

# Navigating in the age of magical reproduction

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## Contents:

Intro.....	3
Set destination.....	4-6
Calculating route.....	7-9
Demystification.....	10-13
Follow road ahead.....	14-16
Set point of interest.....	16-18
Re-enchantment.....	18-20
Participation.....	20-21
Turn when possible.....	21-23
Conclusion.....	23-25
Connection to satellite lost.....	23-24
In approximately 100 meters you will reach your destination.....	24-25
References.....	26-27
Bibliography & images.....	27-28

"It has to be held, it has to be touched for you to feel how magical it is"  
(Steve Jobs, launch of Ipad2, 2011)

‘Technocrats are not technicians but managers, whether they belong to the administration of the State or to big businesses which are closely bound, by reason of their very importance, to the agencies of political decision-making.’ (Touraine, in Barbrook, 2006, 74.)

This text goes into the “to hold and not to have” of ubiquitous enhancing technology, through the prism of magical thinking, to show another take on the rational, instrumental technological determinism that resides in the presumption of information communication technologies.

The motivation for this journey is: to question how the evolving complexity of the technological world demands naturalization and simplification, which in turn unnoticeably becomes a physical and mental dependency. Contemporary technological devices mediate our perception, our communication our activities, personalized through individual use, and through customization. Through the fitting of an interface to a specific set of functionalities, through the constant sophistication of software. Opening the black box of such technologies as GPS, several levels of performative languages will play a part in the process of naturalization and seduction, inevitable in the encounter with technology, fitting into a post Fordist reality.

This becomes a technological superstructure where the dynamics and distribution of power are not constant, but one’s position in relation to control within technology is constantly in play.

## Set destination

Over the past two years, a small French village called Lourde has become an accidental destination for many of the Catholic pilgrims determined to visit one of the most famous shrines in the world. Accidental, because it was a matter of a letter of difference typed into GPS devices to navigate them to Lourde, and not Lourdes, the famous pilgrimage point. This technical mistake became difficult to determine, as some pilgrims nevertheless searched for the holy marks, not questioning the peculiarly small size of the village of 94 inhabitants. The article from the Telegraph concludes with the statement: “The GPS is not at fault, people are”.

In this article, references to faith are not only connected to Catholicism, the image caption saying “Blind faith in the wonders of GPS is causing a growing number of Catholic pilgrims in France to stray from the right path”.



The shrine of Lourdes, on the left, versus the village of Lourde, on the right

The difference in meaning the word *blind* adds to *faith* is crucial to understanding the difference between a spiritual faith and its mechanisms. This blind faith that resides in, both the religious and technological force that drove the travelers to the shrine of their choice is a practical one. It is an affective and causal relation to events, which can be understood through the principles of magical thinking, a system of understanding and approaching the world. In this system certain objects and combinations of actions are understood as powerful and causal of (un)wanted events. It is pragmatic and, even to the point where the question of belief in, for example, spirits is irrelevant, what is “essential about magic is a participatory relationship with an inspirited world” (Greenwood, 2009, p. 141). That is to say, one can take part in a “magical paradigm” through activity, without consciously believing in it. The technological *faith* in the GPS device is, in non-sacral terms, trust in the general principle of omnipotent technology. In the concrete situation while using the device trust is less conscious, it is affective, and would simply mean accepting the directions from the device as a given, through the process of naturalization.

Affect is, by Eric Shouse “always prior to and/or outside of conscious awareness, unformed and unstructured (abstract),” (Shouse, 2005, p.5) and by being abstract, is a powerful social force. Affects are immediate and constant, being a crucial part in any discourse of interactivity and relation to interfaces, opening up questions of technological isopraxis.

The user, in this case the Lourde pilgrims, understood the technology used as one that works according to the idea of their desired destination, a device to rely on because of convenience, efficiency and accuracy. They understand it in such a way because technology is used not on a day-to-day basis, but on a minute-to-minute basis, where not only functionality, but also high performance, speed and ease of interaction is expected. This expectation is partially connected to the general ever growing efficiency of usability in the direction of intuitive technology, partially to the authority and rhetoric of science-technology. This is mostly due to the fact that the inner workings of the devices we use are becoming more obscure as the technological world grows in quantity and complexity.

The striking contrast between the inner complexity of devices and their minimalistic design has come to be known as the concept of the “black box”, the somewhat ideal interface, from the orientation of high usability manufacturing. In science and engineering a black box is a

“device, system or object which can be viewed in terms of its input, output and transfer characteristics without any knowledge of its internal workings, that is, its implementation is “opaque” (black).”(Wikipedia)

Inherited from modernisms functionalistic principle, the rationalization and abstraction of parts to a minimum required for interaction leads to a basic, ‘clean’ shape, where “both the device’s formal abstraction and lack of color seem designed to convey a sense of functionality” (Rutsky, 1999, p.110). To darken, obscure, literally means to hide, or mystify. The term can refer to software, as well as hardware, but also to the human brain.



The black box recorder used in aviation, actually painted in orange or red, in order to be easily spotted

The association with the black box used in aviation to record events during a flight is telling of the principle of a closed but living system. One need not open the box, unless

something in the system goes wrong, where the mistake can be located anywhere, but is mostly connected to the use of the system, therefore some sort of misconception of its functioning. Opening the question of the black box would mean opening a series of questions regarding the conceptualization of technology: the question of its inherent and absolute functionality, able to circumvent even human error, being literally a *deus ex machina* (Kluitenberg, 2005), the question of how the invisible is communicated, in other words, how would one understand the consequences of his actions when in constant interaction with hermetic and hidden systems, and the ever prevailing question of control.

