

Tactile Values: A Political Economy of Smooth Surfaces

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Not unlike the age of the Italian Futurists, digital design can be understood as the result of the merging between man and machine. Today the computer is understood as prosthesis; not quite an ergonomic one, nor what the Futurists referred to as *metallization* of humans with machines, but nevertheless trending toward that direction. We can begin to understand this relationship by re-examining historical moments within Modern architectural history such as streamlined design and Italian Futurism, and look at how these moments were tied to methods of manufacture and, more importantly, fluid methods of valuation. With these examples in mind we can begin to contemplate how to assess the values and meanings of the multiple configurations of digital design.

No doubt, the emergence of digital technologies changed the manner in which architects design today. In addition to the introduction of this new mode of production, the results of these novel methods of parametric processes create a specific formal aesthetic, one which has been described as smooth surfaces of forms consisting of some homogeneous plastic or liquid metallic, mercury-like material, initially referred to within the architectural discipline as “blobs.” And while these forms are striking in their appearance as buildings, such as Zaha Hadid’s Landmark Building Competition entry for Svervita Square, the formal games employed to bring about these creations seem at best shallow, or even arbitrary. (Figure 1) One problem may be that many of these smooth surfaces begin to all look the same as a result of the confined finishes available in software programs. Perhaps another significant factor that leads to their similar appearance is that these surfaces seem to be with-

out qualities other than smoothness, and therefore appear bereft of any significant *meaning*. One way to infuse these new forms with meaning may be to compare them with other moments within the history and appreciation of forms. Inspiration for such a process can be found within the discipline of art history, which by definition perhaps contains the tradition of looking at forms and smooth surfaces in a more rigorous and analytical way than architects. This paper re-examines some historical moments in industrial design and art history that emphasized the characteristics of smooth surfaces. These historical cases may offer some insight into analyzing and assessing current digitally-designed forms and reframe the way in which we, as architects, assign both aesthetic and economic values to these seemingly non-descript, digitally designed surfaces.



Figure 1. Zaha Hadid, Landmark Building of Svervita Square, competition entry, Budapest, Hungary, 2006.

STREAMLINING

Perhaps one of the most recent fascinations with smooth surfaces occurred during the early part of the 20th century with the formal aesthetic of streamlining. Originating in 1868, 'streamline' is defined as a "line drawn from point to point, so that its direction is everywhere that of the motion of the fluid."¹ From 1898, the word evolved to include the description, "free from turbulence." By 1907, the word comes to characterize a specific form; "shaped so that the flow around it is smooth." However by 1936, the word would also come to include a process, rather than simply a formal quality, its meaning extended to include the verb, "to simplify and organize."²

In the history of design, streamlining is usually associated with the phrase 'styling' and therefore has earned the negative connotation as a derivative style. Implemented by such American designers as Walter Dorwin Teague, Henry Dreyfuss, and Russell Wright, the smooth fluid shapes of airplanes and automobiles were copied all over the world as exemplars of modern aerodynamic forms. Ultimately this streamlined style would be applied to more banal, stationary objects such as pencil sharpeners and refrigerators. It is this seemingly misappropriation of form to function which design critics dislike most about streamlined design.

While the form communicated speed and the zenith of modern progress, perhaps the main impetus behind the aesthetic of streamlined designs can be found in the manufacturing process. Die-casting and forming were important manufacturing methods used in the pressing or molding of metal within the U.S. automobile industry and were the most common methods of manufacturing metal products. The bodywork manufacturing process began with the initial design carved into a wooden model, followed by the production of a negative mold made into a plaster mold. Placed into a duplicating machine, this machine tool was designed to create the matrices used in die-casting. Then a "guide" would follow the contours of a plaster model, and a corresponding tool would cut the matrix from a block of steel. Once the matrices have been forged and tempered, the completed form was mounted onto a machine called a high-pressure die cast press where the serial production of bodywork began. With the two steel forges pressed together,

a special molten aluminum was injected into the small chamber between the positive and negative mold. This process was followed by a vertical hydraulic piston pushing down on the molds, creating intense pressure on the metal in the chamber. Once completed, the matrices were opened and the bodywork extracted, and the pieces were sent to another station for de-burring and painting.³

