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**Tools for the Virtual: Atmosphere and Bodily
Presence of Digital Space**

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The emergence of the radical new

Architecture of the digital space is increasingly evolving towards the imaginary, atmospheric, and invisible sphere beyond the reality of built space. The virtual world of digital technologies has changed the practice of the design process by blurring the boundaries between fictitious and real space. Experimental conditions of layering, folding, and programmed randomness of algorithms via the means of combined software enable the visual representation of architectural hybrids. This new reality of the design process is envisioned as renderings, virtual 3d building models, diagrammatic projections, and animated movies. Yet, how can the innovation of the digital turn in the design process effect, shape and interact with our perception and experience of space? Are the digital and the analogue world fundamentally different as their means and techniques may suggest?

Reformulating the discipline and redefining its role and functions, architects have applied theories of chaos and complex systems, and experimented with non-linear and topological geometries. Another major influence in the past decade or so has been the philosophy of Gilles Deleuze whose concepts of lines of flight and segmentarity, fold and rhizome, diagram and abstract machine, smooth space, and the event are settled as a whole in a vagueness and indiscernibility where “events, or processes which, however temporarily, share a common milieu.”¹ They create a field of emergence where the radical new being can unfold in a pre-conditional state. In *A Thousand Plateaus* Deleuze names this “plane of immanence of radical experience” as the ‘virtual’ that refers by definition to something non-representational and a-signifying.² What will be unfolded presents itself in a plane of continually shifting interconnections, intensities, forces, flows, events and spaces. This elaborate and complex concept of the virtual does not proclaim “preformed spaces, objects, or functions but... pure potentials or virtualities, morphic resonances as variable densities of space-time, activity, or action.”³

Deleuze rejects representations of the world that are either correct or incorrect, and instead proposes theories that function as *abstract machines* in the process of architectural design, because “the abstract of diagrammatic machine does not function in order to present something, even something real, but rather constructs a real to come, a new type of reality.”⁴ For him, creative evolution is not the movement from the *possible* to the *real*, because the process of realization would offer nothing new and would not bring more reality and difference to come into existence. Since the possible is just like the real with the only difference that it does not exist this movement would not be creative but rather means that other possibilities would not be realized.

Within Deleuze's understanding, the *virtual* becoming *actual* is the true creative evolution, because the actual does not bear a resemblance to the virtual that it embodies. Hence, while the realization of the *possible* is characterized by likeness, preformation, and restriction, the actualization of the *virtual* makes the radical new emerge, the unfolding and revealing of unpredictable differentiation.

By using the Deleuzian concept of the virtual, the present essay aims at tracing the intervention between the digital and the analogue architecture and how their tools of potentials for the radical new are carried out to affect our experience of space.

The virtual as motion

In the mid-nineties, many avant-garde architects turned towards a Deleuzian understanding of the virtual in order to expand on a merely technical understanding of virtual reality. Deleuze's philosophy also offered a possibility of moving beyond the semiotic underpinnings of deconstructivist architecture and its obsession with (the impossibilities of) signification. Initially, the Deleuzian becoming was translated rather directly as motion by such theoretically oriented architects, such as Greg Lynn and Marcos Novak.

Following the Deleuzian theory of 'space-time' Greg Lynn abandons the architectural "ethics of stasis" of an idealized fixed-pointed space of Cartesian coordinates by defining an object as "a vector whose trajectory is relative to other objects, forces, fields and flows... and motion. This shift from a passive space of static coordinates to an active space of interactions implies a move from autonomous purity to contextual specificity."⁵ An example of Lynn's concept of "animate form" is offered by his design for the Hydrogen House in Vienna. Its form reflects the dynamics of the contextual forces as a movement in time. Via an animated sequence Lynn shows the process of a preliminary triangular volume gradually becoming transformed by solar rays and the shadows cast onto the form proceeding from east to west. In order to define a real, buildable project, however, Lynn stops this process of metamorphosis at a specific, arbitrary moment and selects a static image as the final design. As critics, such as Jeff Kipnis, pointed out, this means that the element of motion is no longer present in the actual architectural form. Instead, Lynn's animate form spatializes time. They bring to mind the sculptures of Umberto Boccioni presenting a static, rather than animate, representation the dynamic forces of movement.

