Abstract: In relation to the affective introduction of the post-structuralist paradigm particularly the Deleuzeian discourse to the agenda of architectural theory and praxis, as well as the rising influence of digitalization and its immense penetration into even everyday life, the last decade of the 20th Century addressed to a critical threshold in the successive transformation process of the spatiality in its long-term run. So, by interacting with the Deleuzeian Philosophy and their notions like lines of forces, folding, becoming, smooth space, territory, spatium, this article aims to reveal the relevance of these notions in architectural discourse, as well as discusses the shifting perspectives of design thought and the creative practice, where architectural embodiment becomes a multitude of intensities and an open-ended production. Furthermore, this paper argues the applicability of Deleuzeian thoughts within the architectural design and the notion of space as a “becoming”, by opening up the Fresh Water Pavilion of NOX Architecture into question in terms of unfolding the essences of a transformable-evolvable architectural spatiality.

Keywords: space as a becoming; Deleuze; augmented space; Fresh Water Pavilion

1. Introduction

The penetration of the post-structuralist paradigm particularly the Deleuzeian discourse to the agenda of architectural theory and praxis after the late-’80’s, paved the way to an essential transformation that architecture had been longing for change for some decades of time. So, bifurcating its way from the Deconstructivist unorthodox language, and heading straight to the unknown/unexplored plateaus that are yet to come; the architecture of the late 20th Century has initiated the path of transition to explore the never-ending limits of the architectural ‘becoming’ -the multitude that gathers all the multiplicity of diverse intensities of thought, embodiment, extension, spatio-temporalities etc.- through hybridizing itself with the contemporary technology and material advancements, where the
fine borders between the actual and the virtual, the real and the possible may start to blur into one another.

Similar to the Post-War Era of the late 50’s, where again the technological advancements and their immense questioning affect to the architectural realm played the major role in the transformation of that epoch; the late-20th Century’s technological advancements has shifted the turn into higher level this time, where the thought and the tool have redefined the materiality (leading the discourse into new materiality recently) and the existence (departing from the ontological parallelism of flat-ontologies of post-, in- and non-humans), so that we have faced with the ontological shift, where this initially-minor but then quite affective turn of ‘becoming’ in contemporary discourse has need to be addressed.

So, with the increasing influence of digitalization and its immense penetration even into everyday life, the last decade of the 20th Century addressed to a critical threshold in the successive transformation process of the spatiality in its long-term run. The advanced digital technologies of ubiquitous computing and generative design, as well as the invention of smart materials in late 90’s (particularly the nano-technological materials that emerged as the programmable matters with their ability to evolve continuously) have all provoked the fluid characteristics of spatiality, and strengthen the transformative capacities of the architectural space through the emergence of computer-augmented territories. Additionally, as becoming body extensions, the advent of novel apparatuses further enhanced the integration of the corporeal and incorporeal bodies with the spatio-temporal multiplicities, where the hyper-dimensionality of the space has been triggered to its outmost range, in relation to the ‘soft and smart technologically augmented immanent milieu’ (Spuybroek, 1997).

Thus, like Spuybroek points out as the ‘haptonomist’ presence of the body merges itself with these diverse bodily extensions on one hand; On the other hand, as the rising influence of nomadic view of the world further stimulates the unboundedness and endless fluidity of space (Spuybroek, 1997), so that the spatiality becomes a landscape of successive transformations, a topology of emergence or a plane of becoming, which is merely defined by lines of forces, and occurs as an alive territory rather than a limited space of predefined boarders. Therefore this evolvable territory, which is affectable, and being affected by the lines of forces-inner and outer forces-, emerges as an animated existence, an interactive organism.

Doubtlessly, like Deleuze and Guattari discuss, ‘this’ novel spatiality emerges as a smooth, transformable space of affection that comes into being under the influence of inner and outer forces acting upon it. They define this space as ‘....a space of contact, of small tactile or manual actions of contact, rather than a visual space like Euclid’s striated space.’ (Deleuze and Guattari, 1987, p. 409). Like they also mentioned; being as the space of smallest difference, homogeneity would no longer exist, but only the linking of the proximate points are essential in the formation of the paths (Deleuze and Guattari, 1987, p. 409).
On the other hand, the penetration of more sophisticated devices of ubiquitous computing into the space in general terms have further influenced the generation of these novel spatialities, which depend on more complex synchronized experiences involving multi-modal (push and pull) interaction, so that spatial embodiment could perform endless possibilities of events through maintaining the ever-imagined correlations between the virtual and the actual. Therefore, un akin to the passive synthesis of virtual procedures, the novel spatiality emerges from open-ended active synthesis of augmented interactive procedures of both the virtual and the actual.

