

Research on Applications of Mandala Prototype in Architectural Design Field

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Abstract

Carl Gustav Jung affirms that mandala is the real-life image of core prototype in his famous prototype theory. Mandala comes from the psychological diagram of the one with great achievements in Buddhism; it's represented as paradigms composed by certain plane which provides an opportunity for various subjects related to graphic art in exploring the core prototype issues. This paper explores the revelations and application thought from mandala in the design methods of architectural prototype on the basis of some philosophical connotations in analytical psychology and Chinese traditional culture, and attempts to develop a design method of architectural prototype with infinite development possibility.

Keywords: *Mandala, Architecture, Prototype, Nine Patch.*

1. Introduction

The famous western psychologist Carl Gustav Jung puts forward the prototype theory, with significant influences on the development of various subjects. Although the prototype theory of Carl Gustav Jung is somewhat obscure, it explicitly identifies that mandala is the core prototype. Mandala comes from Buddhism, it could be considered as a conscience prototype image of all living creatures, but it's expressed in the visible world in the mode of graphic composition, which becomes the opportunity for the development of architecture, art and other design subjects on the contrary, and poses inspirations to explorations from various relevant subjects on prototype issues.

Carl Gustav Jung considers the importance of human thought is that it could adopt a mediate standpoint: neither completely recognizing the subjective nor completely recognizing the objective; human is carnal, meanwhile is spiritual; is both rational and emotional. In Carl Gustav Jung's point of view, the tension formed between these conflicts is the source to all energies of conscious activities. Carl Gustav Jung once painted his own psychological phantoms, the ones appeared in the painting were not human figures, but almost all abstracted graphs. Later Carl Gustav Jung discovered that these graphs were very similar to those called as mandala in oriental Buddhism for improving the cultivation level, they symbolized a high level balance of soul, and this balance could completely coordinate those antagonistic forces always dissevering the human soul. The final conclusion made by Carl Gustav Jung was mandala was a symbolized manifestation of the God prototype (collective unconsciousness or Tathagatarbha). He meanwhile considered that as a symbolized image of soul, the mandala patterns neither belongs to consciousness nor belongs to unconsciousness, while it has natures of the two, therefore, the inner

world of human has completed a synthesization between consciousness and unconsciousness, illusion and reality and thought and emotion in mandala. Carl Gustav Jung calls the process of soul in walking up to integration and reaching a new balance as the individualization process, and puts forward that one could keep enough distance from emotion (or refers to frenzy heart) as long as he or she could make his or her subjective wish to subordinate to the higher level and more objective objectives. It's considered by Carl Gustav Jung that the so-called "integral" experiences from himself and the patients with mental diseases and the experiences of seeking the unity of opposites and conflicts are experiences about God, and it's a method of solving the human psychological or spiritual problems.

If mandala is considered as a symbol mark of prototype, then we have the reason to consider it as an artistic work, for artistic work represents a kind of synthesization of inward subjective world reached by artists through resorting to the external world. There are evidences showing the mind of artists are more split and biased than the common people, and just this instinct of bridging cracks becomes the personal impetus of driving them to undertake artistic creation. That's to say the artists are very special people, and they are suffering more psychological tortures than most people, however, they are dealing with and blending their own "mental disorder" by resorting to the prototype of art and through the artistic creation of individualized nature. Another relevant proof points out that the paintings of children usually have the mandala traces, therefore, what represented by the mandala prototype image should be the purest, most artistic and successful spiritual strength.

Carl Gustav Jung considers prototype as a method of psychological therapy, while all kinds of things such as science and technology, art culture and various fields have their own prototypes, which enable more people may obtain the so-called individualization or self-regressive experiences by Carl Gustav Jung from the artistic works, work and study, which might be more than the religious activities. The realistic value of Carl Gustav Jung's prototype theory might be reflected on this. The worldly painting, music, science and technology, etc. contain the worldly "divine will" as well, and the place spirit of Martin Heidegger substantially contains this intention. This paper explores architectural design method on the basis of the revelations from mandala prototype, and is expecting to have the real poetic dwellings for human.

