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# Recognition of the Component of Parallax and Finding its Roots in Forming the Design Philosophy of Steven Holl (Case Studies: Helsinki Museum, Explorations of In and Tesseract of Time)

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## Abstract

In the wake of anthropocentric thinking of Descartes, humans and the world surrounding them divided into two separate components. Highlighting the optical phase of contemporary environment, this separation becomes more obvious. Lots of phenomenologists like Martin Heidegger and Edmund Husserl tried to remove this separation, but he was Merleau-Ponty that considered the body as a primary factor in defining space and following Pontie's theory, Steven Holl proposes the component of Parallax (the change in the arrangement of surface that defines space as a result of the change in the position of a viewer- is transformed when movement axes leave horizontal dimensions) and believes that spatial perception happens in case of breaking perspective, making oblique or vertical movements and finally adding time to space. The aim of this paper is the recognition of parallax and its design indicators in increasing the richness of environmental perception. In this way, the main question of research has been set: how is the relation between the parallax and bodily perception in the architecture of Steven Holl?

This research has a qualitative approach and with the philosophical framework of phenomenology and the help of the research model abstracted from theoretical foundations in addition to analyzing the case studies like: Helsinki museum (Kiasma), an exploration of IN and Tesseract of time, tries to understand parallax and indicators of it in enhancing the perception of the environment.

Oblique and vertical movements in space along with breaking the horizontal routine surfaces and creating the spatiality of perception with sequencing and combining various spatial views along with adding time are the indicators of the theory of parallax. The component of parallax is creating a way of bodily perception.

## Keywords

Parallax, Merleau-Ponty, Steven Holl, Perception, Body.

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## Introduction

The most of the contemporary built environment has no and only response to our functional needs and doesn't have any connection with our spirit. Our bodies get used mainly to watching something. We forget the pleasure of bodily experiences such as walking, hearing, smelling, and touching; we have been losing sensory meanings related to the world: the ground, the sky, the air and the world. Architecture is implicated in this loss, having become more focused on the instant images rather than either practicality or sincerity. As a result, most of contemporary architecture has been stuck in ocular centrism; one confronts the built world without one's body and eventually weakens the existential depth of the human being (Kim, 2013: 2). Phenomenology, a philosophy of investigation into the things that enable us to gather the world, opposes an abstract method of viewing our world. Meaning, abstract methods of inquiry such as scientific, diagrammatic, geometric, and analytical approaches that arrive at objective knowledge do not adequately describe the structure of the concrete world. Phenomenology allows us to express the essence of our existence through architecture. Thus, seen in its totality within phenomenology; architecture becomes the "concretization of existential space". In other words, approaching the process of architectural design through a phenomenological lens presents the possibility of bridging the interdependent relationship of human existence and the world (VonderBrink, 2007: 1). Phenomenology is an interpretive study of human experience or first-hand experience of the space. This approach in architecture clearly relates to the spatial and experiential aspects of the space with respect to sensational qualities such as light, color, perspective, movement, time and sound (Parthasarathy, 2009: 6). An American architecture Steven Holl (1947) is one of the architects that does his architectural design through a phenomenological lens (VonderBrink, 2007: 8). His best and the most effective book, *Parallax* has been published in 2000, he achieved various and lots

of architecture prizes like: AIA prize in 1992, AIA-NYC in 1993, Alvar Aalto prize 1998 (Bani Masoud, 2008: 308). The reason we select him for this research is the Merleau-Ponties philosophy influence over him further more bringing up the component of Parallax by him for the first time in architecture. He believes that the perception of human in space is deeply connected to the movement and fluidity of space and bringing up the component of Parallax for the first time for describing his philosophy in architecture (Holl, 2000). It seems that his philosophy of phenomenology abstracted from Merleau-Pontie's theories in this field. Our aim of this research is clarifying and proving the relation between Holl's philosophy in design and the phenomenology of Merleau-Ponty in addition to recognition of Parallax component and its role in enhancing the perception in building an environment of architecture. For reaching this, three of Holl projects that are related to this topic have been selected and analyzed from the view of Parallax. Recognition of Parallax and using it in contemporary architecture designs will enhance the relation between human and his perception from the environment and gives way to resolve perplexity of the contemporary environment.

## The Research Question

How is the relation between Parallax component and bodily perception in the products which have been designed by Steven Holl and his design process?