METALLIZATION

The streamlined moment was first anticipated, theoretically by the Italian Futurist movement, and it was here where we recognize the Italian sensibility for industrial design and the country's fascination with machines. The Futurist leader Filippo Tommaso Marinetti was one of the first to use the word "metallization" to describe the physical convergence of cultural, political, and economic forces under fascism. He believed that war was beautiful because it provided a constant source of incentive for individual experience. This possibility occurred on the battlefield, where the machine and human body melded together into one. Through this technological melding, the spectacle of war ultimately erased human identity, creating what Marinetti termed "the *metallization* of the human body"—the conversion of human into machine.⁴

The nature of metal, in its liquid or malleable form, requires a mold or stamp to be forged into a desired shape. The word "metallization" was a term often used by the Italian Futurists, and it described an ethos as well as illustrated the intrinsic qualities of sculptural bodywork, and ultimately the political and economic climate in which these streamlined products and machines were conceptualized and later produced.

The work of the Italian Futurist Umberto Boccioni and his canonical bronze metal sculpture, *Unique Forms of Continuity in Space* (1913) can be understood as the precursor to the die-cut bodywork; a work that fulfilled the Futurist dream of melding man and machine, human and metal, in the form of a Futurist cyborg. (Figure 2) It epitomized an Italian super-human hero, combining aerodynamics with human form; metallic tense muscles conformed to external forces of wind and speed without directly mimicking the characteristics of human flesh.



Figure 2. Umberto Boccioni, *Unique Forms of Continuity in Space*, 1913

The sculpture, described as “all armor,” exuded all the properties of metal during its life-cycle; and as a molten liquid, suggested movement, fluidity, plasticity, and expansiveness. However, once cooled; it was characteristically cold, hard, immobile, and unrelenting — ultimately representing the fundamental nature of Futurism described by the poet Massimo Bontempelli as an “*ultra-illogical superfluid*.”⁵ Marinetti described this phenomenon as “*metallization* of the human body.”⁶

Walter Benjamin, in his essay “The Work of Art in the Age of Mechanical Reproduction,” cited the Futurists, specifically Marinetti and his project to free technology from merely rational uses in order to re-frame war machines as a work of art. Benjamin quotes Marinetti’s manifesto:

For twenty-seven years we Futurists have rebelled against the branding of war as anti-aesthetic ... Accordingly we state: ... War is beautiful because it establishes man’s dominion over the subjugated machinery by means of gas masks, terrifying megaphones, flame throwers, and small tanks. War is beautiful because it initiates the dreamt-of-*metallization* of the human body.⁷

The spectacle of war was, according to Marinetti, intoxicating, because through the technological apparatus of machines, traditional human limits were expanded, liberating humans from their banal, bourgeois existence. The technology of war re-engineered the human body, where interface between man and machine became indiscernible. Machines were not mere prosthetic devices adding mythical powers to the human form, rather, “machines stand for an ideal: not that of a body without fatigue or of a society without alienation, but instead the distinctively Fascist ideal of *constant exertion and fatigue coldly resisted* ... in other words, *metallization*.”⁸

Marinetti described a total mechanized environment containing individuals who would transform into machines that would never tire. However, this total machine environment was not like the other types of modernization occurring throughout Europe and the United States.⁹ The important distinction between Italian Fascist modernization versus a Communist one, was that the Communist cultural point of view, the “*mechanical* is a trope of demystification,” revealed the inner workings of capitalism, whereas in Italian Fascist culture, the concept of metal and the metallic was “a trope of mythification,” that attempted to mold “individuals as a mass and the mass as individual”.¹⁰

