

OUTLINE OF A THEORY OF STUDYING PAST ARCHITECTURAL WORKS

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ABSTRACT:

The main concern of the present paper is to construct an outline of a theory for a structured analysis and understanding of past works. The study refers to the theories of knowledge, understanding, learning and creation provided by the evolutionary epistemology and Karl Popper's three world ontology, and to the discussions towards the revision of Modern Architecture starting from the late 50s and 60s, and finally to the formalist tradition. It mainly proposes an evolutionary account of architectural design, followed by a sketchy theory of studying past architectural works and a counterpart structure elaborated for this purpose. What was provided is essentially an outline, a schema, a pre-conception, which indicates the direction which should be taken and explored and which provides a basis for further research.

Design Knowledge, Conceptual Design

1. INTRODUCTION

In *Human Understanding*, Stephen Toulmin (1972: 35) states that “...man is born with the power of original thought, and everywhere this originality is constrained within a particular conceptual inheritance; yet on closer inspection, these concepts too turn out to be the necessary instruments of effective thought.” In fact, not only thought, but perception and observation, and epistemic activities such as judgment, understanding, learning, problem solving and creation are dependent upon and structured by preexistent internalized concepts or a framework of concepts, relevant, applicable or adaptable to the concerned situation. In other words, these activities operate in terms of (theoretical) constructs and in this sense anchored in the world of “forms or ideas,” or concepts, or in Karl Popper’s conception, “World Three.” The idea of world three is a part of Popper’s pluralist view of the world in place of the conventional monist and dualist views, which recognizes three distinct but interacting sub-worlds: the physical world, the mental world and the world of “forms or ideas”¹ namely world three.² The residents of world three are the conceptual content of the products of the human mind such as tales and stories; theories and conjectures; tools; social institutions; works of engineering, works of art and works of architecture. World three constructs are the outcome of (largely subjective) mental processes of the human mind, and they might be physically embodied. But, after their mental formulation and exosomatic representation, they become autonomous and transcendental constructs which may be read, apprehended, interpreted, critically evaluated, and used and reused devoid of their world one and world two

¹Popper’s world of forms or ideas is based on Plato’s but essentially differs in crucial aspects: Plato’s world of forms or ideas is unchanging and divine. It contains absolute and timeless constructs. Popper’s is man-made and changing (evolutionary). It contains temporal, open and conjectural constructs, including theoretical and argumentative systems, problems, and problem situations.

²For Karl Popper’s three world ontology and related issues, see Karl Popper, *Objective Knowledge* (Oxford: At the Clarendon Press, 1972) (Particularly see Chapter 2 titled “Two Faces of Common Sense,” 32-105, Chapter 3 titled “Epistemology Without a Knowing Subject,” 106-152, Chapter 4 titled “On the Theory of the Objective Mind,” 153-190; Karl Popper, “The Worlds 1,2, and 3” in *The Self and Its Brain*, Karl Popper and John K. Eccles, (London and New York: Routledge, 1995), 36-50; Karl Popper “Autobiography,” in *The Philosophy of Karl Popper*, ed. Paul Arthur Schilpp (La Salle Illinois: Open Court, 1974), 3-181. (Particularly see pages 143-153); Karl Popper *In Search of a Better World* (London and New York: Routledge, 1996) (Chapter 1 titled “Knowledge and the Shaping of Reality,” 20-29, Chapter 12 titled “An Objective Theory of Historical Understanding,” 191-170); Karl Popper “Indeterminism is not Enough: An Afterworld,” in *The Open Universe: An Argument for Indeterminism* (London and New York: Routledge, 1988), 113-130; “Three Worlds,” a lecture delivered at The University of Michigan (1978)

associations.³ This in turn attributes an evolutionary⁴ character to the phenomena of emergence, growth and change concerning the forms or ideas, or more specifically, the conceptual content of the constructs of the human mind.