2. Brief Introduction to Mandala

Mandala represents the great philosophy of Buddhism, presents the highest sentiment in life with successful harmony, meanwhile, it also represents the holiness of the big universe, therefore, and it's the successful comprehensive expression of universe, human and spiritual world. Mandala has many styles, and only the two mandala patterns closely related to the paper are listed as below (Figure 1 and Figure 2).

Mandala is an image of mind after individualization reaching the successful realm. It's drawn by the one with great achievements in Buddhism, and the common stylite employs imitation to reach the purpose of enhancing the cultivation level. Mandala is also a brain thought portrait of the common people; therefore, the "common people suffering miseries" like us could also have our own mandalas, but cannot be used as models. We could know the mental profiles and the spiritual crux of a common people through the mandala drawn by him or her (according to the doctrines of various religions, and human beings have different degrees of psychological illnesses). Refer to the mandala drawn by Carl Gustav Jung himself in Figure 3. Jung's work reflects his certain inward contradiction and entanglement,

it's not difficult to discover after comparisons that as a mandala artistic work drawn by Jung, and the prototype of mandala is closely related to the real of mind from the painter. While this paper only intends to undertake research on architectural design methods through the revelations of highest state mandala.

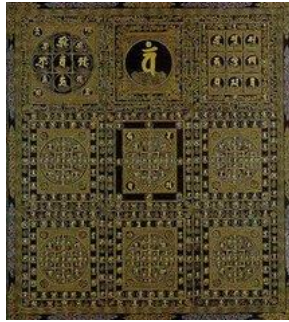


Figure 1. Square Mandala



Figure 2. Square Round Mandala

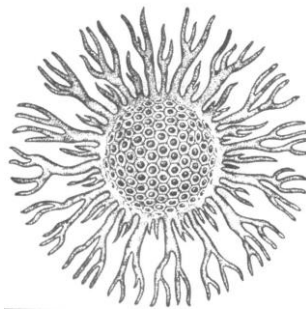


Figure 3. The mandala drawn by Carl Gustav Jung himself

Revelation I of Mandala: mandala reflects a method of promoting the individualization process of Jung. It first devotes to highly centralize the human consciousness on one point (to heart), and makes the mind to be free from disturbances; then it considers the center as a self-token, and finally dispels the center (ego), and completes the individualization process until the last step, and the stylist at that time could break the darkness in mind (Alaya-consciousness), integrates with light (Tathagatagarbha), and then suddenly discovers in light that the prototype has been in the self-realm already.

Revelation II of Mandala: mandala represents the highest psychological realm of human, that is, in our world with double noumenon, with the self-generated “not standing on both sides, and not standing on central path”. All mandalas completely tend the same trend on this point, and mandala is one of the best embodiments of double noumenon nature in the world. “Not standing on both sides and not standing on central path”, the understanding and application of the double noumenon nature structure in the world means the standpoint adopted should cover the natures of two opposite sides, however, it's not biased to any opposite side, the so-called standing on central path is not existing either, both considering the nature of any opposite side as independence and considering it not as independence, because essentially it will take its opposite nature as the self-nature. Take an example to explain this concept, for example, as for this pair of double noumenon of few and much, there will not be absolute isolation between them, because we have recognized for a long time on the design concepts as “few is much” and “much is few”. The aforementioned is a macroscopic paraphrasing to mandala, and the various representation features of mandala will be analyzed afterwards.