Whereas the streamlined design had a line defined as one “drawn from point to point, so that its direction is everywhere that of the motion of [...] fluid,” the Futurist work was depicted through the *linea-forza*. Boccioni’s *Continuity in Space* sculpture exhibited the idea of the *linea-forza*; a type of expressive line which promoted a new modern attitude and mode of perception, one which included the element of motion, and most importantly, power. This new *linea-forza* compelled a break from static academic classicism and instead communicated the dictatorial power of fascism, thereby mimicking its smooth flowing, plastic, totalizing form for that of the Fascist totalitarian politics.¹¹ This was ultimately achieved by Boccioni in creating what he termed, a ‘synthetic continuity.’¹²

It seems clear to me that this *succession* is not to be found in repetition of legs, arms and faces, as many people have stupidly believed, but is achieved through the intuitive search for the *unique form which gives continuity in space*.¹³

The combination of Marinetti's creation of myth, along with Boccioni's new mode of perception and aesthetic lays bare the paradox of the Futurist aesthetic which is defined by Marinetti's term of *metallization*. The word can be identified as a phenomenon specific to modernization under Fascist Italy, representing multiple meanings; as a consequence of newly imported methods of manufacturing, as well as the mythologized molded or "forged" Fascist subject. The term and practice of *metallization*, as manifested in Futurist literature and art and Fascist propaganda, encompasses a larger scope of material practice. The expression of *metallization* required technical innovation and the newfound power of the mass media coupled with the mythologization of culture and politics. This practice of *metallization* as, "a trope of mythification that seeks to re-forged the individual as mass and the mass as individual," was initiated by the Futurists and in turn exploited by the Fascist Regime; however, its usefulness as a relevant tactic was carried over into the realm of capital, mutating into one of the principle generators of value in contemporary modes of production.

VALORI PLASTICI AND MAGIC REALISM

This appreciation for the values of *surfaces*, rather than *lines*, is eventually taken up by a group of avant-garde Italian artists who were connected to the moved called 'Magic Realism.' This group was seen as a reaction to the hyperbolic expressionism of the Futurists and what was previously expressed through lines – such as the *linea-forza* – was, with Magic Realism, to be communicated through "ideated sensations" and the "tactile values" of surfaces.

This took the form of a metaphysical, Italianized Surrealist Movement, deemed by the movement's founding theorist and author Massimo Bontempelli, as Magic Realism. It is important to note that Bontempelli served as the co-editor of the Rationalist architecture magazine *Quadrante* with critic and architect P.M. Bardi. The term Magic Realism usually describes Bontempelli's literary works published in his journal *900*, but it also refers to the painterly works of Giorgio De Chirico and the barren urban landscapes of Mario Sironi. The work of this movement is characterized by the sensations of the "magical" or "metaphysical;" where familiar objects, through their plastic nature and displacement in a metaphysical space bereft of

any indication of time and place, appear strange. The Magic Realist artists, "engaged in a controlled manipulation of the viewer's perceptions, beginning with the image's pretense to being 'natural' by virtue of its highly illusionistic rendering."¹⁴

At the heart of the Magic Realist movement was the journal *Valori Plastici* edited by the critic Mario Broglio. It served as a conduit in which Italian intellectuals and artists, under the Fascist Regime, were informed about other cultural, avant-garde endeavors throughout the rest of Europe. The journal published 15 issues between 1918 and 1922, and performed as a platform for Metaphysical artists interested in a return to a type of classicism based in craftsmanship and idealized national Italian traditions.

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Valori Plastici, or "plastic values" refers to "tactile values," a term developed by Bernard Berenson in his 1896 book, *Florentine Painters of the Renaissance*. He developed the concept as a means to evaluate and judge the quality of paintings from the Renaissance, which began with what he called "ideated sensations." According to Berenson, in order for the artist to create tactile values, "The painter must, therefore, do consciously what we all do unconsciously—construct his third dimension. And he can accomplish his task only as we accomplish ours, by giving tactile values to retinal impressions."¹⁵ This concept encompasses the idea that the artist, in order to achieve the appearance of three-dimensional depth of an object on a two-dimensional surface, requires two painterly techniques—the modeling of light and shadow and planar recession. In Berenson's view, one of the four prerequisites to a successful painting is the artist's ability to communicate to the viewer the texture of a particular surface and therefore trigger our ideated sense of touch.



