

## Research Paper

# Sacred surfaces: understanding the thickness of appearances from the primitive hut to parametric architecture

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### Abstract

When thinking about traditional Iranian architecture, one imagines extensive ornamental patterns that adorn almost every surface of mosques and other prominent buildings. Yet, many theories of architecture since the beginning of twentieth century have considered ornamentation a superficial and superfluous layer. But, are these ornamental surfaces superficial and can they be removed so easily? This paper uses a qualitative research methodology based on theoretical cross examination and critical analysis to highlight the significance of surface and appearances in architecture and argue that formulating a strategy to adorn architecture is in fact the generating gene of every architectural movement, from Modernism to Postmodernism and even to Parametricism of recent times. By setting up a philosophical and a theoretical discourse about the notion of surface and the various metaphors used in architectural theory, this paper concludes that from the woven walls of first architectural spaces to the clothed walls of modern times, surfaces have played a sacred role in architecture, and rather than being superficial barriers that mask reality, they are indeed the very materials with which architects demarcate space and create new aesthetics.

**Keywords:** Architectural theory, Surface, Ornament, Modernism, Postmodernism, Parametricism.

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## 1. INTRODUCTION

The following theoretical reflection upon the issue of surface in architecture is presented within a context that is imbued with a well-established history of surface ornamentation: Iranian art and architecture is renowned for its extensive decorative surfaces, painstakingly put together in small pieces, which adorn almost all objects, from the smallest of jewels to the largest of buildings.

Since the dawn of Modernism in culture, art and architecture of early twentieth century, the issue of ornament and surface decoration has been highlighted in different discourses and manifestoes. Such debates have followed a long line of questions about how to beautify buildings, which have generated different architectural styles and theories throughout history. The question that has preoccupied everyone since the beginning of written history has been how to make good buildings that are both pleasing to the eye and perform their duties in the best manner? Perhaps this can be summarised in the words of Vitruvius, (the Roman architect and engineer from 1<sup>st</sup> Century BC,) who posited that architecture must exhibit three qualities: *commodity, firmness and delight*.<sup>1</sup>

There is often very little debate about the first two

qualities. However, in how to produce “delight” there have always been different opinions. For many people, their most interaction with the environment occurs through sight and in this process surfaces have a key role, since they facilitate seeing. However, what appears to one person’s eyes is not always a good representation of reality, since the image perceived through surfaces maybe limited, distorted or even simulated. This is where questions about surface, appearance and reality come into play, sparking a debate, which dates back to the earliest of philosophical writings.



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**Fig. 1** Sacred surfaces in Iran. Traditional Iranian architecture is renowned for its geometric forms and decorative surfaces. To remove these ornamental layers would be like removing a tattoo from skin. Source: the author.

## 2. RESEARCH METHODOLOGY

This paper is based on a qualitative research that cross-examines key texts from architectural theory and philosophy that have been gathered together from years of teaching and study in Iran and abroad. The methodology is one of critical analysis, theoretical discourse and synthesis, which aim to open up different perspectives and models of thought. The main ingredients used in this research are obtained from original sources in libraries and online databases.

## 3. WHAT IS SURFACE AND APPEARANCE?

The issue of surface and appearances has been approached from philosophical, theoretical and even scientific perspectives, each proposing a different understanding of their role in our perception of the world. Before tracing the effects of such inquiries onto architectural theory and praxis, we shall contemplate what we mean by these terms and what these words imply about our way of thought and our way of interacting with the world surrounding us.

For most people, sight is their initial mode of interaction and surfaces the first place of contact with architecture. The Oxford English Dictionary defines “surface” as “the outermost part of a material body; the uppermost layer; esp. in art or manufacture, an exterior of a particular form or ‘finish’.”<sup>2</sup> While surface implicates exteriority, its derivative, the “superficial” has much more negative undertones: “usually denoting that part or aspect of anything which presents itself to a slight or casual mental view, or which is perceived without examination.”<sup>3</sup> Thus, “superficial” implies shallowness and insubstantiality, both physically and intellectually. This might be a reference to the geometric definition of surface: “a magnitude or continuous extent having only two dimensions (length and breadth, without thickness).”<sup>4</sup> Therefore, superficial betrays surface by associating it with *insubstantiality, thinness and masking*.

However, the English philosopher, Avrum Stroll offers

an intriguing insight into the usage of the word “surface” in the English language. He investigates the definition of surface through what he calls the “geometry of ordinary speech”, which is used to arrive at a series of “theorems” based on a “common-sense point of view.”<sup>5</sup> Stroll’s findings demonstrate that there can be abstract and physical conceptions of surface.<sup>6</sup> One of the physical conceptions, which is taken from an ordinary person’s point of view (‘OS model’), defines surface as part of the object deep enough to become marked and scratched. Thus, with this conception, it is possible to argue that surface is not purely two-dimensional as it can be a boundary that has a *thickness* upon (and within) which various physical operations can be performed.<sup>7</sup>

Surface also suffers from accusations of masking what lies behind it. The traditional perception of surfaces states they are “intermediaries, standing, as it were, between the observer and certain parts, aspects, or features of the object, or even standing between the observer and the whole object itself.”<sup>8</sup> Expressions like “it was not as it appeared on the surface” or “to scratch the surface of something” imply that true reality lies behind surfaces, which must be ruptured, penetrated or removed.

“Surface effect” conjures up multiple meanings. Notions of “illusion” and “impression” are implied with “effect,”<sup>9</sup> which refer to a problematic relationship between effects and reality. Surface effects are generally visible and constitute the “appearance” of objects. As a noun, “appearance” refers to the way something looks, the impression something or someone gives.<sup>10</sup>

“Appearance” conjures up notions of “image,” which, in traditional models of thought, has a difficult relationship with reality: it is either a partial aspect of reality, an inferior copy of reality or mere illusory appearance.<sup>11</sup> The relationship between image and reality has long been discussed in philosophy from Plato to Baudrillard, Derrida and Deleuze in recent times.<sup>12</sup>

Combining Stroll’s “physical” conceptions with James J. Gibson’s “theory of surface layout”<sup>13</sup> one can arrive at an understanding of surface that does not define it as a masking barrier (as depicted in the Platonic cave<sup>14</sup>) but as the *facilitator of seeing*. If traditional metaphysical models define surface as a line of separation and its effects as marginal categories, the proposed conception of surface considers it as *medium*: a means to an end and an in-between milieu that is more than a “logical limit or conceptual limit” of a category, entity or object.<sup>15</sup> In the resultant epistemological position, the traditional penetration of surface (to uncover a deep and hidden reality) transforms to surface exploration since depth is either thickness or an effect of surface layout. In this model of thought, emphasis shifts from surface/depth opposition to an *exploration of surface/surface relationships*.<sup>16</sup>

## 4. THE THICKNESS OF APPEARANCES IN ARCHITECTURE

The appearance of a building is highly important not only for the architect, but also for the client, the end-user, the general public, and sometimes for establishing cultural

identity or national pride. Seeing a building marks the first moment of interaction, interpretation and judgement and as a result every architect invests considerable effort to respond to certain standards of beauty and style. Precisely because making a good first impression is important, most radical shifts in architectural theory (Modernism, Postmodernism, Deconstruction And Parametricism) involve a refashioning of buildings' appearances.