So, like Burry mentions, with its ‘pre-’ and ‘post-’ becomings (Burry, 2001), this ever-evolving spatiality could also be described in relation to the notion of metastability, and appears as a ‘delicate balance between forces from within and forces from without’ that both are ‘sculpturing’ the flow of information that defines the temporal-spatiality (Oosterhuis, 2011, p. 105). Since, these force fields appear as the sources of the ‘information flow’ (Oosterhuis, 2011, p. 104) or lines of forces, the novel architectural embodiment becomes a ‘vectoral body’ that could be ‘stretched in a particular direction’ or expandable into further territories (Oosterhuis, 2011, pp. 98-99). Thus, in the contemporary realm, the ‘...design process [could be] perceived as a transaction...’ where/through which the architectural embodiment becomes a transaction milieu ‘facilitating transaction between the users and their immediate environment’ (Oosterhuis, 2011, p. 140).

In this regard, Fresh Water Pavilion project of NOX Architecture by Lars Spuybroek has been asserted as the critical step in terms of addressing the initial phase of augmented space and the affect of ubiquitous computing in the emergence of spatial becomings. On the other hand, methodologically the design story and the physical formation process of the pavilion have been dismantled to frame the milieu of the discussion. Pursuing this initial step, critical readings of this innovative work have been performed through a Deleuzeian perspective as well as interacting with his notions of *machinic assemblages* and *smooth space*, in order to map and to debate the transfiguring perception of architectural space from a static enclosure into an evolvable spatiality of becoming under the multi-modal interaction.

2. Constructing the Water Pavilion

Fresh Water Pavilion was designed within the framework of the ‘water pavilion’ project, which was commissioned by the Ministry of Water Management and Delta Expo in year 1993, by being as a private-public partnership and constructed in Zeeland in the Netherlands in 1997 (Spuybroek, 1997). The initiation was split into two design teams, so that Lars Spuybroek and NOX Architecture was responsible of building the fresh water pavilion Figure 1, while at the same time, again another Dutch architect-Kas Oosterhuis was responsible of building the sea water half of this ‘water pavilion’ project (Spuybroek, 1997).
Like Spiller mentions that Spuybroek’s work focuses more on the ‘interrelationship between real and virtual space and the phenomenology of simply being in and alive in the world’ (Spiller, 2006, p. 54). Spiller defines the pavilion as a synthesis of materiality and immateriality, and also highlights that the categories of real vs virtual, as well as material vs. immaterial are not opposing categories nor ‘metaphysical disagreements’ of the design ideology, but in fact they are ‘...electroliquid aggregations, enforcing each other, as in two-part adhesive...’ and keenly proposing ‘...metastability to induce animation.’ throughout the pavilion (Spiller, 2006, p. 54). Spiller further acknowledges that the interior environment of the pavilion that Spuybroek has generated was a liquid unity that successfully merges ‘hardware, software and wetware’ all together, and ‘...the design of the interactive installation was based on the metastable aggregation of architecture and information.’ (Spiller, 2006, p. 56).