Figure 3. Giorgio De Chirico, *Le Chant d'amour*, 1914.

Broglio, as founder and editor of *Valori Plastici* would have been familiar with Berenson, a historian of Italian Renaissance painting, since one of Broglio's main objectives in establishing the journal was to revive the tradition of Italian painting by revisiting the work of artists such as Giotto and Masaccio in order to serve as a platform for new Metaphysical art which embodied similar values.

The first showing of the Metaphysical painters in Milan took place in 1920-21, when the artists' works were still unknown. In the years that followed, their work traveled to London, Paris, and New York, where they experienced more success, praise and acknowledgement from countries other than Italy. As metaphysical artists, they also were the main protagonists and contributors to the journal *Valori Plastici*. Their work would resurface in Italy through the publication of a *Galleria del Milione* bulletin in 1939, which re-produced 18 paintings by De Chirico.

De Chirico's interest in the surface effects of a plastic glove, in the cold, sculpted, smoothness of a marble hand, or the sensuous folds of fabric in a

still life by Giorgio Morandi embodied the concept of plastic values in Metaphysical art. (Figure 3, 4)

These artists created a sharp realism by joining the traditional, almost iconic classic forms and emphasizing the nature of different smooth surfaces of seemingly random objects. These paintings illustrate "imaginative social constructions," where the illogical appeared normal, or rather the logic was based on the unconscious realm with seemingly absurd juxtapositioning of objects destroying predetermined values existing in the "ordinary" world.¹⁶

The theory of Magic Realism developed by Bontempelli, therefore, was a means to investigate irrational entities such as the unconscious and magic, yet its depiction was through a heightened realism using very descriptive, detailed, and realistic language. In an article published by De Chirico in *Valori Plastici* titled "Sull'arte metafisica," he writes:

One may conclude that every thing has two aspects: one current that we see almost always and that men are generally able to see, the other is a spectral or metaphysical appearance beheld only by some rare individuals in moments of clairvoyance and metaphysical abstraction, as in the case of certain bodies concealed by material impenetrable by sunlight yet discernable, for instance, by X-ray or other powerful artificial means.¹⁷



Figure 4. Giorgio Morandi, *Still Life with Bread and Fruit*, 1919.

Bontempelli's theory of Magic Realism entailed a realist depiction of quotidian life, similar to Benjamin's "profane illumination," where the everyday object was instilled with a sense of magic.¹⁸ The

uncanny nature of Metaphysical painting is not unlike the fetishistic character of the commodity; both draw upon a sense of estrangement and familiarity. Objects present in Surrealist painting, sculpture, or photography, such as a shoe or glove, clearly contain a previous life as a commodity, and thus the determining characteristic that makes Surrealist art political is the surrealist analogous life of a product, floating within the streams of capital, and presenting the forces of production and capitalism as part of its makeup.¹⁹

THE POLITICAL ECONOMY OF SMOOTH SURFACES

Marx described and Benjamin elaborated upon the "metaphysical subtleties" of commodities. This enigmatic nature of manufactured goods is derived from the moment when a price is required to be affixed to a product. According to Marx, assigning value to a product is an ambiguous task since the final value of a commodity can never be predicted. After the final costs of production have been calculated, the price is still variable once the commodity is placed into the marketplace. In a similar manner, the product's meaning, through the work of the "allegorist," or advertiser, is not necessarily the one originally imagined when the product was invented or manufactured; different meanings can occur after the product is bought and consumed; original meaning appropriated to a commodity can be easily replaced with other associations during the life-cycle of an object.

