16

Widok. Theories and Practices of Visual Culture

title:

Form and Inform. Internal Semantics of Computation Languages and Architecture of Developed Capitalism

author:

Adam Przywara, Krzysztof Dołęga

source:

Widok. Theories and Practices of Visual Culture 16 (2016)

URL:

https://www.pismowidok.org/en/archive/2016/16-digital-darkness/form-and-inform.-internal-semantics-of-computation-languages-and

doi:

https://doi.org/10.36854/widok/2016.16.714

publisher:

Widok. Foundation for Visual Culture

affiliation:

SWPS University

University of Warsaw

keywords:

abstract:

This essay aims to exercise an unpopular idea that neoliberalism has created a distinct architectural language, and that an analysis of its semantics can inform our understanding of this "transparent" ideology governing the contemporary world. Manfredo Tafuri's proposed that the subsumption of architecture under capital has formalized its language to the point of architecture becoming a manipulation of semantically empty structures. By applying an analysis of computational semantics, we elaborate on Tafuris's proposal, showing that the subsumption of architecture has deprived it from its previously visible and obvious meanings, simultaneously creating a hidden code of semantics subservient to the capital.

Adam Przywara - Adam Przywara holds an MA degree in Architectural History from The Bartlett School of Architecture. He actively publishes in academic journals, as well as, popular magazines on the subjects of architecture, art and philosophy. He directs the BETON Film Festival, an architecture film festival based in Warsaw. Interested in matters of rubble and struggle on a daily basis.

Krzysztof Dołęga - Krzysztof Dołęga holds an MSc degree in Philosophy from the School of Philosophy, Psychology and Language Sciences at the University of Edinburgh and an BA in Philosophy from the University of Warsaw. He is currently a PhD candidate and a research assistant at the Ruhr-Universität Bochum, where he works as part of the research group realizing a Volkswagen Foundation grant entitled 'Situated Cognition: Percieving the World and Other Minds.' His main areas of interest are philosophy of mind and cognitive science, but he also enjoys working on topics related to new technologies and architecture.

Form and Inform. Internal Semantics of Computation Languages and Architecture of Developed Capitalism

> The first peculiarity which strikes us when we reflect on the equivalent form is this, that use-value becomes the form of appearance of its opposite, value.
>
> Karl Marx, *Capital* vol. 1, 148

Throughout its development, capitalism has been producing and re-producing its ideological message, aiming to permeate the lives of human and non-human collectives around the globe. Its ideals manifest themselves in cultural production and their status is processual.[1] Their mediums, forms, and contexts change with the development of new technologies, appearing in different layers of discourse, creating new representations, and surfacing in different aspects of material culture.[2] Sometimes they are introduced in a very clear manner – like in a street advertisement encouraging consumption. In other instances, they are less visible and more resistant to detection and criticism, changing our thinking about our day-to-day existence, such as the way we construe our individuality or distinguish between public and private spaces. The latter mode of influence seems to prevail in the field of contemporary architecture, where spatial and aesthetic paradigms historically developed by global corporate culture are now the predominant mode of spatial production in urban and formerly urban environments around the world.[3] Their dominance manifests itself at the macro level of city skylines and urbanism as well as at the level of individual experience of space. The cityscapes of London, Frankfurt, Dubai, Shanghai or even peripheral cities like Warsaw share an uncanny similarity of downtowns dominated by glass-paned towers, special designated business zones, as well as impersonal office spaces, multinational brand stores, and clean-cut artisanal eateries

lining up in a never-ending flow of plain space. As we travel from city to city, and look at recently built or refurbished offices, airports, cafes, and restaurants, we are haunted by the feeling that we haven't moved at all. Additionally, public spaces are becoming ever more familiar as benches and ledges around the world are covered by increasingly ubiquitous anti-homeless protrusions and bulges. Everywhere is the same. Everything seems interchangeable.