As the container of autonomous and transcendental constructs, world three is a standalone and (partially) autonomous construct, yet it is a product of the human mind and it has a strong feedback affect upon the mental world, and through it, has an instrumental affect upon the physical world, especially upon its construction and transformation.⁵ The mutual interaction of the mental world and physical world with world three is the source and origin of conception or creation of every new construct, all problem solving, human understanding and human learning. In other words, these are essentially epistemic acts actually grounded on world three; all operate in terms of world three constructs.

These introductory arguments delineate the condition, the circumstance and justification for proposing the present paper: The three world ontology and evolutionary epistemology provide a general theory of knowledge, understanding, learning and creation which can readily be transferred and adapted to architecture and can be productive as a basis for developing models and theories within the specificities of it.

Present study departs from an inquiry towards how and in what sense past problems and past works might influence and affect the creation of new ones, in other words, the nature and structure of the (possible) “evolutionary” relation between the “tradition” and conception of a new work. It embraces and elaborates an epistemological model: the theories of knowledge, understanding, learning and creation provided by the evolutionary epistemology and Popper's three world ontology, reevaluated and reconsidered for the specificities of architecture and the present problem: The study mainly attempts to construct an outline of a theory which is compatible with the epistemological model, developed specifically for its main purpose: structured analysis and understanding of past works.

³Popper (1972: 109) argues that theoretical and argumentative systems and problems in this sense are “totally independent of anybody's claim to know; [they are] also independent of anybody's belief, or disposition to assent; or to assert, or to act. Knowledge in the objective sense *is knowledge without a knower: it is knowledge without a knowing subject.*”

⁴Here the term “evolution” refers to Darwinian and neo-Darwinian theories of evolution. This emphasis is essential since in design and design research the concept of evolution often concern pre-Darwinian theories of evolution or follow Lamarckian lines.

⁵See Karl Popper, “Of Clouds and Clocks,” in *Objective Knowledge* (Oxford: At the Clarendon Press, 1972) 206-255.

2. THE CONTEXT

...the growth of all knowledge consists in the modification of previous knowledge- either its alteration or its large-scale rejection. Knowledge never begins from nothing, but always from some background knowledge -knowledge which at the moment is taken for granted- together with some difficulties, some problems.

Karl R. Popper

Actually, world three is a uniting term which incorporates sub-worlds such as world of science and world of fiction, world of art and world of engineering, distinguished by their own particularities. Therefore we can acknowledge “world of architecture” as one of the sub-worlds of world three, which represents the works of architecture, with respect to their conceptual contents; a body of abstract and theoretical constructs without which no work could have been created.

For example *Unité d'Habitation* is a creation of Le Corbusier's mind. In this sense it belongs to world two, the mental world, actually a product of it. It is an outcome of Le Corbusier's mental processes which are largely subjective and unknowable, and cannot be fully determined and explained, even by himself. We cannot know what was in his mind when he conceptualized it, what were the mental influences that contributed the work's creation. The work is also physically embodied; it is a building which exists in the physical world, a physical entity made of material things such as concrete, glass, etc. But, apart from its world two origins and world one embodiment, *Unité d'Habitation* is also a world three object since it bears a thought content. It is not a mere physical or mental “thing,” but for example, it contains an interpretation, a certain idea of sheltering and accommodating people in a certain way. Not limited with this, it contains an idea of using reinforced concrete in architectural construction, an idea which interprets and treats nature and landscape, an idea of using sunlight in housing, an idea of bringing programmatic units together, in specific ways.

Logically, thought contents as such might be distilled or derived from the work which carries them, by studying; by analyzing and understanding the work itself. Once these constructs are understood, they might be interpreted, critically evaluated, and used and reused for new problems and new situations. Of course, there may be many thought contents inherent in a work, even the ones those are not actually thought by its own creator. A work may bear, yield or lead to ideas

which are not actually or intentionally invested in its creation and it might be a good source and starting point for discovery and construction of new ones.

