Anticipations of the Ideas of Contemporary Architecture in the Russian Avant-Garde

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Abstract. Leading contemporary architects stated their adherence to the ideas of the Russian Avant-garde that could be "injected" into the Western cultural background and might regenerate or revitalize it. Their approach could be accounted as "superficial sliding", but quite deep interpenetration to the ideas and images of this culture is also revealed. So the point is, in what ways the inheritance occurs and cross-temporal interaction works in a design culture? The purpose of this paper is to clarify a nature of the multiple links between the working concepts of the masters of the Russian Avant-garde and contemporary Western architects emerging while their creative activity in relation to spatial constructions and affecting the meanings of architectural forms and images. The essay tried to apply the process approach to study the architectural phenomena, treated as a development of structuralism and post-structuralism methods, involving the construction of both synchronic and diachronic models. Comparative analysis of individual ways of designing and creating forms specific to the architects is also used. As a result the individual semantic structures are identified and their interconnections are found out at the different levels of conceptualizing: "picture" imitation and transfiguration; fragmentation; reticulated constructions; cosmos generating; spatial primary units; animated stain; bionic movement; autopoiesis. Tracing the links and transferring the ideas is possible at the meta-level by comparison the whole semantic structures specific for the different times architects, identified by means of reconstruction of their individual creative processes and representation of the broad figurative-semantic fields, referring to the various cultural contexts.

1 Introduction

Leading Western architects (R. Koolhaas, Z. Hadid, P. Schumacher, D. Libeskind, etc.) have repeatedly declared their adherence to the values of Russian Avant-garde – revolutionary for the development of the world architecture – and appointed themselves major successors of its design approaches and methods [2, 7, 9, 10, 11]. The Avant-garde is regarded as stimulating them to initiate their own creative activity, elaborating the concepts and making the principal design decisions.

Z. Hadid in her interview described the situation in the West in the 1970s, when "the Russians really excited" them, and the "reason wasn't their formal and painterly

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investigations but, in terms of architecture and program, the fact that they were really inventive. In the 1920s there was a new kind of social order in Russia that made it possible for certain new ideas and new programs to take place". And these ideas "could be injected into the Western cultural background and that might regenerate it or revitalize it". [9] She also confirmed that "the 1920s Avant-garde not only anticipated the urbanist concept of the 1950s, but projects were designed that anticipated the mega-structure utopias of the mid 1960s and high-tech style of the 1970s". [7] "In a way there was a parallel between these two situations". [9]

R. Koolhaas in his interview (1996) talked about the possibility to compare his work with other architects, that his career can be characterized by tracing connections with "friends in some way close to his work" (incl. I. Leonidov, K. Malevich, K. Melnikov). [2]

In many works by critics of Contemporary architecture [2, 3, 4, 5, 8, 11, 13] is noted acquaintance of the recent masters (largely from the very architects' words) and literally "infection" with samples of abstract compositions and well-known projects made in the 1910-1930s, which they borrow, modify and they served for the justification and search for their own new spatial solutions, being consistent with today's economic, technological, social and artistic contexts and, in many respects, different from those in which the Avant-garde masters worked. Critics made a great job by collecting factual material, interviewing architects, describing their works and trying to compare with works of both Russian architects and artists, but the comparisons and assumptions were often based on the external similarity with the prototypes.

If to proceed from such interpretations, it seems to be so that the images taken from the Avant-garde arsenal are used by architects as "working" metaphors to solve the current design problems, and they resort to them eventually, from time to time. During the design process the syntagmas – temporary spatial and semantic units – are formed around them and at other times various suitable images and constructions can be gleaned from this arsenal, as from certain reservoir of images. For such a syntagmatic use of images it may be sufficient a cursory and superficial perception of the Avant-garde works, in which the abstract compositions are read as "pictures" with selecting some general geometric configurations, details and qualities, particularly without getting into ideas behind them. Such a design approach could be described as a fast "superficial sliding" on a certain screen surface, so below it the images of the Avant-garde could be seen, and they are not "fished out" systematically, rather by chance, and then are "woven" into their own imaginative searches, some manipulations are made with them.

And when should they – architects-managers involved in the rhythmic production of architectural "masterpieces", in the market design and construction "machine" that has involved the whole world and cannot be stopped – find time to "dig up" the archive materials and get acquainted with untranslated primary sources.