The appearance of a building is often discussed in opposition to the way it is constructed, which is associated with "the reality of things." Notions of "skin," "cladding," "ornament," or "image," are contrasted to that which lies beneath or beyond: either the structure that allows appearances to exist or the original idea that visible appearances allude to.

In architectural discourses, talk of appearances manifests itself in different debates. One of the most influential of these is the ornament debate, which became very pronounced in early twentieth century and helped lay the foundations of the Modernist movement in architecture and its subsequent successors. The following elaborates how the ornament debate established and popularised a particular model of thought in which appearances assumed a thickness and became foreign to the main "body" of architecture.

#### 4.1 From the woven wall to the clothed wall

If Foster's essay in *Design and Crime: and Other Diatribes* (2005) warns against spectacle-effects and the reduction of architecture into image and capital, over a hundred years ago Adolf Loos's essay "Ornament and Crime" (1908) warned against the degeneration of architecture through excessive ornamentation. Both essays rely on conceptions of ornament as an act of *covering*: either the modernist formulation of ornament as a layer of clothing or cladding,<sup>17</sup> or the conception of spectacle as an image and appearance that masks the viewer from authentic reality.

In normal use, clothing is a layer, which is not only detached from the body, but it is also of a different material and of a different nature. Clothing can easily be taken off and replaced with another layer. It is a temporary commodity associated with style, fashion, gender and social status. As a verb, "clothing" is defined as "the action of covering or providing with clothes; dressing."<sup>18</sup> The important element in this definition is *covering* which implies opacity and concealment.

The term "cladding" has a similar nature. Cladding is "a coating or covering applied to the surface of an object, a building, etc." Like clothing, cladding implies detachability and covering. It is a layer that is applied afterwards and can be removed in order to expose the underlying, original body. Both clothing and cladding are terms that denote the upper and outer layer, which is foreign and separate from the primary architectural elements.

Although the conception of architecture as clothed can be traced back to Vitruvius or even earlier,<sup>19</sup> the point of departure for the ornament debate is Gottfried Semper's<sup>20</sup>

"Principle of Dressing" [Prinzip der Bekleidung] formulated in the mid-nineteenth century, which heavily influenced later theories like Adolf Loos's "Law of Dressing" (Gesetz der Bekleidung), which became influential for the "modernist movement" in architecture.

In late nineteenth century, Gottfried Semper disagreed with Marc-Antoine Laugier's illustration of the "Primitive Hut" and associated the origins of architecture with the production of decorative textiles, rather than structural elements like columns.<sup>21</sup> According to Semper, architecture did not originate in the construction of a wooden shelter that is later supplemented by ornamental layers, "rather, it was with all the simplicity of its basic forms highly decorated and glittering from the start, since its childhood."<sup>22</sup>

Thus, Semper argued that in early buildings, the colourful textile was the primary architectural element and the supporting structure had a secondary function in space-making:

Hanging carpets remained the true walls, the visible boundaries of space. The often solid walls behind them were necessary for reasons that had nothing to do with the creation of space the carpets remained the original means of separating space. Even where building solid walls became necessary, the latter were only the inner, invisible structure hidden behind the true and legitimate representatives of the wall, the colourful woven carpets.<sup>23</sup>

Central to Semper's arguments were the ethnographic data, which he used to demonstrate that the production of textile wall mats came *before* the development of clothing. He argued that before the invention of clothing, the woven textile designated spatial boundaries, established the idea of family and the very first notion of social community. Moreover, as primitive dwellings took shape, the motifs and patterns on the textile surfaces began to communicate social, cultural and ideological identity.<sup>24</sup> Therefore, for Semper the production of the woven surface marks the first instance of architectural production: "...the beginning of building coincides with the beginning of textiles."<sup>25</sup> In this model of thought, *surface assumes a thickness and is responsible for the most fundamental architectural act.*

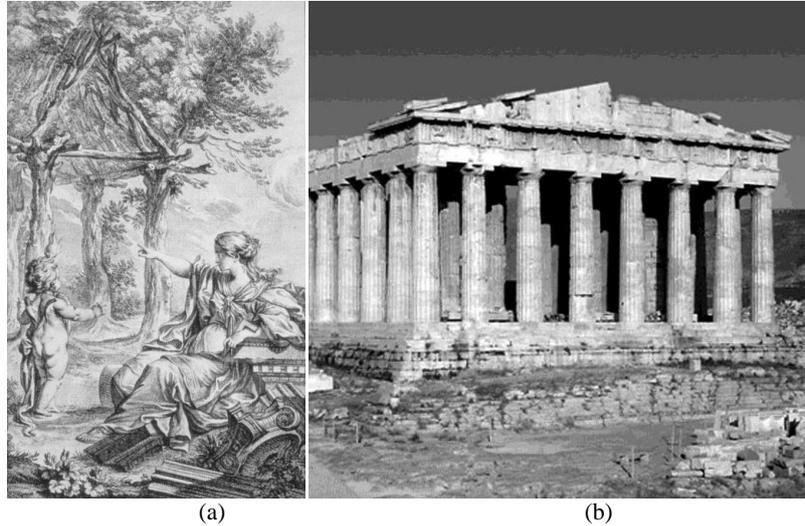
The textile wall is different from a clothed wall because it is a unitary concept. In this conception, the wall is a double-sided architectural surface that is responsible for the demarcation of space and the visual expression of personal and cultural motifs. For Semper, the development of the wall as we know it today, was a response to the need for a warmer, more solid and durable support behind the textile surface. This had the effect of making the textile a dressing layer, which later transformed to "surrogate dressings," such as stucco, wood and or other panelling. In this model of thought, these dressings are not secondary layers, but instead different manifestations of the original textile wall which was responsible for the demarcation of space and the expression of artistic creativity. Thus, the structure that supports such surface ornamentation is in fact "foreign to the original idea of spatial enclosure."<sup>26</sup>