A more Deleuzian understanding of the radical becoming has been proposed by Marcos Novak whose interactive four-dimensional architectural spaces can be traversed in virtual reality. Here, the virtual is not petrified into a representation, but the price to pay is that the architecture must remain within virtual reality. Following Bergson's speculations about the sense of vision being responsible for the thing ontology that makes it so difficult to understand radical becoming, Novak has also attempted to negotiate representationalism by escaping the visual. In his installation, *invisible architecture*, at the Venice Biennale 2000, Novak presented an animated video displacing liquid forms in a four-dimensional space, but the main element was a bar equipped with sensors that indicate five invisible sculptures. When the viewers moved their hands close

to the sensors, they could trigger interactive sounds that reveal the shape and position of the invisible objects. In this way, Novak's project of invisible architecture, unlike Lynn's concept of animate form, does not freeze motion and thus may more accurately capture the essence of the actualization of the virtual in the sense of Deleuze.

This danger of petrification of the virtual through representation was also addressed by theorist Brian Massumi who reintroduces questions of perception, bodily experience, and a transformative effect of architecture by shifting the point of view from the physical properties to the performance and lived-in processes of the built space. Though the virtual cannot be seen or even felt, "in addition to residue in static form, the formative process leaves traces still bearing the sign of its transitional nature."⁶ Instead of focusing on the design process he gives attention to the afterlife or architecture, its interference with the users that may implicate the potential for further change. Similarly, this idea of the new realities resonates with Rem Koolhaas' theory of "Bigness" that links unprecedented size, rather than unpredictable geometries, to the creation of "programmatic alchemy," maximum possibility, intensity, freedom, and entirely new social interaction.⁷

Shape as diagram

Besides architecture that attempts to capture the virtual by focusing on motion, there is another reading of an a-signifying virtuality that has been suggested by the proponents of "projective practice." The central concept is shape, a condition which will bring forward alternative realities, enable new social events, and the potential for change in architecture. In "Notes around the Doppler Effect and other Moods of Modernism" Robert Somol and Sarah Whiting outline the new conditions of shape in architectural practice by presenting, though arguing against "the oppositional strategy of critical dialectics," the binary model of *form* versus *shape*, *criticality* versus *projection*, *representation* versus *performativity*, *index* and *diagram*, *autonomy* and *instrumentality*, *hot* and *cool media*, *dialectic* versus *atmosphere*.⁸ Introducing a scientific metaphor that is perceivable and measurable such as the Doppler Effect in architecture is supposed to explain the effects of the virtual, its multiple contingencies and overlaps with politics, economics and theory, although the analogy in architecture remains vague and indistinct which terms precisely should be related to each other.

They refer to Marshall McLuhan's distinction between "hot" and "cool" media in order to demonstrate the different effects of the performance on the user. In contrast to hot media such as film, radio, or the photograph, which are well filled with data, and hence "high-definition," cool media like television, the telephone, or a cartoon provide only a small amount of precise information so that much has to be filled in by the audience. For McLuhan, "hot media are, therefore, low in participation," while "cool media are high in participation or completion by the audience."⁹ But his concept of participation merely functions on a cerebral level without including the active interference and bodily participation of the beholder. If the medium is the message, as McLuhan claims, the form may be less important than the tools that create them. New instruments shape new environments by transforming our view and experience of the world.

