

## GESTALT SWITCH OR NOT: INVESTIGATION INTO PERCEPTION SHIFTS IN CONTEMPORARY ARCHITECTURE PRODUCTION

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**Summary:** *Architecture, conventionally understood, needs to be discussed both in terms of object and objecthood since it involves constant feedback between the two. According to Bernard Cache, architecture is “the art of introducing interval in a territory in order to construct frames of probability.” This particular definition leaves enough flexibility both for an object and larger environmental systems to be addressed. Production of architecture, in Cache’s terms, consists of “framing, selecting and arranging” and results in object that is defined by its boundaries (framing), that has selected vistas towards outside world (selection) and finally, has arranged internal spatial configuration (arrangement). Architectural object is a large scale entity that has special status in the world in terms of its relationship to the subject. It requires constant feedback between visual system and motor behavior. This paper investigates potential challenge in human perception that is posed by certain contemporary architecture production. It argues that morphogenesis based on design processes that negotiate unpredictability and result in extended gestalt and open ended figuration tends to challenge our habitual perceptual patterns. The question takes us furthermore to what is in literature called ‘gestalt switch’ which results in necessity for what we name ‘extended gestalt.’ New architectural object is, at least in the world of experimental architecture, spatially complex hybrid which, through topological maneuvers enabled by computer technologies, has possibility of ‘violating’ our habitual preconceptions of perception of objecthood. It is our intention to theorize the work of gestaltists in relationship to the work of particular contemporary architecture theorists and practitioners and show that there is a need to include uncertainty as an essential element of the understanding architectural space and form of the new age which supersedes simple basic form creation characteristic of the well-known modernist architecture.*

**Keywords:** *Architecture, perception, Gestalt*

Relationship between architecture and human body has been a subject of much of architectural research and has a long history that starts in official history of theory with Vitruvius and is beyond the scope of this paper. For our purposes, however, it is important to understand that architectural objects relate to us both through their exteriority and

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interiority at the scale that actively asks for our bodily participation. They ‘afford’ behavior, in James Gibson’s terms, that differs from affordances of the small or medium size objects.<sup>2</sup> Furthermore, architectural space (and objects) is conceived, perceived (understood as an agent of spatial practice) and lived in Lefebvre’s terms. Although his explanation of the triad is somewhat ambiguous at moments, an effort to overcome traditional distinction of architectural space as either purely mental construct on one side or domain of physical, materialist realism, on the other, seems to be plausible direction to take. We are introducing the triad without further elaboration so that we can understand extreme cases: one of an educated looking of an architect and connoisseur who conceives space and the other of a common observer for whom environment can be everyday backdrop which only occasionally becomes ‘objectified.’ In the first case perception theory is a design methodology that employs ‘educated’ looking, while in the second case is a way of being in the world. Gestalt theorist Rudolf Arnheim notes the paradoxical nature of architectural object as being both conceived and experienced at the same time: “In dealing with architecture we must constantly shuttle back and forth between the building as an object seen as a whole in space by contemplating mind, and the building as an event in time experienced by the man in motion.”<sup>3</sup> So far we know that scale and nature of the architectural object puts us in direct relationship with our bodies, we know that it frames the ‘space of possibilities,’ and we know that it is constituted as an entity between what now seem overly used terms of ‘conceived’ and ‘lived’. What we see as a gestalt shift is that standards grounded in body are removed, that architecture is not only concerned with realizing space of possibilities but also ‘actualizing virtual,’ in Deleuze’s terms, and that object tends to be more indexical, in other words, it does not address known historical or any other reference. Gestalt switch, as Zenan Meynap already noted, is both perceptual and epistemological shift. In other words, it introduces new formal maneuver that questions both known design principles and capacities of perceptual system to grasp complex forms.

Perception theory that developed from experimental practice found its way into architecture of early 20<sup>th</sup> century through radical simplification of form and insistence on pure geometry and Euclidian world of stable entities. Realization that perceptual system tends to organize image through the most simple and stable configuration where “any pattern created, adopted, or selected by the nervous system will be as simple as the given conditions permit”<sup>4</sup> lead to architecture of pure solids. Wolfgang Kohler, influenced by this principle of perception, examined the corresponding phenomena in the physical sciences and came to the conclusion that:

“In physics we have a simple rule about the nature of equilibria, a rule which was independently established by three physicists: E. Mach, P. Curie, and W. Voigt. They observed that in a state of equilibrium, processes-or materials-tend to assume the most even and regular distributions of which they are capable under the given conditions.”<sup>5</sup>

<sup>2</sup> See James J. Gibson, *The Ecological Approach to Visual Perception* (New York: Psychology Press, 1986).