In other words, the first architectural act occurs upon surfaces and through surface effects, which have a *physical thickness* (not an abstract two dimensionality)

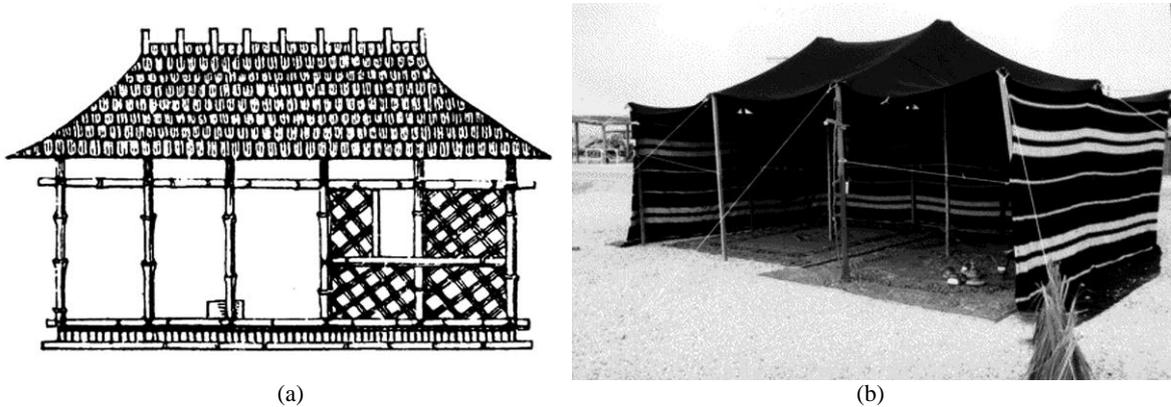
through which creativity, culture and other concepts are communicated. Consequently, architecture is the manipulation of surfaces, images and symbolic motifs, not just for the demarcation of space, but also for visualization, simulation and communication. Mark Wigley writes:

[For Semper] Architecture begins with ornament.

Strictly speaking, it is only the decoration that is structural. There is no building without decoration. It is decoration that builds Space, house, and social structure arrive with ornament. The interior is not defined by a continuous enclosure of walls but by the folds, twists, and turns in an often discontinuous ornamental surface.<sup>27</sup>



**Fig. 2** Marc-Atoine Laugier’s depiction of the primitive Hut. He states that the pieces of wood give us the idea of columns like much of great architecture of the classical era. This image is the iconic illustration by French artist Charles Eisen for Laugier’s book. Image from MIT Libraries’ collections. Retrieved from: <http://dome.mit.edu/handle/1721.3/2022>



**Fig. 3** Gottfried Semper’s primitive hut is based on the conception of the wall as a woven mat or carpet, which is already decorated and colourful from the beginning. First image is from Semper, *The Four Elements of Architecture*. Retrieved from <http://dome.mit.edu/handle/1721.3/21257>. Second and fourth images are retrieved from <http://www.jordanbeauty.com>. Third image is by the author

By associating weaving with architecture before the invention of clothing, Semper's theory of the textile wall avoided the hierarchies of gender and the detachability of clothing. The textile wall allocated the essence of architecture to the *visible surface and thickness of its appearance*.

Semper's theories became a source of inspiration for the architects that followed him. However, his textile wall was quickly replaced with a similar but very different concept, i.e. the *clothed wall*. If the woven wall was a double-sided surface, the clothed wall became one-sided, viewed mainly from the outside. This meant that ornament transformed from surface expression to a foreign layer, applied mainly to the outside, which *covered* the primary and structural elements of architecture. Thus, instead of thickening the visual surface to accommodate the necessity for solidity and warmth, ornamental surfaces were *thinned-out* as they were declared superficial layers that were detachable from the body of architecture.

#### 4.1.1. A modern suit for architecture

Perhaps the most influential movement in art and architecture of the twentieth century is the Modern movement, so much so that many theoretical shifts that have come after it are still echoes and responses to the theories of the modern movement. In this context, the writings of two architects have had considerable influence in shaping attitudes towards ornament and surface effects in architecture.

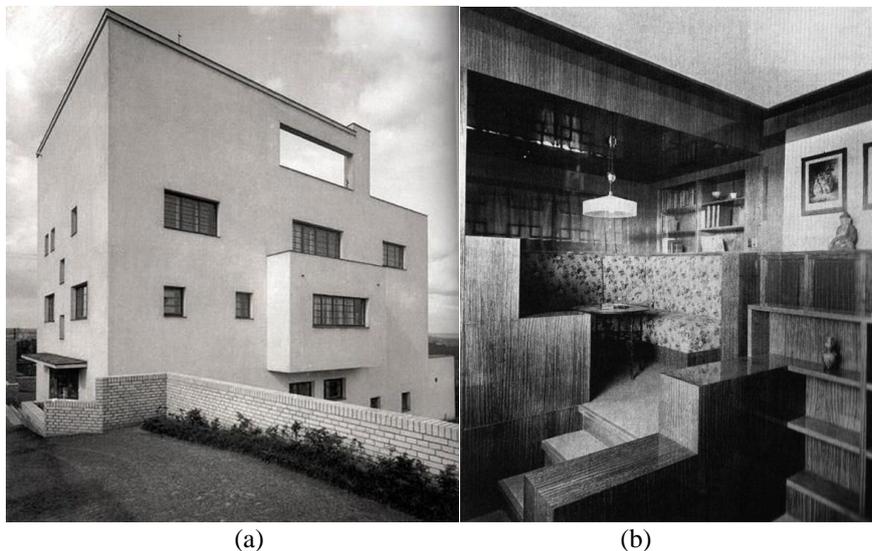
Both Adolf Loos and Le Corbusier acknowledged Semper's "Principle of Dressing" and the textile origins of architecture.<sup>28</sup> Loos for example, admits that "[t]he

covering is the oldest architectural detail"<sup>29</sup> or "cladding is older even than structure."<sup>30</sup> However, their theories construct a very different approach towards the principle of cladding. In his famous essay "Ornament and Crime" (1908), Loos sets up his theories by declaring surface ornamentation as a primitive act and a sign of degradation:

One can measure the culture of a country by the degree to which its lavatory walls are daubed. With children it is a natural phenomenon: their first artistic expression is to scrawl on the walls erotic symbols. But what is natural to the Papuan and the child is a symptom of degeneration in the modern man. I have made the following observation and have announced it to the world: *the evolution of culture is synonymous with the removal of ornament from objects of daily use*.<sup>31</sup>