## The Research Hypothesis

Establishment of Parallax component in space will provide bodily perception.

Form studying and analysis of previous researches, it has been cleared that studies in the field of phenomenology of Merleau-Ponty are more various and complete than studies in the field of Steven Holl's design. In addition researches in this field are more general and try to recognize the philosophy of Holl's design, but present research is concentrating on parallax component and the role of it in bodily perception.

Table 1. Literature review. Source: author. The different between present research and previous studies

Approach	research
Literature review based on Merleau Pontie’s philosophy	Title: sensual perception in phenomenology of Merleau-Ponty author: Hamid Talebzadeh Conclusion: sensual perception of Merleau-Ponty depends on existential thought of Heidegger and Husserl and he criticizes rational and empirical co- religionists
	Title: the decline of metaphysics of spirit and rise of ontology of body, turning to the philosophical foundations of body through Merleau-Ponti’s view Author: Bita Naghghashiyani Conclusion: Merleau-ponti’s efforts are identity and intertwining of body- mind and body- perception. Mind couldn’t be understood without a body. Our perception is connected with body.
	Title: body and sensations in new art media, from the view of phenomenology of Merleau-Ponty Author: Mehrangiz Basiri Conclusion: from the view of Merleau-Ponty, philosophy and art are connected to each other and he follows perception and bodily experiment in art. Not only media are not against each other, but also they are intertwined deeply and sometimes are parallel.
	Title: phenomenological approach of Merleau-Ponty to the relation of art and body Author: Mohammad Asghari Conclusion: Merleau-Ponty criticizes the Cartesian thought and he believes that there is unity between artist, world and body in addition artists will create art if he opens his body to the world.
	Title: the concept of the body in the philosophical thought of Merleau-Ponty and challenges about reading it in sociology Author: Behjat Yazdkhasti and others Conclusion: the theory of Merleau-Ponti is creating unity between body and mind in addition, negation of Cartesian dualism and rejection of superiority of mind to body
Literature review based on relation between phenomenology and Steven Holl	Title: a translation of phenomenological philosophy into the realm of architecture Author: Derya Yorgancioglu Conclusion: The study of Steven Holl’s architecture and the roots of creation his design process and finally, clarifying the relation between philosophy and architecture in the design process of Steven Holl.
	Title: Architectural phenomenology: toward a design methodology of person and place Author: David Thomas VonderBrink Conclusion: through analyzing theories of pioneers of phenomenology and analyzing projects of architects in this field, like Steven Holl, tries to establish a design process based on phenomenology.
	Title: Recovering sensory pleasure through spatial experience Author: YoonJin Kim Conclusion: contemporary architectural spaces activate only optical senses and other senses have been forgotten, that with rereading them we can enhance the relation between human and world.

Research methodology

Since the essence of this project is qualitative, the selected paradigm is phenomenology that instead of realism, concentrates on the underlying concepts of phenomena (Ahmadi and Ghaffariyan, 2003: 245) and with interpretive method, goes to the essence of phenomena. We have collected data from library, documents and plans which finally with the help of hypothesis and questions, the model of research has been created. Indicators from model of research have been analyzed in the selected projects.

Philosophical structure of research

Philosophical structure of research based on phenomenology and appreciates transcendence of mental experience. It tries to eliminate the Decarsian gap between mind- object and mind- matter (Groat & Wang, 2013: 185) and although tries to remind the forgotten relation between human and world in the modern era.

Research model

The model of research has been obtained from

analyzing hypotheses, questions, theoretical studies and the relation between variables, in three levels of concept, dimension and indicators. The concept of parallax, which is connected to phenomenology and bodily perception of Merleau-Ponty has been obtained from the three dimensions of changing angles, movement and time that the changing angel is connected to the indicator of changing movement axes, and movement is connected to oblique and vertical movements. The dimension of changing angel of view has a two-way relation with the movement dimension and has a one-way relation with time dimension. Furthermore movement dimension has a two way relation with the changing angle of view dimension and has a one way relation with time dimension.

