negative attitude towards it (for example, in the novel "Faust" Goethe uses the expression "the grey women" which has a symbolic meaning of boredom, solitude and emptiness; "the grey area" – a subject in law where there is lack of clarity). Perhaps because it carries a connotation of uncertainty and can not be attributed to one or to the other pole.

In Japanese culture this particular interval (the middle zone) dominates over the two poles. Perhaps the negative attitude to any contrasts in Japanese culture has led to the fact that the concept of "shadow" has taken a significant place among other cultural categories. Combining the light and the darkness, "shadow" occupies a central place and changes the dual scheme which was familiar to Europeans. That explains the complexity of understanding this category by Western culture representatives.

These three central categories of Japanese architecture complement each other, thus developing the Japanese architectural tradition. The best modern architects when creating their buildings or organizing space according to their views rely, however, on the above three categories, which underline the traditional understanding of space organization.

In the works of leading contemporary Japanese architects (K. Tange, T. Ando, T. Itō) vivid examples of the continuity of the cultural traditions can be found. These architects are considered as emblematic figures that influenced architects all over the world. Each of them has his own vision of what architecture is and what purpose it should serve.

In the buildings constructed by Kenzo Tange the main semantic core is an expression of "emptiness". St. Mary's Cathedral in Tokyo is one of his most famous buildings in which this category can be seen. As a Catholic church, it has all architectural elements inherited from Western architectural tradition. Those are the central nave, chancel, side-chapels, crossing and even the large organ crowning the west entrance. However, the space perception cannot be considered as Western by all means. The main objects of worship and shrines are located in the shadows, for example, a large wooden cross in the center of the altar area is recessed into the eastern facade and almost imperceptible, as well as the sculptures in the completion of the side-chapels.

The ceiling is made of glass and has a shape of a cross. It carries the meaning of the crucifixion, due to the light penetrating through it, and also the ascension and eternal life. Moreover, the movement of the sun and changing light inside the cathedral seen through the ceiling, leads to understanding the philosophical idea of universe variability and volatility. Curved arches reminiscent the ship, texture and color of the stone resembles a tree; owing to heating as well as the smell of incense, the visitor could have a feeling of being in the ark or some kind of a shelter. Thus, by influencing the most of human senses – touch, smell, sight and hearing – the architecture affects the individual in a way it was programmed by the architect.

In works of K. Tange the appearance of buildings have a great importance. The main attention is focused, firstly, on its inclusion into the environment, creating a harmonious unity with nature, and secondly, on the possibilities of visual communication. An example of such unity and implementing communications capabilities is Olympic Complex Yoyogi in Tokyo. It includes two arenas – the large Yoyogi National Gymnasium and smaller pavilion which is used for various smaller events. The roof

has a unique shape, similar to the shell of a snail. For the main stadium the architect built the largest overlap in the world. The subtle curves of the structural cables, the sweeping roof plane, and the curving concrete base seem to emerge from the site appearing as one integrated entity. The meaning of the spiral shape is in opposition to strong winds, dangerous for structures of this size. One of the main features of the gymnasium is its versatility. First of all, it is known as a swimming pool with nine 50-meter tracks. The water surface can be closed by a stove, forming a free space that is used for other events (judo skating etc). Thus, Tange works with emptiness transforming it the way he pleases. From the emptiness any form may appear, and be filled with an infinite number of meanings. Described method of “folding” space-filling but unnecessary things to get the empty space connects the Olympic Stadium with the understanding of the interior in a traditional house. Location of windows and artificial light sources along the spiral line allows to use daylight and to include internal space in *chiaroscuro*. All these architectural elements allow the viewer to perceive the whole building as a dynamic entity, resulting as a combination of form and function – through structure the building shows what it serves.

According to the words of K. Tange – he always thought about how to create a space for the exchange of ideas and information in general. He believed that real communication does not occur in classrooms and assembly halls, but in corridors and courtyards – in the so-called middle space, (grey area) (*14 Japanese architects Interviews and photos by Roland Hagenberg 2004: 154–155*). He paid careful attention to all that areas, which were elaborately organized. For example, the wide detour behind the seats on the small arena of Yoyogi Complex. It is based on a spiral foundation – half way you go up, another half – down, from each spot the view will change. It is also a space where spectators can discuss the results of current game, athletes may do warming-up exercises etc. Usually a large number of Japanese come to the matches or competitions in advance. There is a lot of free space around the stadium, where people can walk while waiting for the beginning of the performance.

