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ORIGINAL ARTICLE

In and out of Wonderland: a criti/chromatic stroll across postdigital culture

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Abstract
The contemporary info-proliferation is taking the ideal of a solid technological rationalism to its extreme point: the depletion of all bodies into 'informational cuts', orderable bits and pieces of data fabric. The present contribution will discuss this process of datafication, trying to avoid any polarization along the 'pro' or 'anti' dualism, and any consequent excess of enthusiasm or critique. For this purpose, the essay will take the form of a stroll across post-digital culture, alternatively under the effects of a 'red and a blue pill' as the two main points of view already exemplified, in 1999, by Morpheus in the famous sci-fi movie *The Matrix*. To these two points of view, respectively identifiable as digital critique (going down the deep rabbit hole, and seeing that computers are playing today a leading role in what Gilles Deleuze and Fèlix Guattari have called 'capitalist schizophrenia'), or digital potential (remaining in a world of numeric dreams, a world populated not only by humans but also by bots, autonomous computer programs that are becoming increasingly able not only to post, but also to understand content and interact with people and, most importantly, to take aesth/ethical decisions), a yellow one will be added, which can be recognized as that of 'hacker culture', at the same time suggesting that, instead of a dialectical contraposition between two different perceptual and cognitive modalities, post-digital culture can be more easily discussed through a multiplication of possible perspectives.

Keywords Datafication · Post-digital culture · Capitalist schizophrenia · Algorithmic neurosis · Bots · Hacker culture

"*A schizophrenic out for a walk is a better model than a neurotic lying on the analyst's couch*."

1 Introduction

The contemporary info-proliferation is taking the ideal of a solid technological rationalism to its extreme point: the depletion of all bodies into 'informational cuts', orderable bits and pieces of data fabric. Mirko Tobias Schafer and Karin Van Es have efficaciously described this ubiquitous 'datafication' as the abstraction "of all things under the sun into a data format" (2017). A process that is triggering significant modifications in perceptual and cognitive habits, as it comes to coincide with an epistemological tendency to reduce the knowable physicality of the real to analyzable quantitative indicators, and to recur to a particular kind of images as their 'visual proofs'. Visible examples of this epistemological attitude are the omnipresent bars and pies, the arc and network diagrams that, on a daily basis, allow both the experts and the untrained to take the social and economic pulse of national and corporative bodies. The same attitude can also be thought under the frame of a mutating social relationality: if, as argued by Karin Knorr-Cetina (1997), human beings have long been displaced by objects as the main referents of social relations (a displacement that she defines as 'objectualisation'), it is possible to think data (and their visualisation tools) as the algorithmic objects we increasingly often relate to, in what could be defined as a new, overflowing 'digitactualisation'.

The diffused presence of quantitative data in our daily lives immediately suggests a compulsive appetite for numbers: it is the counter placed on top of the TV news screen, or the stream of percentages flowing under the presenter's figure, that transmits to us the impact of phenomena such as violence against women, terrorist attacks, migration. In

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the same way, it is only the erasure of all metrics from our Facebook account, that manages to produce a real change in our social media experience; at least according to Benjamin Grosser, the author of an artistic project called *Facebook Demetricator*, a web browser extension that hides all numbers from the Facebook interface, and whose aim is thus to "disrupt the prescribed sociality these metrics produce, enabling a network society that isn't dependent on quantification."[1] Are we all addicted to quantification then? Reading the project's description on the artist's site, is a little bit like hearing good, old Morpheus: do we choose the blue pill and go back to our numerical dreams, watching for the counts of responses, comments and likes, rather than for the 'responses themselves', waiting for the number of friend requests to appear, rather than looking for 'meaningful connections'? Or do we decide to swallow the red pill, install Grosser's software and stay in Wonderland, following the deep rabbit hole of the 'real' (real connections, real responses, real relations)? Struck by the 'matrixial' tone of the *Demetricator*, we wonder whether it might not be a better idea to instead erase the binary difference (that is still very active as an anti-capitalist therapeutic strategy in cultural and media theory) between blue pill (a pathological trust in data, a compulsory implanting of algorithms everywhere) and red pill (a healthier attempt at going back to the real). In order for this erasure to happen, we should in fact first try both. The pills, in the end, are nothing less and nothing more than points of view on what we have defined as an increasing digitactualisation.

2 Red

2.1 Economic diagnosis

A world of paradoxes unveils itself in front of our eyes. As soon as we swallow the realist pill, we start to see that computers are playing today a leading role in what Gilles Deleuze and Fèlix Guattari have called 'capitalist schizophrenia'. The paradox appears more clearly when the proliferating and overflowing creativity that Deleuze and Guattari attribute to schizophrenia (and to capitalist societies), a creativity characterized by addition and accumulation, is thought of in relation to the rational simplifying capacity of binary algorithms (2000, p 6). From this point of view, the encounter between the sobriety of digital computing machines and the excesses of capitalism can also be defined as 'postdigital culture', intending the latter as an obsessive repetition and accumulation of informational and algorithmic processes. The red pill, in other words, is showing us the evolution of the capitalist schizophrenia anchoring itself to the solidity of algorithmic procedures.

In 1972, Deleuze and Guattari's diagnosis of capitalist schizophrenia already possessed the ambiguity of a paradox. As it was clear to the philosophers, the most insidious adversary in the political struggle of that time was not a totalitarian regime anymore (at least not in a pure monolithic form), but its adoption of a subtler sociocultural and psychophysical, strategic schizophrenia. The main symptom of the capitalist schizophrenic tendency was its 'deterritorialization', as the system started to avoid laws and limits, and to prefer "difference over uniformity, flows over unities, mobile arrangements over systems," because "what is productive is not sedentary but nomadic" (Foucault in Deleuze and Guattari 2000, p XV).