On a formal level, the hierarchy of abstraction between the functioning of the GPS device, the programming language used and the language and actions conducted in order to use this device, open up possibilities for interpretation. In other words “The wider the gap between code and perception, the wilder the imagination. (Cramer, 2005, p.8)” Taking the Lourde example, in one reality, the device took the visitors to the exact destination they entered, confirming the impeccability of the technology. In another, the visitors were taken to the wrong village, and in a third, they were taken to a village that could be any other village, because their destination wasn’t questioned.

“All forms of knowledge are connective patterns for understanding the world. They are not reality in themselves, but rather, ways of knowing, expressing and explaining realities through metaphor” (Greenwood, 2009, p. 152)

Looking at the use of most contemporary ICT, there are multiple languages taking place at the same time. There are the programming, executable languages, the symbols the users manipulate, and in most cases, the human language, spoken or unspoken.

“Ever since computer programmers referred to written algorithmic machine instructions as “code” and programming as “coding,” “code” not only refers to cryptographic codes, but to what makes up software, either as a source code in a high-level programming language or as compiled binary code, but in either case as a sequence of executable instructions.” (Cramer, 2005, p.9)

Executable instructions could otherwise be explained as specific sets of words (or symbols) that are given power in regards as to how they are combined and structured. A hundred years ago Bronislaw Malinowski introduced the magical aspect of language as such – the power of words to affect, or construct the world. In the case of contemporary technology, this is any common action on one’s computer – commands are executed, but also this mediated language reverberates back to us. As Katherine Hayles notes, “We become the codes we punch” (Hayles, 1999, p 46).

The experience of the execution of code is one of empowered language, which is able,

when one has knowledge of certain powerful words, to alter and influence reality, both factual, and one's personal, through the reverberation of experience.

## Calculating route

“It isn't surprising that magic lives on in software, at least nominally. (Cramer, 2005, p.15)”

James George Frazer divided the experience of influencing reality through magic into two types: homeopathic (imitative) and contagious magic. Imitative magic would signify like equals like, in a symbolic relation, for example the image of a certain person would have equal relevance as their actual presence.

Contagious magic is one based on contact, part in relation to whole, meaning if we had a hair of a person, that would imply having control over that person. In linguistics, Roman Jakobson later adopted these definitions to differentiate the principles of metaphor and metonymy (Cramer, 2005, p.19).

The first could be seen as representational, and the second as formal, physical. In terms of technology, Scott Lash similarly writes about a representational culture where “the subject is in a different world than things” and a technological culture, where “the subject is in the world with things” (Mackenzie, 2005, p. 5). Stepping inside the world of things is where the difficulty of differentiating the representation of technology from its practice lies.

In a classical anthropological understanding of magical thinking, technology could here be seen as animistic (a world view considering all things having a spirit, in this case, technology as a paradigm), an inherent presence and powerful force. Ever since technology started developing outside of a predictable, controlled environment, both the positivist progressive utopian vision and the fear of its outgrowing humans became a subconscious ghost that stayed ever since, with every new invention.

This animistic view happens in the imaginative space between the visible and the invisible, constructed around technology, where imagination is the only way to understand (naturalize) what we cannot see. It is what separates contemporary technologies from the mechanical ones that needed no metaphor – the steam engine or the clock. This potent space is also why most writers on technology either deal with science fiction as a topic, or their writing approaches science fiction in style.

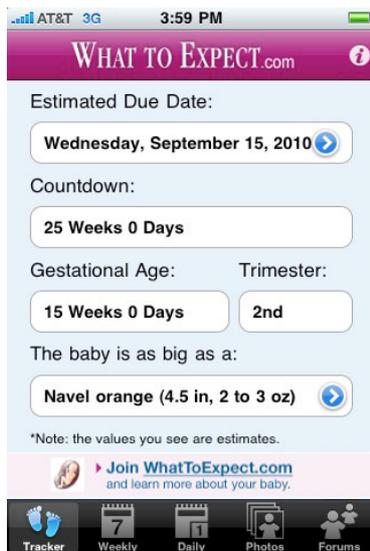
The process of simplification and abstraction takes the concept of black boxing even further surpassing black and leading toward invisibility (Rutsky, 1999, p.110), with the advances of nanotechnology and concepts such as the “Internet of things”. The metaphor of the extreme black box that becomes invisible is perhaps best understood through another metaphor – Cloud Computing, a tendency of minimizing software and data on personal computers and maximizing remote computational services provided and placed within The Cloud. The metaphor represents an abstraction of a network, in this case the Internet, which makes these services possible. The Cloud would seem to be connecting everything and everywhere, yet its location is almost ethereal. The question, not only of The Cloud, but of the general tendency of ubiquitous technologies is ontologically interesting in its connotation of conquering space and time, becoming an omnipresent and omnipotent entity.

“As microchips become increasingly complex, miniaturized, dense, their functioning more incomprehensible, their form more “secret”, the world comes to be seen as indistinguishable from technology – a technology that is no longer simply the instrument of human knowledge and control” (Rutsky, 1999, p.113)

As smart phones become smarter, substituting a whole set of other devices, but also developing thousands of apps for almost anything, they become less phones, and more charismatic objects, while relying on them becomes almost automatic. Their very presence brings a sense of comfort, and technological support, for all human lacks and needs. Together with their aesthetic aspect and performance specifications, these devices are examples of commodity fetishism in their own right, but the fetishism surrounding technology goes beyond this classical model into the more substantial question of man’s empowerment.