The third building is the Museum of Contemporary Art located in Yokohama. It is a classic example of a museum with a horizontally stretched facade, surrounded by a gallery with a colonnade. The main hall is designed as bidirectional and symmetrical space. On the left side there are sculptures by surrealists Salvador Dali, Rene Magritte and others. Architect distributed sculptures on different levels, which out-



wardly resembles a museum arrangement of D'Orsay in Paris. From the second floor of the building, where the main exhibition is situated, the shape of the museum roof is clearly observed – it is made in a shape of a gable and recalls the ancient Roman *basilica*. Thus, through deliberate organization of space the architect links the art across time and distance and shows its homogeneity. The interior of the museum has a peculiarity, in areas with a permanent exhibition space divided by partitions, which can be easily moved and repositioned, thus changing the perception of art pieces. In the halls with an exhibition of Japanese art there is only a small bench for visitors; emptiness promotes the formation of a calm state of mind for the perception of art works.

Leading role in triangle of categories Tange assigns to “emptiness”, possessing the main artistic, semantic and functional load. “Interval” and “shadow” only emphasize the dominant, increasing its impact.

In architecture of another Pritzker Prize winner – Tadao Ando – volume and depth of things are created from the interaction of light and shadow. Light becomes a tool in the hands of the architect, like hammer is an instrument for a sculptor, or brush – for a painter. The architect finds new ways for the natural light to enter the building, allowing the structure to “live”, to change like a living creature.

One of the iconic buildings constructed by T. Ando gives an example of how strong the influence of light might be. It is Church of Light situated at a quiet residential area of Osaka. Its location was accurately determined in relation to buildings in the neighborhood to make maximum use of sunlight. Interior of a small cult building consists solely of space and light. Using untreated concrete as the construction material and only a few artificial light sources, Ando demonstrated spiritual and transformative power of natural light. Thus, the use of light allows the architect to reveal space as the volume and to show the emptiness.

However, in later buildings Ando shifts to other form to express his philosophical position. It might be seen in the structure of Museum of Contemporary Art in Kobe, established in 2002. Facade and a large part of the interior is made of untreated concrete, reminding of Le Corbusier buildings, whose works inspired the Japanese master. Both architects accentuate the ladder as a connecting link for two spaces. In the architectural complex of Museum of Contemporary Art the attention is focused on two staircases – one is inside the museum and connects the foyer exhibition space on the upper floors. Another one is made in a form of a spiral and leads down to the premises of auxiliary purpose, restaurants; etc.

In this case, the staircase allows to solve several problems – first of all, its role in organizing space is identifying to *engawa* – it simultaneously connects and separates the areas identify itself as a middle zone. Second of all, the staircase gives the building a rhythm and dynamics through the steps as repeating elements, or in this case by the spiral shape itself.

The interval category might be disclosed in Omotesando Hills building, located in central Tokyo. The innovative architectural structure represented by a spiral slope ramp, gives this building an image of the empty space, placing half the building below ground and another half above it – but no taller than the zelkova trees lining the Omotesando Boulevard. According to Ando, the idea was to incorporate the gentle slope of Omotesando with the building public spaces. Its façade prolongs for 250 metres along the avenue. Each floor features a slope contiguous with the avenue's gentle gradient, forming a unique new type of structure in an urban setting. Architect boldly embodied the idea of mediocrity by choosing seemingly functionally limited type of construction – a shopping mall.

An interesting detail – the main entrance is in the middle of the building and hard to notice it from inside. Thus, the visitor walking from floor to floor in a spiral, eventually finds difficult to determine where the entrance to the building was. Ando shows another meaning of the “grey area”. Such a trick was invented for to distance the shoppers from reality, make them forget about time and space and focus on purchases.

Ando said “wanted to come up with architecture where there is no clear border between the trees outside and the architecture. In essence it is just like *engawa*, the veranda in Japanese traditional architecture” (*Shaking the foundations: Japanese architects in dialogue* 1999: 126). And he managed to accomplish that through organising space in a particular way.

Toyo Itō's architecture attracts viewers' attention by a variety of forms and textures, as well as by interrelations between interior and exterior, and a peculiar approach to the interaction between natural and artificial light.