Furthermore, the promoters of shape construct a contrast between Peter Eisenman's highly articulate forms, and Rem Koolhaas' diagrammatic and non-specific shape projects. *Shape* is interpreted as situational and contingent, in contrast to the essential, abstract, and immaterial realm of *form*. In Eisenman's indexical reading of the frame structure of Le Corbusier's Maison Dom-ino the substantial architectural parts are not reduced to mere geometry of the structural requirements. It serves as a self-referential *sign*, which Eisenman defines as the "minimal conditions for any architecture."¹⁰ Hence, he interprets the specific location of the columns as a deliberate configuration that intentionally reinforces the particular geometric relationship between the two different sides of the rectangular plan. By contrast, in Koolhaas' diagrammatic reading the frame structure, namely the steel skeleton of the typical Manhattan skyscraper, is the most potential architectural *diagram* for instigating unprecedented events and behaviors. Projecting a multiplicity of virtual worlds on a single metropolitan site, the diagrammatic section of a skyscraper such as the Downtown Athletic Club becomes an instrument of the spatial discontinuity for producing new events. Hence, "the diagram is a tool of the virtual to the same degree that the index is the trace of the real."¹¹

The effect of presence

However, to a much greater extent than adopting McLuhan's theory on media, the concept of shape draws on Fried's essay "Art and Objecthood" in 1967, which is a polemical description of minimal art that he calls literal art.¹² In his opinion, "*art degenerates as it approaches the condition of theatre.*"¹³ Shape in minimal art decisively depends on the effect of presence, because it implies both a specific environment and the beholder moving in it. Hence, it is *incurably theatrical*, the shape objects are seen as actors on a stage deriving meaning from their singular effectiveness as *mise-en-scène*. When one perceives the shape object in its spatial context, in the expanded field of the architectural conditions, it significantly promotes an awareness of the physical presence, and thereby "theatricalized the [viewer's] body, put it endlessly on stage."¹⁴ This effect of *theatricality* is subversive, defiant, and to his mind, fundamentally inimical to the essence of sculpture.¹⁵

Referring to "the effect of presence" and theatricality that Fried has defined as an essential characteristic of shape in literal or minimalist sculpture, shape in architecture, according to Somol, operates by the performative properties of spatial immediacy and presence. He lists twelve attributes of shape as *illicit, easy, expandable, graphic, adaptable, fit, empty, arbitrary, intensive, buoyant, projective, and cool.*¹⁶ Shape operates with the *seduction of contour*, with the *calculated vagueness* of the surface area that sometimes rely on the presence and mere size of large-scale buildings. For Somol, the work of Rem Koolhaas and OMA, such as "the twisted knot" of the Central Chinese TV building, operates with "the graphic immediacy of logos, generating a new identity" and thus seems to exemplify the specific qualities and potential of shape.¹⁷ CCTV is a kind of cornered loop created by six approximately rectangular elements but with a deviation of a few grades. Its two main towers are interconnected at their basis by a common platform and joined at the top via a cantilevered L-shaped overhang. Somol characteries the

CCTV building as a “minimalist frame for a monumental void,” alluding to his definition of shape as “a hole in a thing it is not” – which is of course a paraphrase of Carl Andre’s famous definition: “a thing is a hole in a thing it is not.” Like a distorted rhomboid that is hollowed out at its core, they appear like a residue, a “leftover packing material for an object that has been removed.” Beside CCTV, other projects of OMA, such as the NeWhitney, the Seaterminal Zeebrugge, or the Dutch Embassy also use this strategy of a “cake-tin architecture” for accommodating all programmatic elements within a single shape. It represents a new species of an “exceptionally perceptive and adaptive organism.”

Though Fried saw it as a negative impact on art, most artists in the ‘60s and early ‘70s thematized the involvement of the viewer in installation art and happenings, and considered it a positive and very creative possibility. Similarly, some architects, such as those of Archigram, proposed visions of indeterminacy and “emergent situations” arising from unplanned encounters. The environment is without any fixed spatial configuration and ideal form but rather emphasizes individuality of action and space. According to Peter Cook, “The ‘building’ is reduced to the role of carcass - or less,” a concept that is close to Koolhaas’ idea of a “cake-tin architecture.”¹⁸ The new social event is then the immediate experience initiated by architecture, the revolutionary event, such as the ‘68 student revolting.¹⁹ They involve a *psychogeography* of space, though most of these projects are fictive, unbuilt and probably unbuildable. To imagine the unfeasible, the deliberate impossible in architecture, similar to Vladimir Tatlin’s monument to the Third International, implies that these ideas are less grounded in reality than in utopian visions closer to *nothing is impossible* in constructive and social terms.