The very origin of capitalism as an economic system, as Deleuze and Guattari explain, is linked to the simultaneous liberation of different flows in a particular moment: "[f]lows of property that is sold, flows of money that circulates, flows of production and means of production making ready in the shadows, flows of workers becoming deterritorialized" (223). At the same time, the fluid that circulates on the deterritorialized field of industrial capitalism is nothing else than capital as re-investible money. When money begets money, capital becomes an independent flowing substance entering into relation with itself, rather than with its products.[2] It is important to note that, for Deleuze and Guattari, the beginning of the capitalist regime cannot be defined by the predominance of commercial or financial capital yet, the latter being merely flows among flows; it is industrial capital that gives the regime its true schizophrenic nature, acting as a decoder and a recombinator of all the other flows (226).[3]

Bearing in mind Deleuze and Guattari's description of the economic genealogy of capitalism, we can see how the conjunction of different flows that was necessary for the appearance and development of an industrial economy is today gradually fading away from the market's own horizon, while the conditions that link capital to production, and the very meaning of production, have completely changed. To better grasp this shift, let us remember the distinction traced in the *Anti-Oedipus* between schizophrenia and neurosis as two expressive forms. The schizophrenic is nothing but a universal producer, an assembler of relations.[4] Withdrawal

[1] https://bengrosser.com/projects/facebook-demetricator/

[2] And, according to the two philosophers, differentiating itself into an original value (advanced or invested money) and surplus value (profit), a differential relation that is also mirrored by that between exchange value and the power of capital.

[3] The difference is between investment that increases capital stock, or production capacity, and an asset simply changing hands, or a simple manipulation of money.

[4] Now, the question is: "How is it possible that the schizo was conceived of as the autistic rag—separated from the real and cut off from life—that he is so often thought to be? Worse still: how can psychiat-

from the world, detachment from the materiality of the real, exclusive focus on one's own inner life, and incapacity to weave relations, constitute, on the other hand, typically neurotic symptoms, or symptoms of repression. When looked at from this point of view, the financial market appears less and less schizophrenic, its purely numerical or computational flow incapable of establishing a non-exploitative relation with its own social and physical flows. The breath of living billions is captured by states of anxiety, depression, climate change, reminding us that there indeed is a body (or rather, more than one). But through a constant 'acting as if', the financial machine reaches its absolutization, unsticking itself from productive and consumptive processes, with a consequent decrease in the significance of the 'real' economy, and an increased autonomy of derivatives.

2.2 Techno-logical diagnosis

Capitalism could in fact only see the light when the flow of capital was allowed to become abstract and more abstractly regulated (which does not in any case mean 'free') by a 'state' (the modern political State as guarantor of the industrial economic status). To understand the digital as a form of further economic abstraction, we should at this point remember that the digital is first of all a mode of thought based on a structuration of reality according to formal oppositions.[5] In the seventeenth century, Gottfried Leibniz already thought that everything can be represented as binary mathematical information: by building one of the first computing machines in history, he could, therefore, deal with themes of complexity and casuality, through the composition of 0 s and 1 s. Transducing the Leibnizian vision into the present, James Bridle argues that the digital space of 0 s and 1 s "is where we do our thinking, this notional space in which we imagine possible visions of the future…".[6]

According to Luciana Parisi, digital information (data in the form of 0 s and 1 s) cannot be easily incorporated or used for functional human purposes, as it manifests a level of autonomy (2017). Nevertheless, despite the inevitable complexity and incompleteness of the computations, in the digital vision the obsession remains the same: everything is reducible to digital information, 0′s and 1′s. Being identifiable with Guattari's definition of 'coding', the idea behind computer processing is the direct translation of qualitative into quantitative values, an idea which the philosopher has defined as inherently "capitalistic due to the neutralization, the systematic dequalification, of the materials of expression from which [it] proceed[s]—which puts [it] into the orbit of the economic valorization of Capital, …" (1995, p 104) Furthermore, since most of the economic transactions on the financial market are currently being performed by or through these binary processors, the technological parameters of the machine (from programming languages to Internet protocols) have ended up becoming the true decision-makers, in relation to the quantity and velocity of the transactions that can be, and are, actually performed. The main difference from industrial capitalism is, therefore, that, today, the social axiomatic is not given (or at least not exclusively given) anymore by a machine of control acting against the schizophrenic anarchy of capital (the State, the Bank, the Church), but by a technical machine of abstraction acting against the residual materiality of money (the processor). Technical machines are, therefore, no longer simply adjacent to bodies in the process of surplus value extraction (or abstraction): they are now also able to take the place of, or collaborate with, the repressive social code of capitalism, in enslaving those same bodies. A technological parasite that provides contemporary capitalism with forms of repression not simply aimed at the elimination of physiological schizophrenia (as in nineteenth and twentieth centuries). Rather, the 'madness' has now become part of the system, where it has evolved into the shape of a neurosis: data neurosis, algorithmic obsession, a compulsion to create sense (and value) by abstracting, discretizing and quantifying. The diagnosis,

Footnote 4 (continued)

ric practice have made him this sort of rag, how can it have reduced him to this state of a body without organs that has become a dead thing—this schizo who sought to remain at that unbearable point where the mind touches matter and lives its every intensity, consumes it?" Or, in other words, "how does psychoanalysis go about reducing a person, who this time is not a schizophrenic but a neurotic…?" (Deleuze and Guattari 2000, p 20).

[5] A code (or a way to think) can be defined as digital when it is constituted by *digits*, countable units that can be related or opposed to each other (not necessarily in a binary way): a sort of perceptual and cognitive totalitarism composing the chaos of the real into an ordered formalism. This conception derives from Deleuze's distinction between analog and digital codes, and his definition of the digital from *digitum* (the counting finger). In the book dedicated to the painter Francis Bacon, Deleuze discusses abstract painting as a form of artistic expression where chaos is eliminated, or reduced to its minimum, together with any form of tactile trace or manual craft: it is an ascetic art, an art of the spirit that goes beyond figuration, in order to reveal abstract forms. An art "without hands." These abstract forms, in their turn, belong to a purely optical space. Abstract painting, in this sense, elaborates a symbolic code on the basis of formal oppositions. It is this code that the philosopher defines as digital: the digits, here, are the units which group the terms of the opposition in a visible space. With its simple codified oppositions of vertical-white-activity and horizontal-black-inertia, Wassily Kandinski is mentioned as one of the main examples of this *code*: a conception of art based on binary choices (Deleuze 2005, pp 70–77).

[6] https://www.tumblr.com/search/james%20bridle. We can describe this process, by using the words of philosopher Alfred N. Whitehead, as "An abstraction arrived at by confining thought to purely formal relations which them masquerade as the final reality. … The concrete world has slipped through the meshes of the scientific net." (Whitehead 1968, p 18).

therefore, changes, from capitalist schizophrenia to neoliberal neurosis.