### Research process

According to the essence of Qualitative research, this study has been done in six levels, which overlap each other: 1. Clarifying the content, in this project the content is the parallax and bodily perception 2. Clarifying the society of study, in this research due to the reasons which have been pointed out, the society of study is Steven Holl's architect 3. Establishing the hypothesis during the data collection 4. Collecting data 5. Analyzing data 6. Conclusion

### Theoretical studies

#### ●Phenomenology of Maurice Merleau-Ponty

Maurice Merleau-Ponty (1908-1961), is one of the

philosophers that criticize anthropocentric thought of Decart, the gap between object and mind and in other words the separation between subject and idea, and he tries to redefine the relation between man and world in the form of phenomenology. His thoughts owe phenomenology of Husserl and existential thought of Heidegger, with a look to his definition of phenomenology: <<phenomenology is an attempt to reach a philosophy that is an exact science but it will give us a clear information about place, time and the world as we experience them, it tries to give us a direct description of our experience without any casual explanation of scientists, historians and sociologists>> we will figure out that, his definition is a mixture of Heidegger and Husserl's (Asghari, 2015: 2). He tries to give a new definition of being in the world which is against Decarsian thought and focus on the unity of object and mind in addition he believes being in the world depends deeply on perception of environment. To him the result of Decarsian thought is creation of gap between mankind and his environment, whereas being in the world should be without any medium furthermore creating an identity between mind, body and perception.

### Perception

To phenomenology of Merleau-Ponty, being in the world depends deeply on perception of human from his environment, but the question is: what kind of perception he means?

From the view of Merleau-Ponty, perception is

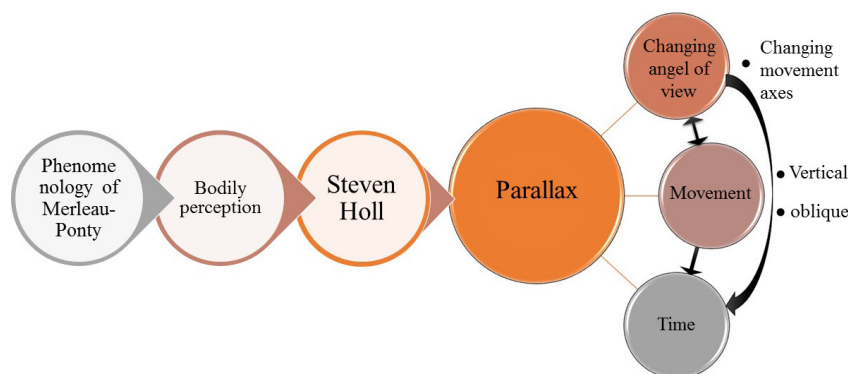


Diagram 1. Research model that is abstracted from theoretical studies, hypothesis and questions. Source: author.

“phenomenologicistic and dynamic aspect of our body”. From this point of view, perception is a bodily and phenomenologicistic phenomena, it is a science about our bodily presence in the world. Perception is a bodily experience and all our understandings of the cultural and social world are connected to the body. But this matter as Copleston pointed, shouldn't be interpreted as a materialism philosophy (Shayganfar, 2015: 116), rather it emphasizes the importance of physic and body in his philosophy of phenomenology, so the perception in Merleau-Ponty philosophy is sensual perception.

Sensual perception is the first process for finding out meanings, which is deeply connected to our presence in the world, in other words, we are not passive in this process, and a world will be appearing for us. Sensual perception, neither is passive nor happens through pure creativity, but it is the sign of our ambiguous relation with the world, so we couldn't connect it to pure consciousness or the creation of the body, where as it is the result of both of them. From the viewpoint of Merleau-Ponty, sensual perception has a priority, in other words, it is the first dimension of consciousness and has a priority in every experience and process, even in rational, scientific and historical experiences, and in fact it is the basic of phenomenology of mind, history and culture, although we couldn't relate these three experience only to sensual perception (Talebzadeh, 2006: 66). He writes in priority of the Karda: our purpose from <<sensual perception>> is this, that our perception of presence is in time, which objects, trues and values appear to us, in other words, sensual perception is a new phenomenon that is an objective, and out of any force and attract our attention to the recognition and action. This is not a matter of decreasing human knowledge to feeling, whereas it helps this knowledge to appear more and more.