These arguments attribute an evolutionary character to the design of architectural works and emphasize the epistemic⁶ nature of the act. Each new design is established upon a body of preceding body of knowledge (a tradition) which contains earlier problems, problem situations, and earlier works providing solutions to these problems. What follows is the discovery and formulation of new problems, and the creation of new works providing new solutions to these problems, consequently, modification of the old or production of the new knowledge, to be all (re)placed into tradition, transforming it.

The evolutionary conception of design of architectural works does not refer to evolution of physical or mental “things,” but rather the evolution, retention and transference of forms or ideas, or more specifically evolution and transference of conceptual contents of the works. It is beyond the limitations of the present study to make a mature and comprehensive account of the evolutionary conception of creation and change in architecture. But, we can identify the roots of it in the Modern Movement in arts and architecture. For example in painting and music, in the work of Kandinsky and Schönberg, Alan Colquhoun (1986) identified “process of exclusion” as the primary constructive operation which concerns transformation and foregrounding of the “traditional formal devices ... by the exclusion of ideologically repulsive iconic elements,” rather than total abandonment of them. In literary studies, Russian Formalists⁷ conceptualized and elaborated notions such as “making strange,” “deformation,” “foregrounding,” and “deautomatization” as creative devices contributing to the creation of a work, all imply a type of evolutionary change or transformation of set of meanings and conventions.

Also in architecture, Colquhoun (1989: 209) emphasized the importance of tradition and proposed “the study of architecture as an autonomous discipline -a discipline which incorporates into itself a set of aesthetic norms that is the result of historical and cultural accumulation” as a valid basis for approaching the problem of tradition. In this conception, tradition is accepted as a body of “objective facts” (as in world three constructs) that works as one of the primary source of a creative act, but at the same time it is recognized as an open system with temporal and transitory

⁶The term “epistemic” refers to “of, having the character of, or relating to episteme, knowledge, or knowing as a type of experience.” (Merriam Webster’s Unabridged 2000)

⁷“Russian Formalism” is “a major school of literary criticism, developed in Russia in the early twentieth century...Formalist ideas, methods, and studies have had a strong and lasting impact on literary theory, perhaps most directly on the development of structuralism and semiotics.” (Van Buskirk 2006)

values and ideas subject to a critical appraisal and change (compared to a closed system which possesses absolute and eternal values). Following Popper, Colin Rowe (1978) proposed that “criticism” should be an indispensable complementary component of any concern for tradition and it was the primary source of development and change. In this conception, tradition in turn provided established explanations, solutions, structures and an order which provide a basis for investigation, to be criticized and transformed. Stanford Anderson (1963) distinguished between “blind traditionalism” and critical approach to tradition and proposed that in architecture, one must seek for an “interpretation of tradition that will recognize our debt to the past without establishing the past as an authority.”

However, this point of view was not free from opponents: For example from a different viewpoint, Reyner Banham put an emphasis on the “utopian” and “teleological” dimension of architecture while demoting tradition as something that should be left behind while creating the new. In this sense, in the forward movement, significance is given to a revolutionary shift or rupture from what exists, rather than an evolutionary transformation which is closely tied to tradition. The revolutionary shift would be possible by the help of a scientific “architectural program,” and particularly by technology. For example, in “The Science Side: Weapons Systems, Computers, Human Sciences,” Banham (1960: 188-190) proposed that “[a scientific program] ...would take in all aspects previously left to tradition, including the aesthetics of perception, human response, (visual, psychological, biological) technologies of environment, and the like; science would simply reveal and propose the best solutions to the design of shelter.”⁸ However, in another article when Banham (1962: 762) judged the Coventry Cathedral as not “modern” but a restyled “traditional” cathedral for the reason that “no radical assessments of cathedral functions were undertaken” prior to the preparation of requirements or brief, he on the one hand referred to “cathedral” as a concept, and also to the concept of “cathedral” as the container of certain functions or programs which makes a building a cathedral, on the other, suggested critical appraisal of these elements which demands and establishes a link with the tradition. The elements referred to by Banham were actually constructive components which should be tied to a conceptual entity, which were already existed in earlier cathedrals and contained by the “Cathedral traditions.” Actually, when anyone even tries to think about a “cathedral function,” not yet revolutionize it, he or she can only think in terms of preestablished set of theoretical constructs related or applicable to the situation which must precede such an act. In other words any change including the revolutionary ones