Atrium of the headquarters of Airbnb in San Francisco, photo: Dilu, CC-BY-S.A.-4.0

At first glance, it may seem that the architectural form, its structural entity, is becoming more and more uniform, seemingly emptied of any symbolic values and ideological messages. However, as we intend to show, an appropriate examination of the subject reveals the opposite is true. Its generic formal appearance merely hides the fact that there has been a full subsumption of the structural and ideological levels of the built environment under the will of investors and the interest of capital.[4]

The present article follows the insight of Manfredo Tafuri, who claimed that in order to talk about the architectural field in a meaningful way, one needs to proceed in two stages. First, we have to step out of the architectural discourse to gain a wider perspective, revealing the inadequacy of the prevalent means of

analysis and exposing the lack of autonomy of architectural creation from external influences. Secondly, one needs to refocus on architectural production, bringing in new conceptual tools and methods of analysis. This allows one to articulate ideologies which tend to disappear from our everyday architectural experience.[5] As Tafuri himself proposed, to achieve such a new mode of analysis it is worth looking at the architectural language as a means by which built environments can be seamlessly connected or disconnected from the market or its own social realities.

Contemporary architectural theory and history is often embedded in the framework of continental philosophy, applying its concepts and language to analyze spatial problems.[6] At the same time, currently dominant languages of architectural production are strongly connected to the traditions of analytical philosophy, logic, and more recently – computer science.[7] Not only have the forms of buildings become governed by the tools and information introduced through the software and interfaces available to architects, but the purpose of many spaces has been transformed by the computerization of work and the appearance of the new demographic of digital laborers. The language of computation that has created this change escapes the methods of analysis provided by the continental tradition. The semantic structure of computational languages is significantly different, resisting attempts to move beyond the pragmatic or expressivist understanding of language proposed by Heidegger and others.[8] Programing languages are artificially created for describing and composing process routines meant to accomplish an explicit purpose. They are implemented for creating functional structures, much like the formal tools of architectural theory are intended as tools for erecting complex constructions. As such they can cast new light on our understanding of the architectural

field today.

In the present article, we aim to build on the Tafurian line of thought and propose to step away from the prevailing analysis of architecture by applying the insights of philosophical works on the semantics of computational processes. We will start by presenting a brief outline of a thesis about architecture's autonomy and Tafuri's critique of it. The prominent role that formal systems and computational languages play in this analysis will serve as a segue into a brief presentation of a discussion on the semantics of computation. As we will show, these analyses are complimentary – the dual nature of the semantics of computation can be successfully applied to the semantics of contemporary architectural production. By viewing prevalent architectural typologies of space, such as offices, civic infrastructure, and economic areas, through the interpretative lens of the semantics of computation we come to view architectural products as possessing not only an easily comprehensible form, but also a second layer of meaning subservient to the needs of capital and its accumulation. Much as the internal semantics of computers direct the inner workings of CPUs, so the internal semantics of architecture reveal a usually obscured layer of considerations which govern built environments. We label this the 'inform' and use it as a critical tool to analyze repeatable, plain, and non-experimental contemporary architectural production. As we aim to show, it is exactly where and when the lack of any meaning and artistic value is proclaimed that the inform prevails.

Emptiness of Autonomy

In his influential essay published in 2000, Peter Eisenmann argues that the syntax and semantics of architecture are one and the same, producing a unique autonomy within the discipline. According to him: "A column in architecture [...] is both a structural element and the sign of that structure; that is, the

sign is immanent to its own being."[9] This enables Eisenmann to conceptually enclose the field of architectural design from external influences. By doing this he can work safely within its borders, without the necessity of paying any real attention to social, natural, or economic factors. However, Eisenmann's theoretical encapsulation is based on a strong and questionable assumption that language itself is an autonomous structure. As contemporary linguistics abandoned this thesis long ago, its lasting appeal within architectural theory (as seen, for example, in the work of Pier Vittorio Aureli[10]) seems to be nothing more than an attempt at securing a conception of architecture as a field which is a haven for purely theoretical discourse, disconnected from the need to deal with the reality of architectural production. `Reconstruction and analysis of possible histories of this perceived need, or eagerness, for autonomy can provide us with an important insight into the spatio-temporal decomposition of architectural meaning and construction of structures seemingly based on a syntax of empty signs. That is to say, of the emergence of inform in the language of architecture.