It seems that there is an "array" of business, layout, technological and regulatory circumstances prescribing how to make the certain building product and "habitus", a production cycle contemporary architects included in, as well as some "fragments", "extracts" from the Avant-garde used as "enveloping", "wrapping" (Z. Hadid) a "body" of architecture. And such an interaction with prototypes serves the promotion their products on the world construction market.

But quite deep interpenetrations into the ideas and images of this culture are also revealed. So the point is, in what ways inheritance occurs and cross-temporal interaction works in a design culture?

D. Libeskind talks on "an invisible matrix of connections, connections of relationships" between urban contexts, past and present, cultures, architectures and spaces capable to carry meanings, to be "echoes" of past times, events, figures that do not disappear anywhere, are present and can be called into being, and also about the ways of doing architecture reviving these spaces and continuing the incessant dialogs of cultures [11]

One could remember that R. Koolhaas at his lecture devoted to Ivan Leonidov (2002) at the Central House of the Architect in Moscow stated: "If the entire twentieth-century architecture of the world was destroyed, it could be brought back to life through the genetic code of Leonidov's architecture". [3] That implies that he has unravelled and knows how to activate "genetic code" of constructivist's architecture deployment.

P. Schumacher, in his monograph [9], derives the beginnings of the his parametric theory and searches in the field of dynamic forms creation in architecture and urban planning, as well as autopoiesis and deployment of the city structures almost directly from the procedures of Avant-garde making the forms related to abstraction and formalization and creation of the new languages of arts.

Hence, it is necessary to make the comparisons not only at the level of recognizable similarities, but rather at the level of identified semantic structures associated with spatial constructions and design "mythology", individual for architects of different times.

The **purpose** of this paper is to clarify the nature of the multiple links between the working concepts of the masters of the Russian Avant-garde and contemporary Western architects emerging while their creative activity in relation to spatial constructions and affecting the meanings of their architectural forms and images.

2 Methods

In this paper there are presented the results of reconstructions made for the design actions characteristic for the masters of the Russian Avant-garde [19, 20, 21, 22, 23, 25] and contemporary Western architects [22, 23, 24, 26]. It is an attempt to refer to the very moment the masters conceive their objects and to pass with them through the stages of imagination, forms creation and construction of the spaces. Such a research is getting possible as a combination of the experience of a practical architect, historian and theorist.

The work tried to apply the process approach [17, 19, 20, 21, 23, 26] to study the architectural phenomena, treated by an author as a deviation from and development of the methods of traditional structuralism [1, 18, 25] and post-structuralism [12, 13, 15, 23]. The process approach implies the construction of both synchronic and diachronic models [1].

The output of the process approach implementation is a revelation of various hidden semantic structures, comparable to each other. So it is also used a comparative analysis for individual ways of designing and creating forms specific to the architects of different times.

3 Results

As a result of examining the creative processes of the architects, the semantic structures were identified and the interrelations were traced at the level of their individual images, working concepts and creative actions. Let us represent the certain ways of anticipating the ideas in the Russian Avant-garde and their acceptance and "mutation" in the work of the contemporary Western architects.

- *"Picture" Imitation and Transfiguration*

At the early beginning of her creative activity, Z. Hadid knew not too much "about the Russians and Malevich" [9] and perceived his "architektons" as a "picture", imitated and took their forms as a basis to create the Malevich's Tektonik – Bridge over the Thames. Malevich, while making his "architektons", tried to manifest the primary units evoked from the world of abstract entities (akin to Plato's universals that haven't existence their own in our material world). Hadid "grasps" these white models as the material forms, repaints them in different colors, makes their projections, scatters on a panel, disassembles them into their constituent parts and inserts into them some functions related to the

communication. Misunderstanding is also knowledge for an artist, since it can work as a provocation, to give impetus to his own intuitive search, and this approach gives the results.

- ***Fragmentation***

The concept of fragmentation most probably goes back to Aristotle's Biology, when it is described the work of an animated organism composed of the interrelated organs by body, as the body instrumental parts, each with its own moving principle. This idea is "glimpsed" from time to time in the culture and is recalled in the cubists' drawing studious, hold in Moscow (1912-13), where Russian artists are participated: V. Tatlin, K. Malevich, A. Vesnin, L. Popova, A. Rodchenko, etc. The artists put forward the separate fragments of the models' bodies, as if emphasizing their working potential. Such a whole with differentiated functional parts is transformed into A. Vesnin's stage machine for the play "The Man Who Was Thursday" (by G.K. Chesterton), where the action took place on the several sites simultaneously and the elevators, conveyors, stairs, ramps, robots are involved, and entire stage machine is transformed during the action. The put forward "drawers" of rooms (volumes) – each performs a separate function – appear in the A. Vesnin's Palace of Labour (1922-23) [19], but the principle of the "building-organism consisting of working organs" has already existed before.