⁸Although these arguments are from 1960s, we may identify a similar “biotechnical determinist” and scientific bias within many of the contemporary practices and discourses in architecture, particularly the ones “generated” by computer software.

must anchored to a framework of constructs, and any change must in response find its place within this framework. Therefore, a revolutionary shift also presupposes existence of a convention or an established tradition; a set of concepts and conceptual structures, followed by a critical assessment which requires prior knowledge and understanding of what exists and what existed. All in all, the position held by Banham is actually the opposite side of the same coin, and might be explained in terms of the evolutionary conception of design: We can still observe the evolutionary line, but in this case containing advances not in terms of retained constructive elements and continuous transformations, rather in terms of shifts and ruptures from these.

3. TOWARDS A THEORY

The stance towards “what exists” and “what existed,” or the relation with the past works may vary from mindless imitation, direct quotation to deep understanding and interpretative adaptation, (or from misreading to understanding, from formal manipulation to creative transformation) which in turn determine the nature of the relation with the past works and the type of -possible- contribution they could make to the creation of new works.

The evolutionary conception of design of architectural works calls for two primary elements: First element is the tradition, the basis of the present practice and a possible future change, which represents “what is” and “what exists,” the established design knowledge and operational lore. Second element is the creative, explorative, innovative, but at the same time inquiring, critical and evolutionary movement by means of the act of creation of a new work which represents “what could be” and “what is possible,” the transformation of “what exists.” The existence of the second element is always dependent upon the first. In other words, creative act should always depart from, or more specifically, must be established upon understanding and criticism of “what exists” and “what existed.” So the direction to be followed should be close analysis and understanding of the works rather than any other superficial “references,” visual, stylistic, imitative, or otherwise.

Understanding a work involves understanding the thought content of it, and understanding a thought content of a work involves hypothetical reconstruction of the ideas and the problems which these ideas were related. Understanding and internalization of a theoretical construct is on the one hand always tied with the problem or the problem situation which it was associated (i.e. provided a solution), and on the other, every construct should be somehow attached to a specific instance or instances which it was confronted. A hypothetical construction demands going beyond

a static, descriptive “formal” analysis and employment of “what” and “why” questions attached to “how” questions. This can be interpreted as a sketchy expression of a theory for studying architectural works, which needs to be tied to a counterpart structure.

In formalist tradition, a work is viewed as “a closed-off unity,” where each element constituting it “receives its meaning...within the structure of the whole...” (Bakhtin and Medvedev 1991: 45) In other words, a work is a closed-off, self-sufficient “architectonic construction” constituted by weaving together of its constructive elements, contributing to its formation in various ways. In Formalism, this structure is the basis for a critical and structured analysis and interpretation of a work where the task of the critique or interpreter is “...to reveal the constructive unity of the work and the purely constructive functions of each of its elements.” (See Bakhtin and Medvedev 1991: 45) The concept of “dominant” is Russian Formalists' contribution to Formalist tradition, in Jakobson's (1981: 751) words “one of the crucial, elaborated and creative concepts in Russian Formalist theory.” Jakobson (1981: 751), describes the dominant as “the focusing component of a work of art: it rules, determines, and transforms the remaining components. It is the dominant which guarantees the integrity of the structure.” It seems that Formalist conception of a work of art and the concept of dominant is in a valuable position to make a contribution to the study of architectural works, their structured analysis and understanding. Owing to their common epistemological roots these conceptions are also compatible with the evolutionary epistemology and world three. However, they must be reconsidered for the specificities of architecture and must be adopted to the present purposes. Prematurely we may declare that a work of architecture can be viewed as a “dynamic structure” consisting of constructive elements which come together under a preeminent “dominant” constructive element. Within the specificity of architecture the constructive elements contributing to an architectural work can be determined as concept (intent), idea (design concept), form, program, and structure or construction (containing material, and technique). The content of these concepts need a clarification at this point.