Under the red pill effect, it has thus become difficult to still agree with Franco Berardi, on the disappearance of neurotic pathologies as vestiges of an old capitalism. The liberation of flows of desire and flows of goods, and the replacement of repression by 'simulation' mechanisms are, for Berardi, what distinguishes the late 'semiocapitalist' phase of immaterial labour and the explosion of the infosphere (the contemporary info-cracy) (Berardi 2007) Yet, the missing point in this theory is the digitalized abstraction of the capitalist productive machine into a form of data processing, and the consequent new form of subjective capture as a kind of quantitative narcissism. Events, in other words, do not have to carry semiotic signification anymore, but only quantitative significance. This situation is not simply associated to a change of state in the capitalist market (from a flow of productive money to a flow of self-replicating numbers), but is also affecting the epistemological environment of postdigital culture, by triggering new forms of numerical neurosis.

2.3 Technical diagnosis

In Deleuze and Guattari's *Anti-Oedipus*, we find the definition of technical machines as 'indexes' corresponding to general forms of production: "thus there are manual machines and primitive societies, hydraulic machines and "Asiatic" forms of society, industrial machines and capitalism" (Deleuze and Guattari 2000, p 32) Every political regime, according to them, is productive not only in a social and economic sense but also in a perceptual and cultural sense, as a way to see the world, a set of conditions through which particular notions of space and time are produced. As a technical dispositif that produces regimes of light (and, later on, of sound), cinema, for example, channels electromagnetic energy in a way that allows it to form images as serial assemblages of frames. Life as perceived and produced industrially, 'in series'.

What about the digital dispositif of the neoliberal, or financial, capitalist phase? Defined by Knorr-Cetina as a 'synthetic situation', the ubiquity of screens can perhaps be considered as one of the main technical assemblages characterizing contemporary postdigital culture. Starting from the financial exchange market, where,

> In doing deals, all traders on the floors have technological equipment at their disposal; most conspicuously, up to five or more computer screens displaying the market and allowing trading to be conducted. … In this way, their bodies and the screen world melt together—an apparently total immersion in the actions in which they are participating (Knorr-Cetina 2009).

Beyond the realm of finance, screen ubiquity is a phenomenological affect of all digitalized perceptual and social relations, as much of our interaction with things is via the screen.

Screen ubiquity has not even spared the street and the physical activity of walking, as we continuously consult Google Maps for directions. The Maps software derives its data from the aerial and satellite observation of physical places. But once the data are acquired, they start to function autonomously from the material physicality of the Earth, and are projected using the formulae of the Mercator model, an unrealistic spherical model of the planet from which we end up obtaining our geographical information. The detachment of the software from the world and its bodies is often phenomenally actualized by what we perceive as cartographic mistakes, which are often opposed by us to the 'healthier' habit of relying on the 'here and now' of real experience. We can imagine a theorist such as Elizabeth Grosz reminding the compulsory Map user that "Sensation [the here and now] includes not only the perceiving body but also the Umwelt in which the body moves through an ever changing horizon" (Grosz, 2008, p 72) The sensation of the 'here and now', according to Grosz's vision, does not coincide with the consciousness of a human or technological subjective perception (which is dependent on the establishment of coordinates and abstract regularities), but is a sort of phenomenological equivalent of Morpheus' red pill.

2.4 Historical diagnosis

'Dispositifs', as Bernard Stiegler also points out, have a history (2005–2006). Much before the advent of cinema, pictorial representation constituted for example a potent machine that allowed people to produce particular visions of space: for archaic Romans, the symbolic representation of a *genius loci,* an animal or a human figure drawn or sculpted on a wall or a door, was a technical dispositif that allowed the singularity of that place to emerge and to distinguish itself from a neutral space whatever (Dumèzil 1977). 'Seeing' the genius meant being able to weave a relation with the environment and its unique properties, before converting it into the object of a subjective perception. It is evident how this worldview, based on the singular-neutral differentiation and on the valorization of the former, was in opposition with what has successively become the main conceptual presupposition of modern science (and of its technological dispositifs): that is, the belief in quantifiable, reproducible, foreseeable realities, and their preference over singularities.

What about the history of the various dispositifs attached to the digital worldview? We can go back in time to isolate some germs. We could certainly arrive to 1000 B.C. China, where the Yijing (or Book of Changes, a classic divination text based on a binary combinatorics of hexagrams) was

written by the first kings of the Zhou dynasty (and only in the seventeenth century translated into a European language by Leibniz, who took it as the basis of his binary numerical system). Or we could get to ninth century Baghdad, where the Persian mathematician, astronomer and astrologer Muhammad ibn Musa al-Khwarizmi published a new system for solving polynomial and quadratic equations: algebra, thus giving his name (Latinized into Algorismus by his translator Gerard of Cremona) to sequences of mathematical instructions. Furthermore, a look at the architectural and urban structures of traditional African settlements would show us that geometrical fractals were known and applied much before the advent of computer graphics. But certain particular tendencies of contemporary postdigital culture also seem to retrospectively point towards another, important predecessor.

As a guide in this temporal journey, we can again follow Deleuze: on the 14 and the 21 of March 1978, the philosopher gave two seminars on Immanuel Kant at the University of Vincennes-St. Denis.[7] For Deleuze, the modernity of Kant resided in his conception of space (as well as time) as a *noumenon*, a knowable and measurable extension composed of parts: what this means is that every spatial quantity is at the same time conceivable as a multiplicity and a unity (a unity of multiplicities), a multiplicity being a gathering of parts into a whole. The concept of extensive magnitude appeared thus as one of the transcendental tools to purify reason from the contaminations of subjectivity, to restore its objective universality. A pure reason which laid down the laws of human knowledge but also, according to theorists such as Achille Mbembe and Denise Ferreira da Silva, the metaphysical basis for the 'modern' exclusion of particular, 'other' subjectivities from the anthropocentric ideal of thought (Mbembe 2017; Ferreira Da Silva 2007).

In the Kantian image of a universal human reason, space and time are the objects of a non-empirical intuition (rather than sensation). Insofar as it appears 'in' space and time, the real, or the *phenomenon*, the experientable, acquires a measurable extension (for example the space of a room floor). Since, as demonstrated by many after Kant (and Descartes), no element of our experience can be said to really possess this extensive calculable character in itself, we can only arrive at realities such as precisely located bits of material, or numerically definable instants, through a process of abstraction.[8] Empty space and time become thus two abstract neutral extensions purified of the *loci*'s divinity and only graspable by the modern human mind.