Narrating the intermingled links between linguistics and architecture one can start from – what some may call "the end" – that is from the influence of deconstructionism on the field of architecture in the 1970s. In the period after 1968, architects around Europe witnessed the development of global conditions for architectural production under spreading corporate capitalism, leading to debates about the very possibility of working within the field while being critical towards its methods and products. This growing discontent, as well as the need for critical evaluation, has led to the adoption of Jacques Derrida's concept of Deconstruction, most notably applied in architecture by, among others, Bernard Tschumi. In *Six Concepts of Architecture* Tschumi recalls: "Almost simultaneously, a new area of knowledge was developing that was to prove a formidable instrument in the hands of architects and critics

who sought to restore meaning to what they had attacked as the zero degree of modernism. Semiology and linguistics invaded the architectural scene."[11]

Later in the decade, postmodern tendencies started to proliferate in the architecture field – changing its approach to form, but more importantly, transforming the whole of its semantics. "If we were to characterize our contemporary condition, we could say it is 'after simulation', 'postmediation.' What do we do after everything has been presented, re-presented, and re-re-presented?", asks Tschumi.[12] This question underlies a deep crisis of identity which haunts architects until today, but seemingly cannot be resolved solely through architectural means. It is a problem which stems not from over-representation, but rather, as we will show, from the subsumption of architectural production under capital.

In 1976, Manfredo Tafuri published *Architecture and Utopia*, in which he postulated a strong division between theoretical and historical narratives about architecture and its production.[13] At a time when architects, such as Tschumi, shared their ideas about experimental and (post-) critical architectures, Tafuri was denying architects any possibility of being critical.[14] Basing his argument on Marxist and post-Marxist theories, he reconstructed the history of architecture as a process of production within the capitalist system. He argued that the subsumption of architecture under capital manifested itself in several iconic utopian concepts, such as "architecture parlante" of French revolutionary architects like Claude Nicolas Ledoux or modern projects by Le Courbusier, aiming to show how built environments had become devoid of all ideological power and symbolic meaning through the process of capitalist development.[15]

In Tafuri's writings, the ideologically powerful utopian projects became compromised as the author aimed to expose how capitalist values were naturalized in the core of architectural thinking, not only through the prevalence of specific formal

characteristics, but in the very language of the discipline.

We take Tafuris' work as a starting point for thinking about the concept of the inform.[16] It is there, that the author presents a set of relations between semiology and formalism, verbalizing several observations on language, architecture, capital, and their interconnectedness. He points out that semiological studies in culture coincide historically with the emergence and development of a new field "of simulation and programing languages."[17] As he observes, the latter are capital's first – utopian – projects of complete domination over the universe of development. The field of linguistics changes from being a discipline which describes and prescribes norms of natural linguistic expression, to a discipline which creates and introduces artificial forms of linguistic governance over material structures. The linguistic studies, in other words, go from being tools of analysis to becoming a means of production themselves, "from analysis of the ideology of innovation to direct intervention in the real processes of innovation. This is the course followed by contemporary linguistics, at least from a perspective that includes capitalist development."[18]

Tafuri's ideas about the role of language in architectural critical theory suggest different ways in which our understanding of architectural production could be expanded. For him, spatial language loses its objective status, becoming a bearer of qualities imposed by the prevailing system of political economy. Subsumption of architecture (and art) manifests itself in the avant-garde and later conceptualizations such as post-structuralism, which cause a complete disappearance of any symbolic and semantic load carried by its objects. What is special for our inquiry is that it turns away from experimentation and the enclaves of innovation that interested Tafuri, towards generic, mainstream, and market-driven architectural production. The second, and perhaps more important change is that we consider

architectural production together with the artificial languages of computation and simulation, rather than with the natural languages of every day communication. These formal codes, only briefly discussed by Tafuri, represent one of the most important contexts for the process of subsuming architecture under capital, offering a basis for a different, more complete understanding of their dynamics.