<sup>3</sup> Rudolf Arnheim, *The Dynamics of Architectural Form* (Los Angeles: University of California Press, 1977) p. 130.

<sup>4</sup> Arnheim, *The Dynamics of Architectural Form*, p. 11.

<sup>5</sup> Quoted in Rudolf Arnheim, *Entropy and Art – an Essay on Disorder and Order* (Los Angeles: University of California, 1971) <http://acnet.pratt.edu/~arch543p/readings/Arnheim.html>

The reason why we are including Kohler's quote is that Gestalt principle of simple form entered architecture not only as an exercise in exploration of formal qualities. The entire history of modern architecture is based on the idea of optimum which leads to potentially desired equilibrium. This is another aspect of architectural production that is problematized by contemporary architecture. Optimal structural systems, most of the times, create architecture of rigid geometries, platonic solids and Euclidian spaces easily captured by the visual system. What we call modern sensibility in architecture relies on the principle that the entire gestalt should be grasped by one single glance. Interestingly enough, it was 19<sup>th</sup> century mechanization of the world that helped this process of 'purification' of the human environment. Machine production not only gave rise to standardization but also discarded ornament and figural complexity as superfluous and redundant aspects of 19<sup>th</sup> century dilemmas. It is worth noting that standardized element produced by machine, whether a building component or everyday object, plays with essential incapacity of perceptual system to distinguish between things that look the same. The process of individuation is excluded. This is one of the reasons why mass production had inherent positive social connotation in the mind of architects and designers in the first half of the 20<sup>th</sup> century. It not only meant rationalization of production but also liberation of an individual. This theme was already pervading Le Corbusier's 'typology' doctrine according to which certain human needs are susceptible to standardization and therefore should be uniformly satisfied by creating objecthood that responds to them. In thus created world many objects look the same.

Historical connection between Gestalt psychology and Modernism in architecture has not yet been fully explored. It is known that Laslo Moholy-Nagy, after entering Bauhaus in 1923, changed the policy of the workshops and made a shift towards more experimental formal exploration. The coursework consisted of exercises in visual perception, motion studies and tactile capacities of materials. The shift towards purified geometrical form was obvious in the kind of products that came out of the workshops in this period. For our purposes the relationship between "pure" form of early modernism and gestalt psychology will remain analogical. It is necessary to acknowledge that what we call gestalt shift epitomized in violation of "spatio-temporal conditions of objecthood" is a complex maneuver which makes easy closure of figure characteristic of modern architecture problematic.

Gestalt laws of perception introduced by K. Koffka in his seminal work on *Principles of Gestalt Psychology* were used both in design of architectural space and form and in descriptions of the qualities of the existing space. This is an important point to make since, as Gibson already noted, gestalt laws address form more explicitly than space. There are aspects of Koffka's theory such as discussions of behavioral space and lines of forces that directly address three dimensional space and could lead us in an interesting direction and discussion of event in space. However, at this point we are primarily concerned with the ways in which Gestalt theory was applied in architecture.

By using Gestalt laws as a set of prescriptions of how architectural environment should be meaningfully structured, Niels L. Prak in his book *The Visual Perception of the Built Environment* claims that: "Configurations which nearly but not entirely satisfy a certain Gestalt law will produce ambiguous perception. Such ambiguous forms are difficult to

decode, because perception vacillates between two ‘readings.’”<sup>6</sup> He furthermore claims that depth perception can be achieved through different cues for which he relies on Gestalt theory. Superimposition, size of the object, light and shade of the perceived set of objects and finally, the movement parallax or the amount of shift of the objects in the visual field caused by movement are defining elements in visualizing the third dimension. His theory constantly vacillates between discussion of two dimensional architectural surface and how we account for the three dimensional form. Just as a two dimensional object has a boundary so architectural object has surface:

“A flat, smooth façade is a hard Gestalt; its simplicity as a surface makes it an absolute form, comparable to the straight line or the circle. That is why such facades look so impenetrable, even if they are completely made of glass. More heavily moulded facades are less ‘closed’ and more ‘accessible’, more ‘open’ and ‘softer’, because of a lack of continuity.”<sup>7</sup>