“What is important to the individual user is that they ‘simply work’” (Wikipedia on Cloud computing). So again, here the basic premise of complex technology is that users need it to be functional, with as less activity and understanding of how it works as possible. From a market perspective, the black box is how user-friendly applications and devices are presented to potential users, from the visual design, to how applications are developed, in order to shorten valuable time for both consuming and understanding the underlying principles.

What remains to be understood for the user of these black-boxing technologies? Technology becomes naturalized – translated through the mythical language of marketing into more human, individual, more personal terms. Taking a look at how technology is communicated on a large-scale basis, the language used becomes exemplary of a certain type of animistic view.



What to expect pregnancy application for iPhone

What is retold with every new device is the utopian inherent myth of technology as a principle of a promising compensation machine (Kluitenberg, 2005), making amends for human deficiencies. Technology is here to support, enrich our activities, bridge gaps between people, save lives, fulfill our needs and even heal us (the application of Ipad2 in hospitals and with autistic children). The metaphors used as representational of technology bring forth a performative, mythical aspect of language.

“It is a system of belief that assumes a new ‘naturalized’ status, in which technology is not seen to be driven by will or interest, but is increasingly regarded as a matter of fact, much like the forces of nature.” (Kluitenberg, 2005)

On the example of the misguided Lourde pilgrims the GPS system was adopted as one of absolute functionality and unquestionable fulfillment of one’s goals and wishes, or to rephrase, it ‘simply works’. Its functioning was unquestionable to the point where some had even mistaken the small statue of Virgin Mary with the Statue of Our Lady at the Grotto of Massabielle of Lourdes, having left their holy place with a satisfactory feeling of accomplishment.

“We create the world that we perceive; we edit and select form the universe so that it conforms to our beliefs and our vision of order” (Greenwood, 2009, p. 146)

Contagious magic, or from Jacobson’s perspective – metonymy, brings physical presence as an important factor. Interactivity is based on the concept of participation, whether physical, or through the senses. If we would think of the GPS device as a charismatic object, it becomes powerful because as a “part” of technology it represents technology as a whole. Interacting with a device would therefore mean interacting with the idea of technology. The physical existence of hardware is what makes it laden with authority,

that of technology as the ultimate tool. Looking from another angle, if one was to receive navigation directions from satellites without technology, the activity would be considered superstitious.

## Demystification

“All forms of knowledge are connective paths for understanding the world. They are not reality in themselves, but rather ways of knowing, expressing and explaining realities through metaphor” (Greenwood, 2009, p.152).

This is one of many possible table structure perspectives on the complex interrelations between the connective webs of knowledge in question:

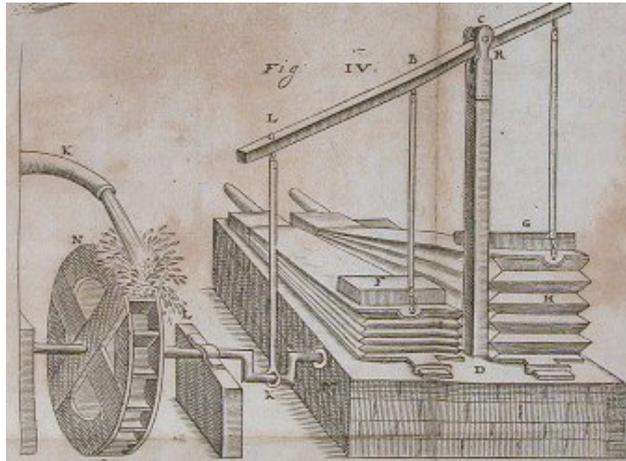
approaches | scientific | religious

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practices | technology | magic

In this table technology is presented as the practice (we could say methodology) associated to science, and magic as one of the practices of religious thought, in the most common understanding from the techno-scientific perspective, that has come to be socially and historically constructed through the scientific revolution of the 18<sup>th</sup> century. Little before this took place, in the 17<sup>th</sup> century, the period when rationalism was still on its rise, these webs of knowledge were not defined by such a perspective.

During that period the famous inventor Athanasius Kircher and his contemporaries were conducting the practice of "artificial magic", the "use of human made contraptions to demonstrate various phenomena found in nature" (Huhtamo, 2007, p. 86).

The purpose of this strategy was twofold; indoctrinating masses into observing the beauties of God's creations, serving to demystify natural magic, and empower those who were free to experiment. Natural magic was at the time considered to be a broad specter of activities, outside of proper catholic behavior. By this action, technology was given a certain acknowledgement “from above” through being accepted by influential individuals in the role of governing universal knowledge, at the time biblical.