Internal Semantics

Architecture and Utopia was published at the cusp of the personal computer revolution, when the decreasing cost of microprocessor manufacturing led to the development of consumer grade 'microcomputers.' The proliferation of such machines had a tremendous impact on large corporate businesses as well as on the process of architectural production by lowering the cost of carrying out complex calculations involved in material tolerance assessment, etc. Less than a decade after Tafuri made his claim about formal languages taking hold of the architectural field, every forward-thinking company had at least one computer, while companies like Microsoft and Apple were introducing the first widely available graphic design software. The tremendous success of these companies was in large part accomplished by hiding the complex rules of the machines' operation from their users. With the introduction of graphical interfaces, transparency has been traded for ease of use. By covering code based interfaces with a user illusion of skeuomorphic icons and virtual spaces, the inner workings of the machines have been removed from the eyes (and minds) of their operators. It is not surprising that Apple, the most economically successful consumer electronics company in history, has built its brand around the opaqueness of their product, purposefully limiting the owner's ability to discover and manipulate the components that produce a pleasant user experience.

Programming languages, like other formal languages, have

a syntax and semantics. The syntax describes the signs which make up the programming language, their properties (e.g. shape, typology), and a set of rules concerning the ways in which these vehicles can be manipulated to create well-formed strings – their grammar. The semantics of a formal language concern the meaning or interpretation of such vehicles, thus making them proper symbols – signs which carry content and can be said to be about something other than themselves. Although most formal languages are compatible with more than one semantic interpretation, programming languages are often said to have or share two such interpretations at the same time.

The idea of sharing two different frames of reference in relation to which their meaning can be determined was introduced to philosophical literature through Daniel Dennett's work on intentional ascriptions.[19] Dennett, who became interested in programming languages while elucidating the key claim of the 'cognitive revolution' (that the brain is a kind of computer), distinguished two different kinds of informal semantics for programming languages: internal and external. Internal semantics refer to the manipulation of digital structures in the machine. They are internal because they do not refer to, or depend on, anything outside of the system that performs the computation. Rather, the meaning of the programing commands encoded in the strings of symbols is the effect they have on the components of the computer, like changing the bits in the memory registers. External semantics, on the other hand, give meaning to the programming language through reference to things external to the system itself. In this sense, external semantics are more like the semantics of natural languages—they gain their meaning by denoting or referring to things other than the internal state of the system.

To better distinguish between two kinds of meaning ascribed to programing languages, we can look at the example of a person

using a computer to write a simple web page or a program. We can assume that the user writes commands in a so-called high-level programming language like a recent iteration of HTML or JavaScript. Instructions in such languages resemble natural languages in two ways. Firstly, they employ expressions from natural languages, such as START, PAUSE, OUTLINE, etc. Secondly, commands in such languages are usually meaningful for the user in virtue of referring to the outputs of the computational processes. From the perspective of the machine operator, the execution of commands is completed when the products become visible on the output device. Nowadays, the work done by the computer can seem nearly instantaneous – all you need to do is write the code, press a relevant key, and after little to no time the computer displays the desired output. However, what happens inside the machine is more complex than that. To process the user's commands, the code which is comprehensible to the user needs to be translated (assembled or compiled) into code that is used by the machines' control unit. Although this process has become significantly more complicated over the years, the result is nearly always the same – user's inputs are translated into instructions in machine code, e.g. binary code, which controls the behavior of the processor. These instructions, unlike the ones issued by the user, do not refer to the manipulation of objects that are displayed on the output devices, but rather refer to the shifting and assigning of bits in memory registers, formation of new strings of bits, etc. Their semantics are internal because they are about the entities and processes occurring within the computer's circuits.

Extrastatecraft and the Active-form of architecture

The traditional idea regarding the production of a built environment, consisting in large part of the figure of an architect

experimenting with an original and singular form of a building, is seemingly impossible to compare with the dynamic, non-stable, and hidden processes of computation. To understand the fundamental characteristics of inform, we must turn towards a different understanding of the architectural product, one which, paradoxically, can be seen as a negation of architecture itself. These products of architecture are driven by global flows of capital and labor, and their form can be characterized as a recurrent spatial pattern, a set of relations, rather than a singular vision or unique design.

