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Semiotics of Architecture and Architecture of Semiotics

The categories of system analysis are examined here from the viewpoint of the concept of general systems and of the results of semiotic studies in architecture. An attempt is made to use these for the description of basic objects of anthroposemiotics. These objects are regarded at the levels of communication and creative activity, as well as activity types, in the dimensions of pragmatics, semantics, and syntactics.

Semiotic studies of architecture caused the author to use general scientific terms and to relate them to semiotic models and terms themselves (Somov 1983, 1986 and 1990). This experience made it possible to specify categories of efficient description of objects of architectural semiotics. The range of these objects is quite wide and includes diverse aspects of life. Therefore, it is possible to describe semiotic objects in general from the viewpoint of architectural semiotics - that is, the description of anthroposemiotic objects in a certain system of categories, considering their interrelations with the objects of other semiotics (cf. Sebeok 1999).

The suggested system of categories is based on the idea of system analysis of activity (Shchedrovitskii 1995). At the same time, unlike the founder of the idea, I do not insist that the introduced categories refer exclusively to human activity. I find it reasonable to distinguish two levels (I and II, see *Fig. 1).* The categories of level I are much wider than the characteristics of activity. On the contrary, the categories of level II deal mainly with human activity, while the categories as a whole characterize activity and communication itself.

My major idea is that these categories describe some abstract objects. The interrelations of these objects appear in more concrete empirical objects: signs, codes, texts, senses, languages, etc.

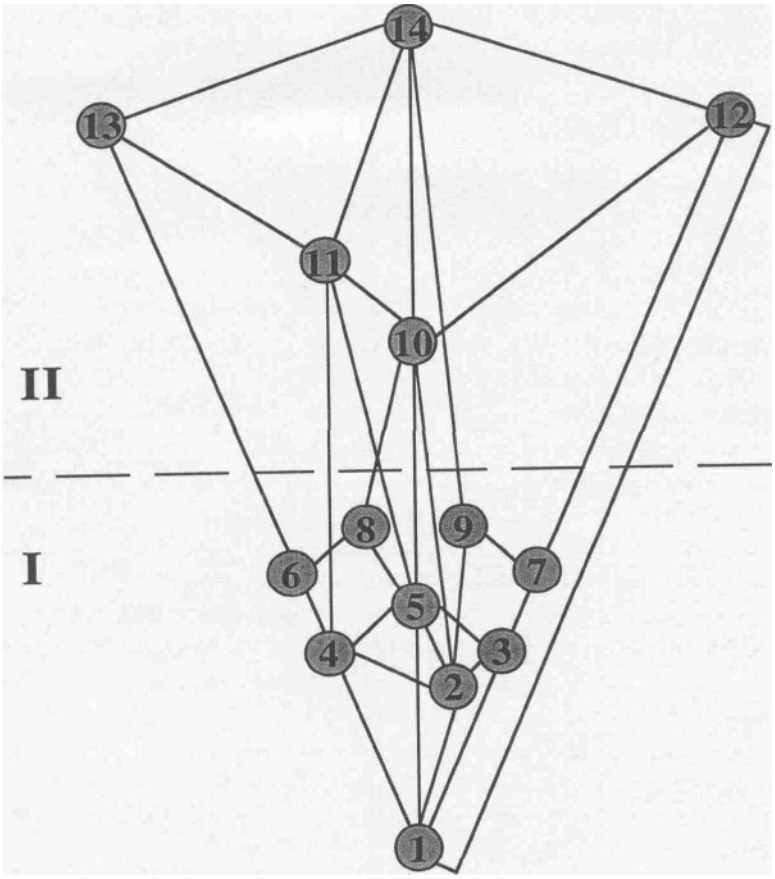

Fig. 1. Interrelations among basic categories of system description of anthroposemiotic objects (modified system of G.P. Shchedrovitskii)

(I) Categories describing the semiotic objects in general (communication); (I) and 01) categories describing the activity; (1) relation, (2) structure, (3) mechanism, (4) heterogeneity, (5) system, (6) level, (7) process, (8) organisation, (9) totality, (10) model, (11) form, (12) action, (13) material, (14) image; solid lines represent basic interrelations

The *interrelations* (1) form the basis of semiotic systems and, first of all, signs. The models of signs of communicative acts reflect different types of interrelation. The interrelations forming semiotic systems can be perceived as real. The contacts with the environment reveal the differences among the interrelations between: interpretant and object, representament and object, and object and interpretant (cf. Peirce's sign model). The first one appears via the search and finding of vitally important objects; the second one, via the effort and success in interpreting visible objects, and the third one, via the response to stimuli (the latter corresponds to the term "feedback"). These interrelations are manifested in signs and senses and some psychological phenomena: conative acts, emotions, and movements. There are three types of directional relations between a sender and an addressee of a message. They are described in details as expression, appellation, and representation (Buhler 1934: 34).