The Kantian notion of extension makes us catch a glimpse of a particular conception of space and time: digital geometry as a study of space as composed of discrete information sets, and of time as 'bit time', or 'flick'. It is at this point worth remembering how early sci-fi representations of the 'digital world' were very much in tune with this Kantian conception, when they made the space of computers 'appear' to human eyes for the first time. In 1982, cyberpunk writer William Gibson for example introduced, in his novel *Neuromancer*, the notion of cyberspace: "Lines of light ranged in the nonspace of the mind…".[9]

Kant's space is not an object of experience but an independent a priori that applies to it. It is a condition of possible experience, of the whole of possible experience, or rather the very locus, where the conception of a whole becomes possible despite the fragmentation and difference of experiences, precisely thanks to such pretense of a universal condition. Before being experienced, this transcendental condition lays down the foundation for a phenomenology of perceptual and motor processes (for example, for seeing and walking), identifying the movement of the human body-subject as an exploration and cognition of that space which, as often argued, has been de-materialized and dis-oriented by technological interventions.

After the initial, disorienting appearance of a digital space, various images and metaphors offering a lexicon of place (verbs such as 'enter', 'exit', 'explore', nouns such as 'space', 'highway', 'channel') were provided, to allow users and readers to visualize an otherwise imperceptible, unlivable electronic reality, and to redefine it in phenomenologically familiar terms: "Here-now. … You can conceive of two objects, whose concept is strictly the same, there are still two objects, for this very reason that the one is here and the other there. … There is a spatio-temporal order irreducible to the conceptual."[10] The phenomenological conception of this spatial metaphor is, therefore, founded on the same dualism

[7] http://deleuzelectures.blogspot.com/2007/02/on-kant.html.

[8] The definition of particular entities as calculable units, separate extensions, or spatially and locatable points, is in fact what Whitehead defines as abstraction: for the philosopher, the distinction between what is abstract (facts of the mind) and what is concrete (physical reality) is of fundamental importance, and failure in doing so amounts to a "fallacy of misplaced concreteness." As he argues, "among the primary elements of nature as apprehended in our immediate experience, there is no element whatever which possesses this character of simple location…. I hold that by a process of constructive abstraction we can arrive at abstractions which are the simply located bits of material, and at other abstractions which are the minds included in the scientific scheme. Accordingly, the real error is an example of what I have termed: The Fallacy of Misplaced Concreteness." (Whitehead 1967, p 58). From this point of view, the main question to be explored is to what extent digital technology can also be said to be a mind.

[9] As evidenced in Lakoff and Johnsons theorizations on metaphors, the latter are often conceived as spatial physico-conceptual devices (such as the simple association 'up is good, down is bad' and the consequent equation of uprightness with consciousness) (1980).

[10] See Deleuze's lectures on Kant.

that animated Kant's transcendentalism: the physical and the digital, as two different and separate kinds of space, in need of a connection.

In our time, the modern 'on-line off-line' dichotomy seems to have been amply demystified, together with all metaphorical dualism between physical and cyber space, demonstrating how the two spaces are enmeshed, and revealing us our own profound sympathy for a class of new objects native to the twenty-first century. So how does seeing, or thinking, like a computer really feel? A tentative answer could be: in spite of everything, it still feels very Kantian, or very anthropomorphic. The software of ARGUS, a video surveillance machine attached to an unmanned UAV (a software called Persistics after the concept of persistent ISR—intelligence, surveillance, and reconnaissance), perceives by drawing a colored box around humans, cars, and other objects of interest. With an imaging unit that totals 1.8 billion pixels, the drone captures pictures and video (12 fps) that are 'detailed enough to pick out birds flying through the sky, or a lost toddler wandering around'.[11] In a Kantian terminology, we can say that the visual representation constructed by ARGUS is the result of a double process of 'apprehension' (the positioning of reality as occupying a certain space and time) and 'reproduction' (the linking of the preceding parts to the following ones).[12] More precisely, the Kantian faculties of apprehension and reproduction are directly correspondent to the two main features of ARGUS' perception: location, as a precise tracking on a spatiotemporal grid, that is the transformation of everything into a datum; and the reproducibility of the datum ad infinitum through the causal logic of algorithmic processing, whereby every output depends on a previous input. But even more than apprehension and reproduction as the two perceptual modes delineating the Kantian imaginative synthesis realized by the digital dispositif, it is the unity of this synthesis according to an a priori category, that makes of digital perception a transposition of Kant's transcendental humanism. (Deleuze, 1984, p.15) Seeing pixels, faces, things or, which is the same, seeing objects in coloured boxes: a cultural attitude with Kantian origins.

According to Benjamin Noys, recognizing the Kantian origin of digital perception allows the drone to inhabit a metaphysical field, and to embody the dream of transcendence that has always haunted the Western imagination (2015). From this point of view, the abstract objectifying perception of drones comes to coincide with the metaphysical project of Kant. But, Noys suggests, endowing the drone with ontological agency flatters the device as an object, allowing it to elevate itself beyond the mere fusion of human flesh, cybernetic weapon and imperial apparatus that it actually is. And yet, the human agency that directs the drone's perceptions, movements and actions is also a peculiar kind of subject, as "these humans are constituted in ways to make them resist calls on their humanity and … are called to conform to the drone. (…). The achievement of a final 'subjectlessness' of the human is not simply the effect of an automation, but a labour by the human that operates in the process of self-automation, or the creation of an 'automatic self'." If it is now possible to identify software with the incarnation of contemporary reason, this identification simultaneously pushes the very limits of human subjectivity towards the most rationally Kantian idea, through its automation and perceptual abstraction.

3 Blue

3.1 Infinite potential

The blue alternative does not make us perceive the paradoxical, but rather, the potential side of digitalization. We will, at this point, draw on the cosmology of Alfred N. Whitehead, as one of the possible sources from which it could be possible to grasp the virtuality of a computer's algorithmic pixellated vision: the basic stuff of which the whole universe is made, Whitehead tells us, is not constituted by isolated bits and pieces (such as atoms or pixels) but by relations, or networks of bits and pieces (1985). According to Whitehead, we often like to talk of 'this' or 'that' entity (a computer, a pixel, an algorithm, a human eye, an image), but we should remember that everything is 'relationized', and each entity can only be comprehended as a cluster of relations. On one hand, thus, we have the ontological primacy of relations over parts; but on the other hand, relations appear as relations between parts. How can this (onto)logical contradiction be solved and, more importantly, how can the solution be relevant for a definition of the digital potential?