In her most recent book, *Extrastatecraft: The Power of Infrastructure Space*, Keller Easterling describes and analyzes the global phenomenon of infrastructure space. As Easterling points out, an ever larger proportion of the built environments produced nowadays can be characterized not by the notion of an object-form, but by that of an active-form. What happens is that "buildings are often no longer singularly crafted enclosures, uniquely imagined by an architect, but reproducible products set within similar urban arrangements."[20] The monoculture of capitalism renders architecture a spatial product, a universal, exchangeable commodity which can be implemented in any given situation.[21] It is here that the subsumption of architecture under capital explored by Tafuri finds its clearest, yet least visible, manifestation in infrastructure networks woven around the globe.

The infrastructure of highways, railways, broadband internet cables, as well as special economic zones or tourist resorts, plays a crucial role in the process of capital's appropriation of previously non-commodified land, its reproduction of space as real estate, and in the extraction of new surpluses.[22] At the same time, its formal appearance in the world, that is the object-form, does not allow us to understand its active-form. Referring to the classic theory of the medium – the medium becomes a message, and then the message itself is hard to detect and decode.[23] Even

more so as, at this point, the production of a built environment comes together with flows of digital information. Infrastructural space behaves, as Easterling points out, like spatial software.[24] It produces sets of visible possibilities, and undetectably ascribes restrictions to environments and bodies.[25]

The first and foremost example of an infrastructural space, one which reproduces all the mentioned qualities, is the special economic zone. Such a zone becomes a doppelgänger or a shadow of a city, and sometimes it becomes a city itself.[26] It is a space which has become a necessity of contemporary capitalism, offering a flow of unregulated labor, tax avoidance, and autonomy from the laws of nation states. As with office space which offers the same qualities in every part of the globe, economic zones are like whole cities of predictable spatial, legal, and usage conditions. And, as in the case of office space, even if criticized by its users, creators, and founders, the architectural typology of the economic zones prevails and continues to spread throughout all continents bar Antarctica, persisting as a promise of a connection to the global flow of capital.

Western side of the CBD of Shenzhen, China, photo: Wikimedia Commons, CC-BY-3.0

As with every architectural typology, the zone has its own concrete historical conditions of appearance. The zone came to being in the post-war period, first as a commodity sold by the colonial West to the East (global North to global South), and then it started mutating and expanding in countries like China or the Emirates, slowly turning into a city itself. In the 1970s, the zone became a remedy for 'developing' countries and became a format supported by the United Nations Industrial Development Organization and the World Bank.[27] While UNIDO characterized it as a temporal phenomenon, a tool to jump-start

the economy, it quickly became obvious that the zones were permanent. An additional boost to this type of artificial environment came from Chinese policies implemented in the 1980s, when the first zones – Shenzhen, Xiamen, Shangtou, Zhuhai, and the entire province of Hainan - were created.[28] The scale of the global implementation is clearly visible in numbers: "In 1975, there were twenty-five countries and a global total of seventy-nine EPZs employing 800,000. [...] In 2006, 130 countries hosted 3,500 zones employing 66 million."[29]

Shenzhen can act as a case study by itself, inspiring architectural writings such as "S, M, L, XL" by Rem Koolhaas,[30] and changing the idea of what the contemporary city might be. It is also a perfect example of an intersection between extrastatecraft, real estate speculation, and computer industries, as it has recently been labeled "the Silicon Valley of hardware."[31] As mentioned above, the city was created from scratch as one of the first SEZs in China. One could say that it was artificially generated, as the cityscape of today's Shenzhen has nothing to do with the rural villages which occupied the same space as recently as the 1980s. This accelerated process of "city rendering" was strictly connected to its special economic status which stimulated financial speculation and labor migration, as well as the Western hemisphere's peaking demand for outsourcing the production of new computer technologies. Architecture, new technologies, and capital's expansion and appropriation, all became tightly bound in Shenzhen, generating a reproducible model of development.