Unlike Semper who associates ornamentation with the origins of architecture, Loos associates ornament with the primitive, defined as an uncultured and a backward state. Words like "daubed" or "lavatory walls" indicate Loos's conception of ornament as a repulsive, superficial layer that is applied well after the construction of the wall. If for Semper ornament represented the textile origins of architecture and the primary role of the wall as a symbolic, communicative and space-defining surface, for Loos, ornamentation was a sign of degeneration associated with a criminal's tattoo or the immaturity of a child:

When man is born, his instincts are those of a newborn dog. His childhood runs through all the changes corresponding to the history of mankind. The urge to decorate one's face and everything in reach is the origin of the graphic arts but what is natural for a Papuan and a child, is degenerate for modern man.<sup>32</sup>



**Fig. 4** Adolf Loos's approach to architecture: a modern (masculine) suit for the outside, which allows the inside to remain a warm, private and feminine place for family. Thus, the exterior surfaces are ornamentally mute, being painted a modern white, while the interior is animated with different views, floor levels, warm wooden panels, carpets, picture frames and period furniture. Retrieved from <https://www.studyblue.com/notes/note/n/5120-midterm-1/deck/9703938>

What occurs in Loos's theories (which influences the modernist manifestos) is a formulation of an attitude towards ornament as excessive or superfluous. However, Loos was not in favour of the complete removal of this covering layer. Instead, he advocated a particular style that was efficient, modern, civilized, and dignified. In order to illustrate his concepts, Loos compared architectural ornamentation with men's clothing, which he argued to be more advanced than women's. Unlike the textile wall, the metaphor of clothing implies a difference between the feminine and the masculine. Here, gender divides the unitary concept of the wall. Loos saw "good" clothing as a neutral, masking layer that must not be a disguise. In this context, dressing must not simulate the materials they cover, they should only "reveal clearly their own meaning as dressing for the wall surface," identifying their separation from structure. Thus, "wood may be painted any colour except one – the colour of wood."<sup>34</sup> The key themes are honesty to materials, transparency of communication and a desire for authenticity. The transparency of communication however, is not literal transparency or nakedness, it is rather truthfulness and clarity of expression.

Many architects of early twentieth century were inspired by Loos's theories. The white walls of the International Style<sup>35</sup> were not only a move towards notions of purity and clarity, but also an indication of the desire for a style of architecture that would have lasting appeal. But, these modern walls were not naked. In fact their appearance was carefully orchestrated, albeit appearances that were reduced to a thin layer of white paint. Mark Wigley has demonstrated that despite common belief, the white walls of modernism that replaced the ornamental styles of nineteenth century were not any different in their ornamental operation.<sup>36</sup> In other words, the thin layers of white paint were clothing architecture and "The modern building is only modern because it is like a modern outfit."<sup>37</sup> In this way, the modernists promoted a new style for architecture represented by the *white suit* that was easily mass-produced and brought uniformity, the comfort of belonging and a sense of modernisation for the masses.

#### 4.1.2. A swimsuit for architecture

The metaphor of clothing implied notions of covering, but it simultaneously inspired its opposite: the concept of *revealing*. Both are necessary elements of the clothing metaphor. If most modern clothing hides certain aspects of the body, it is nonetheless designed in such a way that it reveals the presence of the body behind. It is for this reason that clothing is ordered and governed by the logic and the proportions of the human body.

Amongst those who promoted *revealing* in the metaphor of clothing was Le Corbusier. According to Beatriz Colomina, Le Corbusier's architecture was

characterized by a desire for *uncovering*, exposure and the dominance of the gaze.<sup>38</sup> Unlike Loos for whom, men's fashion was a model of modernity, for Le Corbusier, female clothing became applaudable because it exposed the charms of the body:

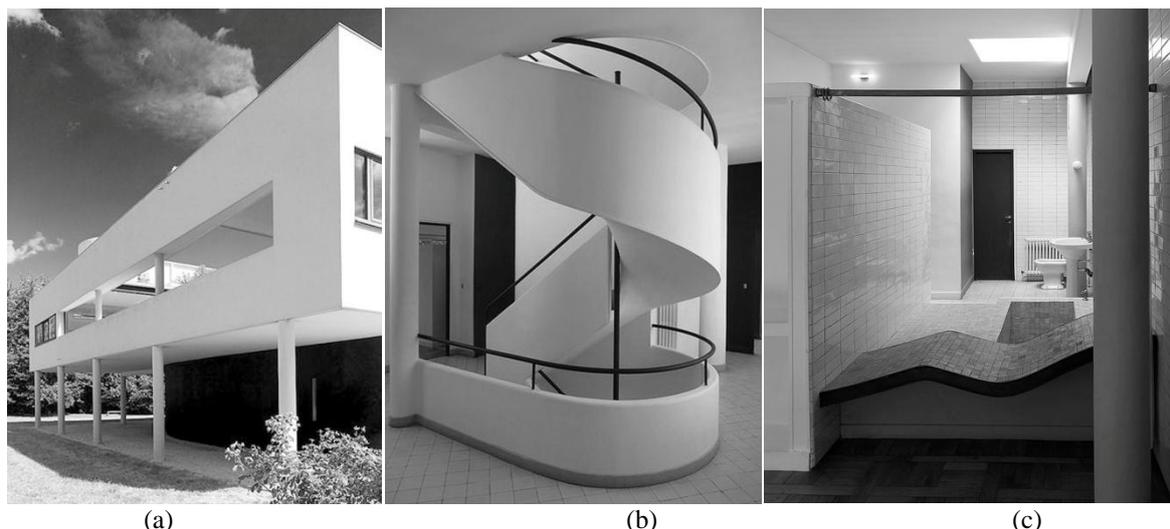
Woman has preceded us. She has carried out the reform of her dress. She found herself at a dead end: to follow fashion and, then, give up the advantages of modern techniques, of modern life. So, woman cut her hair and her skirts and her sleeves. She goes out bareheaded, bare-armed, with her legs free. And she can dress in five minutes. And she is beautiful; she seduces us with the charm of her graces of which the designers have admitted taking advantage. The courage, the liveliness, the spirit of invention with which woman has revolutionized her dress are a miracle of modern times. Thank you!<sup>39</sup>

For Le Corbusier, women's clothing is modern not only because it allows the body to move freely, but also because there is less of it. Much like Loos, Le Corbusier does not promote total nudity; the transparency he applauds is limited and carefully orchestrated. The result is a progression towards the *thinning out* of the ornamental layer, which marks the beginning of seduction. Wigley writes:

