FROM BODY TO NETWORK

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Abstract
The relationship between culture and digital technology is rapidly changing. From Diderot's encyclopedia and the erection of the first industrial complexes to today's era of algorithms, the way abstract ideas take form within space and culture shifts from the clarity of construction to the opacity of digital processors. Axioms, scientific principles and visions are gradually withdrawn from the naked eye, the 'man-made' scale and structural logic, giving their place to computing and machine learning. This paper investigates this new condition as far as the conception, the construction and the memory of space is concerned.

Keywords: body, network, explicit, implicit, space

Introduction

The way abstract ideas take form within space and culture moves architecture from the clarity of construction to the opacity of digital processors, gradually abandoning the 'man-made' scale and structural logic, and giving their place to computing and machine learning. The generating process of things withdraws from the naked eye.

Since 1995 N. Negroponte in his book *Being Digital* explains to mainstream readers the difference between the structure of matter and the structure of the digital realm, in other words, the difference between atoms and bits. [20]

Ever since leaps have been made in terms of our digital culture resulting not only in new disciplines of architectural design and materialization, but restructuring public life with the extensive use of the internet and the algorithms which run behind its social front.

The construction, memory and vision of space, as well as the dynamics of the public realm are redefined as complementary aspects of implicit and explicit expressions – or, as implicit and explicit functions exchanging data between two fundamental systems, the body and the network.

implicit -> explicit : The Encyclopedia of Diderot

During the Enlightment knowledge emerges from darkness to light, from implicit to explicit. The way the world works and the laws operating become visible and recognizable. Philosophy and aesthetic call for order and reason during the 18th century. Encyclopedists like Denis Diderot, d'Alembert, Montesquieu, Rousseau and Voltaire align themselves with Newton and envision the age of reason (Hamlyn 1987:210-212).

With their encyclopedia, Diderot and d' Alembert, aspire to create a comprehensive educational textbook which would allow the next generation live a happier life. (Creech 1986:137). The minute description of 18th century crafts, arts and professions ushers the decisive transition from the medieval guild system to democracy and verbal communication (Moravansky, 1997:118).

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[20] from atoms to bits, N.Negroponte, *Being Digital* (1995)

We can draw a parallel to that transition, as we are moving today from the analog to the digital world. The role of the human body in ergonomics and the shaping of inhabited space changes dramatically (Lava, 2012).

One could easily claim that machine impoverished man from his essential activities. Yet, a more careful look allows the values of machine age to surface; according to Mumford, it may be that machine contributed to modern culture much more than what got lost in our environment because of the use of machine (Mumford, 1979).

Now digital culture microchips 'swallow up' the universe of machine. The body is not an extension of machine any more. New sizes, new functions and new correlations impact architecture directly. Diderot's plates, describing physical labor and 'visible mechanics' in every tool used maybe the last highlight of a world almost lost. There is nothing nostalgic in that realization, as the encyclopedia leaves behind useful information about how we evolved into today's culture: our compressed reality stems from the explicit form of the 18th century. In other words, Diderot's representations of professions and crafts provide what we can call the 'inner dimension' of machine, a world order where body and space are still linked to each other by labor (Lava, 2012).
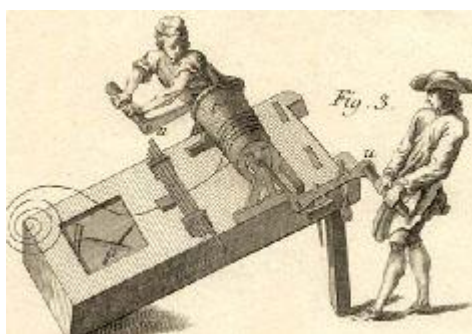
Wiremaking - from Encyclopedie volume on Trades and Industries
http://www.visitvoltaire.com/v_diderot.htm

**explicit (production) -> explicit (exhibition) : Tsalapatas Brickyard**

The Tsalapatas brickyard in the old part of the city of Volos *Palia* has been turned into a museum today, as it is a representative example of industrial archaeology in Greece. It is a dinosaur-building which was abandoned in 1978 after 60 years of use. After an extended restoration and reuse project by the I.Kizis Office and a museological study by V.Kolonas the building is one of Volos contemporary landmark buildings. The overall project was funded by the Cultural Foundation of Piraeus Bank.

Tsalapata Brickyeard 1988, photo by Riva Lava
https://volonakinews.gr/diaskedasi/pio-estiatorio-tou-tsalapata-erchete-ke-sto-kentro-tis-polis.html

In order to decipher this industrial complex, the concept of production – the sequence and the placement of productive processes- is key. The size of enclosures follows the size of large scale mechanical apparatus, describing another entity inside. The complex is a sheltered machine – an evolution of the buildings-machines showcased in Diderot's encyclopedia.

