

**Zeitschrift:** Trans : Publikationsreihe des Fachvereins der Studierenden am Departement Architektur der ETH Zürich  
**Herausgeber:** Departement Architektur der ETH Zürich  
**Band:** - (2009)  
**Heft:** 15

**Artikel:** Transubstance : between substance, surface and vacuum  
**Autor:** Ufnalska, Zuzanna  
**DOI:** <https://doi.org/10.5169/seals-918938>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 04.12.2025

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

## Transubstance

### Between Substance, Surface, and Vacuum

At the turn of century many architects worldwide show intensive interest in surface as an element of architectural form. A philosophical metaphor of the fold has attracted special attention by apparent readiness of application in the form of multi-curved continuous surfaces. However, as Anthony Vidler argues, the fold could in no way be replicated simply by a curved surface, while “to say that folds are manifested in ‘pleats of matter’ is not simply to refer to a crease in a piece of cloth; matter is, in these terms, everywhere, in the void as well as in the solid and subject to the same forces,” and further continues to say, that the concept of fold just refers to Leibniz’s concept of space as a “thick and full, container and contained, it recognizes no distinction between the solid and the void.”<sup>1</sup> From that point of view, the concept of the fold is primarily a fundamental critique on the duality of space- and masselements, as it is outlined by Norberg-Schulz through the development of his theory of form. According to it, the notion of space has evolved as a conceptual negative of mass, a vacuum, a neutral background, against which masses are placed as figures, delineated by surfaces as boundaries.<sup>2</sup> Masses are basically volumes of space, yet such ones which acquire figurative properties, and thus are perceived as apparently full of matter, full of substance and solid. Delineation by opaque and closed surface is the most evident condition of space, which becomes figural and consequently massive. From that point of view, the curved surfaces of many recent designs, while claiming inspiration by fold, just turn out to be about the same duality between mass and space. According to Vidler’s polemic, when thinking of fold in the context of architecture, it is primarily about questioning a relation of figure and background, between mass and space. Enabled by the concept of the fold, surface can be understood as a means of eroding boundaries rather than reinforce them. (fig. 1)



Fig. 2, *Transubstance workshop*, structure made of air in the air, Bergün/Switzerland, 2005, photo by Paolo Tringali.

The workshop *Transubstance* took special interest in surface-elements as boundaries of a potential mass. As Rudolf Arnheim notes, “boundaries are the precarious products of opposing forces,”<sup>3</sup> and in fact a figure-background relation can be reversed both due to qualities of boundary, that is surface, as well as the qualities of bounded space. Thus in the workshop, we looked at surfaces not as passive elements subordinated to mass, but as an active medium of transition between the substance of mass and the vacuum of space: a transubstance. However, rather than start with forms and formal qualities, we developed highly conceptual and subversive argument, while asking ourselves several questions, like “What is the surface of darkness like?,” “What is the surface of air like?” or “How superficial is the surface?” and “How deep is the surface?” The questions could be encountered with two strategies. The first



Fig. 1, Leonardo Erlich, *installation*, on exhibition, in: SANAA, 21st Century Museum, Kanazawa/Japan, 2001, photo by Zuzanna Ufnalska.

strategy turned into asking about surface of phenomena, which are commonly understood not to have a surface or boundary.<sup>4</sup> That common understanding is well reflected by Leonardo da Vinci's presumption about two kinds of bodies, "of which the first is without the shape or any distinct or definite extremities [...]. The second kind of visible bodies is that of which the surface defines and distinguishes the shape."<sup>5</sup> As Terrence Riley argues, that presumption seems to be not valid anymore, as phenomena actually possess surfaces, but only so complex ones, that no earlier than fractal geometry was capable to describe them.<sup>6</sup> In the workshop, first strategy attempted to imagine those phenomena surfaces. Finally it made us imagine almost Leibniz a space "full of matter," or possibly full of that complex surface, which is overtaking both former substance and vacuum. The second strategy was dealing with things which commonly have surfaces. However, we approached those "obvious" surfaces in a way to deny any substance behind them. If surface is crucial for constituting substance as figure, could we question the existence of that substance by any operation upon the surface to possibly dissolve it or even erase it into vacuum again?

Following that conceptual discussion, the workshop aimed to make a spatial installation in the context of the village which would allow anybody to experience transubstance. The concept relevant to question about surface of the air was realized as a structure conceptually "made out of air in the air," from several plastic bags inflated and joined. (fig.2) The structure turned out to be not only physically transparent, but also surprisingly "almost" self-supportive, actually easily lifted by any gust of wind. It also had an indefinite form in the sense that it could take on various unstable forms in relation to wind or our bodies. (fig. 3) The structure "made out of air in the air" brought up a different imagination of space, which surrounded the structure itself. It could be actually be the same as the structure, that is then "full of surface," a Leibnizian space "full of matter," not a spatial vacuum anymore. The structure happened also to be truly ethereal, finally denying even its own substantiality by "disappearing" by the next morning, when air pressure had escaped from the bags. The people from the village kept it in their memory as an "angel." As short as its life was, they still managed to name it.