For Whitehead, it is the infinite potential divisibility (rather than the actual finite division) of the world into parts (for example into bits of data) that allows relations to take place: thanks to this divisibility, the world can become an extensive continuum, or "a common world with mathematical relations" (Whitehead, 1985, p 62). The infinite divisibility of matter into wholes and parts is like a prepixelation, a sort of potential digitalization of the world. Only after we have thought this potentiality as a tendency of matter towards infinite division (or 'cutting'), we can understand how this potential becomes actualized in the digital cut as a concrete experience of the technological assemblage. In fact, the generation of finite actual patterns from a virtual

[11] https://www.extremetech.com/extreme/146909-darpa-shows-off-1-8-gigapixel-surveillance-drone-can-spot-a-terrorist-from-20000-feet.

[12] For a deeper exploration of Kant's notions, see Deleuze (1984, pp 1–17).

infinity is, for Whitehead, much more interesting than infinity in itself: experience is all that there is, and it is never infinite (Whitehead cited in Jones 2010).[13] This means that a conceptual valuation of the digital as a radically empirical potential should take us from its infinite virtuality, to its capacity of curing the transcendental sense of infinity by generating experience.

As Lev Manovich already stated in 2012, we can "expect that the number of photos uploaded to Facebook daily is larger than all artifacts stored in all world's museums."[14] How can an image be selected, or even just made out, as a finite pattern in this infinity? Creative composition has today come to coincide with curation. The coincidence becomes mostly evident when artists use mainstream user-generated content as the primary subject matter of their work (see Richard Prince's *New Paintings*, as a specific chapter in the history of 'appropriation art').[15] Which means that artists, increasingly often, create in the same way as social media users do, by "gleaning interesting images from Big Data, as algorithms and robot eyes spew out images by rates as high as 30 frames per second in some cases, which makes images akin to grains of sand on the aesthetic beach. But the New Aestheticist strides upon that beach, picking out a sparkly grain of sand or even the occasional diamond, ready-cut, and places it in their bucket (Tumblr, Pinterest) to show to other people on the beach. … Lots of data; lots of sand."[16] The cure cannot but be curation: on the Big Data beach, according to Patrick Lichty, the image creator or composer becomes a collector, an aggregator, a fetishizer of autonomous operations performed by someone (or something) else, a "drone aestheticist."[17] A New Aestheticist.

In 2011, London-based designer James Bridle launched "The New Aesthetic." Sharing the online space of this blog with pics and videos of the latest games used for anti-terrorism and anti-crime training, or with smart city visualizations, the first images to be posted were examples of a visual style that expressed the digital through physical materials (such as the printing of pixilated imagery on fabrics). Bridle's New Aesthetic Tumblr is, in other words, nothing more than an incessant flow of images whose only 'curatorial' logic is that of 'being digital': a machinic criterion that replaces sensation (the aesthetic quality of an image) with function (its technical digitalization), in the name of a mutual sympathy between 'us humans' and 'them technologies'. It is now the machine that, with its own categories and parameters, looks at the world and gives it a sense. Our initial question about how the virtuality of the digital can generate experience, has thus flown into a human/machine decisional alternative.

3.2 Decisional potential

If the role of the human was already put into question by the first calculating machines (such as Leibniz's digital computer), the latter were in fact still seen as mere labor-saving devices replicating complex but tedious computations, while the very production and functioning of these machines required more specialized, intellectual human labor (Betancourt 2013). With a significant shift, digital computers have acquired today the capacity to automate most cognitive tasks, even aesth/ethic ones. New Aestheticists have recurred to various theories to respond positively to this shift. Among the preferred theories, we find Bruno Latour's Actor-Network Theory, a theoretical vision that is very popular among New Aestheticists, particularly because of its will to go beyond an anthropocentric vision, and beyond the human individual as the only possible intentional agent of a decision. The decision, from an ANT's point of view, would actually be neither human nor technological. As argued by Latour, "Instead of opposing the individual level to the mass, or the agency to the structure, [ANT] simply follow[s] how a given element becomes strategic through the number of connections it commands and how does it lose its importance when losing its connections" (1996). Translated into the New Aesthetic's idiom, this principle has been transformed into an algorithmic criterion of choice, where the decision about what to publish is based on the proliferation of numerical relations (for example, number of attracted clicks). It is the algorithmic subject that, finally, takes the decision.

Algorithmic calculation can also be defined as the most concrete actualization of that rationally thinking (and deciding) subject that has been haunting Western culture for centuries, at least since the Enlightenment. This subject is not

[13] "We cannot understand the flux which constitutes our human experience unless we realize that it is raised above the futility of infinitude by various successive types of mode of emphasis which generate the active energy of a finite assemblage." (Whitehead in Jones 2010).

[14] Reading the NYTimes, we see that "Just as access to pens and paper hasn't produced thousands of Shakespeares or Nabokovs, this explosion of camera phones doesn't seem to have led to more Dorothea Langes or Henri Cartier-Bressons. But it has certainly led to many more images of what people ate at lunch" (Estri 2012).

[15] http://www.richardprince.com/paintings/.

[16] Lichty, Patrick. Article not available anymore.

[17] "Curation in the age of social media must be made to include the posting of photos and videos to social media, with the gesture, constituting the greatest number with the least investment (the function of the Long Tail's power curve—# involved vs. degree of investiture). This lower stratum from the pin board to the Like is the beach to which I allude earlier, with New Aestheticists doing slightly more than Liking an image by taking the time to find it and put it on their Tumblr, hoping for a Like. But with the rise of art-based Internet Surfing Clubs like NastyNets and Double Happiness in the 2000′s, the aggregation of images of interest have become a function of quantum-level curatorial practice at the base of the saddle of the Long Tail. But perhaps NA is a form of curation for the masses, a folk curatorial practice for cyborg times." (Lichty).

defined by Brian Massumi in its human but, rather, in its 'machinic' character, working as a 'live-wire technology', an abstract machine for cutting decisions into a continuous flow, and for making something determinate emerge out of the potentials mutually included in the oscillations of thought and sensation (2015). The potentials are always more than a subject can rationally arrive to think of, and constitute a complex virtual field of metastable states to which the subject is (and remains) affectively linked before, throughout, and after the decision. From this point of view, it becomes evident how reason owes its positive, or 'decisive', nature, precisely to what eludes it: a constitutive immanent field open to all kinds of oscillatory processes. The nonconscious, field-induced nature of this cybernetic decisional machine is certainly not to be interpreted as a mere passivity on the part of the subject but, more interestingly, as its autonomization or, in other words, a form of nonhuman thinking and 'decisioning' in autonomy from subjective consciousness.