Using utopian ideas as a metaphor for liberty and new social configurations, architects presented experimental projects of non-plan, moveable environments, infinite megastructures, and floating entities. What is vital and more important than a technologically advanced structure is the experience supplied by a “responsive” environment. Conceiving “fit environments for human activities,” Reyner Banham contrasts the *controlled* environment where one has a limited range of environmental choices with the *controllable* or *responsive* environment that provides the more fully background conditions for what he describes as an “interdeterminate open ended situation.”²⁰ In the sixties, advances in plastic technology produced pneumatic constructions that could be inflated in a very short time, making inflatables a symbol of the responsive environment freed from the constraints that previously bounded architecture. Pneumatic technology does not reduce architecture to traditional aspects of space or construction that can be seen as its essence, but rather opens up new subjects. Banham’s plastic dome, Michael Webb’s Cushicle and Archigram’s Environmental Bubble represent *une architecture autre*, a term that Banham derives from the French art critic Michel Tapié’s *un art autre*, who connects this term to raw, seemingly unfinished, anti-formal experiences.²¹

Atmosphere, mood, and immersion

Likewise, Sylvia Lavin argues against the essence of things like plastic material that goes across

the borders of art forms. In contrast to Fried's modernist position to reduce art to its very essence, the plastic lacks essential characteristics that could be assigned. In contrast to the modernist materials such as glass, steel, concrete or stone, plastic seems to be an artificial material without a nature. As a synthetic liquid material that is now after a molding process in a stable state, the jointless surface of plastic does not only allow a differentiation of material densities ranging from solid, translucent, to almost invisible. Plastic material is now virtually everywhere in everyday life, with a pervasive use within the human body. This condition resonates with Koolhaas' assumption that "the cosmetic is the new cosmic..."²²

For Lavin, the deployment of plastic entails the techniques of *plasticity*. The new forms relate to the inventiveness made possible by new material conditions and material techniques. Additionally, plasticity has given way to new structures and experimental conditions, and a new "density of experience."²³ Projects such as Elisabeth Diller and Ricardo Scofidio's Blur Building operate with the plasticity of a solidifying atmosphere that provides the visitors' sight with changing opacity. Constructed for the Swiss Expo 2002 at the base of Lake Neuchatel the media pavilion was essentially an artificial cloud hovering above the water. This formless, surfaceless, unpredictable fog mass producing long trails in winds is made of filtered lake water shot as fine mist through 31500 pulsing water nozzles that via computers adjust the force of the spray due to shifting conditions of temperature, humidity, and wind speed. Drawing on water in various forms, ranging from fog, mist, dew to a broad selection of bottled drinking waters from around the globe, it seems that the Blur Building uses water as primary substance of its architecture. Yet, the 300 feet wide by 200 feet deep platform consists of a tensegrity system that cantilevers from piles in the water over the lake surface. When the visitors approach via a 400-feet long ramp at the central open-air platform, they enter a dimensionless inhabitable medium that seems not to be bound to the gravity of buildings but is rather created by a complex interference between manmade forces and natural environment. According to Diller, the Blur pavilion is conceived to present an *anti-spectacle* as a reaction to the insatiable hunger for visual stimulation by displaying the complementary visual effect of "low definition," an optical "white-out" of erased visual references with only obfuscating images.²⁴ Yet, seen from the shore the artificial fog form, as Diller admits, presents a visual icon, while from within and an event architecture promoting bodily presence via blurry vision and "blushing brain coats" (smart raincoats) indicating the affinity between visitors by changing colors.

