

Vladimir Jerić Vlidi

**Dispossession by numbers: 2017/10/70/100**

(A visual essay for *Red Thread*: [Networkfailure.net/dispossession-by-numbers-2017](http://Networkfailure.net/dispossession-by-numbers-2017))

(10) – THE DEPTH AND THE DEBT

This July marked 10 years since “the crisis” opened the way for the Global Austerity Regime;<sup>1</sup> in September, populations were reminded that it is 10 years since the concept of the *smartphone* was introduced to the world.<sup>2</sup> The closure of the decade marked by the proliferation of rectangles of all sizes and the decline of all welfare (also) reminds of the forming of entire new generations emerging under a *different social horizon*. Today, words such as *freedom*, *equality* and *revolution* come carrying different meanings. There is nothing and nobody not being the hostage of something and somebody, and this circle seems complete now.

GOTO: (11)

The controversy of the arrival of what is called Artificial Intelligence (AI) in the midst of the Global Austerity Regime was simply *baffling*: while people were being repeatedly told that more and more cuts are necessary — Austerity *must* continue because there is simply *not enough of the stuff* for everybody to be sustained — now they are at the same time being told that jobs, and all work, will be rapidly cancelled as category because the new machines can produce *more stuff, faster and cheaper* than humans ever could.

This was the important part of the Public Address, in the terms of what is already happening now; but it came enwrapped in “the spectacle of disaster” projected in an indeterminate future, as another aspect of the advancing phenomena of AI caught even more attention. On the very surface of the announcement, it wants people to know that the problem with jobs may be just an innocent introduction; this technology, if not properly supervised, is probably about to enact “the end of history” by superseding humans — and all biological life — as the dominant form of existence; it will probably do this by conquering or erasing humanity, one way or another.

The various different reasons given for the panic-inducing warnings of the arrival of what is rightly or wrongly called Artificial Intelligence are for most people not easy to discern. It will all be further obfuscated by the use of acronyms, scientific jargon, myriad statistics and charts, with most of the argumentation resembling an endless exercise in comparing these numbers with those. (Even more or less successful attempts to explain the problem in a popular manner appear as somewhat anxious and hectic in an effort to “give meaning to numbers”.<sup>3</sup>) The problems of complexity and of literacy escalated in various different ways, and people seem to be confused; no wonder that these days one engineer establishes an AI-worshipping religion,<sup>4</sup> the other speculates about reproductive sex between humans and robots,<sup>5</sup> while another started referring to humans as “them”.<sup>6</sup> While the people will still be trying to figure

out this conundrum of *too much* and *not enough* (combined together into *not much*, or *too enough?*), the scientists will issue Open Letters and comments on the announcements by businesses, celebrities and “the internet” will address the politicians who will reply with press releases, while the entrepreneurs will be seen as sovereign in running the show.

#### (90) PERSPECTIVES / PROSPECTS

All time is “real-time” now, acknowledging that such warping of time is inseparable from the spatial turn of rendering all the global space as *here*: charted and conquered, ready and available. In such a distanceless “supernow”,<sup>7</sup> these mutually reinforcing mechanisms prevent in advance any attempts to achieve “a concrete analysis of a concrete situation.” Even when such technology of perception condensing all reality into a single point was in its early stage, now 90 years ago, the careful observer<sup>8</sup> Walter Benjamin could note that “criticism is a matter of correct distancing. It was at home in a world where perspectives and prospects counted and where it was still possible to take a standpoint.”<sup>9</sup> Today, it is well past that point.

(In the key of this Red Thread issue dedicated to the phenomena of *dispossession*, this would be one instance of dispossession among many to be noted in this text: taking away the sense of public, not only as in “public space” but also as in “public debate”. The very term of dispossession will be taken in a general and generic manner,<sup>10</sup> while the subject matter, the *crime scene*, reflecting the general state of confusion, will be (incorrectly) alluded to through different internet-related phenomena, referred to as “algorithms”, “AI”, or “numbers”, and sometimes as *the thing*.)