In addition to these, Spuybroek also mentions that without detaching the ‘architecture from the exhibition’ and ‘form information’, the pavilion was designed as a ‘medium’, where the ‘material form [was] directly related to the movement of the visitor’ (Spuybroek, 1997). Therefore, basically the connection of ‘behaviour of human beings [the visitors] to the behaviour of the building system’ was the driving concept of the pavilion design (Spuybroek, 1997). Thus, creating an affectional space, or in Deleuzeian terms the smooth space, which is under the various influences of inner and exterior stimuli, has been the key strategy in the configuration of the architectural space, together with the idea of constitution of a temporal territory for multi-modal interaction that leads into transitive subject-object relations. Besides, like Spuybroek points out that the pavilion space not only juxtaposed the movements of the visitors and the animated form of the pavilion, but also blended the ingredients of the various spatio-temporal multiplicities of this heterogeneous space such as; the corporal and incorporeal existences of movements of visitors, or the water, as well as the ‘interactive electronic installation that creates the movement of light, sound and projections, that were activated by actions of the visitors.’ Figure 2 (Spuybroek, 1997).
Visitors entered to the pavilion through a hydraulically operating ‘three dimensional door’, which was opening meanly of a few degrees from its pivot, letting them to confront with the frozen entrance corridor—the ‘glacier tunnel’ Figure 3 (Spuybroek, 1997). Since the existence of the water was the main theme of the design of the architectural space, it was also configured to aggregate gradually within the space, reciprocally as the visitor cascades from outside to inner space, where it further appeared through ‘little wells and springs and mist coming from the ground’ within the space (Spuybroek, 1997). After the entrance tunnel and the emerging water elements; visitors experience a ‘rain-bowl’, where they saw the sky, the formation of the clouds and atmospheric becomings of rain etc. in a time-lapse, and experience the falling rain through the haptic processes (Spuybroek, 1997). In addition to all, a ‘crystal clear water well’ of 120 tones of water was also located to create ‘hallucinatory, sensorial feeling of vertigo’, which was manipulated by the projectors and the gas-releasing mechanisms that were placed under the water, while serving to strengthen the sense of instability and the major concept of water’s environmental closed cycle at the same time Figure 4 (Spuybroek, 1997).

Figure 2 The Fresh Water Pavilion, plan, NOX Architecture, 1997.

Figure 3 The Fresh Water Pavilion, glacier tunnel, NOX Architecture, 1997.
On the other hand, as mentioned above, a ‘...very complex interactive installation, combining different electronic systems of sound, light and projections....’ was designed and configured to ‘....extend the concept of deformation related to action.’ (Spuybroek, 1997). Moreover, ‘as the building tries to liquidize people-“[the visitor] become water”...’, this interactive installation further opened up the program and function to the instability and dynamism (Spuybroek, 1997). Spuybroek also acknowledges that the interior space of the pavilion consisted of continuous surfaces and were covered with different sensing devices like; light sensors-WAVE, touch sensors-RIPPLE and pulling sensors-BLOB Figure 5 (Spuybroek, 1997). He explains that every group of sensor operated in three levels of interaction. In the first level they operated in the level of ‘topological deformation of a project wireframe grid in real-time’ (Spuybroek, 1997). On the second level they operated in the real-time interaction with the visitors’ acts and reacts within milliseconds by changing the ‘...overall lighting in the interior space and the sound’, and on the third level the three of them operated on the same moment (Spuybroek, 1997). Although, the design of the pavilion addressed a great innovation in conceptualization, yet the system was built up with wet-cable technology, where the audio-visual devices were ‘connected through a cable way, that runs through out the building’ (Spuybroek, 1997).
Thus, the Fresh Water Pavilion emerges as one of the preliminary examples of the ‘architecture of variation’, which has been developed under the initial systems of interactive processes that were mechanically triggered and hydraulically operating mechanisms. They merely constitute the literal transformation of the architectural space with their ‘capacities to be affected’ (De Landa, 2009). By all means there is no longer a single definition of spatiality might be possible, nor a spatiality might exist without the experiencer, but a transitive spatiality of subject-object has emerged.

3. Multi-modal interaction and machinic assemblages

The augmented spatial becoming of the pavilion is an interactive environment that works with impulse and reaction oriented systems of sound, light and mechanical systems affecting the form. Similar to Oosterhuis’s definition, the major intention in the design is the ‘art of building bi-directional relationships in real-time’ (Oosterhuis, 2011, pp. 120-121). So, un-akin to the passive synthesis of virtual relations or responsive spatialities; novel spatial relations that have emerged with these contemporary technologies, provide a two-fold interaction a ‘bi-directional dialogue’. They transform the spatio-temporal becoming into a proactive existence, where the received information has been processed and send back in a slightly adjusted or differentiated form (Oosterhuis, 2011, p. 114).