One of the demystifying technological contraptions of Kircher's Museum

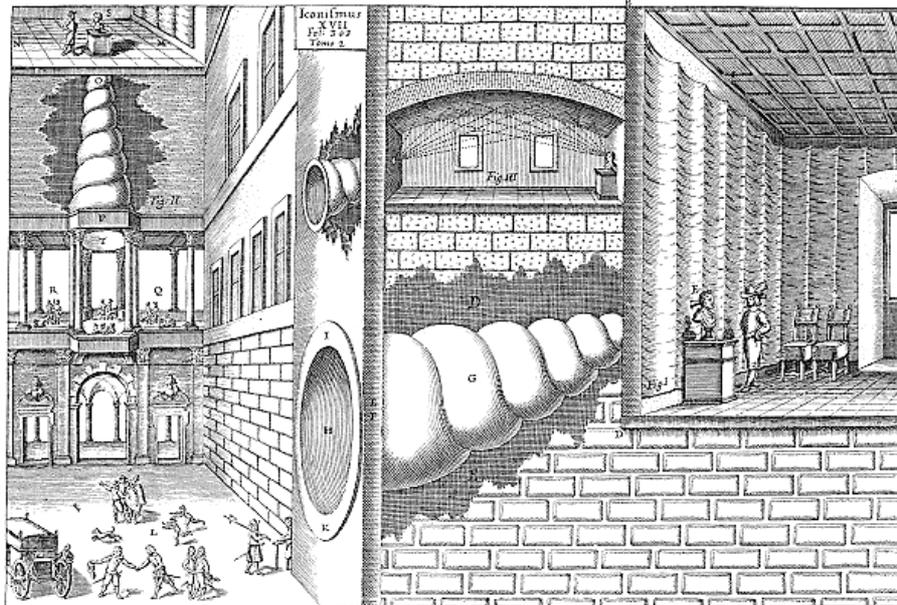
In the preface to his 1657 treatise, *Mechanica Hydraulico-Pneumatica*, Kircher's assistant Kaspar Schott advises readers –

"There is, in the much-visited Museum a great abundance of Hydraulic and Pneumatic Machines, that are beheld and admired with enormous delight of their souls by those Princes and literati who rush from all cities and parts of the world to see them, and who hungrily desire to know how they are made, and so that I can satisfy their desire to know the construction of the machines, I have undertaken to show the fabric, and almost the anatomy of all of the Machines in the said Museum." (Schott)

Theatrical accounts on religious parables were common at the time for the Jesuit order Kircher belonged to.

Religion aside, what is introduced in this example is using technology as a persuasive tool for demonstration and demystification. At the same time, these events for the masses were conceived as a proper spectacle, creating a mystifying fascination with technology as such. This specific type of fascination by how something works, by revealing the "fabric and anatomy of the machines" is equally powerful as the mysterious force of nature in natural magic (in other words, contagious principle of vicinity).

And indeed, this allure of technology returns and grows as a figure of enlightenment and industrialization, up to the futurist glorifications of functionalistic machines as the ultimate aesthetic object. Behind the mechanical ballet these technological objects of desire unveil an implicit link to questions of human control over life and nature. In the case of Kircher, he literally constructed imaginative control devices, demonstrating the power of both technology and the inventors' knowledge and position. For the futurists and constructivists, technology already carried social notions of productivity, a certain type of higher good and unity, and aesthetic in a reproducible philosophic category.



Kircher's Panacousticon, a surveillance system for courtyards and public spaces, where the spiral-shaped conduits would act as amplifiers

“The very notion of Western ‘modernity’ of scientific ‘enlightenment’ is founded on a demystification of the world, in which those magical and animistic modes of thought that attribute a certain autonomy, agency, or life to the objects of the world are repressed in favor of a view that sees the world solely as the object of human knowledge and control. “ (Rutsky, 1999, p.131)

This separation of spirit from matter that took place in the shift from the mesmerizing inventions of Kircher's time to a secular rationalism of Decartes, enlightened the thinking mind, and radically broke any connections with what would not be considered as purely rational. The success of the new thought was based upon this revolutionary break. At the same time this new science adopted the empirical approach of sympathetic magic for its fundamental practice (Greenwood, 2009, p.135). What remained was strictly denounced as irrational, occult, being placed in binary opposition to science, the connotations of which are commonly present in Western culture today, when even in social sciences the meaning of magical thinking is equated to superstition. In the strong, yet ambivalent kinship, Frazer referred to magic as the bastard sister of science (Frazer, 1922).

The illegitimate status of magic is similar to what Mary Douglas calls the relation between the *pure*, and the *dangerous*, with social implications of proper or unacceptable behavior. That which was scientifically proven, therefore socially accepted, constituted the norm. The marginalization of magical thinking was present in religious dogma long before the scientific revolution, but what fundamentally changed in this shift was the definition of science based upon the opposition to all facets of spiritual life, which it

considered as obscuring the higher rational truth from the conscious mind. The borders between the rational and the affective, as hard as they would be to determine, were firmly placed in favor of the empowering force of scientific discovery. Max Weber considered the disenchantment of the world to be fundamentally linked to a “formal rationality in which needs were expressed in numerical, calculable terms” (Rutsky, 1999, p.61). The rationalization of all human activities makes one question where the human affective relation to the world takes place, and how does one relate to calculable definitions of self.

To put it differently, is it enough that a paradigm reformulates the objects of its change, for it to completely break bonds with the paradigm preceding it?

What happened to the imaginative technological contraptions is that they became mechanical tools for practicing natural laws. Laws based upon rigorous experiments leading to the construction of new infrastructures in order to improve the life of humankind. We could say that the ongoing process of black-boxing (abstracting by instrumentalizing) closed the enchanting mechanisms of contraptions for a more functional life and a reproducible temporary fulfillment of needs.

This idea of improvement became the fuel for the later progressive ideas tied to the techno-scientific paradigm, bringing a general wellbeing to all of society. Technology started to become a crucial rhetorical figure, mediating social forces, its physicality being an adequate absorbing mechanism for delegating meaning. What remained the same is the connection between technology and interests of those empowered, whether for religious, military or economic motivation.