https://pages.uoregon.edu/dluebke/301ModernEurope/Enc-Moulin0001.jpg
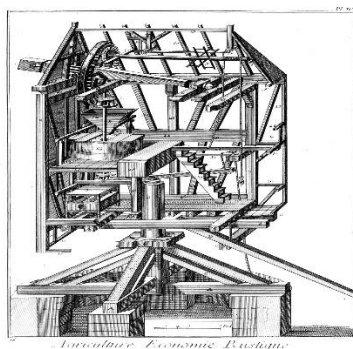
The constitution of an industrial logic and structure is mediated in an unobstructed way and activates a field of communication with man. The meaning of space is clear, traceable and educational regarding its historic significance, as a way something was done in the past (Lava, 1991). In its spaces, the daily life of its industrial past is being showcased today, together with all the stages of brick production. The Tsalapatas brickyard allows for the special and conceptual transition from explicit (production) to explicit (exhibition). Industrial production holds together the identity of the place, whereas the manner parts and relations are jointed together remains explicit despite the change of use.

explicit -> implicit : the village of Richea

The village Richea in the southeastern region of the Peloponnese in Greece retains its preindustrial structure during the last two centuries. At the time of the study[21], which was conducted in situ, it numbered 318 houses of similar typology, while its social tissue was maintained by Richean migrants who created its diaspora around the globe.

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[21] 1984 -2005

Eastern and southern façade of the Richean house, R. Lava

According to British anthropologist Robin Dunbar, people feel intimately connected within a community of 150-200 individuals, a number close to the community of Richean diasporas. This is the size of the network that preserves the inner connection among the people of this village along their Odyssey. Yet, when they return back to their homeland it has been found that homecomers see their nostalgic feelings crash on a wall – a place which is not recognizable as home anymore. The place per se has not changed that much, but, the place has become part of a new environment of sites and uses, a network. The village has changed in relation to the world and is now part of a network of places; it is connected to modern infrastructure and has its site on the internet. The settlement does not grow from the inside out anymore, from families and clans that constitute neighborhoods. Now the dynamic builts the place from the outside in. (Lava, 2009). A happy ending for Odysseus travel would mean that things are placed again where they belong (Casey, Ricoeur, 2006: 149). Yet, 'things to be placed again' –the everyday life and inhabitation in Richea,- as well as their places –the houses- do not respond to reality anymore. As one Richean homecomer puts it "*now the world has changed*".

Upon return, Richeans grasp for a larger world out there, a world that has 'swallowed' them too, turning them into strangers in their own homeland. They now describe an unfamiliar universe. Spiritual distance and alienation taking place over the years of migration and the return to the homeland account for a changed perception of the village. The need to retrace an inner path leading home gives form to an idealized place only accessible through a personal bond. The collective identity shrinks into this personal bond with the place of origin, or, put differently, explicit expression turns to implicit.

explicit -> implicit : networks, algorithms and machine learning

Digital technology is part of modern life, it is here to stay. While processes and physical entities of the machine age are being withdrawn from the naked eye, the world finds new forms as mathematical series and algorithms, the building blocks of the digital world. Machine learning takes over democracy, the media, politics and education. Social networks are described as having a decisive impact on our daily lives.[22]

The digital generation aspires to simplify all procedures and protocols of knowledge by a sole algorithm, the master algorithm, as featured by Portuguese mathematician Pedro Domingos (Domingos, 2015).

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[22] Christakis N, Fowler J., Connected, published September 2009 by Little, Brown and Company
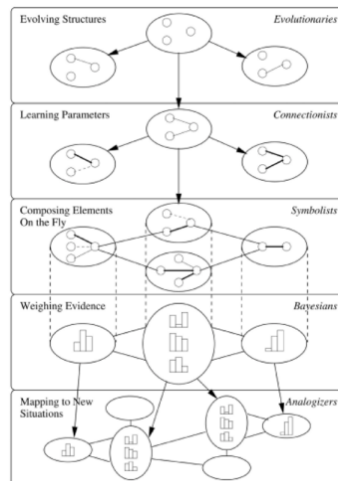
Master Algorithm: 5 methods of machine learning, TABLE OF METHODS

Amongst the five more prevailing methods of machine learning as described by Domingos, analogists seem to be closest and more relevant to matters of design and memory of space. The things most remembered are the ones that may offer predictions about human life.

Other scientists who have attempted to transcribe human life to a program with arithmetic values, like psychologist Mihaly Csikszentmihalyi, have come up with the rough estimate that 'over a lifetime of seventy years and counting sixteen hours of waking time each day this amounts to about 185 billion bits of information. It is out of this total that everything in our life must come – every thought, memory, feeling, or action. It seems like a huge amount, but in reality it does not go that far'[23].

Conclusions

The prevalence of digital culture reframes the traditional role of the human body, together with that of building materials, gradually dismantling the mechanic universe as we know it. From teleological object, designed space shifts to a 'smart', ever-changing and evolving entity. Flow replaces the steady object. We may be leaving behind the conventional timeframe of an architectural project. At the same time, we are witnessing the takeover of choice, privacy and democracy by algorithms within the larger framework of globalization. If we seek for a stronger human presence within the realm of our digitized world, or, for the juxtaposition of human personality with algorithm and the decisive placement of the body within the network, we could then reframe the issue as transition from implicit to implicit form.

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[23] Mihaly Csikszentmihalyi, The Anatomy of Consciousness, FLOW (1990)

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