### Body and Merleau-Ponty

We learn the role of perception from the study of phenomenology of Merleau-Ponty and as discussed in previous lines, his purpose from perception is

phenomenologicistic and movemental dimension of our body in the world and his perception is a sensual perception, that is connected deeply with the physic and body of subject and in this way the most important tool and media is body. He doesn't consider humanity as a just pure mind or body; in fact body is subject and the subject is the body, in addition Merleau-Ponty believes in the fluidity of body of subject and object.

The philosopher brings forth the concept of “bodily space,” through which the spatial character of human existence is signified. According to him, our bodily existence presupposes the notion of spatiality. Monika M. Langer defines Merleau-Ponty's conception on the spatiality of body as “the very way in which the body comes into being as a body.” Merleau-Ponty insists on an inherent relation between bodily existence and space, wherein space is “already built into my bodily structure and is its inseparable correlative...” while the body is the means we are connected to the world, space is the ground this connection occurs. “... There would be no space at all for me,” says Merleau-Ponty, “if I had no body.” Therefore, the presence of the body is interpreted as the primary condition that the presence of space is possible (Yorgangiouglu, 2004: 53).

### Phenomenology and Steven Holl

Holl is one of the most famous interpreters of phenomenology in architecture, his phenomenology is a mixture of Merleau-Ponty and Gaston achelard's theories in phenomenology, and both of them have an important role in forming Holl theory about space and architecture. Holl's denotation of the three main principles as the relation of body to space, the spatiality of perception and finally, the notion of living space, designates, indeed, his emphasis on the phenomenology of space he puts emphasis in architecture. He explains the importance of bodily presence that of experiences the architectural work, by saying: “The body is the very essence of our being and our spatial perceptions (ibid: 54). Holl draws from Merleau-Ponty's belief that the body acts as an



interface to the world as well as Heidegger's notion that things gather the world (Vonderbrink, 2007: 10). Emphasis on body in spatial perception of resident in architecture shows holl's influence form phenomenology and thoughts of Merleau-Ponty, but the question is: how he enters this concept to architecture and his projects?

### Motility of body in space

Holl writes about motility and body in his book Parallax: "Motility and the body-subject are the instruments for measuring architectural space. Mundane phenomenological studies are as ineffectual as an overdose of wide-angle, distorted color photography. Only the criss-crossing of the body through space- like connecting electric currents- joins space, body, eye, and mind" (Holl, 2000: 38). In his words it is noticeable that the spatial perception of the body constitutes an essential quality for Holl's articulation of architectural space. In articulating spaces, his departure point is the intertwined relation between the body and the world, which Merleau-Ponty describes as "the gearing of the subject onto his world." For Holl, perception provides achieving this kind of a "gearing" (Yorgangiouglu, 2004: 62). In Holl's theory, spatial perception depends on motility and movement in architectural space and it causes the combination of various views; and through this process, perception and spatial perception happens. Holl's emphasis on the body and motility is completely abstracted from Merleau-Ponty thought which will be discussed in following sentences. As discussed in part of Merleau-Ponty and body, the first condition for achieving space and perception is body and his famous sentence "there would be no space at all for me, if I had no body" proves this matter. In his book "Phenomenology of Perception", he discussed movement as: "by considering the body in movement, we can see better how it inhabits space (and, moreover, time) because movement is not limited to submitting passively to space and time, it actively assumes them, it takes them up in their basic significance which is obscured in

the commonplaceness of established situations" (Merleau-Ponty, 1945: 102). Thus Merleau-Ponty believes in deeply connection between perception and moving body that Steven Holl interprets it to Parallax.

### Parallax

Holl defines Parallax in his book: "Parallax- the change in the arrangement of surfaces that define space as a result of the change in the position of the viewer- is transformed when movement axes leave the horizontal dimension. Vertical or oblique movements through urban space multiply our experiences. Spatial definition is ordered by angles of perception. The historical idea of perspective as enclosed volumetric based on horizontal space gives way today to the vertical dimension. Architectural experience has been taken out of its historical closure. Vertical and oblique slippages are key to new spatial perceptions" (Holl, 2000: 26). Parallax can be regarded as a new spatial definition that depends on body's movement in space. As the body moves in the space, his/her perceptual perspective changes leading to acquire successive, varying spatial perceptions. What Holl calls "parallax" is this fluid spatiality, through which the space is redefined. Holl interprets the concept of parallax as a tool in architectural design, claiming that it can be a medium of new spatial formations in architecture. Parallax can be regarded as a new representation of space the foundations of which are spatial perceptions occurring through motility. Parallax provides Holl with going beyond the two-dimensional. Representation of plan. For him, either the three-dimensional perspective is also inadequate for exhibiting the dynamic nature of space redefined through parallax. When the presence of body and the spatial perceptions of the moving body are taken into consideration, space achieves a fourth dimension, which depends on the fluidity of spatial perceptions (Yorgangiouglu, 2004: 65).