At the same time, the interrelations are present in the world of each side of **Peirce's** triangle. In the world of interpretants, these are internal relations of different organs or the brain, transmitted via the environment (1). In the world of objects, these are interrelations among things transmitted via society and relations of type (1). In the world of representarnens, these are their internal relations transmitted via the relations of types (1) and (2).

Stable interrelations form structures in different realities and their interrelations.

The *structures (2)* are manifested via certain aspects of interrelations and represent the predominating relations and principles of relations of this or that whole object. This corresponds to a philosophical analysis of structure properties (Il'in 1972: 41). The structures appear simultaneously in the physical and psychic world, as if they migrate from one substance to another (Russell 1962:
225). The structures of different systems are formed and related in the processes of activity. This corresponds to the description of structure composition, given in some variants of general systems theory (cf. Masanao/Shuford 1965). The structures of different systems of the physical level are interrelated in the process of intermutation of architectural objects. Spatial systems of vital processes, constructive and technological systems, systems of transport organization, engineering nets, etc., become related to the structures of semiotic systems. Structural transformations resulting from the interrelations of this kind

are inherent to human mental activity in general and become the object of psychological studies. A specific role of structures in the mental process is due to their abstract character, and thus, possibility of different incarnations and transformations. In the architectural intermutation, the following structure transformations proceed: physical structures turn into semiotic ones (identical efforts in a construction turn into repeating pylons or orders of lower and upper storeys, opposed to each other). The structures of one type of semiotic systems are transformed to another one. Spatial movement-orienting points are materialized in orienting volumes - constructions and monuments. The transformations of structure of iconic signs and texts into physical reality are significant. This is visualized in the intermutation of cult constructions. The cross-shaped basis of a Christian church is a structure of a basic text, which determines the structures of spatial-constructive systems (with three naves and transept in a Gothic church and cross-shaped with domes in Byzantine architecture). In other words, the structures are visualized in different substances, but have the same characteristics (topology, different types of symmetry, spatial and temporal intervals, numeric structures, etc.). This structural monism allows us to understand better possible interrelations of various sides of system formation: rational-practical and irrational - that is, the difference between the principles of the world of rational and practical decisions (resource saving) and that of information and the sign systems of life.

The *mechanisms* (3) can be regarded, first of all, as transformations of structures. In particular, in architectural intermutation, the following mechanisms can be distinguished: interaction-based materialization of structures and intermutation; transport of structures of the physical level to the semiotic one and their materialization in sign forms, and the transport of structures of semiotic systems to the structures of the physical level (cf. Somov 1990).

Various transformations of structures are manifested in communication, **too. In** this case, the fundamental mechanism is represented by codes, which corresponds to the determination of codes as given by some semiotic scientists (Hall 1980; Fiske 1982). The codes are based on structures and structure-reflecting features. This is why the codes are very similar to other mechanisms of thought (recognition of word consequences, arithmetic and other regularities during intellect testing). This similarity is apparent in proper semiotic mechanisms, which

are called files, where the text is expanded in accordance with a given structure (cf. Kamenskaya 1990). In the studies of creative mental processes, the so-called algorithms of thinking are also described as structure transformations (cf. Voronin/Napalkov/Tselkova 1982). These analogies seem to reveal a common essence of thinking and codes as mechanisms of structure transformations.

The relations of difference/equity are an aspect of structure manifestation. Therefore, they are regarded either as the basis of language in Saussure's theory or as basis of information (cf. Ashby 1957; Ursul 1971; Kucherov 1972). The researchers of philosophical problems of information postulate that a totality of differences (diversity, heterogeneity) is the objective material basis of information (cf. Ursul 1971).