A. Rossi notes the houses in the Renaissance city, where functions replaced each other – housing, hotel, bank, office, etc. – and activities could coexist in the simple volume to be separated by the partitions. And he also reports how a surprised French traveller offers a picture of different type houses: "… these little houses (volumes), three or four stories high – one for eating, one for sleeping, a third for receiving, a four underground for a kitchen, one for the servants – and the agility, the easy, the speed with to which several people run up and down the very narrow staircase and disappear at the different floors, offers the idea of a cage with its sticks and its birds". [14] It could serve as a good illustration to A. Vesnin project, to a "House formed by the functional units".

The same principle we could find in the Hadid's Center for Contemporary Art in Cincinnati (1997-2003). In addition to emphasizing the rigid relationship of form and function, the fragmentation serves Hadid as a way to reveal a building plasticity, to stress its aesthetic nuances. At the same time, the working concept of fragmentation is transferred to other spheres and serves to her to distinguish an object or problem from its surroundings, formalize and better grasp.
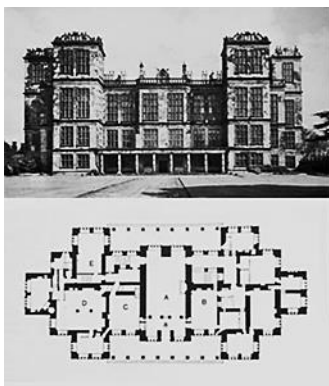

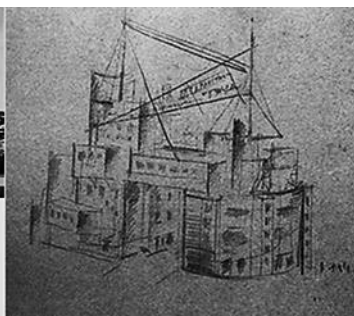**Fig. 4.** R. Smythson *Hardwick Hall* London (1590-7), Façade and Plan [31]

Fig. 5. A., V. & L. Vesnin *Competitive Project for Palace of Labour* Moscow (1922-23), Preliminary Drawing [29]

Fig. 6. Z. Hadid S.R. *Rosenthal Center for Contemporary Art* Cincinnati (1997-2003), Photography [30]

- *Reticulated Constructions*

In his lecture in Moscow (2002) R. Koolhaas explicitly stated that his project for the Park de La Villette (1982) in Paris is directly related to the project of the Socialist Settlement at Magnitogorsk Chemical and Metallurgical Combine (1930) made by group of I. Leonidov. In OSA work the network structures constitute the basis for the all urban layout and the grid constructions are used to solve entire buildings in a new city.

Despite the outward similarity of the reticular constructions in interpretations of I. Leonidov and R. Koolhaas, the meanings embedded in them and the deployment algorithms are different. Each reticulated construction finds out its individual specific in the architect's creative process, reflecting his worldview, and this very fact determines its meanings. Leonidov in his development of a network concept follows the «schematic unfolding» applied for an architectural composition. That presupposes a gradual network revealing, materialization, becoming significant and its transfer into various spatial dimensions. He interprets a network as composed of many layers with spatial cells, a kind of organic tissue. And here a play of scales happens and division, a simple geometry turns into living and moving images. [19, 21, 23]

Koolhaas initially interprets and build his "grid" concept as very material, pragmatic and quasi-machine. He operates urban islands (blocks), bounded by canals and walls. They form the material structures like shelves or dressers of drawers. His three-dimensional "grid" constructs obey their «sliding» logic, some "cells" can be put forward like a "telescopic tube", or move back and forth in a "checkerboard pattern". The architect uses the cinematographic montage and formalization techniques, abstraction and surrealistic analogies to fill the voids of the network, also by installing the Avant-garde sculptures-skyscrapers. And he tries to describe the processes and write the scenarios and quasi-mechanical programs to describe the past and future city life. [2, 23]
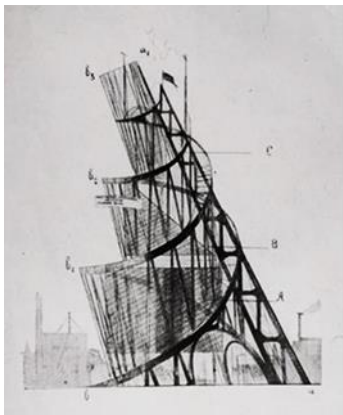