Prak furthermore gives examples on what is ‘hard’ gestalt and what is more ‘soft’ architectural form. He develops concepts of coherence, contrast and complexity that could be applied both to an individual objects and architectural ensembles by increasing or decreasing visual redundancy through estimated distances between buildings, use of materials or use of particular shapes and forms. One needs to know that he addresses these issues at the time when architecture is still looking for a way to contextualize inherited modernist objects of rigid geometries, the same ones that we mentioned at the beginning of this paper. It is easy to understand how Prak’s application of Gestalt theory is a fruitful exercise in morphogenesis: it points out to the problems of perceptual ambiguity and the ways in which we can introduce visual information into environment. It also shows that architectural object can be discussed in terms of spatio-temporal qualities: it is a bounded, enclosed entity that persist through the time and is related to other objects of the same kind perceived in the visual field. However, Prak treats space as something that ‘remains between the objects;’ it is empty and passive element of architectural environment defined by firm edges of cohesive entities between which we move our bodies. He makes distinction between visual, conceptual, behavioral and physical space but does not recognize transformational capacity of space through different human activities or events that take place in it, something that Koffka pointed to:

“Think of yourselves as basking in the sun on a mountain meadow or on a beach, completely relaxed and at peace of with the world. You are doing nothing, and your environment is not much more than a soft cloak that envelops you and gives you rest and shelter. And now suddenly, you hear a scream, Help! Help! How different you feel and how different your environment becomes.”<sup>8</sup>

Discussion of the capacity of space to shift from state of equilibrium to state of disequilibrium and changes that it causes in perceptual field is beyond the scope of this paper. However, Praks’ unwillingness to include phenomenon of spatial dynamics in his

<sup>6</sup> Niels L. Prak, *The Visual Perception of the Built Environment* (Delft: Delft University Press, 1977) p. 23.

<sup>7</sup> Prak, *The Visual Perception of the Built Environment*, p. 46.

<sup>8</sup> K. Koffka, *The Principles of Gestalt Psychology* (New York: Harcourt, Brace and Company, 1935) p. 43.

design theory reduces quality of his account. Finally, he makes a remark that is important for our further discussion:

“...the preferred level of complexity of architects lies only little above the complexity to which they are accustomed. The architects cannot accept a very high level of complexity as satisfactory, because they, too, have to understand the degree of complexity of a design within the frame of reference to which they are accustomed.”<sup>9</sup>

This statement points directly to one of the reasons for the gestalt switch: complexity of a form used to be in direct relation to the capacity of an architect to envision his/her object. Digital technology enables generation of complex form that cannot be drawn by hand and conceived by architect's mind, at least not to the full extent. This shows fundamental difference in the way object is created. In this new kind of morphogenesis architectural object becomes a result of interaction between architect and computational system.

Formalism of Rudolf Arnheim is more sophisticated and elaborated theory of perception of architectural object. His discussion of architecture focuses on dynamic relationship between elements that constitute both object and environment. For Arnheim, space ‘turns out not to look simply empty’: “A space on which nothing is built can be pervaded nevertheless by perceptual forces and filled with density, which we might call a visual substance.”<sup>10</sup> His theory is based on the notion of aesthetic experience and idea that one needs to develop spatial imagination, cultivate seeing in order to be able to ‘read’ environment properly. Arnheim uses gestalt laws and includes the notion of ‘field of forces’ as a starting point but then develops his own theory of architectural dynamics discussed in terms of oppositions horizontality-verticality, solidity and hollowness, expression and function, order and disorder. Koffka's interpretation of order as organizational principle characteristic of visual system that comes out of natural forces is used in Arnheim both as a principle of balancing relationships between parts of building and functional tool. He was interested in problems of order in his earlier writings where he looked at the contradiction between principles of science:

“Modern science, then, maintains on the one hand that nature, both organic and inorganic, strives towards a state of order and that man's actions are governed by the same tendency. It maintains on the other hand that physical systems move towards a state of maximum disorder. This contradiction in theory calls for clarification. Is one of the two assertions wrong? Are the two parties talking about different things or do they attach different meanings to the same words?”<sup>11</sup>

When it comes to art (and architecture), regularity is not only desirable, but necessary:

“In dealing with structure, as is constantly done in the arts, regularity of form is not redundancy. It does not diminish information and thereby diminish order. On the contrary, for the purposes of structure, regularity is a mainstay of order, and this order is the basic requirement for any adequate information about structured things.”<sup>12</sup>

Arnheim's *The Dynamics of Architectural Form* is a theory of perception of architectural object basically concerned with “the intuitive sense of what goes well together.” Theory

<sup>9</sup> Park, *The Visual Perception of the Built Environment*, p. 67.

<sup>10</sup> Arnheim, *The Dynamics of Architectural Form*, p. 22.