3. Revelations from Mandala on Architectural Prototype Design

As for Jung, the value of a prototype is capable of saving people's soul, is a fundamental way for human to return to their spiritual home, therefore, the exploration from human on prototype is instinctive. Rossi introduces the prototype theory into architecture, and he considers the task of an architect is to seek the prototype form in the collective memory of people, and this has found the source of spiritual level to the purpose and meaning of building completion. Prototype is hidid in a very deep collective unconsciousness, but prototype has its end-core prototype. The core prototype is depending on the self-state, which is a realm difficult for an ordinary people to reach. However, Jung points out the realistic projection image of core prototype-mandala to us, and thereby makes us to be clear about the philosophy and expression means of core prototype.

Mandala is a brain thought image drawn by the one with great achievements in Buddhism, is a presentation when the brain functions are exerted to the zenith, with important guiding functions in the highest level of Buddhism-the Vajrayana cultivation sequence. The Buddhist stylists improve their spirit through drawing mandala; pursue miraculous brightness at a certain moment and the wisdom blossoming in mind. Just for this reason, many modern architectural masters as Tadao Ando and Coria, et al once took mandala as the initial conception or overall control factors of architectural design in research of the architectural design issues. However, if only analyzing their design works, we may never jump out of their limitations and the existing frameworks. Therefore, this paper firstly profoundly discusses the inner connotations and representation laws of mandala, accelerates the research on prototype image on this basis, and then compares with the works of masters, and in this way it's the most beneficial to fundamentally perfects the design theory of architectural prototype.



Figure 4. Centrifugal of the Mandala

Observing the mandala, besides its evident central centripetal, we may also discover the centrifugal difficult to detect (as indicated by the red lines in Figure 4). Therefore, it's considered in this paper that the connotations expressed by the mandala should be between the so-called concept of "between", that is, between centrifuge and centripetal and between center and edge, etc. While positioning "between" all the opposite factors is just the image representation from the "middle way" thought of those with great achievements, "middle way" is the aforementioned realm or state not standing on both sides and not standing on central path. It could clearly analyze the connotation of mandala, and we will obtain the most critical concept of architectural design prototype. Once the prototype has its concept, order or rules to follow, then we should continue to explore in using what kind of vocabulary and syntax for construction.

3.1 Revelations from Square Round Mandala on Architectural Prototype Design

The square round mandala expresses the double noumenon relationship between square and round, that is, square is the noumenon of round, and round is also the noumenon of square, the square and round is not one issue, but there are not two issues. The prototype value of this mandala is reflected on decomposition of opposite while constructing opposite. There have been many discussions in architectural theory about the opposite and unified design methods. However, the revelations from the core prototype of mandala enable this method to be capable of standing on a higher level, with more successful interpretations and may generate different levels of prototypes and re-consider from new perspectives. The methods of building opposites in the core prototype of mandala including opposites as square round, square square and round round, etc, however, mandala has its own features in the methods breaking down opposites, it's concluded as concentricity in this paper, that is, that is, compose the various opposite elements in one center, the representation of differences and opposites are developed from the same center, just as the vessels made of metal, their essence is the same regardless of the different appearances, and the opposite elements reach unity essentially with this method. The concentric method could further be classified into three types:

A: Dominant concentricity. That is the concentricity of different elements could be seen intuitively (Figure 5)

B: Recessive concentricity. Non-intuitive representation of centers from different elements, for example, first regress and then raise by using the contrasts of spaces, while highlight the center representation of the latter, and therefore give people the variant concentric feeling (Figure 6).

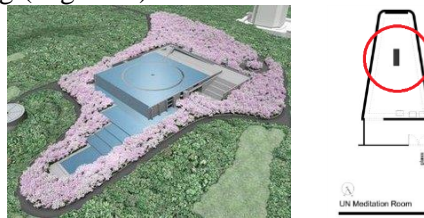


Figure 5. Dominant Concentricity Figure 6 Recessive Concentricity

C: Intersect concentricity. Actually intersection is a variation of concentricity, the center at this moment is the intersection point of graphs, and the intersection of different elements could represent their differences in a harmonious trend. The intersection point is taken as the center, and the extended body might enable this method itself with the image of central decomposition due to differences in sense of direction, etc, and therefore directly reach the prototype effect of double expressions (Figure 7).