At a first glance the shopping pavilion of Mikimoto Ginza 2 looks bizarre because of chaotic location of windows across the facade surface. The building seems lightweight and transparent due to obscured constructions. In the evening hours owing to the artificial light the structure emits glow like jewels, which coincides with its purpose – a jewelry store.

The staircase has a corkscrew shape, it is located in the center of the construction and penetrating it from top to the bottom. Thus, the division into floors became less noticeable and scattered building is perceived as

a unified space both outside and inside. Fancy shape of windows creates a whimsical play of light and shadow in the interior, reminding the light reflected from the facets of gemstones.

In his next work – Za Koenji Public Theater in Tokyo – Itō demonstrated how light and shadow interactions become extremely intensive the interior space. The facade of the building is monochrome and the volume is exceptionally geometric. Architect has been working on all surfaces to make light and shadow interact as intensely as possible – artificial lighting placed in the ceiling, daylight penetrating through randomly scattered small windows, and finally – fancy patterned floor, created by the whimsical play of light and shadow. At first, it is difficult to understand where the light is natural, where artificially created; whether it is drawn on the floor or an illusion, a reflection system. This interior is corresponding with the essence of theater – where often the appearance, the visible façade is a mask, by removing which the viewer discovers the true essence of things. The spiral staircase is present in this project also. The staircase connects rather than divides the space.

A variety of ultraperforming materials used in Ito's constructions in order to translate the metaphorical architecture language into reality (*Shaking the foundations: Japanese architects in dialogue* 1999: p. 97). To concrete, most admired by Tange and Ando in their works, Ito adds tempered glass, perforated aluminium and innovative steel.

There is also a variety of forms in his works. Toyo Ito Museum of Architecture on the Omishima Island in Ehime Prefecture showed the idea of architectural form under another point of view. Four types of 3m-sided polyhedron modules, which can be freely assembled and closely packed, were used to create this building. Each unit has two kinds of wall slant angles. Consequently, there are no clear definite planes for ceilings, walls or floors. The space has a centripetal quality that creates an experience similar to being within a sphere. When visitors move from one room to another, the inclined walls unfold panoramically. This unique quality of the space enables unusual ways of exhibition completely different from the traditional exhibition space based on a standard grid. The design is not casually selected, it serves the purpose of expressing the idea of depth and variety of forms in architecture.

Ito creates multi-communicative space in the interior of the building. Firstly, he finds purely constructive solutions to isolate the viewer from the outside (lack of windows, spaces overflowing one into another), at the entrance the visitor must take off and leave the shoes, the action that

marks the border between “ordinary” and “sacred” space. In this particular case the museum space is considered to be the sacred one. Thus, he provides certain conditions where no communication act except between the museum piece and the visitor is possible. Secondly, by using quotes from architects scripted all over the wall surface, Ito makes them communicate with each other, collide, complement and argue their ideas.

The building is rather isolated, it is located almost on the edge of a cliff and surrounded by orange trees, the bay and the mountains. The traditional blending in nature would seem relevant here, but the architect decided otherwise. The shape and color of the building is in contrasts with the natural landscape, thereby the significance of the human essence becomes clear: how small one is against the overall grandeur of nature as a set of elements, at the same time how large one becomes, being able to create something that exert an overwhelming effect on people.

In conclusion, we should underline the fact that all three categories have a fundamental significance in theory of architecture and architects’ worldview. The categories of emptiness, interval and shadow which came from religious concepts, philosophical ideas or linguistic notions were widely used in order to organize the space in traditional Japanese architecture. The elements which compose the unique structure such as *engawa*, *shōji* and *tokonoma* represent those categories and reflect the singularity of Japanese architecture. The analysis of the works of Kenzo Tange, Tadao Ando and Toyo Ito allowed to reveal which category each of them relies on the most in order to express his point of view. In the buildings constructed by Kenzo Tange the main semantic core is an expression of “emptiness”, while the “interval” and the “shadow” are used to distinguish the leading one. Tadao Ando is focused on showing what is in the middle; he gives his preference to interval over others. Unlike Toyo Ito who shows through the shadow the strength of the light. However, each and every architect has a tendency to use all three categories and interpret them in their own way. They invent new codes in order to create new messages and a communicative act with their audience.

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