#### (600 BILLION)

Both the “anniversaries” mentioned—the first decade of Austerity overlapping with the first decade of smartphones—did reflect the phenomena of advancing automated intelligence in their own way. Austerity *normalized* various different dramatic shifts in how some historical dilemmas and challenges are being recognized and understood. After 10 years of the systemic *dispossession of everything*, of wealth and culture, of politics and all “reality”, now it is the paradigm of automation and automatization, and not of social (in)equality that informs the discussion of the various possible implementations of what is most frequently referred to as Universal Basic Income (UBI). Such significant *reframing* of what were the recognizable concepts of the previous century will be one of the topics of examination of this text.

Technology will in return offer ever faster and more powerful ways to extract people’s data; the new microchip introduced in 2017 by Apple is not called *All bionic neural engine* without reason, as “this chip does assist in speeding up image recognition including biometrics”, is capable of performing “600 billion operations per second”, and is “custom-built for handling artificial intelligence workloads”.<sup>11</sup> (Google responded with the “AI first” campaign, and Huawei introduced “Kirin - the first mobile AI computing platform”.) This AI runs on 600 billion processes now, and it is just warming up. About what it means to hand over the future to such a conception of technology would be another important issue to be discussed, probably in 600 billion words.

### (30) SPIRITUAL REVOLUTION

Recently, there has been a renewed interest in the work of philosopher and writer Vilém Flusser and his early observations on the transformation of society under the arrival of new media technologies; 30 years ago, it was obvious to Flusser that “discourse has been substituted by calculus”, which may explain the contemporary structural incapacity of criticism. From his 1988 interview:

“When the alphabet was invented, mythical thought gave way to historical critical thought because the structure of linear writing is a uni-dimensional, un-directed line. So that, by and by, people started to think historically in a causal way, and in a critical way. Now that this line has been disrupted into points, now that discourse has been substituted by calculus, historical progressive thinking is being abandoned in favor of a new type of thinking which I would like to call, let’s say, a systemic or a structural way of thinking.”<sup>12</sup>

He felt that what is about to follow is “a revolution which can be compared to the one which gave origin to history”, leading towards a certain “post-historical” situation. As Flusser noted observing the arrival of 1980s digital technology:

“Every revolution, be it political, economic, social or aesthetic, is in the last analysis a technical revolution. [...] So is the present one. But there is one difference: so far techniques have always simulated the body. For the first time our new techniques simulate the nervous system. So that this is for the first time a really immaterial, and to use an old term, *spiritual revolution*.”<sup>13</sup>

### (10) ABSORPTION

As the ability of critical distance shrank to “0”, rendering the critic just another among the many voices having something to say in “real time”, another distance was vastly enlarged; inequality grows greater every day, and there is little shared between the tiny fraction of “the winners” and the rest. It seems not to be anymore, as McKenzie Wark could observe from the perspective of only several years ago, about “we get all the culture; they get all the revenue”;<sup>14</sup> the situation escalated so they get both the revenue *and* the culture now.

It is 10 years now since Alexander Galloway and Eugene Thacker wrote that “as a political program [...] communications protocols are technologies of conservative absorption. They are algorithms for translating the liberal into the conservative. And today the world’s adoption of universal communications protocols is nearing completion [...]”<sup>15</sup> So would this be a witnessing of neo-liberalism overplaying itself somehow, miscalculating its own merger with neo-conservatism in creating the 1980s as they were? But then Galloway and Thacker continue by pointing out that “the rigid austerity measures of neoliberal capitalism have absorbed all global markets.” Is this regime winning or losing? Is it even possible to tell? Is such distinction still a category, and under what circumstances? This sentiment is recently acknowledged in no ambiguous terms: “this civilization is over, and even its

defenders know it”<sup>16</sup> (McKenzie Wark); or “our disenchantment with the internet is a fact - yet again, enlightenment does not bring us liberation but depression.”<sup>17</sup> (Geert Lovink)