Holl with defining the component of Parallax, points to the importance of body in environmental perception, "we play in unqualified delight with our eyes open,

our legs moving, our arms and torso engaged. The phenomenon of ineffable space refers to the maximum intensity and the quality of execution and proportion- an experience becomes radiant. Dimensions alone do not create this space; rather the space is a quality bound up in perception (Holl, 2000: 31). Holl puts his philosophy against the propagandists of optic space in architecture and believes that perception in architectural space depends on motility in space which cause to applying other senses. In other words, without motility in space, only optical perception and sight sense will interlock with space, but through motility, other senses like touching, smelling and even tasting will interlock with the space and this is a moment which perception will be complete and we will connect to world, but the more important matter which happens through motility in space and Holl defines it as Parallax and Yorgangioglu calls it fourth dimension is the space fluidity, that a resident will reach it through movement in vertical and oblique axes, in addition, combining various views.

## Discussion

### •The study of Parallax in Holl's projects

The Parallax and spatial motility, which comes through the movement of resident in space, furthermore adding a fourth dimension of time to other dimensions, is the main concept of Holl's projects. In analyzing this matter, we start from the

Helsinki museum of contemporary art:

The Helsinki museum of contemporary art is one of the Holl's projects with various and different spatial experiences. the criss-crossing of the building concept and an intertwining of the landscape, light and the city (Holl, 2000: 38) mark many routes through the museum that involve turns of the body and the Parallax of unfolding spaces. The body becomes a living spatial measure in moving through the outstretched, overlapping perspectives. Linking ramps between floors and attached to interior walls, introduce a way, that resident with moving on them, get a new spatial perception in every moment. The mentioned ramps with atrium are the most important components in establishing Parallax in this project (Fig. 1). We can see the concept of Parallax and intertwining of body and space from the elementary concept of intertwining until interior spatial motility. In formal terms, he achieved motility and spatial perception with intertwining and crisscrossing, and in the interior spaces with the atrium and ramps; so the key component in establishing Parallax in this project is motility and spatial fluidity that cause gear of the body with space and enabling other senses.

From the viewpoint of author, the projects which we can see the Parallax and the balance of space-time clearly, are exploration of in and following it, Tesseract of time (a dance for architecture).

The project of exploration of in which starts from

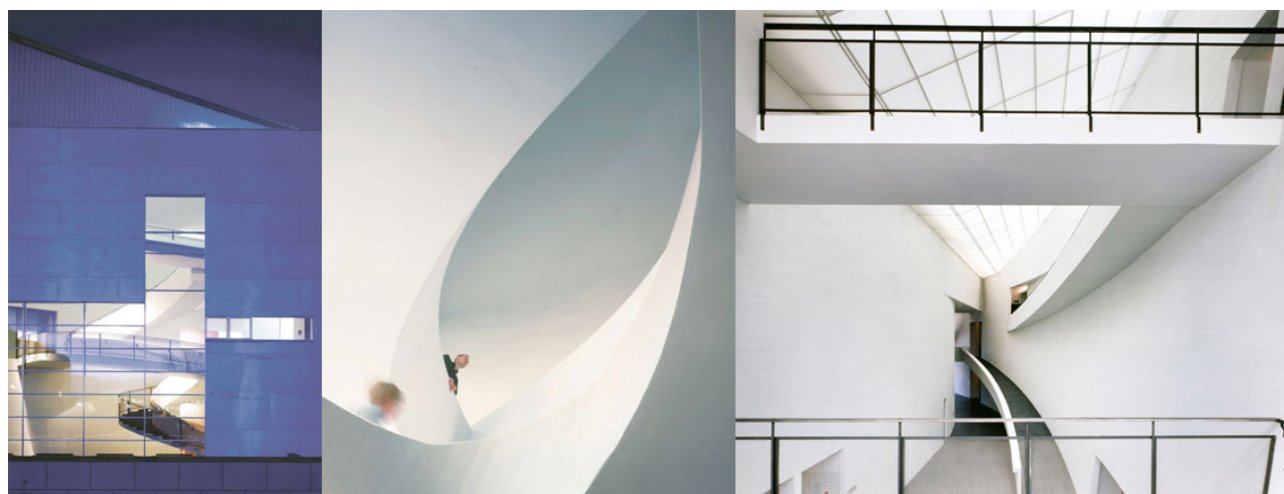


Fig. 1. Parallax happens through movement and various views of person. Source: stevenholl.com