The *heterogeneities* (4) are the totality of differences in some characteristics (types of equity). The heterogeneities form different systems, this phenomenon being the most apparent in architectural intermutation. The differences in life processes, movements of transport and pedestrians, spaces, and volumes not only form the basis of this or that system, but are incarnated in the diversity of perceptive differences, which are heterogeneous themselves. The light-and-shade, which is the basis of many sign formations, is the most visual of them. The heterogeneities of other levels (denotates, designates, their typical features, and relations) also serve as the basis of system formation. It is possible to say that the heterogeneities organized by structures and representing the totalities of elements and relations with the characteristics, which are stable and indispensable for these of those processes, form the systems. This can be compared to existing determinations of systems as totalities of relations, elements, and characteristics (cf. Hall/Fagen 1956).

The *systems* (5) relate different groups of relations, elements, and characteristics, involved in processes and mechanisms (the systems of economical indices in economic processes, those of physical characteristics in various physical processes, etc.). The systems of signs also cannot be separated from certain processes, which are usually called communication. Note that this led to the specification of the object of semiotics in terms of sign systems and communi-

cation processes (cf. Jakobson 1998; although the term *communication* **should** be specified itself).

The most fundamental semiotic systems are involved in the code mechanisms and relate the plans of expression and content. Some semiotic scientists re-interprete the model of two planes of glossematics, uniting it with the code idea. Semiotic studies of architecture give a rich material for the substantiation of this idea whereby the relations among different planes form the basis of many apparent methods. The centric space of a square, enfilade, or street, sharpened by the symmetry of adjacent spaces, reveals the centricity and direction of feast processions or, under modern conditions, of the movement of human flow towards important social centers. The systems of space organization become the plane of expression of life processes and/or their social system character, and are fixed in architectural texts and languages. In the same way, the motives on the walls become the planes of expression of life processes, social events, and spatial characteristics of the environment. Walls "talk" about urban spaces and their importance, about the character of processes occurring in the buildings, about the life standards of their owners, about the relation to national culture, state ideology, etc. Diverse systems of planes of expression and content are formed as the semiotic means of expressing the specific organization of the space of dwelling complexes, building functions, relief, the constructive and technological differences among complex elements, social differentiation, etc. Similar descriptions have already been developed in architectural semiotics (cf. Broadbent 1977). It is important that these relations are possible when the features (heterogeneities) are the plane of expression of other heterogeneities (planes of content), and the systems relating the two planes form interrelation chains. Within each plane, the systems are represented by definite groups of relations and differential elements, by feature groups. Probably, this can be related to the term(s) "form of expression (or content) plane" in the conception of Hjelmslev.

The systems, which are developed within these or those heterogeneities, form different levels:

The *levels* (6) are distinguished in different semiotic studies. Three major groups of levels were determined in the modelling of artifact languages: the levels of construction, integration, and organization. Some semiotic scientists

pointed to the levels of construction as to the universal levels of all symbolic systems, and divided them into figures, signs, and sems (cf. Prieto 1964). The figures emerge as the elements of the expression plane, the sems, as those of content plane, and the signs, as the relata between the systems of these planes, or codes. This corresponds to the idea of signs as the incarnation of codes. At the same time, it is possible to observe as many levels as heterogeneities can be stratified into processes and systems. In their turn, the structures, systems, and processes depend on heterogeneities. This is why in semiotic studies of architecture it is possible to find figures, signs, and sems, which are differentiated by integration levels into sems, semems, semanthems, etc., like words within a language (cf. Barbyshev 1991).

The elements of the expression plane (corresponding to the sides of a sign in Saussure's model and to the representamens in Peirce's) are organized as both figures and signals (cf. Eco 1976; Sharov 1999). The analysis of architectural ensembles of dwelling complexes demonstrates that there are different means of organizing the proper signs and proper signals (the latter correspond to the term *asemantic signals,* according to Milewski 1965). At the same time, the organization of signals, which are perceptive elements of architectural objets, is closely related to the organization of sign representamens. Multiple repetitions of forms, lines, configurations (angular silhouettes and arrow-shaped arcs in Gothic architecture, arc elements and domes in Byzantine architecture, rectangular and horizontal compositions of "modern architecture", etc.) are organized visual elements and, simultaneously, features of epoch, style, and hidden metaphors and metonymies, i.e., sign representamens. The organizing units of signal levels become the carriers of important signs. In this way, the architectural rhythms become important signs of previously seen motives, just like musical rhythms are the signs of previously heard melodies.