In light of Marx's insights, the term plastic or *tactile values* obtains more significance, where the value of objects, as well as their meaning, become plastic, fluid, and relative. The avant-garde allegorist or advertiser plays with a commodity's fluidity of meaning; the business entrepreneur manipulates a product's plastic value in the marketplace. And even when the price has been established, it does not eliminate the possibility of consumers appropriating commodities as wish-images. However, for this to happen, the commodity needs to become estranged from its original meaning as use-value, produced at the hands of modern labor. In turn, the allegorical object deploys magical powers, is required to abort any association with labor value, price, and use-value so that new meanings or wish images can be assigned to it.

This insight by Marx, along with the smooth surfaces of commodities depicted by the Magic Realists, and the fascist subjects re-forged through metalization, suggest that the fluid nature of market forces, as well as the manufacturing methods and political regimes which support that market, directly correlate with the aesthetic effect in determining the smooth surfaces of commodities.

"CONTINUOUS DIFFERENTIATION" AND DERIVATIVES

In his manifesto, "Parametricism as Style," Patrik Schumacher, a partner at Zaha Hadid Architects, proclaims that "Architecture finds itself at the midpoint of an ongoing cycle of innovative adaptation – retooling the discipline and adapting the architectural and urban environment to the socio-economic era of post-fordism."²⁰ He goes on to state that one of the defining slogans of parametricism is the term "continuous differentiation." (Figure 5). It was coined by the architect Greg Lynn during the 1990s, and derived from Gilles Deleuze and Felix Guattari's *A Thousand Plateaus*, marking the distinction between smooth and striated space. Lynn, in his book *Animate Space*, explains continuous differentiation by explaining the process in which the surface of a perfect digital sphere is also a blob without difference.

The difference between simple and complex systems is relative to the number of interactions between components. In this schema, there is no essential difference between a more or less spherical formation and a blob. The sphere and its provisional symmetries are merely the index of a rather low level of interactions, where information is equated with difference. Thus, even what seems to be a sphere is actually a blob without influence; an inexact form that merely masquerades as an exact form because it is isolated from adjacent forces. Yet, as a blob, it is capable of fluid and continuous differentiation based on interactions with neighboring forces with which it can be either inflected or fused.²¹

Lynn demonstrates this difference by showing us two similar lines constructed by two different methods. The first line is a composite curve defined by a fixed radius with the connected segments occurring at points of tangency delineated by a line connecting the radii. A second curved line is similar, but constructed by using spline geometry, where the radii are substituted with weighted control vertices through which the curved spline flows.²²

The nature of these weighted lines, defined with calculus and based upon relative values, are reminiscent of the plastic nature of economic values described by Marx and as well as the aesthetic plasticity expressed through streamlining, Boccioni, and the Magic Realists. However of the major differences is that the lines and smooth surfaces that make up a continuous differentiation not only *appear* fluid, but are values "composed of a continuous stream of relative values."²³ This is not unlike the types of market forces which we see at play in our contemporary economy, which are based upon the much-maligned, slippery financial products called "derivatives."²⁴

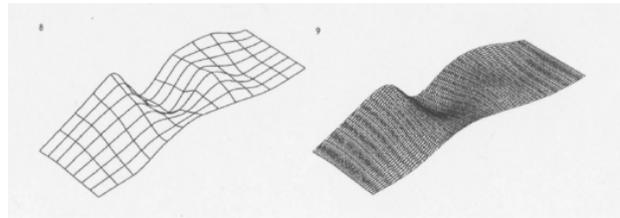


Figure 5. Image of spline surfaces drawn with vectors that hang from points. From Greg Lynn, *Animate Form*, 1999, pg, 8.

Market forces rarely seem to play a part in determining form, however as we have seen there may be a more direct relationship in how architecture is designed, its parametric style, and the way the economy functions. With this view in mind, the next question arises; what type of political subject is formed by the smooth, continuous surfaces of digital design?