June of 2014, concentrates on avoiding objective look to architecture and insists on internal space and it's potentials in spatial perception. It tries to reach various alternatives of internal space with making models. This project has started with these statements:

- a. To study Architecture freed from the purely objective.
- b. From origins of Architecture we explore "IN".
- c. "IN": All space is sacred space.
- d. The Architecture of "IN" dominates space via space.
- e. Intrinsic "IN" is an elemental force of sensual beauty.
- f. "IN" is useless, but in the future will be used. Purpose fins "IN".
- g. The thing containing is not the thing contained.

The first statement shows the opposition to subjective-objective view and believes that releasing from this view is the main condition of continuing the project, which is the main title of the phenomenology of Merleau-Ponty, and the next six statements show the importance of inner space and its perception which all of them have an important role in gearing the body to space. By analyzing models and built products of this project, we can see avoiding horizontal and

routine movement and adding oblique and vertical movements in space that it seems the idea of Parallax for increasing spatial experience through oblique and vertical movements has happened in these models (Fig. 2).

The project of Tesseract is a collaboration between architecture and dance that premiered November 6th, 2015, at the Harris Theater ([stevenholl.com](http://stevenholl.com), 2016/07/01). This project has an abstract nature in comparison with other Holl's projects and it is the best opportunity for him to express his ideas in architecture without any functional limitation. This project, which Holl has a role of the set designer in that, is a 20 minute show consisting of four sections as a symbol of the four seasons that Holl designs different space for every section. Holl's idea in this project is spatial; he designs four sections for four parts of the show as a under, in, on and over, in addition, he breaks the one dimensional look to space and plays with vertical axes. The Holl's spatial idea is a presentation of space-time balance and Parallax, which happens through movement of human in space, and here it happens along with movement of human and architecture in vertical (under, in, on and over) dimension (Fig. 3).

The effect of exploration of in, is so clear in this



Fig. 2. Parallax happens through adding vertical and oblique movements



Fig. 3. Holl's sketch from placing human and architecture in space. Source: [stevenholl.com](http://stevenholl.com)



project and especially in the second section, in addition, the designed space and blocks for this section are the models built for exploration of in. And the models built for third section are Tesseractacts and connected to time and the fourth dimension. On the whole, the main component that Holl emphasizes on it in this project, is a time and its balance with space, which we can understand it from the concepts of project and even from the name of the project. In this project, the audience isn't just a fixed element and the world in front of him, isn't just an objective

under his subjectivity, and the gearing between human and space happens through movement of human and motility of space. But the most interesting thing is the presence of audience or second resident in this project which unlike first resident (dancer), he is completely fixed and the space and architecture move in front of his eyes from under to over, in addition, the audience is fixed but the spatial perceptions are dynamic and depend on movement, this matter can be discussed in the spatial perception in the cinema (Fig. 4).