The idea of a fog building that abandons the conventional concept of space stems from the Japanese artist Fujiko Nakaya who created the first "fog sculptures" in the late '60s. She envelops people and constructive elements in a fog environment, transforming them into impalpable beings of fog stripped off their materiality. At the Osaka Expo in 1970 Nakaya covered the entire Pepsi Pavilion project by the New York based group Experiments in Art and Technology (E.A.T.) organized by Billy Klüver with artificially generating water fog.²⁵ According to the ideals of E.A.T., the artist makes active use of the inventiveness and proficiency of the engineer, such as the adoption of the existing technology of fog simulation, and thus seeks to bring the artistic

medium more in touch with new materials and technological transformations. As Klüver states, the theatrical, interactive environment of the installation, with its 210 degree spherical mirror, fog atmosphere, a programmable surround-sound system, and kinetic sculptures called “floats” should encourage, instead of a fixed narrative of events, live-programming that involves an experience of choice, freedom, and participation. The pavilion is one of the first projects of an *immersive space* that predates the virtual reality that engages the viewer through electronic and digital media. By extending and transforming the physical space, it gave the individuals the liberty of shaping their own reality and sequence of events.

Both Diller and Scofidio’s Blur building and E.A.T.’s Pepsi pavilion rely on a kind of physiological architecture and its synaesthetic immersions such as sound, visual effects, humidity within an artificial environment. They project active, sensitive territories, involving, in the process of perception, multiple modes of awareness of the senses, in the retina, by breathing, the enforcement of orientation, views, ambiance, aura. These psychogeographical aspects of the material yet invisible, elusive, microscopic dimensions of space conceptually address the mood, atmosphere, and conscious invention of a new reality and a new event structure of architecture.

Though the digital and the analogue world, or the virtual and the physical reality, seem to suggest contrasting different concepts of space, one can doubt the multiplicity of different spaces. Digital images, animated movies and Novak’s concept of invisible architecture of virtuality, likewise, involve atmospheric immersion and affective intensity. Maybe one of the most vital aspects of digital innovation and change is the interference between architecture and the user. Virtual space, too, engages an intertwinement with the space of bodily presence, it can be experienced as sphere that creates in the viewer emotional response. For there is no concept of spatiality without presence of the body, or, as Adolf Hildebrand suggested in 1893, the individual objects exist not as something within external boundaries but rather as parts internally animated by their “own capacity to evoke and stimulate our idea of space.”²⁶

Notes

- 1 Elisabeth Grosz, “Architecture from the Outside,” in Cynthia Davidson, ed., *Anyplace*. New York: Any Corporation, 1995, p. 21.
- 2 Gilles Deleuze, Félix Guattari, *A Thousand Plateaus*. Minneapolis: University of Minnesota Press, 1987, p. 63.
- 3 Sanford Kwinter, “The Reinvention of Geometry,” in *arch+* 117. 1993, p. 83.
- 4 Gilles Deleuze, *Bergsonism*. New York: Zone Books, 1988, p. 142.
- 5 Greg Lynn, “An Advanced Form of Movement,” in *Architectural Design* 67. 1997/5+6, pp. 54-56.
- 6 Brian Massumi, “Sensing the Virtual, Building the Insensible,” in *Architectural Design*, vol. 5/6, no. 68: *Hypersurface Architecture*, p. 20.