But what happens when an algorithm, as foreseen by New Aesthetes, decides? On one hand, the oscillatory character of the human decisional machine as described by Massumi seems to be in contradiction with the main capacity of the technology, which is to cut a decision in the quickest possible time, therefore (apparently), leaving complexity out of the process. But on the other hand, according to Parisi, examples such as RankBrain (an algorithm that supports the Google ranking software in dealing with long and complex search inputs) show that algorithms are becoming able to activate a level of inference or complex reasoning, to fabricate long series of hypothetical conjectures, and to learn from uncertain or incomplete information (Parisi 2017, p. 10). We can also think of Creatism, another deep-learning Google algorithm that is capable of creating professional photographic works from StreetView images.[18] If, 'humanly speaking', the selection of what is considered to be a good image usually happens according to aesthetic criteria, Creatism breaks down these criteria into a series of numerable features to be looked for, each feature to be learned in its turn from a vast dataset of photographic examples. Transforming aesthetics into a mathematical operation that can be efficiently optimized (for example, through the 'Dramatic mask' tool, an operation that improves dramatic lighting in a photo), the algorithm is thus compelled to continually re-learn to choose and adjust, each time from an increased quantity of data or database images.

And yet, despite all this complex deep-learning, and in spite of the algorithmic capacity to deal with the errors, randomness and imprecision implied by huge amounts of data, a difference seems to persist: thinking of Massumi's argument, we see that what algorithms lack is the simultaneous coexistence of all the potentials that constitute a 'living' field of decisional complexity, and that the software can only process sequentially, or in parallel, due to its discrete nature. For Parisi, on the other hand, this persisting difference is not to be read as a lack on the algorithmic side, but as the sign of a peculiar fact: indeterminacy lies at the core of the techno-logic not as a kind of irrational (or not yet rational) immediacy with an outside, but as a superposition of levels of rationality and mediated thinking, and as the establishment of "new chains of reasoning that draw from the minute variations of data content." (2017, p. 8)

At this point, reconnecting the discussion to the problem of curatorial decision and image selection, Deleuze's words come to mind: a selection, or a perceptual cut, in the infinity of the visual field, can only emerge along the lines and contours of an idea. It is the idea (intended by Deleuze as a differential of thought) that operates the decision, instead of a preconstituted human or digital subject: an image is chosen neither by a human nor by a computer's intention, but by an idea affirming itself autonomously.[19] Only an idea can curate the visual infinity of the postdigital neurosis. This definition of 'idea' might sound here controversially transcendental. But it should be remembered that, for both Whitehead and Deleuze, the notion of 'idea' does not derive from the necessity for an extra-experiential concept of the understanding, and does not imply the imposition of any pre-existing Category: to the contrary, the idea is like a form, a model derived from reality itself. For example, according to Whitehead, red should be defined as that eternal object (or idea) which allows a series of physical relations between atoms and molecules to be identified as ONE coloured spot (a red chair) by a perceiver. Thanks to the idea of red, an image can stand out as 'this' and not 'that'. It is the form of the objectification of an actual entity for another, the form that a relation between 'two' can take to generate a 'one', a relation between many but also a detachment, a separation from another many.

The digital certainly has an 'ideal' origin, in the sense that, as Gregory Chaitin reminds us, the computer emerged first of all as an idea, an eternal object, or a digital differential of thought (2005, p XIII). In this sense, by following the logic of an algorithm, every digital machine, be it a CCTV camera or a flying drone, actualizes a simplified version of the real through calculation: an eye that is simply guided by a mathematical idea. Since it is the idea that takes the decision, determining its own path and literally choosing where to go, it is important to note that the digital idea has today decided to follow the direction of contemporary capitalism.

[18] https://google.github.io/creatism/.

[19] On the notion of the idea as a 'differential of thought', see Deleuze (2001, pp 168–221).

In the postdigital visual continuum, we are thus perceiving a fading out of the idea as 'humanly shaped' (or, to put it in Whiteheadian terms, of the eternal object as qualitatively realized by an image), and a becoming indiscernible of images themselves. But the sense of ephemerality associated to this disappearance and indiscernibility is in fact generated by the stubborn persistence of a human attitude towards the idea (the red pill effect). Under a 'blue' point of view, on the other hand, it appears that what we are being confronted with is nothing less than a paradigmatic shift, a change of criteria that is not only affecting aesthetics and art, but various cultural environments of digitalization. As an example, we can think of phenomena of online mass curation, such as the ephemerality-based website 4chan.org, where one of the statements most frequently given by its participants or 'curators' does not offer any comment on the beauty of the posted image, on its political importance, or on any other subjective judgement of interest or taste, but simply the expression "I'll just leave this here."[20] 'This' might very well be 'that'; if it was not for the counting of the clicks already and potentially attracted by the image; a numerical judgement that associates the capacities of a human curator to those of a bot. This association appears, in the online ecology of bots, like a sort of extreme actualization of Kant's extensive propensity; the propensity that appears not only, as stated by Kant in his *Critique of Judgement*, when we think that shape and rhythm are more important than colour and tone, but also when we imagine the 'Konigsberg Clock' counting the steps of his daily walking routine.

3.3 Learning potential

Like most social network environments, 4Chan is populated not only by humans but also by bots, autonomous computer programs that are becoming increasingly able not only to post, but also to understand content and interact with people.[21] If, on one hand, the automatization of tasks entrusted to bots can still appear as the neurotization of a Kantian anthropocentred phenomenology, and if the programming of the algorithm is nothing more than a manifestation of human thought obsessed with itself and incapable to overcome its limits, the development of a capacity to distinguish the human from the technological transforms the algorithm itself into an example of what is generically defined as 'machine learning'. At a basic level of machine learning, the algorithm's technique for distinguishing living from non-living online presences consists in isolating a few properties for each account (such as name length, account age, retweet frequency) and in crossing these properties among the different account instances to be analysed. In fact, the resulting model has to often be applied not to a few but to millions of accounts, which means that it will need to work with always new incoming information. But it is here, among the complex operations performed on massive quantities of data, that algorithmic cognition reveals another aspect of its Kantian lineage.