The *processes* (7) gravitate to various relata, systems, and levels. First of all, this corresponds to the semiotic interpretation of signs belonging to different processes (cf. Morns 1946). A real existence of a sign in a process sometimes is interpreted as its meaning (cf. Barthes 1965). The correspondences between various sign or signal systems and processes are revealed in architectural studies (cf. Somov 2002). For example, the complex of vital processes, which are organized in a complex building, corresponds to hierarchical systems of basic ar-

chitectural spaces and their relations; the processes of selection of relevant information from the environment correspond to the system of orienting architectural accents and special systems of visual communications; the processes of aesthetic vision, based on statistic expectation, correspond to signal sequences, which can be described with the help of methods of information theory.

The *organization* (as a property but no process) (8) is represented by the way how different systems, processes, structures, and heterogeneities are related.

The *totality* (9) is also distinguished as an object type. The types of wholeness, which are similar to verbal communication, can be found in architecture. The spaces including the whole vital processes, ensembles, rhythmic groups of elements, areas of wall surfaces, etc., are similar to the types of wholeness distinguished in linguistics (cf. Sapir 1930). Such wholenesses are formed by different mechanisms, processes, systems, and structures.

All aforementioned objects are involved in very different communication phenomena and environmental contexts. They can appear via a simple recognition, an emotional effect of environment, pointing, etc. But all these objects get another character when they are included in the organizing and directing architectural activity. This transition characterizes the semiotic objects as a whole. In connection with this, many researchers tend to regard human sign systems only as activity-generated ones.

The *activity* (see *Fig. 1,* level II) directs semiotic systems and, first of all, forms semiotic means of task implementation. At this level, the semiotic objects are formed under the influence of a central nucleus of activity, which is the modelling of future objects. The *models* (10) are interrelated with/orw (11) and generate the *actions* (12). The form is the basis for the organization of *material* (13) and formation of *image* (14). If the objects and characteristics of activity results are determined, the model appears as a goal. This corresponds to a well-known definition of a goal as the model of needed future.

Semiotic objects of level I are included into the objects of level II. The heterogeneities appear as material (physical, perceptive, sign, or artistic); the sys-

terns and structure are a general form organizing the heterogeneous material;
the processes appear as actions, procedures, and methods of activity, and are developed into a temporal sequence of certain system formations.

Another boundary divides all semiotic objects by activity types and related vital processes.

The activities and related vital processes can be divided into *three general types:* (1) with the predomination of utilitarian goals and business information;
(2) various vital contacts and comfort conditions; and (3) spiritual conditions, high senses, and values. This difference can be visualized in both everyday communication and contacts with environment. The organization of the system of airport gates is as clear as the commands of a traffic-policeman; the interior of a living room is as mild, friendly, and enhancing communication as the visitors themselves; a pompous hall of an opera theater corresponds to the art as a higher form of communication.

The processes and systems (1) and (3) aberrated from the general tree **of** behavior and its vital manifestations in the directions of both narrow goals with corresponding semiotic systems of business information, and spiritual processes and art systems having no definite goals. However, both of them preserve the structure of semiotic objects of basic communication. In the first direction, the text turns into a sign representation of a message without any connotations; in the other direction, it becomes a polyconnotative body. The same thing happens with other semiotic objects. The models, which **are** usually somewhat indefinite in everyday life and have no strict structures, turn into patterns in the first direction, and artistic images in the third one. In architecture, the latter are visualized as mythological pictures of the world (the models of paradise garden, mandhala, first people, genealogical tree, Celestial City, etc.). All semiotic objects intrinsic to a "common" Information, obtain new features in the art world and are complemented with hidden connotations and relata to other culture.

It is evident that in real semiotic differences, there is a much higher diversity, which supposes the specification of the position of systems of cognitive activity, types of communication, etc. However, the described difference is the most apparent in vital processes and artificial environments.

The *semiotic aspects* (pragmatics, semantics, and syntactics) form another cross-section revealing the objects of semiotic studies, which corresponds to Morris's classical semiotic line. According to this approach, pragmatics can be interpreted as the rules of formulation of conditions for sign Incarnation, semantics as the rules of relating signs and objects, and syntactics as the rules organizing the Interrelations among signs. In the framework of our system categories, the relation-determining rules can be regarded as some dependences and described in terms of relata, relations (heterogeneities), systems, and structures.