As Oosterhuis further mentions, this is totally a transitive process that transforms each actor within the dialogue, where the ‘two-way communication’ changes the involving parties ‘after having sent back their response’ (Oosterhuis, 2011, p. 114). Meanwhile, it could be also discussed that, since the notion of space, and consequently both the context of architectural space and knowledge of architecture have been altered into evolving spatialities of bi-directional dialogue, as well as the transaction and data-flow; then the novel role of the architect also shifts somehow into a programmer -rather than a creator. Associating with the notion of mutual subjectivity once again, the architect briefly introduces the preliminary correlations and network structure of the potential relations by defining the possible parameters. Furthermore, s/he configures the space as a virtual embodiment of all spatial relations, which might be actualized through the processes of never-ending or unpredictable events.

So, in the light of augmented mediators the spatio-temporal becoming emerges in the multiple assemblages of the bodies: the architectural embodiment of the pavilion space, the corporal presence of the visitor, the incorporeal existences of the motion as well as light, sound and tactile experience. Yet, the spatial becoming majorly occurs through the machinic assemblages of the bodies without organs. Like Deleuze and Guattari define the characteristics of the BwO as a spatum, which could be also perceived as intense as an egg (Deleuze and Guattari, 1987, p. 169). BwO is a ‘non-stratified, unformed, intense matter, matrix of intensity’ (Deleuze and Guattari, 1987, p. 169). It is ‘production of the real as an intensive magnitude’, that starts from the level of zero (Deleuze and Guattari, 1987, p. 169).
In their discussion on BwO, Deleuze and Guattari refer Spinoza’s book of Ethics as the ‘great book of the BwO’ (Deleuze and Guattari, 1987, p. 170), in terms of the problem of unity and ‘uninterrupted continuum’ of BwO in relation to plane of consistency (Deleuze and Guattari, 1987, p. 170-171), where the desire-all the process of production emerges immanent within the system itself (Deleuze and Guattari, 1987, pp. 170-171) as well as the influence of the exterior agencies. In addition to this, they also emphasize that BwO is not the enemy of the organs, but the organism, any ‘dominant and hierarchized organization’, a dictating totality, or over-ruling system (Deleuze and Guattari, 1987, pp. 175-176). It is a ‘disarticulation of an organism, while opening the body to various connections of matter and energy flows of different intensities’ (Deleuze and Guattari, 1987, p. 178).

Besides, BwO exists in the strata, ‘swinging between the surfaces that stratify it, and the plane that sets it free’ (Deleuze and Guattari, 1987, p. 178). Deleuze and Guattari explains that by existing in the plane of consistency through constructing its little machine of assemblage, BwO reveals itself as a connection of desires, conjugation of flows and continuum of intensities (Deleuze and Guattari, 1987, p. 178). BwO is not a fragmented body or organs without body. It is a ‘milieu of experimentation’ or a ‘creative involution’ and intensive spatium (Deleuze and Guattari, 1987, p. 181-182). It is a ‘map of comparative densities and intensities as well as all the variations’ (Deleuze and Guattari, 1987, p. 182) BwO is a ‘distribution of intensive principles of organs with their positive indefinite articles, within a collective or multiplicity, inside an assemblage, and operating according to machinic connections.’ (Deleuze and Guattari, 1987, p. 182). So that the body becomes multiple, whose ‘function or meaning no longer depends on an interior truth or identity, but on the particular assemblages it forms with other bodies.’ (Malins, 2004); just in the case of the Fresh Water Pavilion, where the ‘transitive subjectivity’ (Bourrioud, 1998, p. 23) transforms the pavilion space into an objectile and further into an extension.

So, the BwO is a multiple body that is open to connect with all rhizomatic multiplicities (other corporal and incorporeal multiplicities and intensities) through the process of machinic assemblages. And obviously this is exactly the moment when the transitive body becomes the ‘nexus of variable connections’, which is multiplicity, and that ‘...is not a form, but a complex relation between differential speeds, between slowing and acceleration of particles’ in Spinozian terms (Healy, 2006, p. 128)

4. Spatial transformatbility and emergence of smooth space

“The sun had not yet risen. The sea was indistinguishable from the sky, except that the sea was slightly creased as if a cloth had wrinkles in it. Gradually as the sky whitened a darkness lay on the horizon dividing the sea from the sky and the grey cloth became barred with tick strokes moving one after another, beneath the surface following each other, pursuing each other perpetually.” (Woolf, 1931, p. 639)

As it has been discussed earlier, the fundamental idea of the pavilion derives from the principle of interactivity, where the architectural space becomes constantly re-configurable in terms of functional, environmental and conditional re-configurability of the physical space
(Oosterhuis, 2011, p. 8). Since this new spatiality ‘is based on invasion of digital technologies such as parametric design, generative components, file-to-factory production, the process of mass customization and embedded intelligent agents’ (Oosterhuis, 2011, p. 13), the spatial components could ‘instantly change their mutual positions’, where the ‘floors can become protoDECKs, wall can become interactive walls, and building bodies can become Muscle Bodies’ (Oosterhuis, 2011, p. 137).