<sup>11</sup> Rudolf Arnheim, *Entropy and Art – an Essay on Disorder and Order*,

<sup>12</sup> Arnheim, *Entropy and Art – an Essay on Disorder and Order*, p.

of order and disorder in Arnheim's view of architecture becomes black and white rhetoric revolving around capacity of an object to communicate meaningful form. As he himself claims, it is hard to define what order is since it is perceived by viewers in different ways: however, according to Arnheim, there has to be overarching, hierarchical framework within which architectural object 'unfolds'. It is interesting that question of order and theory of organization enter contemporary architectural debate in a different way: ordering is a part of design process and is symptomatic of the morphogenesis run by computer. Finding a state of equilibrium is part of methodology rather than a matter of aesthetic decision or definition of compositional quality. In other words, there is no intention to create composition governed by the rules of order, although our visual system will naturally tend to search for them.

The second aspect of Arnheim's argument that we want to include here is relationship between motor behavior and perception of architectural object. As oppose to Prak who does not insist on the motion in relationship to perception of space and whose examples are usually static compositional representations of architectural objects, Arnheim realizes that there is a certain dynamic to architecture reflected in experiencing space through motion:

"A building, moreover, being a three dimensional solid, is not made to be stared at from fixed point, but to unfold as one walks around it – a sequential experience, which seems to go well with an equally sequential survey of any of its aspects, as distinguished from the restful simultaneity of a picture."<sup>13</sup>

In the case of 'intentional' looking at an architectural object, such as architects perform when they explore a building, one needs to constantly shift his position in order to grasp form in its entirety. Movement starts with rooming eyes in immobile head, than shifts to the movement of the head and finally involves action of the body that adapts to the new request of the visual field. When it comes to creation of urban environment Arnheim sees incredible potential in this request for perceptual shifts that architectural object poses. Movement through space became an inherent part of contemporary design methodology especially in projects based on principles of motion kinematics and dynamics where fields of forces are taken into account. Koffka's discussion of field of forces strikingly resembles what some of these projects try to achieve:

"I am part of the landscape, the landscape is part of me. And then, when the shrill and pregnant sound pierces the lulling stillness, everything is changed. Whereas all directions were dynamically equal before, now there is one direction that stands out, one direction into which you are being pulled. This direction is charged with force, the environment seems to contract, it is as though a groove had formed in a plane surface and you were being forced down that groove."<sup>14</sup>

Both of the discussed theories of perception rely on gestalt to define first, methodology of *successful* composition of an object and objecthood and second, the possible way of seeing architectural object and space. None of them elaborates on the spatial world as a larger

<sup>13</sup> Arnheim, *The Dynamics of Architectural Form*, p. 129.

<sup>14</sup> Koffka, *The Principles of Gestalt Psychology*, p. 43.

system within which architecture unfolds spatial practices. They discuss cultivation of looking and reading objects and, especially in Arnheim's case, they show not only power of application of gestalt principles but also how we can benefit from closer, more attentive looking at the architectural objects and spaces. However, based on the propositions of both authors, one can conclude that significant cognitive effort is necessary to be able to perceive buildings and environment. The distinction between object and subject remains firmly established.

James Gibson gives us more general theory of perception without particularly focusing on architectural object. For us his account is interesting because it starts with zooming out the wider picture of the environment or external world within which perception can be studied. Together with Gestaltists he rejects what he calls artificially created opposition between sensation and perception. The idea that sensations are converted into perception through some intermediary mental channels is refuted. On the other hand, Gibson departs from Gestaltists in that he claims that theory of perception should not be restricted to the results of laboratory experiments in which account is given based on perception of a static observer with head facing directly forward. Environment cannot be discussed as a set of snapshots, it is presented as a flow in which observer constantly shifts position of his head or his body. Vision is kinesthetic, it "registers movements of the body just as much as does the muscle-joint-skin system and the inner ear system."<sup>15</sup>

Gibson furthermore distinguishes between ambient and ambulatory vision: first involves movement of head in order to scan the visual field and second includes movement through ecological environment. Gibson's account of movement as a formative aspect of percept is crucial for understanding of urban environment as well as architectural objecthood.