In architecture, *pragmatics* is implemented at three levels: (1) intentions or needs, (2) complexes of vital processes, and (3) activities and subjects within a society.

The intentions can be related with the idea of fundamental vital values (cf. Uexkiill 1982), but are represented in a more complete way by a psychological term as "fundamental human needs". They develop in a personal psychic world under the influence of society and are represented in advanced classifications (cf. Obukhovskii 1972). An artificial environment is an apparent incarnation of intentional information, forming the diversity of its fragments, **i.e.,** meeting the needs for safety, the search for vitally important objects, orientation, cognitive interests, attention of companions, self-affirmation in a society, etc. The experience of studying the intentional information in architecture makes it possible to distinguish its basic types using the classification of psychological fundamental needs (cf. Somov 1983).

When analyzing typical means and methods of architectural composition, **it** is possible to find the sign systems responding to both different physiological and orientation needs and related intentions. The first group includes shelters from bad weather, refuges from strangers' sights, or sexual and erotic signs. The second group unites emotional compassion, self-affirmation in sign systems of social position, search of life-sense in hereditary, ethnic, national, and state architectural images.

The complexes of vital processes form the conditions of sign incarnation and definite sign systems in architecture. The combination of these processes forms different types of environment (urban environment of streets, squares, and yards; dwellings, hotels, administrative buildings, hospitals, stadiums, res-

taurants, etc.). Some of these environments are historically invariant, while others are more variable and belong to a certain culture.

The activities and subjects form an individual level of architectural pragmatics in a society. A creative architectural activity is complemented by activities and subjects with their goals of transformation of humans and society: rulers, churches, magnates, social groups, political parties, etc. The architects (even those free from social requests) represent and specify these activities and their subjects in this or that way.

A specific character of pragmatics of this level (first of all, its political and ideological components) lies in the fact that such systems are based on concrete programs. The fundamentals of these programs can be related to models of action and mechanisms of management with their informational and governing systems. These programs are manifested, first of all, in the formation of certain visions of the world, conceptual systems, and myths supporting the two first categories. In their turn, the conceptual systems form the basis of understanding the senses, which corresponds to the hypothesis of sense in semiotics (cf. Pavilenis 1983). In general, the goals and programs of activity form the conditions for sign systems and develop in the semantics and syntactics of these systems.

This activity level of pragmatics lies upon the "lower" levels. Being spread into the organization of society, the semiotic programs are united with larger programs of transformation of humans and society in socioeconomic "cross-sections".

The distinguished levels of pragmatics seem to reflect the evolution processes in ontogenesis and phylogenesis.

Semantics is also differentiated in evolution levels: from fundamental **de-**notates, conditioned by the needs for modelling the environment, to designates of notations and then, to advanced denotates and designates of cultures. This appears in the evolution of architecture where the perceptive codes are "enfleshed" with cultural codes and signs, with the following development of style-forming semantic systems.

Syntactics of architecture organizes, first of all, the relations among representa-mens due to a dispersed character of denoted sign aspects. We recognize the

buildings, streets, and squares, because they represent definite volumes and spaces, respectively. The representamens dominate in images. This is why the relations among perceptive heterogeneities (volumes, spaces, surface textures, etc.) are regulated in the first turn. The means of such regulation are well known. Multiple studies are devoted to the ratios among spaces, volumes, and geometrical forms in architecture and to their organization with the help of proportions, symmetry, rhythmometric systems, analogies of elements, geometrical similarities, etc. The typologies of such methods have already been elaborated (cf. Somov 1975).

Organizing the relations among representamens, syntactics organizes the relations among signs relating to models, images, concepts, and other sign formations. Hence, it forms different evolution levels of semiosis, organizing, like other aspects, rather the psychic world of humans in general than external sign means of human activity.

The interrelations among the aforementioned categories make it possible **to** describe the basic objects of anthroposemiotics. This allows **us to relate** many hardly connectible empirical objects (signs, texts, languages, connotations, concepts, senses, etc.) in a proper general system of mudcis and terms within anthroposemiotics and to relate it to allied semiotics in terms as discussed by Th.A. Sebeok.

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