On the other hand, the concept of "superficial surface" was approached by several projections of graphics upon existing environments to create a sense of spatial or symbolic dislocation. A graphic of local wooden roof tiles was projected on the walls of the workshop building, or a graphic of a scar was

1 Anthony Vidler, *Warped space*, Cambridge: MIT Press 2000, pp. 224–225.

2 Christian Norberg-Schulz, *Intentions in architecture*, Cambridge: MIT Press 1997 (1965), p. 134.

3 Rudolf Arnheim, *The Dynamics of architectural form*, Berkeley: University of California Press, 1978, p. 73.

4 Avrum Stroll, *Surfaces*, Minnesota: University of Minnesota Press 1989, p. 32.

5 Leonardo da Vinci, *The Notebooks of Leonardo da Vinci*, translated by Edward MacCurdy, London: Cape 1977.  
After Terence Riley, "Light Construction," in: *Light Construction*, New York: MoMA 1995, p. 19.





Fig. 3, *Transubstance workshop*, structure made of air in the air, Bergun/Switzerland, 2005, photo by Paolo Tringali.

projected on the ground. Apart from the contradiction between the articulation and the scales of graphic and surface, there was also a symbolic clash of an image and an object. The work with symbolism was continued by projections of various texts onto people's bodies. The installation of "superficial surface" brought attention toward relativity of existing surfaces, which surround us, and the existence of the specific thing behind them, which we take for granted everyday. By simple projections, the "superficial surface" put into question that substantiality of a thing. It made us imagine a vacuum behind the surface, or "other" space behind the surface. Moreover, on the rebound it questioned the nature of space, from where we, as observers, actually look at things. In both cases, work on the installations continued with a similar experimental character as the conceptual discussion, and opened it further, rather than to bringing it to a conclusion.

Recently, the relation of figure and background between mass and space, and the role of surface in their reformulation, are further investigated in projects by the contemporary Japanese architects Toyo Ito and Kazuyo Sejima. My current research focuses on formal analysis, and by that approach aims to contribute to the architectural discourse on the fold, when arguments lose their formal precision in the overwhelming climate of interdisciplinary inspirations. It takes as a point of departure the polemic on the fold by Anthony Vidler, as cited earlier. In particular, Ito's practice contributes to that polemic in a special way, as his approach toward surface evolved gradually through an interest in non-materiality. Ito himself retrospectively makes a remark, "I was so centered on the problem of surface. This superficiality was transformed into an image of lightness of floating, and develops into the theme of non-materiality, which I think pervades all my architecture."<sup>7</sup> At the beginning of the 1980's his major interest was in transparent lightweight surfaces, unlike massive forms, with the aim to deny materiality, that is visibility and weight of substance. However, in his writing over the course of the 1990's can be observed an evolution from "superficiality" and "ethereality" toward "fluidity" and "diffusion," which suggests Ito's early intuitions, that experience of non-materiality can not be realized by denial of massiveness, but rather by specific formal organization of masses and spaces. That was sensed already by Terence Riley, curator of the MoMA exhibition *Light Architecture* in 1995, as a tendency of a whole generation of architects, already including Ito and Sejima. He attempted to define a



Fig. 4. SANAA, 21st Century Museum, Kanazawa/Japan, 2001, photo by Zuzanna Ufnalska.

different lightness, away from dual distinction of transparencies made by Colin Rowe and Robert Slutzky, toward lightness of opaque outer “skin.”<sup>8</sup> Ito’s work by that time was associated with that category.

However, origins of his involvement with lightness, that is non-materiality, seems to direct his design method in a very original way over the course of the 1990’s up to very recent projects. Close analysis of his method reveals the actual complexity of recent surfaces, which form difficult hybrids, to refer to Rowe’s duality, of literal non-materiality and phenomenal non-materiality, that is which is inherent to formal organization, and moreover, named after Riley, materiality of “skins.” For the formation of his method, his work on the competition for the multimedia library in Sendai (1995–2000) is crucial, where the planes visual lightness of the elements from the competition proposal was confronted with thickness and opaqueness of the realization. In recent projects, for example a cultural center in Ghent (2004–unfinished), he arrives at the form of the folded surface. Despite close resemblance to some recent designs by avant-garde architects, the fold in Ito’s work results from his constant work on formal organization of mass and space as a struggle between substance and vacuum toward the ideal lightness of non-materiality. In that sense, Ito’s work is just a material realization of Vidler’s dilemma between fold and multi-curvilinear folded surface. That recent lightness in Ito’s and Sejima’s works, if not ethereal anymore, brings up a new kind of lightness. It is a lightness of “the surface-only,” beyond confrontation with “the other,” a body of mass. That evolution in a way was grasped by curator Yuko Hasegawa in relation to recent works by Sejima, for example by writing about the art museum in Kanazawa (1999–2004): “There are numerous interpretations of lightness. There is physical lightness, the immateriality suggested by transparent materials [...], the lightness of a hollow shell, freedom from gravity, the lightness of being open to everyone, the abstract lightness to escape from the weight of reality, and the lightness that derives from the negation of the self.”<sup>9</sup> (fig. 4) The lightness, which “derives from negation of the self,” is lightness beyond substance, as well as lightness beyond vacuum, it is the lightness of transubstance.

Zuzanna Ufnalska is Ph.D. at Warsaw University of Technology / Poland. She is currently researching at Nagoya University / Japan.

- 6 Terence Riley, “Light Construction,” in: *Light Construction*, New York: MoMA 1995, p. 19.
- 7 Toyo Ito / Koji Taki, “A conversation with Toyo Ito,” in: *Croquis* (1995), vol. 71, p. 16.
- 8 Terence Riley, “Light Construction,” in: *Light Construction*, New York: MOMA 1995, p. 16.
- 9 Yuko Hasegawa, “Polyphony,” in: *Polyphony. Emerging Resonances*, Kanazawa: 21st Museum of Contemporary Art 2005, p. 29.