## Follow road ahead

Historically, technology is connected to this rise of scientific, rational thought and progress, winning over the dogmatic religious understanding of the world. It is assimilated to change, in the constant process of perfection. It persuades through facts, arguments, rather than parables.

What connects religious, techno-scientific dogma, and magical thinking is preconceived causality, acceptance and applicability to any given reality. Karl Popper explains his critique of scientific determinism by arguing that the logical flaws through which causality grows into determinism through the idea of universality, contrasting human will. Bringing into the subject a scale of problematics connected to empirical science and verifiability, he argues for an approach of disproving theoretical models, rather than proving facts. He locates the origin of determinism in religion:

"Historically one can look upon the idea of scientific determinism as the result of replacing the idea of God by the idea of nature, and the idea of divine law by that of natural law. The law of nature is omnipotent as well as omniscient. " (Popper, 1982, p. 6)

The difference that comes with the scientific dogma is that the law of nature may be discovered by human reason, by rational methods. Popper gives determinism the form of a linear film, a predetermined narrative which relies the condition that the future is fixed (Popper, p. 5). Therefore the causal explanation of an event implies that its causes are determined. One of the many logical problems that arise from this linear perspective is; if the future was determined and predictable, our actions of tomorrow would be known to us today (Popper, p. 11). One example he gives against the universal principle is the realization that two clocks from the same assembly line, from the same factory are never completely the same, therefore technology can never be truly objective (Popper, p. 19). Even though Popper wrote the *Open Universe – an argument for indeterminism* in the 1950s and scientific proofs are no longer perceived as unquestionable truth, the problem of causality is still an active one. This can in a certain sense be seen in the acceptance of technology. Popper himself did believe in the objective knowledge of indeterminist science, the precise definition of logical errors constructing a determinist view are a scientific approach to a process which could similarly be that of magical thinking. His argument through the example of a linear film is likewise connected to the belief that certain actions have power as to affect matter, though the actions perceived through magical thinking have a reciprocal relation, while the linearity of technological determinism grows exponentially. Through the idea of continual progress, the constant development acts as if it was keeping pace with the growth of collective human knowledge, through updating and upgrading, while the opposite is happening – the process of upgrading is navigating collective human adaptation towards these technological constraints.

The scientific view has become such an authority that just by using the phrase “it has been scientifically proven...” one gives credit to his claim. If an authority becomes proven functional and absolute, then one can rely on it practically. To go back to the example of GPS, technological action can become an absolute in such cases as those of the faithful pilgrims, but also those of more visible consequences. In 2009, Georgia, United States a construction crew, using only GPS coordinates mistakenly demolished the wrong house. The crew, when asked by the owner of the destroyed property how that could have happened, said that they had all the necessary paperwork, but no address, because the GPS coordinates were sufficient for their job. The regular court case scenario followed, but the astonishing fact is that of the workers response and perception of the event.



The owner of a demolished house and his ruined property in an interview for The Associated Press

And as in the first example I used, the subject is not ill-conceived technology, accidents happen with or without GPS devices.

What is in question is the authority of technological presence that reassures the subject in question of his actions. The image of technology as a compensation machine (making amends for human deficiencies), becomes so naturalized that it forms a technological dependency, to which one employs trust and even responsibility. In other words, the navigation device gave the workers those exact coordinates, therefore they didn't make a mistake.

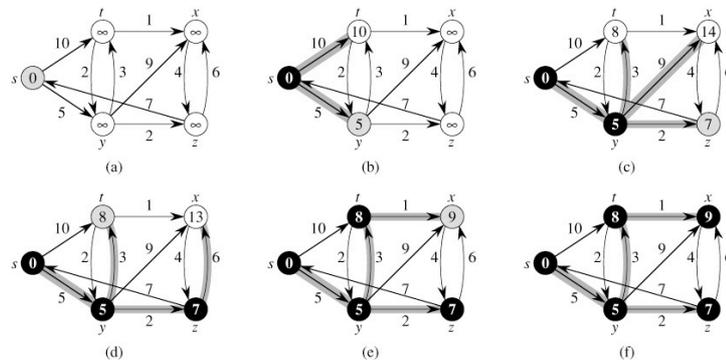
While in religious times, the guiding hand belonged to the figure of God, it was substituted by the higher laws of nature up to the advanced technologies we use today, literally exemplified in GPS navigation.

## Set point of interest

“Any exploration of communications technology has to recognize the difficulty of isolating 'causes' and 'effects', or even in distinguishing causes from effects. As an explanation of change, technological determinism is 'monistic' or mono-causal (rather than 'multicausal'): it offers a single cause or 'independent variable'. It represents a simple 'billiard ball model' of change” (Chandler, 1995, p.4).

The functional determinism of technology ranges from its most abstract conception down to the physical basic source code inscribed on one's GPS device. The routing algorithm takes on such a hermetic understanding of the “minimal cost” (shortest solution), which is embedded to the amount that it takes its notion from beyond the code itself. The basic premise for a code to be functional is to look for the shortest and

most efficient solution for a problem. The routing algorithm is also set never to look back at the route from which it came, the path being calculated only in regards to the forward direction of the destination.