Indisputably this evolvability and transformability of the space could not be projected apart from the notion of the smooth space. Deleuze and Guattari defines the smooth space as a heterogeneous spatiality that is consisted of non-metric multiplicities (Deleuze and Guattari, 1987, p. 477), a nomos a continuous variation and development of form (Deleuze and Guattari, 1987, p. 478) Using the example of felt, contrary to a fabric, they define the smooth space as a model of entanglement rather than intertwining. So while distributing a continuous variation, this felt wise structure of smooth space is infinite, as well as open and unlimited in every direction, so that it could be constructible in every direction, without possessing a centre, top or end (Deleuze and Guattari, 1987, pp. 476-477).

In addition to these they also assert the smooth space as a directional space, which is constructed by ‘local changes of direction’, where the line becomes the vector or the direction of this change (Deleuze and Guattari, 1987, p. 478). It is an amorphous and unformed space of affections; a space of haptic perceptions, where ‘materials resemble the acting forces’ (Deleuze and Guattari, 1987, p. 528). Thus, smooth space is a ‘space of distances, which is also occupied by intensities of diverse tactile qualities’, such as sounds, senses etc (Deleuze and Guattari, 1987, p. 533); so that the division of this distances concludes in the change of the nature each time (p. 533). Briefly the smooth space is consisted of multiplicities that are non-metric, qualitative, acentered, rhizomatic, flat and directional (Deleuze and Guattari, 1987, p. 534). It is a transforming and transmuting system, which is continuously evolving. It is a Spatium, a body without organs (Deleuze and Guattari, 1987, p. 528). Besides, contrary to Cartesian algebraic geometrical pre-defined space, smooth spaces operates in a relational system through ‘amorphous accumulation of vicinities or situations of determinations’ (Deleuze and Guattari, 1987, pp. 534-535).

In the light of smooth spatial relations, the contemporary ontology of space emerges as a ‘multiplicity, a differentiation while maintaining a continuity.’ (Krissel, 2004). This is a process of becoming, that is no longer a unity of predefined systems or a crystallized structure, but a continuous evolving mechanism of folding and unfolding processes of enliven territorial temporalities that beget under the influence of various affections.

As it is known, in relation to their concept of smooth space, Deleuze further introduces the concept of fold, which has been extensively used in the earlier phases of evolvable spaces of generative architecture. He discusses the concept of folding in relation to ‘degree of development and difference’, un- akin to a ‘metric dimensional change’ (Deleuze, 1988, p. 10). Besides, he further explains that fold is not the contrary of unfolding, neither does the tension-release or contraction-dilation mechanisms (Deleuze, 1988, p. 8). However, folding
and unfolding are intertwined processes of ‘enveloping, developing, involution-evolution...’ (Deleuze, 1986, p. 8). Deleuze states that; ‘to unfold is to increase, to grow; whereas to fold is to diminish, to reduce, to withdraw into the recesses of a world. Yet a simple metric change could not ‘...account for the difference between the organic and the inorganic, the machine and its motive force’ (Krissel, 2004). It would be inadequate to resemble that movement does not simply transverse from one greater or smaller part to another, but from fold to fold (Krissel, 2004). When a part of a machine is still a machine, the smaller unit is not the same as the whole.’ (Deleuze, 1986, p. 8). Like Krissel points out, the process of folding-unfolding ‘...encompasses a continuously differentiating entirety’ where evidently the whole does not occurs as ‘...a matter of separate folded “parts”...’, but the ‘...“whole” has also been complicated with the many “parts”...’ (Krissel, 2004).