According to Gibson, visual world has to be discussed in terms of ecological environment in which there is no distance between the world and our representation of it:

"The stimulus variable within the retinal image to which a property of visual space corresponds need be only a correlate of that property, not a copy of it."<sup>16</sup> In other words, world unfolds for us by providing affordances for our vision: to perceive things (layouts and surfaces in this theory) is to perceive what they afford. For Gibson, visual world is "extended in distance and modeled in depth; it is upright, stable, and without boundaries; it is colored, shadowed, illuminated, and textured; it is composed of surfaces, edges, shapes, and interspaces; finally, and most important of all, it is filled with things which have meaning."<sup>17</sup>

Gibson makes distinction between visual world and visual field: the first is more encompassing, it is everpresent environment that surrounds us, while visual field corresponds to focused part of our visual world, something that can be, metaphorically speaking, related to a pictorial presentation. Visual world is Euclidian and not bounded while visual field is framed and based on perspective non-Euclidian geometry. The distinction can be made in terms of focusing, attending or zooming in our perceptual environment: "The problem of how we perceive the visual world can be divided into two

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<sup>15</sup> James J. Gibson, *The Ecological Approach to Visual Perception* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1986) p. 183.

<sup>16</sup> James J. Gibson, *The Perception of the Visual World* (Connecticut: Greenwood Press, 1974) p. 8.

<sup>17</sup> *Ibid.*, p. 3.

problems to be considered separately, first, the perception of the substantial or spatial world and, second, the perception of the world useful and significant things to which we ordinarily attend.”<sup>18</sup>

As we already implied, space and objects in Gibson are immediate to our perception and not cognitively constructed from two dimensional retinal image. His ‘ground’ theory which he later in the book *The Ecological Approach to Visual Perception* names ‘theory of layout of surfaces’ seems to be a way to overcome this dilemma between two-dimensional retinal image and depth perception:

“...there is no special kind of perception called depth perception, and the third dimension is not lost in the retinal image since it was never in the environment to begin with...the theory of depth perception is based on confusion and perpetuated by the fallacy of the retinal picture.”<sup>19</sup>

According to Gibson, our visual world is a patchwork of surfaces to which we have direct access through our perceptual system. Our perceptions are inscribed on the constantly enveloping complex set of surfaces: “the idea was that the world consisted of a basic surface with adjoining surfaces, not of bodies in empty air.”<sup>20</sup> The individualization of an object is not an issue in his theory. We perceive objects by virtue of their skin where edges define discontinuation or discreteness between objects.

That surfaces have potential of visual attractor and can give cues for depth perception is no doubt. Gibson’s theory of perception becomes problematic when one needs to accept that our visual world is dominated by unfolding surfaces. The current preoccupation of design theory with architectural surface could take this account into consideration. For our further discussion of architectural object this simplified account of Gibsons’ theory is enough. Now we want to go back to the discussion of architectural object and see how these three accounts fit into paradigm shift that is happening in contemporary architectural discourse.

Gestalt theory, to begin with, addresses the ways in which our perceptual system naturally optimizes visible reality. It entered architecture as a set of compositional rules that could be applied to design or be read in existing environment as a measuring scale of a successful ‘ecological’ environment. As Arnheim and Prak showed, certain situations and application of gestalt laws give more favorable results. However, we cannot go too far with this claim which is why we needed to introduce Gibson’s theory of perception. Architectural space or urban environment unfolds around us as sets of forms, shapes and surfaces. It plays a role of everyday spatial framework and space within which we navigate. It only occasionally becomes focus of our visual field through ‘conscious attention’ in which case we start deciphering the formal qualities of an object. The nature of our vision is such that it selectively arranges our visual world. This does not mean that we are not aware of textures, materials, colors, shapes that constitute environment through which we navigate or that we do not acknowledge repetition, continuity, similarities between elements. It simply means that not all Gestalt laws always operate with same intensity when it comes to ‘casual’ movement through architectural objects or urban

<sup>18</sup> Ibid., p. 9.

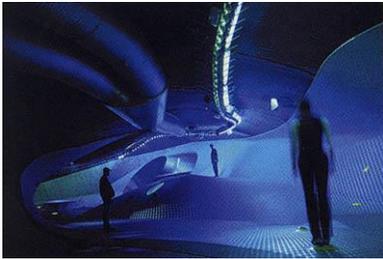
<sup>19</sup> Gibson, *The Ecological Approach to Visual Perception*, p. 147.

<sup>20</sup> Ibid., p. 148.

environment. However, once we focus on the particular object, gestalt principles start working for an observer.

## IN THE CONTEXT OF CONTEMPORARY ARCHITECTURE

There are two gestalt laws in which we are particularly interested: The first is the law of Pragnanz which shows selective nature of perceptual system that tends to grasp the simplest form of the ones initiated by stimuli. The second principle is the extension of the law of Pragnanz and it claims that when visual field exceeds certain complexity in terms of accepted information it proceeds to closure in which basic parts generate percept. Starting from these two principles we will look at how perceptual shift is introduced into architecture.