#### (40) HIGH-SPEED MORONS, BUT STILL MORONS

Arthur C. Clarke got many things right, like the early envisioning of concepts of geostationary satellites, location devices and mobile telecommunication technologies. In 1964, he could see the arrival of personal computers and “accurately predicted the rise of the internet, and even further, online banking almost to the year.”<sup>18</sup> In “2001: A Space Odyssey”, he presented the computer HAL 9000 as one of the main actors of the story, creating the iconic image of a machine madness reflecting the conflicting interests and contradictory orders of its creators (and also, implying that *no logic can substitute for consciousness* in a messy, ambivalent world of humans). From the perspective of 1978 it was obvious to Clarke that Artificial Intelligence will “[one day] outpace and be more intelligent than us”.<sup>19</sup> (It remained unclear, especially given Clarke’s ambivalent tone while giving the statement combined with his somewhat dim view of AI as expressed in his writings, if this is a good or a bad thing, or will be a continuation or a cancellation of humanity.) What was pretty much without question for Clarke and the other participants of this late 1970s conversation was both that humanity is heading towards the “post-work” (a way off, but inevitable) future, but also that at the moment “our most complex computer systems are still morons, high-speed morons, but still morons.”

But today, science journalist Quentin Cooper talks about the arrival of “different kind of Artificial Intelligence” that is “not even close to the kind of thinking machines that are a given of so much science fiction” but still “has permeated almost every aspect of our existence: [it] monitors and diagnoses patients, does accounts and vets job applications, and in our phones and computers algorithms filter our searches and alter our world view.”<sup>20</sup> What is making the computers of today less than “morons”? Besides the ever-faster power of computation, besides it is 600 billion processes now, what is *different* about it?

#### (60 000+) BLACK BOXING

Describing the search for “the largest prime number”, the popular 1999 title *A History of Algorithms; From the Pebble to the Microchip* says “when they were carried out by hand, the calculations had to be humanly feasible” but “with the invention of computers, it is now possible to tackle numbers consisting of more than 60 000 digits, and the limiting factor is a function of machine time.”<sup>21</sup> But then another limitation emerged: such speed and scope of computation means no human can navigate within the *black box* of a complex computer algorithm.

In the form that finally brought it to success today, AI uses various different methods of *machine learning* and *simulated evolution*; it is based on “structurally simple rules that produce functionally complex results”, again to paraphrase Flusser and his late 1980s observations<sup>22</sup> considering “so-called binary codes”; he had seen it then as a certain problem of literacy. It is probably true more than ever, as today the interaction with the machine can be done simply by gesturing or talking to an interface, and the

apparatus takes over from there. On the other hand, it also may appear to function as the opposite, as a “structurally complex system to produce functionally simple results”, as logging into whatever account now covertly mobilizes the army of algorithms and engages sophisticated networked computation just to offer a better ad or a short piece of information, which is a different problem of literacy.

(BETWEEN 0 AND 1)

As with most of anything ever documented, it is possible to observe the emergence of the current conception of Artificial Intelligence through the succession and lamination of certain *papers* to shape the particular form of AI in operation today. But to propose such way of historicizing today also means to construct and inspect yet another *timeline* that may or may not amount to “the whole story”; especially since the 1980s,<sup>23</sup> nothing ever seems to be perceived as complete.<sup>24</sup> The more knowledge and more data got to be involved in circulation and operation, it appears as if the situation is sliding away from the hopes of Gottfried Leibniz that philosophical arguments will be resolved once and for all in a rational world by computation, not interpretation.<sup>25</sup> Is it the effect of undoing the structure of the 20th century, the consequence of post-modernism “which has probably lasted longer than modernism [itself]”, as writer Warren Ellis would say,<sup>26</sup> systematically “interrogating the aesthetic discourse and disrupting the narrative”? Or is it precisely the counter-effect of the very attempt to dispense with categories of *interpretation* and *meaning*?

It was precisely the question of *completeness* that was one of the concerns of Alan Turing’s seminal paper “On Computable Numbers, With an Application to the *Entscheidungsproblem*” (1936) that, together with Claude Shannon’s “A Symbolic Analysis of Switching and Relay Circuits” (1938), is frequently considered to present the most influential paper in the development of computer science. But if the concern of this particular timeline is the development of AI as a concept of thinking and not of computers as “a platform for thinking”, then the same two authors would only a decade later offer both the structure and the frame for establishing the current conception of Artificial Intelligence with two other texts.