For civilization to progress from the sensual to the visual, the sensuality of clothes has to be removed to reveal the formal outline, the visual proportion, of the functional body. But the body cannot be completely naked as that would be to return to the very realm of the sensual that has been abandoned. There is a need for some kind of screen that remodels the body as formal proportion rather than sensual animal, a veil with neither the sensuality of decoration nor the sensuality of the body. The whitewash is inserted between two threats in order to translate body into form.<sup>40</sup>

Loos saw seduction as a primitive and inferior act that produces unnatural effects.<sup>41</sup> The repression of such seduction by dressing architecture in a masculine suit was for Loos, the task of the modern architect.<sup>42</sup> Le Corbusier maintained the same clothing metaphor, but he expressed it differently. Instead of covering the body using a formal suit, Le Corbusier exposed the seductive body through a *swimsuit*. Thus, architecture was not left naked since the white paint remained as a thin "veil."<sup>43</sup> Thus, the coat of white paint was in fact a tool of control: at once banishing colour as a visible symbol of the feminine, and simultaneously orchestrating the exposure of the "charms" of the feminized architectural body.<sup>44</sup>

Inspired by Semper's "Principle of Dressing," modernist theories revolved around the metaphor of clothing. However, if for Semper clothing followed the woven wall in architecture, for the modernists it was the opposite: clothing was the source of inspiration for architecture. Therefore, when *textiles walls* changed to *clothed wall*, the architectural surface became trapped in issues of gender, fashion and style.



**Fig. 5** Le Corbusier promoted a white swimsuit for architecture, which revealed the pleasures of form. Images from Cemal Emden, published 14 May 2012. Retrieved from <http://divisare.com/projects/199426-le-corbusier-cemal-emden-villa-savoye>

#### 4.2. A decorated shell for architecture

These ideas continued through Postmodernism, which began in a variety of artistic fields in the 1960s and 1970s. In architecture, Robert Venturi and Dennis Scott Brown's theories were particularly influential in a move away from the ideals and theories of the International Style. In 1966, Venturi established a series of principles that promoted "the difficult unity of inclusion" over the "easy unity of exclusion."<sup>45</sup> The aim was the re-appropriation of different styles (both past and present) that were forbidden by High Modernism.<sup>46</sup>

Though *Complexity and Contradiction* (1966) laid out the theoretical aspiration for a move away from the uniformity of the International Style, it was *Learning from Las Vegas* (1972) that provided a blue-print and a working metaphor for the postmodern turn in architecture. In it, Venturi and his colleagues celebrated the most recognizable forms of American commercial architecture, ranging from the Las Vegas Strip to billboards, neon lights, and parking lots, to formulate a new approach towards architecture. Moreover, they categorised architecture into two types: the "decorated shed," "where systems of space and structure are directly at the service of program, and ornament is applied independently," and the "building-becoming-sculpture" or "the duck", where "the architectural system of space, structure, and program are submerged and distorted by an overall symbolic form."<sup>47</sup> Whilst acknowledging that most architecture is a mix of the two, Venturi and his colleagues promoted the "decorated shed" concept as a replacement for the "duck" architecture of modernism, arguing that the modernist agenda either reduces the building to "dry expressionism, empty and boring – and in the end irresponsible" or, ironically, by rejecting "explicit symbolism and frivolous appliqué ornament," it distorts "the whole building into one big ornament. In substituting 'articulation' for decoration, it become[s] a duck."<sup>48</sup>

Venturi and Scott Brown implied that separating the ornamental layer from functional structure is in fact a more honest way of dealing with ornament.<sup>49</sup> Thus, the

decorated shed model allowed a clear division of responsibility: surface ornament provided embellishment, symbolism and visual communication, whilst structure dealt with gravity and functional necessities without hindering stylistic play at the surface level. Thus, this *decorated shell* became a third model of thought, after Semper's *woven wall* and Loos's *clothed wall*.

The decorated shed concept represented an attempt to explore the positive aspects of the metaphor of clothing, i.e. the diversity and complexity of styles and the playful variations that it implicated. In one way, the decorated shed concept was in fact a celebration of the metaphor of clothing in architecture. From another perspective, however, it was closer to the textile wall than the clothed walls of Loos or Le Corbusier. This is because the decorated shed concept freed surface ornament from the laws of structure and allowed the symbolic surface to operate independently. In other words, unlike the white suits of modernity, the decorated shed concept was not bound by the rules (proportions or gender) of the architectural "body" and therefore allowed architectural surfaces to participate freely with the images, signs and screens of the electronic era.<sup>50</sup>

Yet, this model of thought maintained and in fact exaggerated the superficiality of the ornamental layer. After all, the decorated shed metaphor was an attempt to be more honest about the difference between surface play and structural function. Therefore, the decorated shed concept can be interpreted as a *disciplining of ornament* to its appropriate place in architecture. In this model of thought, ornament is accepted as superficial signage but nothing more. One can see the traces of the modernist disdain for ornamentation in Venturi's "postmodern" theory:

When Modern architects righteously abandoned ornament on buildings, they unconsciously designed buildings that *were* ornament. It is now time to re-evaluate the once-horrifying statement of John Ruskin that architecture is the decoration of construction, but we should append the warning of Pugin: It is all right to decorate construction but never construct decoration.<sup>51</sup>

Such theories maintain a distinct anxiety about embellishment and ornamentation. If ornament is to return to architecture, it must be contained and segregated from the function of architecture. Semper saw the essence of architecture in the ornamental textile that was then supported

by structure, however, Venturi's decorated shed metaphor defines the ornamental layer as secondary cladding *applied* to primary structure. Thus, Venturi promoted surface communication and expression, but such activities remained secondary to the primary act of construction.



**Fig. 6** The decorated shed metaphor which resulted in many decorated *shells* in architecture. In this scenario, the ornamental layer operates in a completely independent manner to the interior of architecture. Views of the outside and inside of the Frank Gehry's Bilbao Guggenheim Museum. Retrieved from <http://www.guggenheim-bilbao.es/en/the-building/inside-the-museum/> and the author's photo collection

#### 4.3. New shells: Parametricism and surface-driven deformation

The metaphor of clothing continues to this day. If in the previous decades, the thickness of appearances incorporated issues of covering, revealing, and symbolism, today, *force* and *movement* have been added to the mix. In recent years, advances in digital tools have allowed architects to pursue new design processes. Many of the software in which architecture is articulated, operate using responsive surfaces that allow more performance and expressions for architecture.<sup>52</sup> These *surface-driven*<sup>53</sup> tools are well suited to the spirit of the time in which there is a greater need for surface performance, because in the era of mass communication, getting someone's attention requires a more articulate surface-play.