Architectural object that comes out of new digital technologies and claims right to non-Euclidian spaces requests extended gestalt. If traditional architectural building is easily grasped by our perceptual systems through closure of its 'simple' form, 'new' architectural object constantly resist closure and reference to simplicity. It is not only that building cannot be grasped by one single glance and that opposition between interior and

exterior is blurred, it also constantly refers to smooth space of topological universe. In continuous space floor becomes wall, wall becomes ceiling in the elastic interior in which there are no points of reference, joints and discrete elements which allow our visual system to close or form a simple figure. Gilles Deleuze and Felix Guattari make distinction between striated space and smooth space: "In striated space, lines or trajectories tend to be subordinated to points: one goes from one point to another. In the smooth, it is the opposite: the points are subordinated to the trajectory."<sup>21</sup> While the first 'kind' of space is hierarchical and homogeneous the latter is not-bounded and non-hierarchical. While the first space is optical, understood in very broad terms, second is haptical: "It seems to us that the Smooth is both the object of a close vision par excellence and the element of a haptic space (which may be as much visual or auditory as tactile)".<sup>22</sup> It allows for eye capacity to "fulfill non-optical function." Implication of endless space requires elaboration on difference between infinite space of modernist pure solids and endless space that belongs to the current architectural project. Greg Lynn makes distinction that can help us see the difference:

"...in mathematics, there's a big difference between infinite calculation, which is, as a subset, a finite calculation, and an endless calculation, a calculation which can never be fully computed but which stops itself at a certain number of decimal places or variables and provisionally says that it has positionality or completion."<sup>23</sup>

<sup>21</sup> Gilles Deleuze and Felix Guattari, *A Thousand Plateaus – Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1994) p. 478.

<sup>22</sup> Deleuze and Guattari, *A Thousand Plateaus*, p. 493.

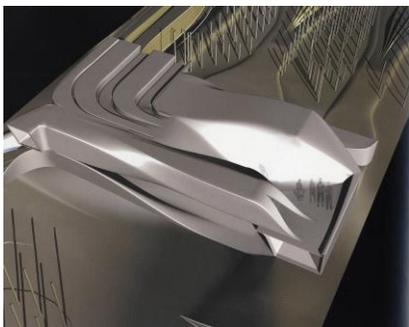
<sup>23</sup> Quoted in Dieter Bogner and Peter Noever, ed. *Frederick J. Kiesler – Endless Space* (Ostfieldrn: Hatje Cantz Verlag, 2001) p. 81.



Tendency towards incompleteness and open systems is one of the aspects that architectural object tries to address. The idea of open work was already discussed by Umberto Eco in the 60's according to whom notion of openness is directly connected to perceptual ambiguity which "indicates the availability of new cognitive positions that fall short of conventional epistemological stances and that allow the observer to conceive the world in fresh dynamics

of potentiality before the fixative process of habit and familiarity comes into play."<sup>24</sup> To violate the objecthood means to remove subject from his habitual ways of seeing. Eco furthermore explains:

"The *possibilities* which the work's openness makes available always work within a given *field of relations*. As in the Einsteinian universe, in the 'work of movement' we may well deny that there is a single prescribed point of view. But this does not mean complete chaos in its internal relations. What it does imply is an organic rule which governs these relations."<sup>25</sup>



In architecture openness is generated through request for shift in our perception towards capacity of visualization of more complex forms, not through openness of a system itself. We have to say here that urban environments already present us with openness of spatial experiences where we are constantly reminded of impossibility of grasping the 'total scene.' Superimposition of vistas and non-linear perspectival views are part of our everyday experience. When it comes to architectural object perpetual openness of the system and self-

reproduction that theory of organization offers as a future possibility is not fully possible. If we take into consideration Sanford Kwinter's argument that "any state of the system in which things are momentarily stable represents a form" we can see why this is the case. The openness is established through 'perceptual ambiguity' and geometry of smooth space. Line of the smooth space is abstract and endless, according to Deleuze and Guattari:

"...a line that delimits nothing, that describes no contour, that no longer goes from one point to another but instead passes between points, that is always declining from the horizontal and the vertical and deviating from the diagonal, that is constantly changing direction, a mutant line of this kind that is without outside or inside, form or back-ground, beginning or end and that is alive as a continuous variation – such a line is truly and abstract line, and describes a smooth space."<sup>26</sup>

<sup>24</sup> Umberto Eco, *The Open Work* (Cambridge, MA: Harvard University Press, 1989) p. 16.