Figure 7. Intersect Concentricity



Figure 8. Vague Center

The feature of mandala is double noumenon, provided if the center is composed with concentric method, then how to decompose or weaken the center, and so as to represent the successful “between” concept? Several methods are further concluded in this paper.

A: Arrange above two non-overlapping centers, make the centers vague, and therefore reach the weakening effect (Figure 8).

B: Design the shapes with vague centrality, such as spiral shape (Figure 9) and incomplete round (Figure 10) etc.

C: Move out of the center, generate a visual outer center, and therefore weaken and decompose the former center image (Figure 11).



Figure 9. Spiral Shape

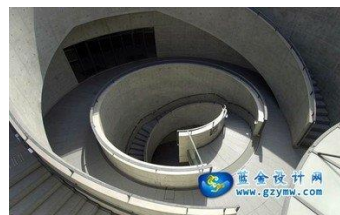


Figure 10. Incomplete Round

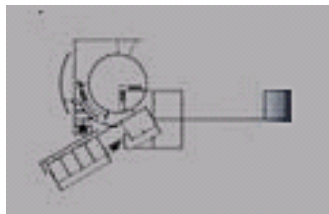


Figure 11. Move Center Out

3.2 Revelations from Square Mandala on Architectural Prototype Design

The square mandala (Figure 1) could also be called as Nine Patch. Nine Patch is not only a product of Buddhism; its traces could be seen in the traditional civilization of China and the whole world. It's considered in many researches that the geometric graphs of Palladio's twelve villas could establish a certain relationship with Nine Patch. The Nine Patch is always applied in the Book of Changes in China, and many people consider the Book of Changes as the knowledge about divination, actually divination, martial art and traditional Chinese medicine, etc. are only a corner of his endless functions, the Book of Changes is the source of the Chinese philosophy, it's also a prototype with the deepest influences on the traditional Chinese architecture, one of the features of the traditional Chinese architecture-courtyard space is a prototype design taking Nine Patch as philosophic basis.

We first analyze the philosophical connotation of Nine Patch, provide essential design thought for the expansion and application of the prototypes as Nine Patch, and then explore the architectural design method based on Nine Patch. Whereas the

Buddhist world outlook, the opposite factors existing with double noumenon are mutually noumenons of each other, an ontology structure of the world is formed and it's neither integrated nor diadelphous, therefore, the philosophical connotation of Nine Patch is analyzed as below:

(1) Partial is Overall

The Nine Patch is different from square and round mandala, although a center is established; the centrality is weakened for the surrounding eight lattices are the same with it and are presenting the empty features. The Buddhist philosophy reflected by Nine Patch has the typical image features of core prototype, with same morphological characteristics presented between partial and partial and between partial and overall, which is corresponding to the Buddhist cosmology "one is all, and all is one" and all universal methods and laws of quietus tranquility, noumenon and harvestless, constant immobility, same ontology and same life with emptiness and identical Dharmat. Therefore, each lattice in the Nine Patch is another Nine Patch, which could be expanded endlessly and cycled without end. The traditional Chinese courtyard space is based on the Nine Patch philosophy, with ultimate interpretations expressed as "heaven, earth, immortal and people" in a seemingly simple imaginary technique.

(2) Emptiness Is Infiniteness

The center of Nine Patch is empty, edge is empty and integrity is empty. It's considered in Buddhism that emptiness is the ontology of all dominance, the various categories in the universe perceived by us no matter from substance to spirit, the Buddhism has pointed out their feature of emptiness, and even the last emptiness is considered as non-existing by Buddhism. The Nine Patch just shows the never ending connotation with its emptiness. In fact, the Nine Patch has been applied for dozens of years in the west as a design teaching method, but their starting point is not based on prototype, and they neither know the philosophical connotation of Nine Patch, but they have found the configuration design method of Nine Patch which is simple but containing infinite changing possibilities. In this point of view, there are intersections between the Chinese culture good at operating from a strategically advantageous position and the western culture good at empirical demonstration.