The zone can establish itself as a doppelgänger of a city, as with Shenzhen and Hong Kong, or it can even become a city itself, like in Dubai. However, the deployment and dependence of architectural forms on the capitalist ideas of "growth" and "prosperity" are not things restricted to the zone, but merely exemplified in it. Every city aspiring to acquire global capital

proves its status first and foremost by building an array of glass and steel skyscrapers, which aim to host offices for global corporations. Together with less visible infrastructure features such as broadband, and land appropriation and commodification, the extrastatecraft machine of capital deploys the spatial software of its monoculture to subsume non-commodified spheres of human activity. In this context, inform becomes a notion deploying a set of relations implied by architectural production, which is connected to neoliberal ideals of accumulation, as well as the ideological implication of its products.

Airspace and the Internal Semantics of Extrastatecraft

One might be tempted to think that the problem of architecture's subsumption exists as a purely global phenomenon, visible only at the macro scale. To a city dweller from the rich West, special economic zones can seem like abstract entities existing solely in political and economic dimensions. However, as we have suggested above, the subsumption of architecture is a very real phenomenon, not only present in every urbanized area, but permeating our experience of space. The reason it stays hidden from our everyday perception of architecture is because the mantra of 'form follows function' has been interpreted as architecture serving the needs of the individual rather than the needs of capital. The concept of 'good design', whether interior, exterior, or industrial, has been equated with frictionless usability paired with the user experience of instant familiarity. However, once we change the interpretative lens and look at modern architectural space as serving the function of advancing the capitalist agenda, the hidden internal logic of the inform reveals itself.

In a recent essay, Kyle Chayka meditates on our contemporary

experience of interior space and the puzzling phenomenon of a small set of similar aesthetic trends becoming prevalent around the globe.[32] In the past, the spread of uniform aesthetic trends was facilitated by multinational corporations which, with little to no adaptation, would impose their business model and visual presence in different parts of the world. Starbucks, with its interiors reminiscent of mid 1990s sitcoms, used to sell a mocha-flavored fantasy of Western prosperity. While a paper cup with a green logo is still seen as a status symbol in many parts of the world, most of the rich and affluent elites seem to have moved on to more 'authentic' and 'artisanal' spaces. Chayka describes them as a "realm of coffee shops, bars, startup offices, and co-live / work spaces that share the same hallmarks everywhere you go: a profusion of symbols of comfort and quality, at least to a certain connoisseurial mindset."[33] Such interiors, with their hard wood tables, industrial lights, and exposed brick walls, can be recognized instantly from New York and Athens, to Tokyo or even Shenzhen. The aesthetics have changed, the means by which they proliferate have changed, but the hegemony (and homogeneity) of a unitary model has remained in place.

Chayka calls this phenomenon "AirSpace", thus pointing directly at the internet and the explosion of social and mobile applications, as its source. Business and service rating platforms like Forsquare and Yelp, as well as visual sharing ones like Instagram or Pinterest, are responsible for producing a global "harmonization of tastes" by allowing users to capture and share the kind of experiences that they would like to be part of. The offshoot of this high bandwidth preference sharing is a homogenization of space which facilitates exchanges, making "traveling between them [...] frictionless" and showing that "changing places can be as painless as reloading a website.

You might not even realize you're not where you started."[34]

Nationale-Nederlanden Douwe Egberts Café, photo: Smiley.toerist, CC-BY-SA-3.0

The analogy of internet browsing is especially revealing. It points to the fact that even though the process of creating an enjoyable and repeatable user experience seems to be a spontaneous one, it is in fact a carefully curated illusion. As the example of the eponymous flat sharing app – AirBnB, which exploits its algorithms and has changed its guidelines to introduce a common standard to its listings - shows, the proliferation of AirSpaces is in fact similar to the old model of corporate imposed choice.[35] The difference is that now it has been 'disrupted' by Silicon Valley so as to source content from consumers themselves, turning them into the perfect focus group and allowing for greater profits. The homogenization of space controlled by multinational corporations in a top-down manner has been exchanged for a bottom-up proliferation of marketable fads. Instead of imposing their will on consumers, sharing-economy networks offer a platform on which the development of capital-accumulating trends has been outsourced to users.