<sup>25</sup> Umberto Eco, *The Open Work*, p. 19.

<sup>26</sup> Deleuze and Guattari, *A Thousand Plateaus*, p. 489.

Object that comes out of this process of ‘smoothing’ does not let us form strong gestalt by distancing ourselves from the building as in the case of looking at a painting, it requires constant repositioning of our bodies in order to adjust our visual field while form remains open in front of us. What architects hope to achieve through this shift is different relationship between subject – viewer and a building.

*Ali Rahim Studio, 2002. Interior of a private house.*



The paradigm shift needs to be addressed through several issues. First is the notion of morphogenesis that relies on computer generated geometries. It enables architect to at least think about possibilities of ‘invisible’ dimensions of space. Instead of bottom-down approach that has been traditionally understood as operating in architectural design and which puts architect in position of creator of form, we have computational morphogenesis which requires

interactive relationship between designer and computer. Digital media thus become generative tool that gives feedback to architect in form of a number of different possibilities for the future development of an object. That way composition of form is avoided, there are no laws of proximities, similarities and continuation that need to be followed and that used to be part of design process. Traditional view according to which form is imposed on inert matter, at least, theoretically, is avoided. Coming out of programmatic requirements and specificities of a site, form is generated in a radically different way: architect does not have complete control over the processes of design although he/she still makes decisions on the final form of an object.

*Michael Hansel, Time Capsules, 2002.*



There are different ways in which architects address the question of morphogenesis. Computational concepts enable transformations and exploration of form through topological geometries, parametric design, genetic algorithms, motion kinematics, to name some of them. Most of them hinge on fascination with the spatial forth dimension and virtual reality. The virtual enters architecture through topological maneuvers. As we know, the world in which we live, the world of actuality is Euclidian. Visual world, as Gibson notes is Euclid’s space: “We are, after all, terrestrial animals and our actions presuppose the ground, upright posture, and forward locomotion. These abstract to three dimensions, and rigid space with absolute location and absolute motion.”<sup>27</sup> According to Gibson, space might not be Euclidian but “to say that the visual world does not follow

<sup>27</sup> Gibson, *The Perception of the Visual World*, p. 189.

Euclid's postulates violates common sense."<sup>28</sup> The shift we mention addresses directly this idea. How to actualize virtual? How to make it visible? Topological geometry enables a largest number of possible transformations of space and object:

"Topology is a study of intrinsic, qualitative properties of geometric forms that are not normally affected by changes in size or shape, i.e. which remain invariant through continuous one – to – one transformations or elastic deformations, such as stretching or twisting."<sup>29</sup>

Topological geometry puts emphasis on the relations between elements in which every part is affected by the transformation of the other constitutive element of a whole. From here it is easy to see how topology is an incredible blending device since things transformed through pulling, stretching and folding essentially look the same.

There is an issue of homeomorphism and sameness in topological universe where circle and ellipse, square and rectangle, donut and cup look the same. Now, it would be unreal to claim that architecture can actualize invisible. But there are two, if not more, obvious consequences of an import of topological thinking into architecture. Smooth or topological space, as we mentioned, is amorphous and not homogeneous: "In striated space, one closes of a surface and 'allocates' it according to determinate intervals, assigned brakes; in the smooth, one 'distributes' in an open space, according to frequencies and in the course of one's crossings."<sup>30</sup> Topological space does not lend itself to metric scaling: distance between points is not indicative of anything. Non-metric space is defined by rapidity and slowness of surface.

What this means is that articulation of architectural surface becomes more and more prominent aspect of design. And this is where Gibson's theory of surface layouts comes into play. Curvature of a surface not only becomes a tool that helps navigate through space but surface itself becomes point of interaction between body and building.

New technology already makes distinction between expressive and reactive surfaces depending on function they have. For us it is important that cues for third dimension that Gibson establishes: texture, gradient and shade might become operative in discussion of qualities of percept of architectural object in which skin is "where the most of action is." From the point of view of perception, topology introduces ambiguity which tends to displace the subject from its natural, habitual three dimensional space. It also introduces new kind of perspectivism that defers the closure of a visual scene in front of us.

The other aspect that we want to introduce as a part of the paradigm shift is indexical nature of the 'new' architectural object. Michael Hays discusses this issue:

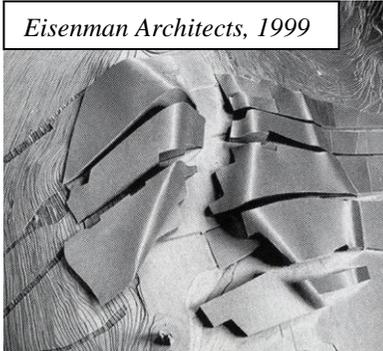
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<sup>28</sup> Ibid., p. 189.