(3) Integrity is Broken

Due to the double ontological feature of integrity and broken, that is, integrity takes broken as ontology, and broken also takes integrity as ontology, as a result the Nine Patch has the possibility of disassembling, and it could be subtracted and added, and the one subtracted could also be added. Due to the inward prototype mechanism of people, the Nine Patch applied with subtraction is more easily extracted with the meditation features of buildings. The disassembling of Nine Patch is similar to the deconstruction process from single to multiple, but this deconstruction process has firm and constant control from overall to partial. The disassembling of Nine Patch is just like the deconstruction, but the relationship between various parts after disassembling is meanwhile reflecting the structural logic order, this design method could enable buildings in the nature "between" structure and deconstruction, and make the broken Nine Patch to reflect the prototype features.

The complete Nine Patch could be considered as one lattice or nine lattices, that is, one mandala or nine mandalas, no matter nine or one could be embodied as the typical features of a mandala. As for the disassembled Nine Patch, regardless of 2 lattices, 3 lattices or 4 lattices..., must be designed by the features of one mandala, that is, must embody the prototype philosophy of "not standing on both sides and not existing on central path". While the disassembling of Nine Patch provides extensive exertion spaces to the exploration of prototype design so as to adapt to the development of modern architecture.

(4) Polarity Is Non-polarity

The round mandala has no polarity, and the square Nine Patch has the polarity (or could be called as directivity) features. However, the square Nine Patch is composed of multiple squares, that is, the unity of multiple polarities. Polarity is boasted in Nine Patch, but is meanwhile weakened. The polarity of Nine Patch means that the nature of Nine Patch is closer to the nature of earth according to the concept of round heaven and square earth ("square earth" refers to the polarity of earth), this might be one of the reasons of always taking Nine Patch as the starting point in architectural design in ancient China, taking the buildings as the embodiment of "the center of heaven and earth" on the earth, which the most successful expression of place spirit in ancient China without the concept of place spirit.

(5) Constant Is Change

Nine Patch is mandala, is a Buddhist philosophy, while there is also Nine Patch in the Chinese tradition, with more connotations included. The Chinese Nine Patch could be considered as the Ba Gua (eight divination symbols) thought from the Book of Changes, Ba Gua is a method of the Chinese in analyzing the world and classifying the world, everything could be classified into eight categories by their natures, that is, each of the eight divination symbols (eight categories) represents the endless things, and the things of each category have similar natures. Ba Gua also embodies a certain operating order of the universe, the noon and summer solstice are in Heaven Symbol, the midnight and winter solstice are in Earth Symbol, therefore, day and night, four seasons of a year and the world ups and downs are embodied with periodical transmigration orders in Ba Gua. The Ba Gua plus the Tai Ji in the center is the traditional Chinese Nine Patch, therefore, Nine Patch represents a perpetual classification and order in universe. But, the eternal changing laws of universe are hid in this seemingly unchanging order, Nine Patch also has another meaning in the Chinese culture, that is, it symbolizes the flying status of the nine stars of Big Dipper. We usually know the seven stars of Big Dipper, actually there are also two other concealed stars (two Prier stars), and the purpose of studying their constant changes is to explore the secret of the universe and human beings. The changes of the nine stars have their own laws, usually the nine stars are sitting inside the central palace in rotation, and the other eight stars are flying surrounding it according to certain laws; however, the nine stars also have another external center, and all of them are moving centering this center (Pole Star), which brings another prototype color to Nine Patch, and the changes of Nine Patch are always on the interface of various "betweens".

How to apply the aforementioned some prototype connotations of Nine Patch summarized in architectural design creations, and how to use the infinity of Nine Patch to form a design thought? Some preliminary explorations are made in this paper on the basis of the integrity and disassembling of the Nine Patch.