ENDNOTES

- 1 Horace Lamb, *Hydrodynamics*, (Cambridge, Cambridge University Press, 1895, [1906]).
- 2 Online etymology dictionary <http://www.etymonline.com/index.php?search=streamline&searchmode=none>.
- 3 "Forme per pressofusione," *Notizie Olivetti*, no. 5, Mar. 1953: 15.
- 4 F. T. Marinetti, "The Founding and Manifesto of Futurism," *Le Figaro*, February 20, 1909, also see "Futurism," <http://www.unknown.nu/futurism/manifesto.html> (Sept. 2009).
- 5 Christine Poggi, "Metallized Flesh: Futurism & the Masculine Body," *Modernism/Modernity*, vol. 4, no. 3, Sept. 1997: 37.
- 6 Filippo Tommaso Marinetti, "The Foundation and Manifesto of Futurism," in *Art in Theory 1900–1990*. Charles Harrison & Paul Wood, eds., (Oxford: Blackwell, Publishers, 1992), 147–148. Originally published in *Le Figaro*, February 20, 1909, also see "Futurism," <http://www.unknown.nu/futurism/manifesto.html> (Sept. 2009).

- 7 Marinetti, "The Futurist Manifesto." Excerpt cited in Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility," Hannah Arendt, ed., *Illuminations*, (New York: Schocken Books, [1955], 1968), 217-251.
- 8 Jeffrey Schnapp, *Staging Fascism. 18 BL and the Theater of Masses for Masses*, (Stanford, CA.: Stanford University Press, 1996), 90.
- 9 Hal Foster, "Foreward, Mothertruckers," in Jeffrery Schnapp, *Staging Fascism. 18 BL and the Theater of Masses for Masses*, (Stanford, CA.: Stanford University Press, 1996), xvii.
- 10 Ibid.
- 11 John Baldacchino, *Easels of Utopia. Art's Fact Returned*, (Aldershot: Ashgate, 1998), 27.
- 12 Umberto Boccioni, in Linda Henderson, "Italian Futurism and 'The Fourth Dimension,'" *Art Journal* 41, 4, 1981: 317-323.
- 13 Ibid.
- 14 Emily Braun, *Mario Sironi and Italian Modernism: art and politics under fascism*, (Cambridge: Cambridge University Press, 2000), 110.
- 15 Bernard Berenson, *The Florentine Painters of the Renaissance*, (BiblioLife: 1909] 2008), 4.
- 16 Keala Jewell, *The Art of Enigma: The De Chirico Brothers & the Politics of Modernism*, (University Park, P.A.: Pennsylvania State University Press, 2004).
- 17 Giorgio De Chirico, "Sull'arte metafisica," *Valori Plastici*, vol. 1, no. 4-5, April-May 1919: 16.
- 18 Walter Benjamin, "Surrealism: the last snapshot of the European Intelligentsia," *New Left Review* I/108, March-April 1978.
- 19 Joanna Malt, *Obscure Objects of Desire*, (Oxford: Oxford University Press, 2004), 6.
- 20 Patrik Schumacher, "Parametricism as Style – Parametricist Manifesto" Presented and discussed at the Dark Side Club1, 11th Architecture Biennale, Venice, 2008.
www.patrikschumacher.com/Texts/Parametricism as Style.
- 21 Greg Lynn, *Animate Form*, (New York: Princeton Architectural Press, 1999), 31. Mario Carpo points out the importance of "differentiation" to Lynn's theory, but no mention of "continuity" or "continuous." See *The Alphabet and the Algorithm*, (Cambridge: MIT Press, 2011) n10, pg 130.
- 22 Ibid., 21.
- 23 Ibid., 20.
- 24 A definition of a financial derivative is: A security whose price is dependent upon or derived from one or more underlying assets. The derivative itself is merely a contract between two or more parties. Its value is determined by fluctuations in the underlying asset." <http://www.investopedia.com/terms/d/derivative.asp#axzz1gPwDzSUV>