3. 1. CONCEPT OR INTENT

Concept or intent as a constructive element is the “primary conception of a thing.” Intent is on the one hand directly linked with function or program, on the other it is associated to a specific form or a set of forms. Prior to designing or building a thing, say, a “cathedral,” one must have an idea of it. Having a concept or idea of something is having a theory of that thing, among many others

⁹The term was used by (Hildebrand, Adolph von 1945) and also cited in (Bakhtin and Medvedev 1991: 45)

which might be equally relevant. For example, “cathedral” can be conceptualized as a species of a temple, which is “a construction that provides a shelter and a space for people to gather and worship.” This conception specifically addresses two programmatic elements: gathering and worshipping. We may also conceptualize “cathedral” as “the focal point of the Christians, where they come together and worship to god.” This conception particularly addresses the building’s symbolic function and owing to its reference to Christianity, it is associated to a specific type of worshipping function. However, the point is, to have an idea or concept of a thing provides neither aspect nor prospect for this purpose, except its link to the specific forms which it was associated.

3. 2. ARCHITECTURAL IDEA OR DESIGN CONCEPT

Architectural idea or design concept is the conceptual or ideational construct or a set of constructs behind an architectural work. These might typically concern an abstract formal description of the work, or a set of principles, devices or an order governing its construction. However, an architectural idea might address or foreground various aspects of a work: its form, its program, or its structure. The difference between concept(intent) and design concept might need a clarification at this point: a design concept is either about construction or formation of an architectural work and weaving together its constructive components, or about the nature of how an existing work was constructed. For example while our idea of “cathedral” expresses that it is a place for Christians to gather and worship, a design idea of a cathedral contains an interpretation of these functions, how they are and they should be fulfilled, and a proposal, a configuration that provides a potential for this purpose. For example a design idea may address a programmatic requirement or a contextual variable, or a problem concerning a structural or technological issue, a symbolic issue, or a spatial issue, and so on. In parallel, an idea might also address utilization of the constructive elements for a certain purpose or a problem situation, or it may address a problem concerning weaving the constructive elements together. In this case the concerned idea becomes the “dominant,” the focusing component of the work which rules, determines, and transforms the remaining components, and gives integrity to the whole. In all cases the idea is indispensable from the program, i.e. some type of reason and selective force.

The point is, different than a concept(intent) a design concept is operative and generative; a single design concept can be adapted and utilized for generating infinite number of different physical configurations or specific forms, and a design concept is actually distinct from the intent.

In addition, a design concept might not always target the whole building but various parts or various constructive components of it.

3. 3. FORM

Form is the actual resultant physical configuration realized in response to a specific concept and a program, and a container of a design idea or a set of design ideas. However, this realization, or the actual process from which the final or specific form was created might not be fully determined and reversed. Whereas the specific form contains the traces of various constructive elements in its morphology, its analysis is a hypothetical reconstruction as it was stated before, which is a creation itself that might yield new ideas, and new programs, which were not originally invested in the creation of the form itself.

3. 4. PROGRAM (OR PROBLEM)

Typically, an architectural program can be expressed as the set of “requirements to be met in offering [an architectural] solution.” (Merriam Webster’s Unabridged 2000) However, the program can be reconceptualized to cover “the statement of an architectural problem or set of problems,” contextual forces or conditions, and the function; utilitarian, symbolic or otherwise. Actually, program is an element not directly “forming” or implying the solution but a formative force only employed for “selection,” and through the selection process for guiding the course of “search” and consequently determining the “solution.” As a consequence of this evolutionary conception of creative process, in architectural context, any selective force, or any entity that could be used for critical selection can be interpreted as a program in itself.