<sup>29</sup> Branko Kolarevic, *Architecture in the Digital Age – Design and Manufacturing* (New York: Spon Press, 2004), p. 13.

<sup>30</sup> Deleuze and Guattari, *A Thousand Plateaus*, p. 493.

Eisenman Architects, 1999



“The signified and the referent are now dissolved by a generalized code that no longer refers back to any real but rather to its own logic. Bluntly put, the signifier becomes its own referent. As Jean Baudrillard has written, ‘For the sign to be pure it has to duplicate itself: it is the duplication of the sign which destroys meaning.’”<sup>31</sup>

There is a tendency to individuate architectural object only by the virtue of its presence, set of properties that establish form that cannot produce meaning that refers to anything outside itself. Peter Eisenman’s comment on his project for Santiago is

pretty indicative of this approach:

“In Santiago my idea was to superimpose grid onto the existing, organic medieval ‘grid’ and warp or deform them with a topological grid that projects upward. This produces lines of force that were never a part of projective geometry. They mutate in the third dimension. This has a powerful impact on the ground surface. It is a way of dealing with the ground not as a single datum, not as a foundation, not as something stable. It disrupts its iconic value, turning into an index.”<sup>32</sup>

Thus architectural object loses its iconic function and challenges its traditional understanding as being a representational device. The gestalt shift that we discussed here introduces ‘violation of objecthood’ in that it asks for constant deferral of enclosure, certain experiential quality of indefiniteness and finally creates world in which surface dominates perceptual field. However, one needs to keep in mind two things: first is that we were discussing only one dimension of architectural practice, namely its avant-garde, and second, there is already existing urban system within which these object are going to be built. The danger that they will not become more than icons of their time is present. However, new kinds of morphogenesis stay within architectural practice and will remain continual support of the shift we addressed in this paper.

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### GEŠTALT PROMENA ILI NE – ISTRAZIVANJE POMAКА U PERCEPCIJI U SAVREMENOJ ARHITEKTONSKO PRODUKCIJI

**Rezime:** Arhitektura, konvencionalno shvacena, treba da bude diskutovana i u smislu objekta i "objekthuda" (konglomerata objekata) posto ona ukjucuje stalnu razmenu informacija izamedju ova dva polja. Po Bernaru Kašeu, arhitektura je "umetnost unosenja intervala u teritoriju kako bi se konstruisali okviri mogućnosti." Ova definicija ostavlja dovoljno fleksibilnosti da se diskutuju i arhitektonski objekat i veci sistemi. Arhitektonska produkcija, Kaševim recima, se sastoji od "uokviravanja, organizovanja i uredjenja" i rezultira objektom koji je definisan granicama (uokviravanje), koji ima selektovane vizure ka spoljnjem svetu (selekcija) i konacno, ima uredjenu unustrasnju prostornu konfiguraciju (organizaciju). Arhitektonski objekat je entitet velikih razmera koji ima poseban status u svetu u smislu odnosa prema subjektu. On zahteva konstantu razmenu informacija izmedju vizuelnog sistema i motorike. Ovaj rad istražuje potencijalni izazov u ljudskoj percepciji koji se postavlja u odredjenim oblastima arhitektonske produkcije. Postavlja argument da morfogeneza koja se zasniva na projektantskim procesima koji pregovaraju nepredvidljivost i rezultiraju u prosireni gestalt i otovrene formacije preispituju nase uobivacene perceptualne matrice. Pitanje nas vodi dalje na ono

*sto se u literaturi zove „geštalt svič“ciji je rezultat nesto sto mi nazivamo „prošireni geštalt.“ Novi arhitektonski objekat je, barem u sferi eksperimentalne arhitekture, prostrono kompleksni hibrid koji, kroz topološke manevre omogucene kompjuterskim tehnologijama, ima sposobnost narušavanja nasih uobicajenih prekonceptija u sagledavanju okruzenja. Nasa je namera da teoretski obradimo rad Geštaltista u odnosu na rad odredjenih savremenih teoreticara i prakticara arhitekture i da pokazemo da postoji potreba da se uvrsti nesigurnost kao sustinski elemenat u razumevanju arhitektonskog prostora i forme novog vremena koji prevazilazi jednostavnu kreaciju forme dobro poznate arhitekture modernizma.*

**Ključne reči:** Arhitektura, percepcija, Gestalt