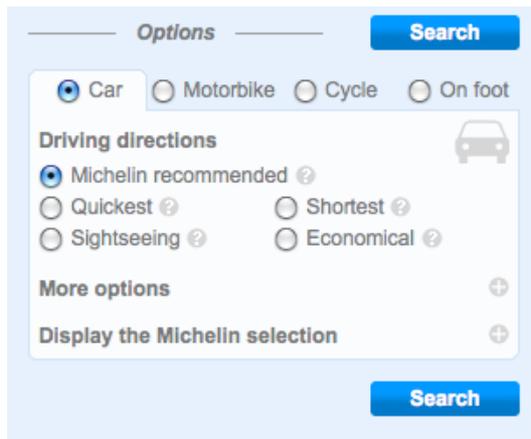


Dijkstra's algorithm, shortest route problem algorithm, used by navigation systems

This is a logical basis for systems being functional, but it shows the nature of the functional principle one need not ever question.

And if we do, ideas such as efficiency and functionality could become highly culturally specific terms. Possibly another question would be imagining a cultural understanding of technology where the most efficient solution wouldn't be the shortest path from a to b, but would form another meaning of what is efficient.

A whole new layer is added in the linguistic interpretation of the code, and purposes for which it is used. On the website for Via Michelin, the options for route planning bring up several options: quickest, shortest, economical and sightseeing. The most important factor for all routes is efficiency in one way or another. This is specifically interesting in the context of how sightseeing is defined, because it is the only one that considers as its goal the travel itself, more so than the destination. It can probably be also considered as the offer for the most interesting route. The concept of sightseeing can be seen as a map of points in space to be conquered, based on predefined culturally determined *points of interest*. Here we have *efficient* technology that gives us the most *efficient* way to visit culturally valuable points in space and time and conduct *efficient* leisure time so we can satisfactorily return afterwards to *efficient* everyday routes. Conquering points in space and time is descriptive of the relation between functionality that brings efficiency, which subsequently increases functionality and projects into the future.



Michelin options for different routes

The unifying power of progressive technology as a social force was what distinguished Western society from the “primitive” world, reinforcing the persuasiveness of defining oneself in opposition to the “other”. This definition of selves is based on a sense of a unifying set of characteristics, distinguishing oneself, in this case, the idea of advanced civilization from “other cultures”. Advance coupled with the techno-scientific paradigm means both historical and spatial evolution, producing a side effect of marginalization in terms of what is not concurrent with the *new ideas of the time*. Past becomes inferior to future, creating a linear film of history. In an attempt to analyze different material realities that evoke dominant constructs and ideas surrounding technology, historical moments are not connected in a causal, linear pathway to a certain goal. Also technology as such functions as a facilitator of social ideas, precisely because of its mediating nature of a signifier both empty and overwhelmed with meaning at the same time.

Ambiguity is perhaps a key feature of technological practices, setting ones experience between the individual and the mass produced, between oneself and the mediation, between output and input. This ambiguity is also what allowed for ideologies such as evolutionism to develop ideals of technology as instruments of militant power, the basis of which reinforced a powerful idea of unity with sophisticated, but ultimately tamed tools.

And technological development bases itself on the ideas of evolutionism, because it is a process repeatedly evoked through the production of the new, the better, the updated, it summons the “better good” and requires participation, because the better adapted go higher in the “food chain” of civilization.

If the premise of technology is functionality, than even more so is its usage, consumption.

## Re-enchantment

“Myth is entirely strategic in character. It serves an agenda and a purpose.”  
(Kluitenberg, 2005)

The industrial revolution brought, among other things, mass produced goods, which for the first time incorporated technology for individual use, gradually becoming a personal matter, and economic interest.

This resurrected the language of mythology into the accepted technological discourse through advertisement: selling commodities as natural needs, but also creating interdependent infrastructures, where the technological surrounding started becoming not only a matter of style or social class, but also a condition to participate in society.

Capitalizing on the findings of psychoanalysis, marketing strategies turned to the inner psychological needs of consumers, where technology, unlike other products from the market, offered power, through the actual, physical execution of functions.

The language of magical thinking was appropriated in its commercial form and at the same time contested for its essence, while the technological object started transforming into a proper fetish, equipped with the unattainable power of possessing “the” device.

By its naturalization, the technological device can be seen as holding similar attributes as that of the aura of the artistic object, Walter Benjamin writes about this in his essay “The work of art in the age of mechanical reproduction”. It is a mystified entity, which besides being functional, also has a demand for aesthetic appearance.

"The realm of aesthetic beauty can therefore be seen as a narcissistic projection of the self: as an imaginary, utopian space, autonomous and eternal, in which every "object" is symbolic, full of meaning, endowed with a spirit or soul that mirrors the self's own image...The aura is, after all, the projection of a kind of living presence or spirit onto the aesthetic object" (Rutsky, 1999, p.26).

The element that is especially interesting to compare with is the reflection of the self (Narcissus) in media.

"The painting we look at reflects back to us that of which our eyes will never have their fill. What it contains that fulfills the original desire would be the very same stuff on which the desire continuously feeds."(Benjamin, 187, quoted in Rutsky, 1999, p.26)

The feedback loop of Narcissus gazing at the image of himself is a mesmerizing vicious

circle of fascination and desire that starts with first seeing his reflection, subsequently wanting to grasp it the more he observes. The more he observes, the more unattainable his image is. Likewise the desire for technological objects is a desire for unattainable selves that craves for more consumption with every new device that somehow reflects our needs.

The absurdity of this comparison is that Benjamin was opposing painting exactly to the technological realm of mechanical reproduction. The aura of the painting resides in its uniqueness, and we could argue that technological production is mass production, as it serves a different purpose. Precisely however, because of this distinction it is possible to locate the personification of media, the aura mass produced to fit every Narcissus perfectly, and the remaining unsatisfied desire. There is an eternal quest for perfection in the technological device, which reinforces the need for the new, and productivity enforces dependency on technology.