3. 5. STRUCTURE AND CONSTRUCTION

Structure and construction (including material, technology and technique) are generally means of physical embodiment of a work, not for its primary conception, although principally, they are formative or constructive elements. Say, a design idea proposes an uninterrupted large space, and utilization of a space-frame structure for solving the problem of providing a large-span shelter defining this space. The characteristics and possibilities of the very specific construction system or the structure in response affects the specific form of the work, at least constrains it. However,

idea and program (or problem) precedes structure and construction: first should be a problem, and an idea as a response to this problem followed by an idea utilizing a structure to solve this problem. For example, Leonardo da Vinci had been able to conceptualize the idea of a flying machine, and provided many design concepts, represented in sketches, prior to an available technology and materials which make the realization of such a machine possible. The reverse was not possible: without an idea, existence of materials, techniques or technology cannot imply or point to any such achievement: for example conception of an airplane (or a flying machine) do not starts from the laws of aerodynamics. However, conception of a “flying machine,” on the one hand provided problems and problem situations which helped the discovery, development or adaptation of such a technology, which this technology in turn provided a potential for the actualization; construction and embodiment of a flying machine, and determined its materials, its size, its specific form, etc.

The arguments made above foreground and privilege two constructive elements among the others: the design idea (or concept) and the program. These are the two primary operational and generative elements that provide the condition and give order to the architectural work. In this conception, program represents the reason and the guiding force of the creative process through selection and the design concept or design concepts are the primary elements which structure, give form and order to the process, the constructive or formative elements, and finally to the designed work. The idea-program structure allows for a potential for going beyond a static, descriptive “formal” analysis and enables the hypothetical reconstruction that is essential to the theory proposed above.

4. CONCLUDING REMARKS

The goal of the present paper has been to construct an outline of a theory of a structured analysis and understanding of past works. For doing this, it referred to the theories of knowledge, understanding, learning and creation provided by the evolutionary epistemology and Popper's three world ontology, as its epistemological and philosophical basis. Following this basis, it conceptualized an evolutionary account of architectural design which is anchored in the “world of forms or ideas,” and which mainly concerns evolution, retention and transference of forms or ideas, or more specifically evolution and transference of conceptual contents of the works. The conceptual and philosophical framework was followed by a short account of the evolutionary

conception of creation and change in Modern Movement in arts and architecture which represents the tradition and the context within which the present study will be embedded.

Based on this combined conceptual framework, the study proposed that understanding a work mainly concerns “hypothetical reconstruction,” of the ideas inherent in a work and the problems which these ideas were related. This was a creative act itself which demanded going beyond a static, descriptive “formal” analysis and employment of “what” and “why” questions attached to “how” questions. Hypothetical reconstruction demanded a structure which was prematurely implied by the theory itself. Formalist tradition provided the required precedent structure which was reconsidered by taking the specificities of the present problem into consideration. The constructive elements contributing to an architectural work was determined as intent, idea, form, program and structure or construction, among which architectural idea and the program were promoted as the primary operational and generative elements that provide the condition and give order to the architectural work and other constructive elements. This structure were called “idea-program” structure which was stated as the accompanying element of the “theoretical reconstruction.”

In the final analysis, logically, owing to its epistemological, philosophical, architectural roots, the evolutionary account of design, theory of hypothetical reconstruction and the entailing idea-program structure seems to be providing a suitable rigorous basis for the analysis and understanding of past works. However, it must be noted that what was attempted and what was provided is an outline, a schema, a pre-conception, which needs to be elaborated and tested. This in turn on the one hand indicates the direction which should be taken and explored on the other it provides the basis for this exploration.

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