(1) One-Lattice Composition

One-lattice composition is to study a simple and complete mandala design. Except one-lattice composition, in the final analysis, nine lattices could also be considered as a mandala. Therefore, the one-lattice composition design seems to be the most simple, and it seems ok to design according to one-mandala connotation, but actually it's the most complicated.

(2) Two-Lattice Composition

The one-lattice composition mandala is an integrity, if two-lattice composition intends to compose an integrity, design could be performed from the double ontology relationship, that is, design two composing elements into a composition relationship of mutual ontology. This interpretation might be too abstracted, if the world spirit is used for analogy, the two-lattice composition mandala could be compared as the conjugal relationship, the conjugal relationship is both integrated

and diadelphous, the two hugging in left and greeting in right, and are deeply attached to each other (Figure 12); either mutually supporting, or mutually bowing or mutually leaning; or looking at each other, with subtle invitation; or back to back, throwing away from each other but mutually holding (Figure 13); or one is in danger and another is rescuing, etc (Figure 14). The mood expressed in Figure 14 is that when one lattice is in danger (with tail upwarping), then the other lattice pressing down the upwarping trend to help, which is the multiple manner as expressed by double ontology relationship.

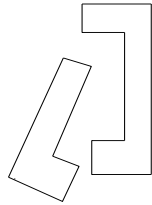


Figure 12. Hugging in Left and Greeting in Right

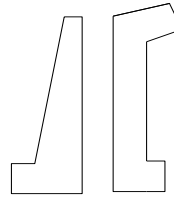


Figure 13. Back to Back

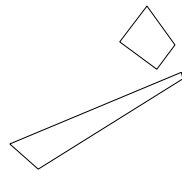


Figure 14. Rescuing Each Other

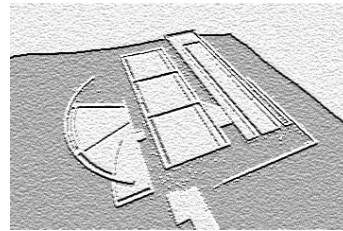


Figure 15. Hugging Relationship

(3) Three-Lattice Composition

According to the preceding part of the text, the three lattices are just like three people, composing the relationship like between close friends or internal relationship of a family (a couple with a child). Generally the relationship among the three is dominated by the relationship between two, while the other is hugging (Figure 15) or the relationship at an arm's length (Figure 16); or the relationship another rescuing while the two are in difficulty (Figure 17).

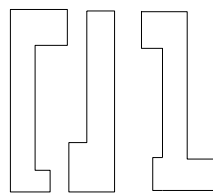


Figure 16. At an Arm's Length

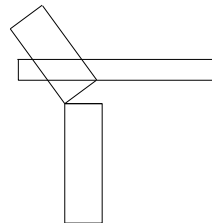


Figure 17. Assisting Relationship

(4) Four-Lattice Composition

Except the flexible composition for the four-lattice, just as the nine-lattice could reach the stable pattern. However, in a stable composition, according to the dual nature of Nine Patch, many non-stable composition manners could also be derived (Figure 18). Figure 18 is a student homework guided by Kijo Rokkaku at HIT.

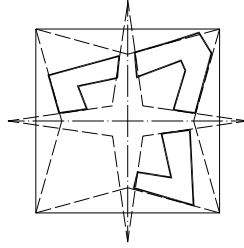


Figure 18. Non-stable Composition of Four-Lattice



Figure 19. Composition Above Five-lattice

(5) Composition with above Five Lattices

The compositions above five lattices should form an integrity of mandala connotation, should be arranged as the inter-frame structure in calligraphy, the gravity center should be stable, and the composition should be even (Figure 19); composition design is performed according to primary and secondary relationship and tightness relationship, etc.; it could also concentrate on one form, and the others will form carrying or shadow mask relationship, just as the character “Zui” in calligraphy, the shadow mask relationship from the superior to the subordinates, while the character “Ye” indicates the carrying relationship from the superior to the subordinates.