The result is animate form, topological surfaces and parametric transformations, which result from "deformation and transformation techniques available in time-based system of flexible surfaces."<sup>54</sup> Designers are also using the "genetic, or rule-based phenomenon of computation"<sup>55</sup> which re-produce the natural process of selection, but must not be considered natural forms.

Greg Lynn argues that there are three fundamental properties of organization in the computer that are very different from the characteristics of "inert mediums" like paper and pencil. These are *topology*, *time*, and *parameters*.<sup>56</sup> Topology involves deformation, inflection, curvature of flexible surfaces and is a direct result of the surface-driven nature of many modern modelling software. Time involves issues of repetition, keyframing, morphing and dynamics and comes from the power of computers in animation. Parameters affect objects and influence their form, for example, isomorphic polysurfaces (blobs) are continuously affected by weights, gravity and other forces resulting in different deformations and landscape characteristics.<sup>57</sup>

Architects like Lynn have used current technology to build mass-customization into mass-production. In their

theories, they speak of topology, time and parameters and set the scene for *Parametric Architecture* as a new approach towards form making. These developments have allowed theoreticians like Patrik Schumacher to declare "Parametricism" as "the great new style after modernism."<sup>58</sup>



**Fig. 7** "Blobs" and "animate form" are the result of manipulating computer-generated surfaces using various predetermined parameters. New construction technologies are quite capable of fabricating the often-complex forms that are inevitably produced. Greg Lynn: Saadiyat Museum Pavilion No. 3. Retrieved from <http://glform.com/buildings/museum-pavilion-no-3-saadiyat-cultural-development/>

As one of the figureheads of this movement, Schumacher addresses the ornament debate, but argues: "to oppose ornament/decoration to function would be a fallacy."<sup>59</sup> Instead, he proposes "organisation and articulation" which is argued to be very different from the distinction between form and function. Although Schumacher, talks of the difference between ornamentation and articulation, he nonetheless places surface articulation well within the clothing metaphor: "A building without decoration was unfinished, unable to enter the social world, just as it impossible to join society

naked, or without sufficient behavioural decorum.”<sup>60</sup>

There is also the same Modernist preoccupation with function. In describing the articulation of surface, Schumacher writes:

It is “ornamental” in a rather questionable sense. The differentiation of the surface should serve as medium of articulation. It can do this only if it is correlated with the geometric or functional aspects of the space the surface constructs. A strong emphasis on correlation is a second hallmark of parametricism. Significant correlates might include the underlying primary structure. The surface articulation might correspond to structural flow-lines or stress distribution.<sup>61</sup>

Although Parametricism seems to want to break form the doctrines of the past, it seems to reiterate it in a different form. Thus, Parametricism seems to be a mere *deformation of modernist agendas*:

It is important to note that Parametricism - as a style - constitutes an artistic agenda that embodies a will to form. Appearances matter, but they matter as part of performance. The ethos of this artistic agenda is an ethos of articulation that stands against a mere formalism. Appearances are revealing an otherwise invisible performativity, or accentuate and make conspicuous what might otherwise get lost in an unarticulated visual chaos.<sup>62</sup>

According to Schumacher, Parametricism requires “a certain degree of surface depth” in order to create “dynamic, high performance ornaments.”<sup>63</sup> In this scenario, surfaces may become structural too, since they can be thinner, lighter and more efficient performative components.

The “increased complexity of post-fordist society”<sup>64</sup> seems to necessitate new clothes, new shells and new skins that are better and more eye-catching than before. Architects use digital tools to infuse force, movement and time into architecture in order to create a “performance envelope” with which architecture can operate in the new world of mass media.<sup>65</sup> Thus, architecture has pushed further into the depth of the surface, exploring the topological landscape of new surface-driven, fluid<sup>66</sup> and non-Euclidean forms. The ultimate goal however is to arrive at appearances that can mesmerize the viewer with greater ease.



**Fig. 8** Parametric architecture is often the fabrication of complex surfaces that have been manipulated in the computer using predetermined parameters. J. Mayer H. and Partners. Metropol Parasol. Spain. Retrieved from <http://www.stua.com/eng/proyectos/metropol.html>

## 5. CONCLUSION: SACRED SURFACES AND THE THICKNESS OF APPEARANCES

Since the very beginning, surfaces have had an important role in our perception of the world. They create the appearances that form our primary understanding of reality. Discussion about surfaces and their effects has been the basis of many shifts in philosophy as well architectural style and theory.

Throughout the ages, surfaces and appearances have been considered superficial and inferior, in contrast with the reality of things. As was discussed earlier, this is perhaps related to our two-dimensional definitions of surface (without depth) and our philosophical conceptions of appearance as illusion. The traces of such epistemological traditions is evident in architecture in the form of a historic debate about ornament and structure, the former often being associated with appearance and the latter with essence.

Using a philosophical reflection upon the notion of surface and a theoretical analysis of the various metaphors used in architectural discourse, this paper has argued for a different understanding of surfaces and appearances in architecture. First, it has been shown that using an ordinary person’s point of view, it is possible to define surface as an entity that is more than two-dimensional, i.e. possessing thickness and depth. Second, it is possible to move beyond the traditional (Platonic) definition of surface as a barrier that masks or distorts reality, towards another conception that sees surface as an entity that makes reality possible. In this conception, appearances are no longer superficial illusions but rather a very important aspect of reality.

This paper has also demonstrated how these ideas can be traced in architectural theory in the form of two general approaches and their followers: first there are those who see architecture as a phenomenon with a structure (essence) that is then clad or covered by an ornamental layer (appearance), second are those who see architecture as a unified entity; a thick decorative surface that creates space.

The first strategy is easier to define and has been more popular in recent times. In this conception architectural space is produced by *clothed walls* and much debate has been devoted to determining the nature and even gender of this clothing for architecture. In the second strategy, which is more primeval and abstract, architectural space is demarcated by *woven walls* that are inherently symbolic and ornamental from the beginning. In this conception, surface and appearances have a symbolic and epistemological thickness that prevents them from becoming superficial or superfluous.

Thus, from the origins of architecture, through to Modernism, Postmodernism and now Parametricism, surfaces and appearances have determined the path of design theory and practice. From the woven walls of first architectural spaces to the clothed walls of modern times, surfaces have played a central role in architecture. It is therefore possible to argue that despite different metaphors and opinions, *surfaces are sacred in architecture and their appearances are much thicker than superficial*.