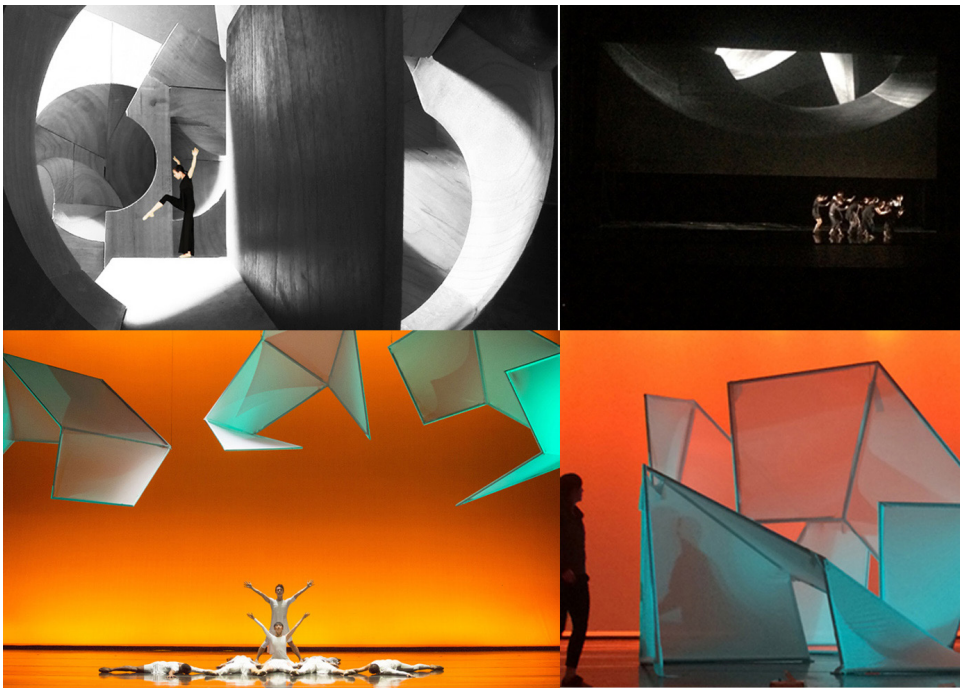


Fig. 4. Right and above: body under the earth and architecture. Left and above: body in architecture. Right and down: body on architecture. Left and down: architecture over body. Source: stevenholl.com

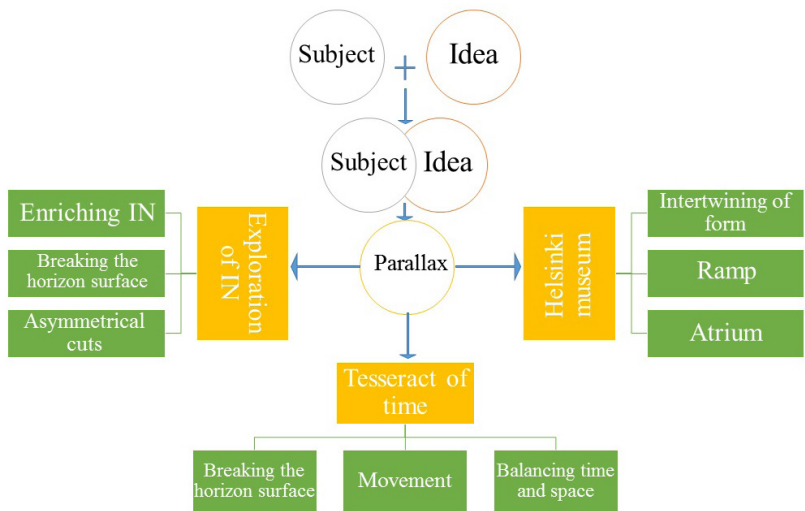


Diagram 2. Parallax indicators in case studies. Source: author.

# Conclusion

Steven Holl following Merleau-Pontie's thoughts, considers the body as a medium for linking to the world, and he believes perception happens through moving body and for explaining it, use Parallax. Parallax- the change in the arrangement of surfaces that define space as a result of the change in the position of the viewer- is transformed when movement axes leave the horizontal dimension. To Holl, Parallax depends on the movement of person in space, in addition, adding the dimension of time which results in spatial fluidity and various views. In fact, Parallax expresses a new spatial orientation, which spatial perceptions happens through movement. Without this movement in the space, only eyesight of person will be active, but through it, Parallax and movements in space will happen and result in activating other senses like touching, hearing, smelling and even tasting; so Holl with emphasis on parallax in his design philosophy, forces person to move in space, interlocking all his senses. Furthermore link the perception to body and it's movement which is exactly comes through Merleau-Ponty statement: "There would be no space at all for me, if I had no body".

We achieved these indicators about Parallax, through studying it in Holl selected projects with the paradigm of phenomenology and mentioned research methodology:

1. Unity of subject and object
2. Emphasis on "IN" and its potentials
3. Rejecting perspective and creating various angles
4. Creation of movement in space by adding ramps and atrium and making person to move
5. Adding the dimension of time to design scenario
6. Breaking horizontal surface and creating vertical and oblique moving axes in space

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