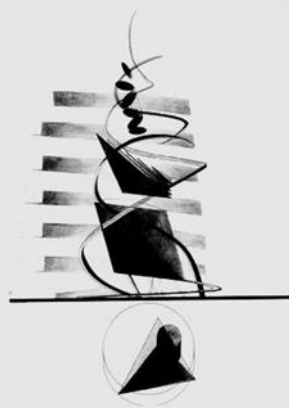**Fig. 1.** V. Tatlin *Monument of III International*, Petrograd (1920) [28]

Fig. 2. Z. *Hadid Interpretation of Tatlin's Spiral* NY (1992), Preliminary Drawing [6]
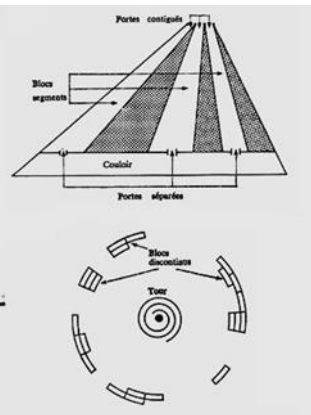
Fig. 3. G. Deleuze & F. Guattari *Spiral Tower: V. Tatlin Monument of III International* (1975) Schemes [12]

- *Cosmos Generating*

Z. Hadid answers a question about the dizzying photographs and "Rodchenko's flying objects; they are defying gravity", states: "The Russians were very interesting in that: conquering the universe. And their work was very cosmic". [9]

V. Tatlin was a designer of the Monument of III International and a first stage director of the play "Zangezi" written by V. Khlebnikov. Almost in parallel there were existing two versions of building a cosmic model: the spiral – "running from the ground" – forming the Tower and multitude of semantic plates, ascending to the hero sitting high – "Zangezi"

(Tatlin). Moreover, the panels express different languages for describing the world, which Khlebnikov developed and entrusted their detailed elaboration to his colleagues: K. Malevich, V. Tatlin, P. Miturich, N. Punin. The last one wrote in his diary: "Khlebnikov is the trunk of the century; we sprouted on it like branches". Semantic plates, like languages, consisted of the primary units obtained from purified sensations. [19, 25]

A similar model of the Tower, applicable to Tatlin's project (and probably to "Zangezi" by Khlebnikov), is being built by G. Deleuze and F. Guattari, with curved and overlapping plates (block segments) and couloirs. [12]

Hadid feels herself inside the Tower while creating the Great Utopia exhibition. The celestial mechanics works below and above (Globe Room). Here, Tatlin's cosmos, with its spiral and suspended volumes, and Malevich's cosmos, with its "Bent Tektonik" ("architektons") floating in the air, are coexisting. The entire exposition constantly directs the observer nearer to the edge of the ramp so that he can look deep into the cosmos. [4, 5, 9] If the Tatlin's spiral Tower with internal rotating volumes is quite clearly represented in the space of the Museum, so the Tower, formed by semantic plates, splits into a set of red exhibition stands – "Zig Zag Wall" – and curved overlapping volumes of Malevich's elements. Hence there is a double coding of the structure of the Avant-garde cosmos in a space that allows it – the Museum, designed by Frank Lloyd Wright (1943). (It is interesting whether the diploma project by L. Komarova for the Comintern Building (1929) was presented at the exhibition. The number of virtual cosmoses could increase even more).