- 7 Rem Koolhaas, "Bigness, or the Problem of Large," in Rem Koolhaas, Bruce Mau, *S, M, L, XL*. New York: Monacelli Press, 1995, pp. 506f.
- 8 Robert E. Somol, Sarah Whiting, "Notes around the Doppler Effect and other Moods of Modernism," *Perspecta* 33, pp. 74f.
- 9 Marshall McLuhan, *Understanding Media, The Extensions of Man*, London: ARK, 1987, p. 39.
- 10 Peter Eisenman, "Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign," in K. Michael Hays, ed., *Oppositions Reader*, New York: Princeton Architectural Press, 1998, p. 191.
- 11 Robert E. Somol, Sarah Whiting, "Notes around the Doppler Effect and other Moods of Modernism," *Perspecta* 33, pp. 74f.
- 12 Michael Fried, "Art and Objecthood", in: *Artforum*, vol. 5, no. 10 (June 1967), reprinted in: Gregory Battcock, ed., *Minimal Art: A Critical Anthology*, New York: E.P. Dutton, 1968, pp. 116-47.
- 13 Michael Fried, "Art and Objecthood," p. 20.
- 14 Michael Fried, "Form as Shape", in: *Art and Objecthood, Essays and Reviews*, Chicago, London: University of Chicago Press, 1998, p. 42.
- 15 Paraphrasing Michael Fried's notion of the *objecthood* of minimal art, Pier Vittorio Aureli claims that architecture by Koolhaas, Herzog & de Meuron, Diller + Scofidio, or MVRDV is merely concerned with its *contenthood*. For Aureli, "the superficiality of Shape is nothing but the solidification of excess content, metaphors, meanings, and symbols without sense... Shapes can be interpreted as hieroglyphics; incomprehensible, yet their stubbornly figurative and symbolic character wants to be deciphered." Pier Vittorio Aureli, "Architecture and Content: Who's Afraid of the Form-Object?," in *Log*, Fall 2004, pp. 29f.
- 16 Robert Somol, "12 Reasons to Get Back into Shape," in Rem Koolhaas, AMOMA et al., *Content*. Köln: Taschen, 2004, pp. 86f-87.
- 17 Robert Somol, "12 Reasons to Get Back into Shape," in Rem Koolhaas, AMOMA et al., *Content*. Köln: Taschen, 2004, pp. 86f-87.
- 18 Peter Cook, "Control and Choice," reprinted in Peter Cook, ed., *Archigram*, London: Studio Vista, 1972, p. 68.
- 19 Utopian visions of other worlds, other times and other states of mind, and the quest of ideal society always function as social and political criticism. According to Henri Lefebvre, "utopia has been discredited, it is necessary to rehabilitate it. Utopia is never realized and yet it is indispensable to stimulate change." Guy Debord's *Society of the Spectacle* and Raoul Vaneigem's *The Revolution of Everyday Life* presumes the total alienation of social relations in a space that is a mere collection of images, a stratum of commodities. Emphasizing the importance of imagination and encounters by chance in everyday life to change our perception of urban space, Debord argues that people should become aware of the ephemeral nature of the city and the next civilization to come. Henri Lefebvre, in Patricia Latour, Francis Combes, *Conversation avec Henri Lefebvre*, Paris: Messidor, 1991, pp. 18f.
- 20 Reyner Banham, "Softer Hardware," in: *Ark*, Sommer 1969, p. 11.
- 21 Michel Tapié, *Un Art autre*, Paris: Gabriel Giraud et Fils, 1952.
- 22 Rem Koolhaas, "Junkspace," in Rem Koolhaas, AMOMA et al., *Content*. Köln: Taschen, 2004, p. 171.
- 23 Sylvia Lavin, "Plasticity at Work," in: Jeffrey Kipnis, Annetta Massie, ed., *Mood River*, Columbus, Ohio: Wexner Center for the Arts, 2002, p. 80.
- 24 Elisabeth Diller, *Blur Building, Yverdon-les-Bains, Swiss Expo.02*. in *Information zur Raumentwicklung*, 1.2005, pp. 15-16.
- 25 Randall Packer, "The Pepsi Pavilion: Laboratory for Social Experimentation," in Jeffrey Shaw, Peter Weibel, eds., *Future Cinema. The Cinematic Imaginary After Film*. Cambridge, Mass.: The MIT Press, 2003.
- 26 Adolf Hildebrand, *Das Problem der Form in der bildenden Kunst* (1893), (The problem of form in the fine arts), in: Adolf Hildebrand: *Gesammelte Schriften zur Kunst*, Cologne: Westdeutscher Verlag, 1969, reprinted in: Mallgrave, Eleftherios Ikononou, ed., *Empathy, Form and Space, Problems in German Aesthetics, 1873-1893*, Santa Monica, CA: Getty Center for the History of Art and the Humanities, 1994, p. 239.