\*\*\*

To associate machines with thinking was already a long-time established concept - Pamela McCorduck, the author of the title *Machines Who Think* (1979),<sup>27</sup> located the emergence of the idea in “at least the time of classical Greece”. But with what to connect thinking remained a divisive point in philosophical debate and still an elusive concept in theory. Eventually it was Alan Turing who in his seminal 1950 paper “Computing machinery and intelligence”<sup>28</sup> proposed that what humans assume as “thinking” should, at least temporarily, be decoupled from the phenomena of *consciousness* which is not understood at all, in favor of the approach focusing on *intelligent behavior*, something that humans thought at the time to have understood better. In the words of Turing:

“I do not wish to give the impression that I think there is no mystery about consciousness. There is, for instance, something of a paradox connected with any attempt to localise it. But I do not think these mysteries necessarily need

to be solved before we can answer the question with which we are concerned in this paper.”

In this document, among other significant concepts to define the future thinking about “thinking machines”, Turing proposed and outlined the *imitation game*—what became known as the Turing test—as a way to detect and acknowledge the existence of intelligence based on the observation of the intelligent behavior of a certain actor *as judged by humans*. He proposed the test be conducted through written communication in order for all clues to be based exclusively on the language used. (In his 1936 paper, Turing had already specified “how a symbol processing device could perform mathematical computations”, so theoretically computers could “write back”.) Intelligent behavior will be thus seen as the ability of exchanging and the faculty of processing information, that is, as *communication*.

\*\*\*

This was an intensive and exciting period for *papers*; the first theory to understand communication as a formal and definable process expressible in numbers came only two years before Turing wrote his text, in the future-defining paper “A mathematical theory of communication” presented in 1948 by “the man whose revolutionary ideas made the miracle possible: Claude Elwood Shannon”<sup>29</sup>. (The immediate success of Shannon’s paper was reflected in the title of the ensuing 1949 book co-written with Warren Weaver: *The Mathematical Theory of Communication*.) There are a lot of details, and details are important, but, in short, what Shannon did was to open the way eventually to algorithmize any and all exchange of information. It was only possible if the information was perceived in a specific way; in the words of his colleague Weaver:

“First off, we have to be clear about the rather strange way in which, in this theory, the word ‘information’ is used; for it has a special sense which, among other things, must not be confused at all with meaning. It is surprising but true that, from the present viewpoint, two messages, one heavily loaded with meaning and the other pure nonsense, can be equivalent as regards information.”<sup>30</sup>

Shannon’s case studies were frequently about language, taken in the research in a certain Wittgensteinian sense as “the World” or “the system” (one of his subsequent papers from 1951 was titled “Prediction and Entropy of Printed English”). From the perspective of *engineering*, the most important thing was to focus on building a coherent system in which it is possible *to perform the approximation of the probability for something to happen so*, what meant treating “something” as no less, but no more than as “anything possible”. In the introduction to his paper, Shannon wrote (his emphases):

“The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have *meaning*; that is they refer to or are correlated according to some system with certain physical or conceptual entities. These semantic aspects of communication are irrelevant to the engineering problem. The significant aspect is that the actual message is one *selected from a set of*

possible messages. The system must be designed to operate for each possible selection, not just the one which will actually be chosen since this is unknown at the time of design.”<sup>31</sup>

Now it became possible, as one of the many linguists to adopt this technical theory into humanistics alongside Roman Jakobson and Morris Halle,<sup>32</sup> Umberto Eco, wrote, “to distinguish the meaning of a message, irrelevant to an information theory, from the measure of information”, that is, to create “a sharp distinction between information, as the statistical measure of the equiprobability of events at the source, and meaning.”<sup>33</sup>

\*\*\*

Several years later, the expression “Artificial Intelligence” was presented for the very first time in the title of “Summer Research Project on Artificial Intelligence”, the project proposal signed by the group of academics (involving Shannon) and written by the cognitive scientist John McCarthy. It was sent to the Rockefeller Foundation in August 1955 to provide the support for the next years’ conference to be held at September 11, 1956 in Dartmouth College (among the other sponsors would be IBM and DARPA). In this document, presuming that

“every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it”, the concept of AI was formulated so as to venture into “making a machine behave in ways that would be called intelligent if a human were so behaving”.<sup>34</sup>

Such connecting of intelligence with behavior and behavior with natural human language will have significant consequences. But it will not help in solving the other problem Turing pointed out in 1950, when he wrote:

“If the meaning of the words ‘machine’ and ‘think’ are to be found by examining how they are commonly used it is difficult to escape the conclusion that the meaning and the answer to the question, ‘Can machines think?’ is to be sought in a statistical survey such as a Gallup poll.”<sup>35</sup>

Today, a similar poll would probably reveal first of all a state of grand confusion, but also that there are still at least two general (mutually exclusive) perceptions of “intelligence”, one concerned with behavior and practical manifestations, and the other still essentially inseparable from the elusive concept of (human) consciousness. This is also where Turing (once again) accurately predicts contemporary development by formulating the meaning as something to be searched for within and by *statistics of common use*.