- ***Spatial Primary Units***

The initial stages of a creative process are needed by the Avant-garde artists (V. Khebnikov, V. Tatlin, K. Malevich, P. Miturich, K. Melnikov, etc.) for abstraction, formalization and making the «disunion of wholeness» – former cultural material. However, the meanings inherent in it are not eliminated at all, rather "frozen" in order to "revive" later to a new life. But from these operations, the creators derive the semantic units that have a spatial nature, express spatial situations, contexts. The relations between the units are important to determine the semantics of architectural construction as a whole. On the basis of the identified primary elements of perception and analysis, the grammars are elaborated by artists and they created the analytical languages of spatial constructions useful to re-create the world. [19, 17, 25] "The Architect in such an ideology becomes the Creator, who reassembles the construct of the New World from the original atoms". [27]

In the concept by R. Koolhaas for the Park de La Villette, the "design mythology" is formed and narration begins with the derivation and describing the meanings of the original primary elements. While the deployment of spatial units, a number of their transfigurations into various images and design solutions take place. "The Architect is likened to the Creator, who, in course of a series of transformations of mental initial concepts, creates a complex and life-filled world of the object". [27] The planning "stripes" within the spatial units and contexts with heterogeneous life, "implanted" in them, constitute the program for the future territory existence. [23, 25, 27]

- ***Animated Stain***

The contemporary architects often begin their design discourse with a clew of lines, a stroke, a spot, while their searches become consonant with the development of graphic architectural and design themes elaborated by the Avant-garde artists (P. Miturich). [22]

P. Miturich paints spots, blots, strokes with a brush and ink, and he strives to confluent with their plastic nature (empathy), to inhabit, animate them. A live energy, vital impulse, an intention appear in the spots and it finds out a special movable plastic (the element of plasma). The graphic creatures change their outlines, grow, move, obey the laws of wave motion first initiated by the artist's hand, then according to their own logics. He transforms them into volumetric forms and creates wave bio-machines based on the flexibility and resilience of materials and human adduction force. These could be: ornithopters, ships-

fishes with movable sides, jumping grasshopper type cars, trains crawling like snakes, without rails, without oil engines – hence, super eco-friendly and very smart.

And then he proposes to arrange the layout of the "City of the Straight Paths" with the streets adapted for their wavy movement. The city is formed at intersection of several circles, echoing the trajectories of traffic, and included the houses with continuous facades.

Z. Hadid seems to pick up on these searches when she begins to sketch out a certain hieroglyph, which should be deciphered, explained to a team, transferred into volume and construction. Hieroglyph manifests its character, will for development. Many semantic layers arise in it, and they can express the traces of the movement of the crowds of people, bicycles, cars, trams, trains, outlines of the buildings. All of them constitute a kind of quasi-organic field with the invisible network.

Hadid's urban complexes often seems to be simply the materialisation of the curvilinear wavy city by Miturich, bounded by network of today's highways and acquired intricately curved, continuous elevations. They seem to be waiting the appearance of the wave machines. [22, 24] The resonance arises between the spatial constructions, since behind them there are the creative processes and artists' attitudes more or less similar in their structure.

- *Bionic Movement*

The biometrism and bionic movement are following from the previous point, and they are also manifested in the works of V. Tatlin and I. Leonidov.

V. Tatlin makes his bird-ornithopter from "organic units" using the properties of flexibility and elasticity, sound, colour, outline, tactile sensation, testing the possibilities of the wave movement and adding the artist's energy. He puts his soul into organic construction literally merges with it – Letatlin. And he invites everyone to "come flying" on such "birds from village to city, for a work, for business". [19, 25]

I. Leonidov, as a son of a forester, is close to a nature. He takes the dialog (chorus) of heterogeneous forms, creatures in the forest as a model to arrange a new world of forms and to create a "forest of architectural forms" (City of Sun) – the forms are changing and growing together in a dialog. And this is a constantly developing dialog. It is important for him that there is a "universal genesis of forms", including the forms of inanimate and living nature, man, architecture and history. And the artist's task is to join this dialog and become consonant with it. [19, 21, 23]

Shin Takamatsu talks on Kyoto's landscape and special "passionlessly sweet" air, and tries literally to "implant" a tree into the wall of a house. He experimenting with a number of embodiments: "becoming a plant", "becoming an animal", "becoming a rock", etc. The challenge is to live the moments of their lives and then project these practices onto the buildings being erected. [13]

The likenesses with the nature in the design of Hadid are obvious: "the back of the whale", "bird tracks of the walls of the cage", "weathered rocks", etc. But she tries to combine the natural forms with the rigid technical and parametric architecture, using new materials and constructive solutions to achieve a desirable imitation. [10, 15, 24, 26]

- *Autopoiesis*

"The autopoiesis of architecture" [10] is understood by P. Schumacher as a self-reproduction, relatively autonomous development of the city and architectural structures, like a becoming of a network of social communications or biological systems, a kind of biocenosis. "The social system, according to N. Luhmann, is analogical to the biological one and is capable of producing and reproducing all its parts from itself". [14] Schumacher defines a number of parameters by which the city and architecture develop and makes assumptions on a possibility not only of monitoring such self-development of the system with their help, but also trying to guide it. "The plastic of the Z. Hadid's architectural volumes is embodied on the principles of parametrism". [15]