The concept of AirSpace reveals not only the system's interior design, but also its internal semantics, its inform. This is visible in the discrepancy between the meanings and functions ascribed to such places by users and their internal logic of maximizing profit. The external semantics of an AirSpace can be captured by the artificiality of an exposed brick wall appearing in a café located in the lobby of a newly developed skyscraper, or the out-of-place quality of a battered Boston Police Department squad car resting in the corridor of MIT's Ray and Maria Sata Center. Both these elements are in fact empty symbols, uprooted and

transplanted from one context to another with the intention of being mere screens on which certain qualities and meanings can be projected by the users of these spaces. However, the apparent meanings they seem to be intended to carry are in direct opposition to their function and the logic behind their inclusion in these spaces. From the perspective of capital's interest, these elements are as good as clickable banners on website – they are pure inform which does not carry any emotional or semantic baggage, but serves solely the function of generating profit by attracting consumers into those spaces.

Inform as Active-form

Through the global practices of extrastatecraft and local deployment of airspaces we can observe a repetition of motifs, relations, and qualities which together form what we would like to call an inform. It would be easier to illustrate this spatial paradigm using corporate architecture and office spaces in general, however, referring to them we would risk enclosing the argument in the object-form perspective, which would fail to capture the essence of the phenomenon. Inform stands in contradiction to the traditional understanding of form as a set of aesthetic qualities that define an analyzed object. It manifests a tendency to employ certain forms, such as a high-rise building, or glass facades on a steel frame, but these should be treated only as empty signs, generated from the internal semantics of the system, which tend to cover its material basis, and the long-lasting ideological consequences implied by it.

The historical basis for the inform are therefore threefold. As we have shown, the crisis of meaning generated in the architectural field intertwined with the development of computational languages in the late 1970s. These languages, as Manfredo Tafuri pointed out, were a utopian attempt by capital to dominate the sphere of language. Utopian or not, the possibility of generating a world, rather than engaging with its

condition, was an ideal way of introducing the value relations of capital into the architectural field.[36] This process gained even stronger momentum as various currencies, especially the US dollar, were freed from their dependency on gold. With the end of the Bretton Woods system, a new era of commodification and financialization began, one in which the real estate market played, and still plays, a crucial role.[37] As such it unfolds today, rendering built environments as one of the last resorts of stability (and instability) in the global market economy and neoliberal ideology.[38]

Internet City in Dubai, photo: Shwetasarvesh, CC-BY-SA-3.0

Processes represented by the inform and historically founded in the 1970s influence our contemporary reality. The bundles of real estate development, computation technologies, and the ideology of economic growth are visible at the macro scale in a city like Shenzhen, and at the micro scale of an apartment, as with AirBnB rentals. They can be developed as exploitation tools ex nihilo, much like mobile applications are developed in the start-up world of Silicon Valley, but they can also feed on older models, implementing the artificial rules and values of capital as natural ones. This is achieved, among other ways, through a shift in which the function of the form designed for capital accumulation is removed from the external semantics, and placed in the internal semantics of the system. The visible form appears to lack significance, as it did to Tafuri, when in fact it has been subsumed making its use value become one with its exchange value...

Inform unfolds not as a particular formal condition of a building, but rather as a set of relations and conditions which create the building in the first place, and then imply certain actions, govern its environment, and spread, much

like a computer virus does, through the web of financial interconnections to other localities and geolocalities. These actions consist of, but are not limited to: primitive accumulation, or accumulation by dispossession - as characterized by David Harvey;[39] introduction of real estate as an exchangeability-driven equivalent of dwelling;[40] development of complicated financial machines promoting the individual interest over the common one;[41] and deployment of a debt structure which renders the major parts of society dependent on lenders (banks).[42]

To synthesize these processes, one can repeat after the words of Marx: the whole system tends toward maximizing profits, that is surpluses, which is the sole purpose and aim of capital.