During the course of the 20<sup>th</sup> century, the market introduced strategies such as planned obsolescence, to shorten the life of products for economic purposes. The pace with which 'new, improved' products arrive on the market coincides with the financial growth of businesses. The more habituated technological practices become, the more natural it is to keep pace with new devices that make everyday life easier, but also those that make life more enjoyable. It so happens that the mythical language of marketing rhetoric and that of technological progressive productivity forms a lasting powerful marriage of transcendental measures.

On a more physical level, technology becomes such a naturalized set of practices, that it seems almost biological. The "retina display" on the iPod touch suggests a technology so perfected, that it is almost human. On the other hand, it also suggests vision improved beyond a human one:



"Seeing is still not believing.  
Thanks to the Retina display, everything you see and do on iPod touch looks amazing.  
More wow per inch."

(Apple's iPod touch ad)

Does this claim that only technology can allow us to see? Or that our vision has become so mediated, that we are used to seeing through displays?

## Participation

“Stories and myths are a language of participation, they take us deep into our imagination, where different experiences are possible” (Greenwood, 2009, p. 32)

Conditioned to follow technological changes and advances, physically, one has the feeling of participating in technological progress, imitatively, becoming conditioned to actual change itself, following the stream of development, being part of the technological world. At the same time technology becomes more human, more efficient and more intuitive. Interactivity became a condition *sine qua non* that offered users the feeling of control.

The invention of the personal computer offered unique possibilities of interaction and production through offering users the ability to manipulate software. The release of the public Internet allowed anyone with a computer and Internet access the possibility to circulate and discuss produced content and ideas. Phrases such as ‘participation’ and ‘connectivity’ in regards to computers offered utopian, and later on, dystopian visions of a networked society. Through their animistic aspect, these metaphors evoke ideas of social unity and individual empowerment.

With the speed of growing productivity, commercialization and shifting of public services to the Internet, a medium that wasn’t defined in units of time became an infrastructure of constant synchronization. The abstract idea of connectivity started meaning availability and synchronicity – being up to date, meaning updating one’s software, but also in a certain sense, oneself.

At the same time, both manufacturing computers and software oriented towards usability, by lessening the amount of activity (and therefore possibility one has) in order to use computers. Thereafter came the Desktop, the Files and Folders, an interface for the graphical user instead of the Terminal. Black boxing, in regards to software, became common. This is the process of obscuring the underlying code done by proprietary software in order to copyright valuable algorithms. The more closed source, the less it is possible for anyone outside the proprietary circle to modify, the less autonomy the “general” user has. One could, on the other hand, argue that it is not possible to keep sources open, because it would demand slower development, less efficiency, redefinition of copyright and a higher threshold for interacting with software –overall higher literacy in programming languages.

“One of the most compelling snares is the use of the term metaphor to describe a correspondence between what the users see on the screen and how they should think

about what they are manipulating...There are clear connotations to the stage, theatrics, magic – all of which give much stronger hints as to the direction to be followed. Should we transfer the paper metaphor so perfectly that the screen is as hard as paper to erase and change? Clearly not. If it is to be like magical paper, then it is the magical part that is important. “ (Alan Kay, in Bardini, 1997)

From an interface design perspective, the choice of metaphor and language used can even obscure the meaning of what the user is manipulating, and this process is always conducted in the direction of efficiency.

At the same time, the design and intention of the interface have great power over what that interface will mean in the end, through performing the experience of language.

Could we say that interactivity offers the *feeling* of choice?

The process of customization and personalization introduces a technology that offers a certain lifestyle, based on predefined market driven functionalities. Specificity of functionalities absurdly even presupposes eliminating unwanted ones, a process called hardware “crippling”, visible on examples such as game consoles being at the same time disabled computers with high computational power.

The process of customization can be seen as similar to the sightseeing route offered by Via Michelin, meaning that there is a device for everyone, but with predetermined needs. Technology comes with character to mediate the characters of their users. Do these interfaces come to fit the users or do users fit to the preferences of the devices offered?

## Turn when possible

‘If property was the criterion of membership of the former dominant classes, the new dominant class [of technocrats] is defined by knowledge and a certain level of education.’

(Touraine, in Barbrook, 2006, p.74)

To connect presupposes synchronicity on many levels – even in the basic example of a person using Firefox browser 2.5, having an old version of any operating system will render it non-functional. There is an inherent naturalized demand for updating and upgrading, which is equalized with participating by keeping up with the norm.

Howard Rheingold and Eric Kluitenberg talk about the networked narratives of connectivity as the antithesis of human freedom. They ask an important question:

"If we gain health and wealth, amusement and empowerment, through our use of a tool or medium, how have we, by that use, acted to constrain or expand the range of potential choices?" (Rheingold, Kluitenberg, 2006)

They argue from a Western progressive perspective, that the right to disconnect should be a fundamental human right.

Not going into the problematic matter concerning access and differences between the ones who can "connect" and the ones who cannot, the question of access is qualitatively even becoming more important as more people immerse nearly every facet of their lives into seductive connectivity. By connectivity they mean a mediated conditioned state of being available, traceable and visible. In times of all-encompassing technological ubiquity the question of what it would mean to mindfully disconnect is a controversial topic in that it flirts with something that could be identified not more than a Luddite protest. It would first require more insight into the nature and of connective infrastructures, also determining what disconnecting would require and mean. How would one selectively disconnect and still participate?