As argued by Deleuze in his Vincennes seminars, Kant's real modernity did not simply reside in the conception of a metric-able abstract space filled with objects. Whereas in classical Western philosophy the 'magical' relation between the spiritual and the earthly had always been a true paradox or a strange, inexplicable equilibrium between transcendental and physical planes, what made Kant's thought modern was its capacity to conceptualize not only the dualism between the abstract metric extension of a measurable space and the objects dwelling in it, but also the intensity of experienced phenomena.[22]

It is in an 'intensive' sense that machine learning can also be defined as Kantian. Cara Emotion Recognition is a system for facial detection and semiotic analysis that can be programmed to interpret a person's mood.[23] Like most machine emotional intelligence systems, Cara identifies a face as object-in-space, to then proceed to identify the emotions that intensively fill up that same face-as-space. In this space, the algorithm learns to 'sense' the emotional intensities that show up in the micro expressions of the face, by metrically analysing the relations between different points (mouth angles, nose tip, eyes), and by then linking these data to the categories listed on a database. We are, in other words, still presented with an extensive capture of intensive phenomena.

But an algorithmic processing of intensity can extend itself, from the extensive individuation and recognition of emotions on a human face, to the actual registering and

[20] https://www.urbandictionary.com/define.php?term=I%27m%20just%20going%20to%20leave%20this%20here.

[21] https://www.4chan.org.

[22] We have seen how, for Deleuze, "The Kantian theory according to which intensive quantities fill up, to varying degrees, *matter that has no empty spaces*, is profoundly schizoid." (Deleuze 1984, p 19) "One world of mere appearance, and the other world compact of ultimate substantial facts." This simple relation of material reality 'filling' abstract space characterized Kant's topology as unilateral and unidimensional, a straight topology where space becomes a pure universal parameter subject but indifferent to the empirical variables of the reality that fills it. While Leibniz's topology considered spatial determination as conceptual (two forms are superposable because it is not their position in time and space that counts, but a concept), Kant's synthetic judgment is like a rule for all possible content, a rule of construction (example: a straight line is the shortest path between two points). Differently from extensive measures such as lengths and volumes, intensity is not given by a sum of successive parts but is apprehended in one instant, because the rules of addition and subtraction are not valid for it.

[23] https://www.kairos.com/introducing-cara.

measurement of intensive quantities filling up the material environment. On January the 8th 2018, FLIR Systems, Inc. announced the availability of a high resolution Thermal Vision Automotive Development Kit featuring a Boson thermal camera.[24] In other words, an infrared camera helping self-driving cars to 'see', and move, during the night, or in other difficult situations like sun glare or fog. The infrared light emitted by objects in view is scanned by infrared-detectors that obtain temperature information (thermogram), and the information is transduced into electric impulses. The final phase is the appearing on the display of objects or bodies with different colour tones according to the intensity of the infrared emission. According to Kant, "One cannot give an exhaustive mathematical description of an object by appeal to its size and shape alone", because two bodies can have the same size and shape but differ in density or, in other words, they can contain different quantities of matter (Jankowiak 2013). In this sense, the metaphysical concept persisting behind unmanned crafts that are able to spot and identify objects in a visual field, is complemented by the thermal camera's capacity to 'sense' the objects' intensive quantities of heat and matter. In the experience of the infrared camera, Kant's 'degrees of reality' become thermograms.[25]

As a sensing material capable of registering variations of temperature, the thermal dispositif has in fact a much older technical genealogy than that of digital algorithms. From Galileo's experiments with air and water to the testing of semiconductor metals in the twentieth century, temperature degrees have always already been measured in analog ways. But what makes digital thermal cameras and sensors really interesting is their use in autonomous vehicle computing platforms as vision enhancers. Here, the learning process is not undergone by the camera or the sensor in itself, but by an Intel Movidius Myriad 2 Vision processing Unit, an embedded computer processor that analyses the data provided by the sensor and makes predictions/takes decisions about the car's movement in the street. The deep-learning algorithms composing the cognitive neural network of an autonomous car are thus able, in their own way, to develop an intuition of continuity, or of continuous quantities, in a mathematical rather than a physical way. So how can Kant's philosophy of intensive, continuous magnitudes retrospectively shed light on this kind of deep-learning algorithms?

3.4 Curving potential

For Kant, perception is not enough to describe the phenomenology of experience, but we need to consider the ways in which the empirical reality of the senses comes to form conscious knowledge, through what he defines as a 'synthesis of the productive imagination'. In the cognition of qualities, between the pure 0 and the 1 of reality, an infinite sequence of degrees is in fact possible, each degree constituting the intensive magnitude of a different qualitative sensation. Qualities, in other words, are 'known' by the subject through the calculus of an infinitely small differential, an 'intensive unit' that can only be abstracted by imagining the possibility of a continuous change from one degree to another. Every colour has a degree which, however, small, is never the smallest; the same goes with warmth. Rates of change of qualities are intensive, and we can algebraically translate this philosophical concept by saying that the derivative (curve) of a function represents an infinitesimal change with respect to the considered parameters.

The calculus of differentials is applied in mathematics to find the extrema of functions, whereas integral calculus is used for probabilistic modeling. Coming back to our autonomous car system and its traffic scene problem, we understand that such system requires the deployment of processes much more complex than the pixel-level extensive identification of objects in the street. The street becomes a data space, a set of points potentially linked in many possible ways: people, animals, other cars, buildings and objects as potential movers or obstacles, each with a trajectory that represents a problem to be solved. The system has in fact to take into account a multiplicity of internal and external data that are visual, thermal, acoustic, and then to use them to predict eventualities, evaluate possibilities, and obtain the best possible action model (calculus of an integral). This calculus takes the form of a 'gradient descent' in which a deep-learning algorithm learns from progressively incoming data: modeling the best guide action coincides, from the algorithm's point of view, with finding the line (or the derivative curve) that combines all the data-points (extrema of movement) coming from the outside, with the smallest margin of error, according to a non-crash parameter. In this process, the derivative of the sum of all possible mistakes is used to update the system's parameters and make error decrease at each new information input, so that after every update, the system learns to predict with a lower error margin. Until, after running many iterations, it converges around an optimal solution.

The complexity of this kind of reasoning, the delineation of error gradients from infinitesimal changes, the search for an integral line or curve across myriads of data-points, constitute the intensity of deep machine learning. This intensity can be philosophically connoted through a Kantian definition according to the principle of intensive magnitudes as

[24] http://investors.flir.com/news-releases/news-release-details/flir-releases-high-resolution-thermal-camera-development-kit-0.