The aforementioned has performed preliminary explorations on the design thought of Nine Patch, besides its prototype, the value of Nine Patch also lies in its possibilities in infinite changes. However, there are issues of two aspects must be supplemented and explained about the design thought of Nine Patch;

(1) The Nine Patch cannot contain all control elements in architectural design, and should be integrated with multiple design systems as aesthetics and function, etc. in design practices. The explorations on Nine Patch cannot be limited within form, and ignoring many connotations referred by its signals, and it might seriously damage its own inherent value if being confined to the superficial phenomenon.

(2) In fact, the Nine Patch should not be changed freely, for it's not just a graphic symbol, it also has the “tangible influence on the universe as sacrificial vessels”, and it's the representative image of the core prototype. However, the multiple alteration concept is put forward in the paper, nothing but considering from different levels of prototypes, and it's impossible for us to build all buildings into the standard Nine Patch, the valuable essence should be extracted, and it should be flexible in due time, which could be an effective method adapt to the multiple development of modern architecture.

There must be some non-core prototype images in the regional and national buildings, although they are not cores, but they are pertinent. This enables a big elastic space to the deduction of mandala, that is, the evolution from core to non-core. The spatial development design method could be summarized into two most

basic dimensions: one is microcosmic dimension, that is, the design manner of taking buildings and spaces as segments, and then from partial to overall; the other is macroscopic dimension, that is, the design manner of taking the buildings and spaces as an organic integral, and therefore to determine the overall to partial. According to the macroscopic dimension, the deduction method of mandala could be summarized as the following several types:

(1) Analogy and Evolution There are common laws existing in architectural prototypes capable of exceeding the geographical and cultural boundaries, but there are also internal impetus of regional buildings concealed in regional and national architectural forms, so we should not break away from the natural external functions of regions and social factors from the non-core prototypes, and all of them are internal mechanisms of promoting the orderly generation and growth of regional buildings together with core prototypes.

Bjarke Ingels is one of the newly-rising outstanding architects in Denmark; he has established the BIG Architect's Office and his architectural works have been repeatedly awarded with prizes. The unique way of thinking and design strategy are concluding one or several "prototypes" or "patterns" could be pre-defined, and then applying them into different design projects, and finally establishing the adaptive optimal architectural forms and meanwhile with prototype features with appropriate evolutions conducted together with the changes of design requirements and regional features. For example in the continuous evolutions of the case image, BIG is gradually taking "modulization" as an aesthetic trend, that is, arraying the cases with a certain logic organization as motif for repeated uses, so that to continuously deepen and develop its prototype and enjoyment (Figure 20).



Figure 20. Design Model to Malov Asylum

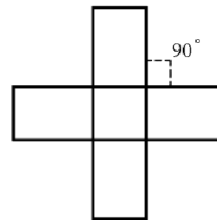


Figure 21. Cross Graph

As for the two major mandala shapes of round and square, their combinations and evolutions could form ever changing architectural forms. While besides the shapes as square and round, the cross shape (Figure 21) is also continued as another prototype of plane. Wright is most keen on evolution of works on the basis of complete cross shapes, he advocates "the form should be consistent with the function", therefore, he treats the design drawings as aesthetically rational organic form, which can't help reminding us to associate with the lines concept of Arthur Doughty.

The evolution and deduction of mandala is a research task without a terminal, in different regions, for different groups and the features of moral characters from the designers, its results of deduction will vary significantly. However, anyhow it's always standing on the starting point of prototype, although it's not sure where the terminal is.