The possibility to disconnect is a complex matter, because even by physically being present, without mindfully or mindlessly connecting, participating, one becomes inscribed, by nature of online ubiquity.

The nature of the digital is that it is reproducible, copyable, alterable, but the centralization of transforms interfaces into services of a more synchronized structure becoming more invisible, and more hermetic.

The wireless Cloud Computing paradigm of higher access, more possibilities, faster connections, better features has a back end of irreversible inscription and a questionable amount of autonomy.

The Wikipedia article on cloud computing also makes an analogy to public utilities such as "electricity, gas, and water. Just as centralized and standardized utilities free individuals from the difficulties of generating electricity or pumping water, cloud computing frees users from certain hardware and software installation and maintenance tasks through the use of simpler hardware that accesses a vast network of computing resources (processors, hard drives, etc.)".

But does using computers become automatic like switching on a light in one's house and so abstract that we need to imagine a cloud? As many complex systems, one could argue that there is no need to know how the black box does what it does, as long as it works. What is important to realize here is the analogy with the electrical switch. Either it is on, or it is off. But when there is no electricity, disregarding whether the switch is on or off, we have no power.

"As power becomes performative, information and communication systems and networks come to be one important venue in which the performativity of power

is enacted" (Mackenzie, 2005, p. 6)



Google and Microsoft own much of the Cloud services, as well as server farms

## Connection to satellite lost

If a person, while traveling or being outside of any facilities notices their phone has died, the first thing they will feel is disorientation and fear of losing contact(s) (physical inscriptions of phone numbers which make contact possible). The feeling may last for half a second, but it is a very physical and actual state, before we realize we have a backup of our data or that we can fix our phone/memory in one way or another. We feel disoriented because no one can reach us and we cannot reach anyone, being aware that we have delegated a part of our mental activity-memory to the memory space of an ICT device. Not being connected basically implies not being part of the world, being disconnected, excluded, while delegating a mental process to a device means becoming physically dependent of that device as a prosthesis of ones nervous system. Furthermore, locating oneself is also dependant on the possibility of being located. These media act to who help us define ourselves, by protocol, habituation and affirmation. The loss of contacts and connectivity testifies to the otherwise inherent feeling of possession of these abstract categories.

What does this connectivity mean? Through the mythical idea of participating in a spiritual world, connected to everyone and everything; it is enacting the appropriate subject, available and traceable.

The conditionality gives us security and reassurance in return, through a technological isopraxis.

On a practical level, the absolute functionality of technology is an ideal type, it is a principle, rather than actuality, in the role of a regulative fantasy. It is participating in the imitative representation of the myth.

This is felt only in the case when there is a physical discrepancy between the *imitative* projected ideal of the concrete technology in question and the *contagious* reality of dismantled causal relations, when feedback from a particular application is not the desired one,

desired meaning functioning on all levels. Invisible systems become visible only when they don't function, because they are meant to be unnoticeable. The less that is understood about the nature of an environment, the greater the frustration towards unresponsive or mal-responsive situations.

The greater the gap between how a device is represented and how it functions, the greater the space of imagination, the acceptance of technology as a given.

In Popper's example, the two clocks from the same assembly line are different from each other physically, mechanically, they are cut off from the idea of the accurate clock by their physicality. What makes us think of them as ultimately accurate, identical not only to each other, but to the idea of the clock?

Likewise, two different people will perceive two clocks in individually different ways, as they will general ideas of functionality. So these ideas of universality become a matter of social unity of canonized perceptions. This idea of factory settings is similarly applied to more complex technological systems through the concept of the default.

Judith Butler wrote about the act of speech being performative when "action echoes prior actions, and accumulates the force of authority through the repetition or citation of a prior and authoritative set of practices" (Butler, in Mackenzie, 2005, p. 9)

If technology has proved itself as an authoritarian practice, the repetition of performative functionality is deeply embedded in one's consciousness.

At the same time the matter of representation grows exponentially in complexity when regarding contemporary IC technology.

## In approximately 100 meters will reach your destination

Heidegger saw technology as an ongoing paradox of the "effort to secure and regulate" the ongoing process of making, producing "towards instrumental ends" (Heidegger in Rutsky, 1999, p.7). This is the seminal heritage of a functional scientific rationality, coupled with social forces and the mediating power of technology.

One can see this effort to regulate in the process of privatization of services and technological infrastructures, visible in the shift from the Terminal interface of computers, over the graphical user interface, to the Remote Desktop in the proprietary Cloud. Regulating the process of making is also interpreted as the control of immaterial

labor. This can also be seen in the customization of needs that interfaces offer. It can also be understood from an individual perspective as the naturalization of a technology that becomes an everyday dependency on systems one has no control over. And even the continuous quest to define certain types of technology is hardly possible due to the productive forces outgrowing any containment.

If the growing complexity of technology demands growing systems of regulating, does this create regulated subjectivities with the illusion of having control through customized possibilities with affective power? Or does the individual constantly escape regulation, together with technology?

This paradox is exactly what makes technology the intimidating force that is tamed towards functionality but threatens to unleash itself. Or, in other words; it is the ambiguity of the active and contained, the living and the dead, the empowering progressive knowledge and the Frankensteinian otherness.

The nature of technological action requires abstraction and concretization at the same time, on the levels of its functioning, its physicality, its purpose and its representation. The space between the human and technology is affective, it is a polygon of social and individual power relations, it is self-reflective and culturally reflective, inspired with preconceived performative notions and projections, but at the same time, it remains ungraspable, like ether.

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