[25] Since sensory matter (the matter perceived by the senses as colour, acoustic tonality, warmth, etc.) constitutes the most basic human representation of objects, the 'continuous' or intensive magnitudes (or quantities) of this matter are to be considered as phenomenologically basic.

a line curved by infinitesimal degrees. But a deeper look into the genealogy of calculus as an algorithm's learning criterion, shows us that what Deleuze defined as the most modern dimension of Kantian thought, that is its capacity to delve into the infinitesimal shifts of the physical world, emerges from the discussions about infinitesimal and differential calculus that were already quite frequent and popular by the time the *Critiques* appeared. In his book *The Fold*, Deleuze traces a deviating philosophical curve from the Kantian lineage of modernity, and extensively comments on the modernity of Leibniz as a Baroque philosopher and, more importantly for us, as the mathematician who, already in the seventeenth century, introduced calculus to the Europeans (1992). An underdeveloped concept in Kant's work, perhaps exactly because of its modern way to represent the most obscure, microscopic and infinitesimal parts of consciousness. The modernity of calculus is in fact starting to re-appear now, while the human programming mania gives space and autonomy to the calculating intensity of algorithms, and to a less fixed and immutable idea of software. But we could extend the genealogical curved line of this modernity further back in the past, making it deviate from Western media philosophy and history, and land sometime after 996 in Cairo, where Abu Ali al-Hasan al-Haytham (also knows as Alhazen), a Persian mathematician associated with the University of al-Azhar, was already able to integrate (calculate) fourth-degree polynomials.

3.5 Yellow

Entering a neurologist's studio, an autistic child sees hundreds of neural maps and brain models aligned on the doctor's desktop screen, like the inert flowers drawn and listed on a botanist's catalogue.

In their essay "Coming Alive in a World of Texture. For Neurodiversity," Massumi and Erin Manning suggest a distinction between two modes of perception: on one hand, an immersive 'environmental awareness' that feels the surroundings as a complexity of relational variations, or as a qualitative diagram, a landscape of sensations (a modality that the two thinkers show to be proper of so-called 'classical autists') (2014). In this perceptual modality, a whole field has to be taken into account, in which a flower is not yet seen as a detached object but is felt as a conduit of relation, a sign of the field's tendency to express itself. A field full of 'budding' objects emerging at the boundary, or as relays, between experiencing and imagining. On the other hand, we find a subtractive kind of perception which is, by contrast, proper of neurotypicals, a perception that extracts discrete objects and positional griddings from the complexity of the outside (following the static model of a map). "Neurotypical experience," in this sense, "tends immediately to align to the beyond of the associated milieu of relation, to an ulterior phase in which the flower stands alone, a solitary object separate from its shadow stories" (Manning and Massumi 2014). An experience perfused with 'for-ness', as it follows a tendency towards the use-value of expression, rather than following expressibility on its own account. A separation of the object from the background, a cutting out of the flower-image in the experiential flow. Nevertheless, as Deleuze and Guattari might put it, neurotypicality and autism are not to be interpreted as the representatives of 'normality' and 'deviation', but as the two actualizations of a unique image-production process which can take variable extremes: from a botanical portrait to a garden composition. As Manning and Massumi also underline, neurotypicality and neurodiversity should not be seen as constituting "a dichotomy, but as a polarity governing a continuum of variable intermixing between the modes." Relationality and codification are, in this sense, two coexisting tendencies in the perceptual process, differently highlighted or peripheralized by different experiences: perception is, in fact, a matter of degrees and mixtures of the two, rather than of healthy or pathological identifications.

When looked at from this double point of view, contemporary postdigital culture seems to reveal, in its multiple digitactualisations, a sort of data/rhythmic neurosis, or in other words an increasing tendency to objectivize perceptual physicality, and to quantify reality into data models to be algorithmically processed by binary computers. The same kind of vision encountered by the autistic child on the neurologist's computer desktop, was perhaps encountered by artist Salvatore Iaconesi after being diagnosed with brain cancer. After a period of tentative treatments, Iaconesi decided to leave the hospital, and to place all medical data about his tumor (from scans to reports) on a website called *La cura* ("The Cure"), together with a request for possible 'cures' to be proposed by the online community.[26] Addressing peers, activists and designers all around the world, he asked them to engage with the data and to produce a cure. Thousands of different propositions arrived, in forms as diverse as medical advice and poetry. In the *Cure* performance, in other words, Iaconesi did nothing else than 'open source' his cancer, transforming it into a trigger of collective action. The visualizations of Iaconesi's cancer and brain inspired many different productions, all focused around the concept of resisting, or reinventing, the patient's condition. In this sense, Iaconesi and Delfanti argue, "the opening up of cancer's "source code"" becomes "a biopolitical rite of healing, aimed at redefining concepts like "disease" and "cure"" (2016).

After trying both the red pill (unmasking a suffocating bodily reality concealed by a thick veil of digital numbers)

[26] http://la-cura.it.

and the blue one (understanding that datafication requires a shift in our aesth/ethical paradigms), Iaconesi's project thus calls on us to try a yellow pill. As in the chromatic scale, the yellow does not represent a dialectical synthesis between two opposed alternatives, but a hint of infinite multiplication of the points of view. This third pill can actually be identified with the perspective of hacker culture: a pill for techno-socio-cultural decentralization, and for the expropriation of data controlled by institutions. Iaconesi's *The Cure*, in fact, initiates an online ritual that "follows a protocol or script which derives from hacker practices and rhetoric" (Delfanti and Iaconesi 2016). The first step in the performance was a technical one: to convert the medical records from professional to common standards, making the data easily readable and shareable by everyone. The cure, in other words, was possible thanks to a transduction between technological standards. While, for medical institutions, a brain scan represents an instrumental, objective abstraction from the individual body, its transduction and its 'opening out' to the online open-source community extends its significance and its range, also repositioning the brain-object into a wider perceptual and social environment. The brain can thus be brought back to its collabor(rel)ational social field, where it appears as an actualization of the field's (in this case, the social field's) tendency to express itself. The yellow pill, in other words, allows us to focus, as if under the effect of a 'neuro-diverse' perception, on the imaginative "biodigital rituals of sharing" that are intricately woven to our scientific and technological experiences. Open access to data and tools, the cracking of institutional and technical protocols, and the free circulation of digital artefacts, compose thus a techno-active substance that would be certainly worth exploring further.

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