Moreover, Deleuze mentions that these processes of folding and unfolding occurs ‘independent of scale’ (Krissel, 2004), where they become merely a ‘general topology of thought’ (Deleuze, 1986); so that the ‘... “inside” space is topologically in contact with the “outside” space...’ (as the out-side to inside) and ‘...brings the two into confrontation at the limit of the living present’ (Deleuze, 1986) Therefore, the process of folding and unfolding is a ‘...flow from outside to inside...’ and vice versa, ‘...across different scales and independent of distance, where neither is fixed but rather in a constant exchange...’ (Krissel, 2004). As a result, due to this ‘constant exchange’; an architectural embodiment is no longer ‘one space and one site, but many spaces folded into many sites’; ‘a folding of space into other spaces’; ‘a multiplicity where everything is always read and re-read but we never see it in its entirety’ where this ‘reading of space’ becomes the reading of ‘variable intensities of movement’ (Krissel, 2004).

Indisputably, the configuration of the architectural space, emerges through unpredictability of the becoming, where as Krissel also points out ‘...new and unanticipated possibilities (between folded, enfolding and yet to be unfolded) occur without predetermined outcomes’ (Krissel, 2004). Thus, within this foldable topological space, or similar to the earlier definition of the topology of becoming/plane of becoming, ‘...where connections acquire vitality, with emerging possible interactions implying multiple fluid thresholds.’; and ‘...the folds become the events themselves.’ (Krissel, 2004).

5. Fresh Water Pavilion as a becoming and the architecture to come

“one can actually feel that one is living inside evolution. One feels the progress of evolution by observing the evolving products.” (Oosterhuis, 2011, p. 146).

Evidently, the major impulse of the post-structuralist paradigm of fluid and dynamic envisioning of the spatial relations have emerged with the indispensable texts of Deleuzeian interpretations that have broken the surface and make the transformation of the discourse and praxis visible particularly with the AD accomplishment of its special issue Folding in Architecture around 1993. By advocating the concepts of fluidity, viscosity and resolvability of spatiality, the transformative capacities of architectural existence through its
heterogeneous embodiment has been asserted as the essence of the contemporary architectural space of the late 90’s. This has been pursued with the initiations and realizations of literally animated architectural embodiments, which further emerged as the machinic assemblage of organless bodies, and comes into being through heterogeneous synthesis of plug-in’s and prosthesis. They emerge as affectable topologies of becoming, which could be both acting-performing and being acted on.

As it has been limitedly discussed within this representation, but immensely has been discussed even beyond architecture, through resonating almost every field of production for decades; the transformative capacities of the spatial becoming, the emergence of smooth space and dissolving properties of striated space, abolition of the Cartesian spatiality, processes of deterritorialization and reterritorialization of the spatio-temporal multiplicities and the engagement of corporal and incorporeal bodies through the process of machinic assemblages have been the essential points in revealing the evident presence of Fresh Water Pavilion project as a becoming. Besides, apart from being diminishing the complex spatial relations, however with an intention of briefly depicting the accompanying concepts and architectural interventions in terms of discussing the architectural space of Fresh Water Pavilion case as a becoming can be summarized like the diagram below Figure 6.

![Concept-pairs diagram for the Fresh Water Pavilion Project (Görgül, 2013).](image)

When, getting ahead of the ubiquitous computing and their inclusion into the space, the progressive trans-material based experiments, related to biological models of the recent decade, evidently call the emergence of a novel generation of architectural embodiment that could produce its prospect tissues that might further pleat it into its other embodiments, from which “each being in its turn to unfold its own parts at the right time” (Deleuze, 1988). With its self-organizing capacities, and its encapsulated vital impetus, this autopoietic emergence resembles no longer an augmented embodiment, but a differentiated one, which folds, unfolds and refolds itself to its prospect becomings of its species.

As a result, departing from the mechanical modes to topological models and recently to the biological models, and in the light of contemporary paradigm we could state that, the space emerges as a dynamic system ‘where infinite ‘product’ possibilities, processes and virtuality could unfold across a diverse architectural landscape with no definable beginning or end; rather, an evolving continuum.’ (Krissel, 2004).
6. References


About the Author:

Associate Professor Dr. Emine Görgül is an associate professor and vice-chair in Istanbul Technical University-School of Architecture and visiting professor in Auburn University Alabama. She has received her B.Sc. (1999), M.Sc. (2002) and Ph.D. (2013) degrees from ITU on Architecture and Architectural Theory and Criticism.