Although in most epistemological traditions, surface is

a barrier to perception and appearances are deficient or manipulative representations of reality, in architecture, they are the very materials with which architects demarcate space and create new aesthetics. To consider them shallow would be to undermine the very architectural act, which began with the primitive woven wall – the double-sided surface that incorporated colour, ornament,

symbolism and the essence of architecture within the thickness of its appearance. With these revelations, our understanding of the sacred architecture of Iran changes: the ornamental layers that adorn its surfaces are not superficial, nor are they superfluous; instead, they are reincarnations of the first colourful carpets (woven walls) that created the very first architectural spaces.

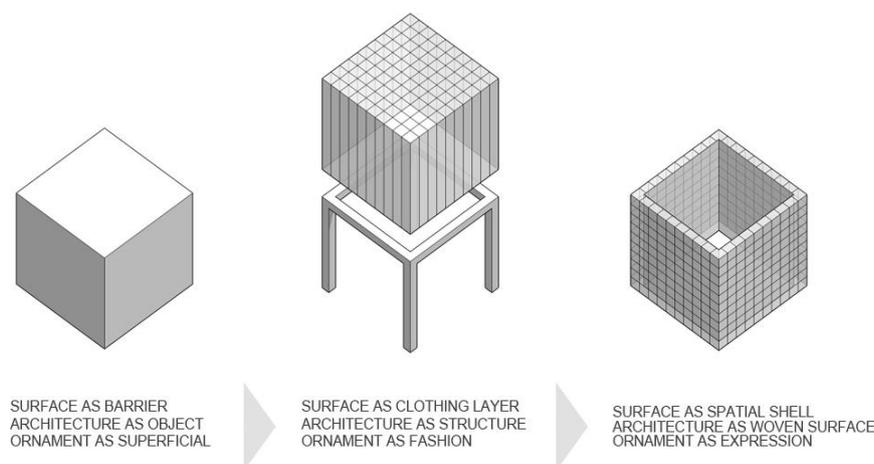


Fig. 9 The evolution of models of thought about surface, ornament and appearance in architecture. Source: the author

## NOTES

1. Vitruvius is famous for asserting in his book *De Architectura* that a structure must exhibit the three qualities of *firmitas*, *utilitas*, *venustas* – that is, it must be solid, useful, beautiful. These have since been recognised as the Vitruvian Virtues. See Vitruvius Pollio, Marcus, *The Ten Books on Architecture*, trans. Morris H. Morgan, vol. 5, Kissinger Publishing, Whitefish, Montana, 2005, p.17
2. Oxford English Dictionary [www.oed.com](http://www.oed.com) accessed Dec. 2008.
3. Ibid.
4. Ibid.
5. See Avrum Stroll, *Surfaces*, University of Minnesota Press, Minneapolis, 1988, p.12
6. Stroll, *Surfaces*, pp. 11-12
7. Stroll, *Surfaces*, pp. 39-60.
8. Stroll, *Surfaces*, p. 95
9. "A visual or acoustic device used to convey atmosphere or the illusion of reality in the production of plays, films, or broadcasts" or "the impression produced by a picture, building, costume, etc., viewed as a whole; the look that a collection of features has." See Oxford English Dictionary [www.oed.com](http://www.oed.com).
10. See OED, [www.oed.com](http://www.oed.com).
11. See also Jean Baudrillard's different categories of image. Baudrillard defines four phases of the image. The first phase of image is when it is "the reflection of a profound reality". This is called good appearance where "representation is of the sacramental order." The second phase is an image that masks or denatures reality. This is "an evil appearance", where it is "of the order of malfaisance." The third phase of the image is

- characterized by the masking of the absence of a profound reality, in which case the image becomes "of the order of sorcery." Finally in the fourth phase, image is no longer "of the order of appearance, but of simulation." In this case, image simulates the existence of reality and is considered autonomous or independent of true reality. Jean Baudrillard, *Simulacra and Simulation*, trans. Sheila Faria Glaser, University of Michigan Press, 1994, p.6
12. See Plato, *Republic*, trans. Robin Waterfield, Oxford World's Classics, Oxford University Press, London, 1993. Also, Baudrillard, Jean, and Shiela Faria Glaser, *Simulacra and Simulation*, University of Michigan Press, Ann Arbor, 1994. See also Derrida, Jacques, "Structure, Sign and Play in the Discourse of the Human Sciences," in *Writing and Difference*, trans. Alan Bass, Routledge & Kegan Paul, London, 1979, pp. 278-294. See also Deleuze, Gilles, and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi, Athlone Press, London, 1988.
13. Gibson's theory proposes that the perception of depth is not achieved by interpreting two-dimensional images formed in the mind (abstract), but rather through a direct experience of surfaces in space and time (physical). In this theory, objects are set against a surface background, rather than floating in empty space or air. Thus, depth, distance, shape and other attributes of objects are determined by analyzing surfaces in relationship to other surfaces that make up the visual field. Thus, Gibson's unique theory proposes that depth or height is an effect of surface layout. James J. Gibson, *The Ecological Approach to Visual Perception*, Lawrence Erlbaum, London, 1986, pp.