Returning to the Leonidov's "universal genesis of forms", we note that he also had a concept – "people-artist". It supposed that professional artist, architect should start doing, "set" a clear form, define a theme and quit, and the "people" should continue. Forms must "grow", turn in detail, get real structures and become a sort of folklore. And artist must leave, "dissolve in the people". "Let it grows as it grows". "Where it leads, it leads there". "The urban planning necessity was like this". [19, 21] Taking into consideration, how Leonidov's urban planning and landscape projects carried out, this is quite a program of the architecture self-reproduction.

V. Tatlin, following Khlebnikov's behest, invests a "life-building" program in the "things" he creates.

The Avant-garde artists, and the researches, increasingly pay attention to the fact that the forms they create manifest themselves as "revived", "animated" entities. These forms at the moment of creation – when the result is not precisely determined – demonstrate their "will", "direct" the process itself, "offering" how to develop themselves in one way or another, or even begin to influence the life of their creators. The artist and the "animated" creation mutually influence each other, enter into dialogue, forming temporary productive communities, in which they jointly develop and advance in the construction of new artistic realities. Perhaps such a development in alliance with a computer is still only seen by recent architects.

4 Discussion

It's getting time to move from describing biographies, recording interviews, collecting the works of the contemporary architects and making the comparisons based on their own words and simple similarities to analysing the architectural phenomena at the level of their semantic structures, with identifying the cultural mechanisms generating them. This requires of special methods of analysis, allowing to turn out in the "kitchen" of an architect and to get nearer the very moment his working concepts appear. The process approach allows us to penetrate into figurative-semantic field of an architect, taken as a whole, and not concentrate on the consideration of separate works. It provides a tool for objectivation the different material, creating relatively independent second order model for describing a design.

The theory of autopoiesis of architecture and related "parametric paradigm (according to P. Schumacher) is well prepared to take the semiological project to a new level". [10]

However, if P. Schumacher comprehends autopoiesis, first of all, as a development of the social network structures, autopoiesis of entire architecture, then our interest is focused, on the contrary, on the study of autopoiesis in the individual creative process of the architect. We are interested in working out the pragmatic aspects of generation and functioning of the meanings in design, in examination the becoming of the spatial constructions and parallel studies of becoming [13] of the architect himself, taking the roles at different stages of the creative process. [26]

5 Conclusions

An approach to comprehension the decision-making mechanism in design is proposed, consisting of disclosing the connections of spatial constructions with the imaginative and semantic field of an architect. The creative process is established as a pivot on which the architect is able to build the impressions, ideas and associations specific for his work, to connect them with the elaborated ways of design action.

Tracing the links and transferring the ideas is possible at the meta-level by comparison the whole semantic structures of the different times architects, identified by means of

reconstruction of their individual creative processes and representation of the broad figurative-semantic fields, referred to various cultural contexts.

Space, spatial situations are considered in the work as the very place of localization of the images, ideas and associations. [15, 18] The smart spatial arrangement is burden with meanings and is able to preserve the essence of the culture of a particular time, and it has got its own "genetic code", which can be activated. So the space can be deployed in connection with the inclusion of the recognizable fragments of that time (things, words), mood and a special spirit of invention, and within the reproduction of the specific images of the mode of action. At the same time, there is happening a confluence with the boarder layers of cultural memory with the Lotman's semiosphere.

Paraphrasing Lotman, we could say that seemingly distant fragments, separate "extracts" from "foreign" contexts (texts, pictures and spatial situations) often fall into the circle of attention of the contemporary architect. Lotman writes: "Falling into the category of "foreigners" within a given system, these texts fulfil the function of a catalyst in the whole mechanism of the semiosphere. On the one hand, the border with foreign texts always appears as an area of enhanced meaning generation. On the other, any fragment of semiotic structure or separate text preserves the mechanisms for reconstruction of the whole system. Thus the destruction of integrity speeds up the accelerated process of "recollection" – reconstructing the semiotic whole through its parts". [1]

It's important, that in the system of culture this does not lead to the reconstruction of the old language, but to the creation of a new one – in this case, a new language of architecture.

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