The aim is then to recognize that the repeatable and non-discussable forms of built environment are inherently ideological themselves. Their inform implies processes and actions which cannot be deduced from their object-forms. To do this it is necessary to move towards different frames of reference, such as the semantics of computational languages or the financial structure of debt. However fluctuant and free the capitalist market is, its implications and basis are always material ones, and it is there where the basis for the analysis should be looked for.

1 Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*, trans. E. Jephcott (Stanford: Stanford University Press, 2002), 94.

2 Walter Benjamin, *The Work Of Art In The Age Of Mechanical Reproduction*, trans.J. A. Underwood (London: Penguin, 2008), 4.

3 Nikil Saval, *Cubed: A Secret History Of The Workplace* (New York: Doubleday, 2014), 256.

4 Fulcrum, ed., *Real Estates: Life Without Debt* (London: Bedford Press, 2014), 23.

5 Manfredo Tafuri, *Architecture And Utopia*, trans. B. L. La Penta (Cambridge, Mass.: MIT Press, 1979).

6 Either tending towards the teachings of Maurice Merleau-Ponty or trying to

incorporate the methods of Situationists International.

7 Mario Carpo, *The Alphabet And The Algorithm* (Cambridge, Mass.: MIT Press, 2011).

8 Martin Heidegger, *On the Way to Language*, trans. P. Hertz (New York: Harper and Row, 1971).

9 Peter Eisenman, "Autonomy and the Will to the Critical," *Assemblage*, no. 41 (2000): 90-91.

10 Pier Vittorio Aureli, *The Possibility Of An Absolute Architecture* (Cambridge, Mass.: MIT Press, 2011), 215.

11 Bernard Tschumi, *Architecture And Disjunction* (Cambridge, Mass.: MIT Press, 1994), 229.

12 Bernard Tschumi, op.cit., 228.

13 Greig Crysler, Stephen Cairns and Hilde Heynen, *The SAGE Handbook Of Architectural Theory* (Los Angeles: SAGE, 2012), 61.

14 Ibid., 61.

15 Manfredo Tafuri, op.cit., 178.

16 Ibid., 150.

17 Ibid., 151.

18 Ibid., 160.

19 Daniel Dennett, *The Intentional Stance*, (Cambridge, MA: MIT Press, 1987).

20 Keller Easterling, *Extrastatecraft: The Power Of Infrastructure Space* (New York: Verso, 2014), 17.

21 Jason W. Moore, *Capitalism In The Web Of Life* (London: Verso, 2015), 115.

22 Ibidem, 19.

23 Marshall McLuhan, Quentin Fiore, *The Medium Is The Message* (London: Penguin, 1996).

24 Keller Easterling, op.cit., 22.

25 Jon Goodbun, Michael Klein, Andreas Rumpfhuber, and Jeremy Till, *The Design Of Scarcity* (London: Strelka Press, 2014).

26 Keller Easterling, op.cit., 45.

27 Ibid., 53.

28 Ibid., 59.

29 Ibid., 55.

30 Rem Koolhaas, *S, M, L, XL* (New York: Monacelli Press, 1998).

31 "Shenzhen: The Silicon Valley Of Hardware (Full Documentary) | Future Cities | WIRED," accessed October 23, 2016, https://www.youtube.com/watch?v=SGJ5cZnoodY.

32 Kyle Chayka, "Welcome to Airspace", *The Verge*, August 3, 2016, accessed October 23, 2016, http://www.theverge.com/2016/8/3/12325104/airbnb-aesthetic-global-minimalism-startup-gentrification.

33 Ibid.

34 Ibid.

35 Ibid.

36 David Harvey, "The Right To The City", *New Left Review* 54 (2008):23-40, accessed December 20, 2016, https://newleftreview.org/II/53/david-harvey-the-right-to-the-city.

37 Fulcrum, op.cit., 45.

38 David Harvey, op.cit. 27.

39 Ibid., 34.

40 Fulcrum, op.cit., 6.

41 Ibid., 101.

42 Maurizio Lazzarato, *Governing By Debt* (Los Angeles: Mit Press, 2014).