- 147-9.
14. See Plato's allegory of the cave in Plato, *Republic*, (514a-515a), pp. 240-1.
  15. Stroll, *Surfaces*, p. 46
  16. See Islami, S. Yahya, "What is Surficial Thought in Architecture", *ARQ*, Volume 18, Issue 01, March 2014, pp. 39-46.
  17. See [www.oed.com](http://www.oed.com) accessed November 2008.
  18. *Ibid.*
  19. See Bradley Quinn, *The Fashion of Architecture*, Berg Publishers, 2003, p. 2. See also Marcus Vitruvius Pollio, *The Ten Books on Architecture*, trans. Morris H. Morgan, Kessinger Publishing, 2005, 5, p. 284
  20. Semper (1803-1879) was an architect and a theoretician who formulated his ideas in nineteenth century Europe when developments in archaeology, ethnography and philology had revealed new facts about the art of the ancients.
  21. See Marc-Antoine Laugier's *Essay On Architecture 1755*, trans by Wolfgang and Anne Herrmann, Hennessey & Ingalls, Los Angeles, 1977.
  22. Gottfried Semper, "Preliminary Remarks on Polychrome Architecture and Sculpture in Antiquity," in Harry Francis Mallgrave and Wolfgang Herrmann, *The Four Elements of Architecture and Other Writings*, Cambridge University Press, 1989, pp. 45-73, p. 52.
  23. Gottfried Semper "The Four Elements of Architecture" in *The Four Elements of Architecture and Other Writings*, Cambridge University Press, Cambridge, 1989, pp. 74-130, p. 104.
  24. See Gottfried Semper, "Style in the Technical and Tectonic Arts or Practical Aesthetics" in *The Four Elements of Architecture and Other Writings*, pp. 181-263, p. 254.
  25. Gottfried Semper, "Style in the Technical and Tectonic Arts or Practical Aesthetics" in *The Four Elements of Architecture and Other Writings*, p. 254.
  26. Semper, "Style in the Technical and Tectonic Arts or Practical Aesthetics" in *The Four Elements of Architecture and Other Writings*, pp.254-5.
  27. Mark Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, MIT Press, Cambridge, Mass.; London, 2001, p. 11.
  28. Loos's "Law of Dressing" is a direct reference to Semper's "Principle of Dressing." See Loos's "Das Prinzip der Bekleidung," *Neue Freie Presse*, September 4, 1898, translated as "The Principle of Cladding" by Jane O. Newman and John H. Smith in Adolf Loos, *Spoken into the Void: Collected Essays 1897-1900*, pp. 66-69, p. 67. *Bekleidung* is being translated here as "dressing" following Mallgrave and Herrmann's translation rather than Newman and Smith's translation as "cladding." (For the notes on this issue, see Gottfried Semper, *The Four Elements of Architecture and Other Writings*, translated by Harry Francis Mallgrave and Wolfgang Herrmann, Cambridge University Press, Cambridge, 1989, p. 293 See also Adolf Loos, *Spoken into the Void*, p. 139.
  29. Loos, "The Principle of Cladding" in *Spoken into the Void Collected Essays 1897-1900*, p. 66.
  30. *Ibid.* p. 67.
  31. Ludwig Mienz and Gustav Kienstler. *Adolf Loos: Pioneer of Modern Architecture*, Thames and Hudson, London, 1966, pp. 226-7.
  32. Adolf Loos, "Ornament and Crime (1908)" in *Crime and Ornament, The Arts and Popular Culture in the Shadow of Adolf Loos*, edited by Bernie Miller and Melony Ward, XYZ Books, Los Angeles, 2002, p. 29
  33. Adolf Loos, "Ladies' Fashion," *Neue Freie Presse*, Aug. 21, 1898, in Adolf Loos: *Spoken into the Void, Collected Essays. 1897-1900*, MIT Press Cambridge, Mass. 1982, p. 102.
  34. Loos, "The Principle of Cladding" in *Spoken into the Void Collected Essays 1897-1900*, p. 67.
  35. The term "International style" usually refers to the architectural style of the formative decades of Modernism. See Henry-Russell Hitchcock and Philip Johnson, *The International Style*, W.W. Norton, Pennsylvania, USA, 1966.
  36. Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, p. xviii
  37. *Ibid.* p. 156.
  38. See Colomina, *Privacy and Publicity, Modern Architecture as Mass Media*, pp. 306-334.
  39. Le Corbusier, *Precisions on the Present State of Architecture and City Planning*, The MIT Press, Camb. Mass.; London, pp. 106-107.
  40. Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, pp. 15-16
  41. Adolf Loos, "Ladies' Fashion," *Neue Freie Presse*, Aug. 21, 1898, in Adolf Loos: *Spoken into the Void, Collected Essays. 1897-1900*, MIT Press Cambridge, Mass. 1982, pp. 98-103, p. 99
  42. Loos, "Ornament and Crime (1908)" in *Crime and Ornament, The Arts and Popular Culture in the Shadow of Adolf Loos*, p. 29
  43. Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, p. 16
  44. "Flowers, sun, joy. Who is going to wear these beautiful bathing costumes created by our big stores? And how soon." Illustration from *Le Corbusier, La Ville Radieuse, 1935* included in Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, p. 279.
  45. Robert Venturi, *Complexity and Contradiction in Architecture*. (2nd ed). Architectural Press, London, 1977, p. 16.
  46. Venturi proposed "the seemingly chaotic juxtaposition" which would express "an intriguing kind of vitality and validity," that would produce "an unexpected approach to unity as well." Venturi, *Complexity and Contradiction in Architecture*, p. 104.
  47. Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*, The MIT Press, Cambridge, Mass., 1977, p. 87.
  48. *Ibid.* pp. 101-103.
  49. *Ibid.* p. 106.
  50. Venturi's et al wrote: "If the Classical orders

symbolized ‘rebirth of the Golden Age of Rome,’ modern I-beams represent ‘honest expression of modern technology as space’ – or something like that however it was ‘modern’ technology of the Industrial Revolution that was symbolized by Mies, and this technology, not current electronic technology, is still the source for Modern architectural symbolism today.” Venturi, Scott Brown and Izenour, *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*, p. 115.

51. Venturi, Scott Brown, and Izenour, *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*, p. 163.
52. Isomorphic polysurfaces or NURBS are created by parameters mapping a surface in three-dimensional space. They can easily be handled by the computer programs and yet allow for easy human interaction and manipulation.
53. For an elaboration of the term “surface-driven” see Islami, S. Yahya, “Surface-driven Architecture: Moving Beyond the Ornament/Structure Opposition”, 2007, in *Embodying Virtual Architecture*, conference proceedings of the Third International Conference of The Arab Society for Computer Aided Architectural Design (ASCAAD), pp. 671-682
54. Greg Lynn, 1999, *Animate Form*, Princeton Architectural Press, New York, p. 18
55. Ibid. p. 19
56. Ibid. p. 20
57. Ibid. p. 22
58. Patrik Schumacher, “Parametricism - A New Global Style for Architecture and Urban Design”. See <http://www.patrikschumacher.com>
59. Patrik Schumacher, “Parametric Patterns”, *AD Architectural Design – Patterns of Architecture*, Vol 79, No 6, November/December, London, 2009. Also in <http://www.patrikschumacher.com>.
60. Schumacher, “Parametric Patterns” at <http://www.patrikschumacher.com>.
61. Ibid.
62. Ibid.
63. Ibid.
64. Ibid.
65. Greg Lynn, 1999, *Animate Form*, Princeton Architectural Press, New York, p. 13
66. Schumacher writes: “Aesthetically it is the elegance of ordered complexity and the sense of seamless fluidity, akin to natural systems, that is the hallmark of Parametricism”. Schumacher, “Parametricism - A New Global Style for Architecture and Urban Design”, p. 16.

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