(2) Deconstruction: The deconstruction highlights the decomposition, fragmentation, superimposition and restructuring of prototype. This manner has broken the integrity of the former structure, highlights the instability and continuous changes of structure. As indicated by the Gestalt psychological research, the complicated, imperfect and non-organizational graphs have more thrills and attractions. The one worthy of references in this aspect is the works of the Indian architect master Charles Correa. India is the cradle to mandala, although it separated

with the Tantrism in Tibetan Buddhism mandala later, there is a close connection between the two. Correa repeatedly obtained different architectural and town forms with the analogy technique in deconstruction by means of mandala prototype in architectural design, for example, the planning for Madhya Pradesh New National Assembly Mansion, Jaipur Art Center and Bagullgod Town, etc. Among them, a new mandala prototype deconstruction manner is displayed to the people through the collaging technique in the Madhya Pradesh New National Assembly Mansion (Figure 22).

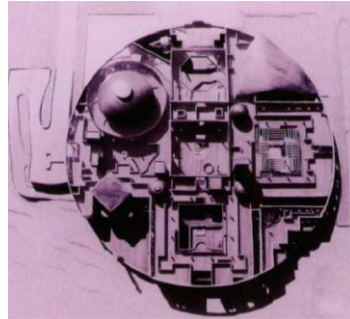


Figure 22. Sketch Map to the Assembly Mansion Model

In the plane of the Assembly Mansion, Charles Correa adopts the deconstruction manner through decomposition of the entire round, implantation of partial round and the variation, stripping and re-overlapping of the square, and breaks the former integrity, static and balancing. However, due to influences from the visual perception of human beings, we could also feel a complete round is existing in the plane, that is to say the space intention of mandala is very clearly reflected here.

As for the design methods of microcosmic dimension, it could be highly summarized into a 卍 relationship, that is, the double ontology relationship, and the double ontology relationship is an important method of forming prototype buildings and spaces on microcosmic dimension. All the four following methods enumerated could be considered as specific design methods developed from this ontology relationship, and we'll make a brief introduction. In addition, more design methods should be extended from this.

(1) The first referred is the urban space type theory of Correa. Correa concludes the nature of urban space form as square, round and triangular in his "*Urban Spaces*", which is consistent with the graphic figures composing the mandala. While on this basis, Correa considers that the urban organization itself is both pure and is composed by variants of various combination types, while its variation manners might include insert, decomposition, addition, penetration, superposition or deformation, etc., therefore, the Correa's theory is a design method of integrating partial into overall.

(2) Topology: Topology is to study the unchanged nature of geometric figures in continuous transformations from both parties one-to-one. It's repeatedly elaborated in this paper that because the opposite systems are in a mutually ontological relationship, so the co-movement is composed. The so-called topology is paying attention to this relation between substances. The object of topology is based on geometric figures, and is a variation of geometric figure. Therefore, the topology method could be taken as an architectural method of micro-level.

(3) Structure, Order and Rhythm: Alvar Aalto writes in his paper "*Man and Rationalism*", "The people have detected the importance of changes. The natural life has provided very abundant and diverse forms, they have same structures, same tissues and same cell elements, but could generate numerous combos, and each combo is an example of high level form". The visible world has perpetual

structures, orders and changing rhythms, it will naturally be the design embodiments of prototypes if it's capable of following this and grasping the pulse of design.

(4) Metaphor: Aristotle says, "Metaphor is composed by using the name of another thing for a certain thing, this transfer could be from species to category or from category to species, or from category to category, or analogize according to this". To be precise, metaphor is different from all the other aforementioned methods, and metaphor could generate more abstracted forms. Metaphor is an expression manner of opposite natures in double ontology with identity, and it implies the essential connection between different substances and phenomena.

4. Summary

This paper is based on the prototype theory of analytical psychology, is taking Buddhism as foundation, and performs reconstruction and development on the prototype connotations and architectural application values of mandala. Because there is not a systematic theory about architectural prototype up to now, so this paper has a distinctive exploration nature. Starting from understanding the mandala, to the general methods of prototype design, until the development of prototype design methods under revelations from the mandala, and concludes and summarizes the architectural design method according to this vein. It should be discovered from this paper that developing the mandala design thought with infinite possibilities is a much featured method with a sound prospect.

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