All this meant that the pursuit of creating AI became inseparable from discovering *the principles of language acquisition*, which to the present day remain elusive. There are many competing theories and a lot of research, but as with the phenomena of consciousness, even the basic lines of approach are still a matter of debate. It also opened the way for linguists and psychologists to enter the field and to remain at the helm of the great “battle for language”, as subsequent AI research has proved much to be about; the ability to manipulate the natural human language by the system based on

mathematical logic remained not only the kind of abstract unit of measurement of any progress towards creating an “intelligent entity”, but became the practical goal of entire industries. Today, more than ever before, it is about language, becoming a trillion-dollar question whether people will accept this or that Intelligent Digital Assistant as “the voice of reality”, and to which social platform they will hand over the extraction and exploitation of their particular use of language, their own *verbal behavior*.

#### (70) PIGEON IN A BOX (TRANSPARENT)

More important things will happen in 1948<sup>36</sup> that will intersect with Shannon’s theory of communication: Norbert Wiener presented the term and the principle of *cybernetics* in his book *Cybernetics: Or Control and Communication in the Animal and the Machine*,<sup>37</sup> and at Harvard University the behavioral psychologist B. F. Skinner introduced his research in “Verbal Behavior” that will become the 1957 book of the same name. (The consequences of Wiener’s immensely influential book, especially in its utilization with Shannon’s theories, will be addressed on another occasion.) Soon to be considered one of the most significant psychologists of the century, Skinner will be a part of the large and loose group of scientists gathered around the “AI inception” event mentioned earlier, the First Dartmouth Conference on Artificial Intelligence held in 1956. The principles of *Verbal Behavior* as outlined in the lectures and the book will, eventually, come to be adopted among the essential constituents of what is called AI today, but not without several decades of resistance, and for reasons likely different from those Skinner would have expected.

If his ideas are applied today as concepts to be computed on the platform of Shannon’s mathematical theories, they had one thing in common from the very start: as Shannon defined communication aside—and despite—the category of meaning, for similar reasons Skinner also excluded meaning as irrelevant in trying to understand behavior. As announced in his talk held at Harvard in 1948:

“A scientific study of verbal behavior has no reason to regard itself as involved in a search for meanings, no matter how ‘meaning’ may be defined. Its task is not to analyze symbolic behavior or the function of symbols. [...] Meanings and symbols are not among its data, and they may never, God willing, turn up among its concepts.”<sup>38</sup>

Skinner believed that all behavior is developed as a response to the environment and that it can be explained as such—by observing the causes and consequences of a certain action; by excluding the mental processes such as thoughts and feelings, he believed he made the science of behavior not only more productive, but *more of a science*. He thought of classical (Pavlovian) conditioning as too simplistic and concerned only with reflexive behavior, so he focused on the *intentional* behavior affecting the surrounding environment. For that reason, he developed the approach into *operant conditioning*, in which such actions could be reinforced or punished in order to guide a certain process of learning, probably best described as *training*. Besides this specific process of conditioning, all the essential procedures are in detecting, recording, comparing, and finally in estimating the probabilities of the occurrence of certain behavior by taking into account the correlation between its

apparent causes and consequences, making *statistics and probabilities* the core elements of his method.

Most if not all of these conclusions Skinner derived from his laboratory practice, in which one of the central devices was what became known as the *Skinner box* (or *operant conditioning chamber*), an instrument to isolate, control the environment of, communicate, and deliver positive or negative feedback to a test subject (he had his reasons for preferring pigeons to rats). By improving on the concept of the *kymograph*, Skinner introduced the “cumulative recorder”, a device to track all events and keep statistics on behavior, in order to create what would be viewed, in today’s paradigm of “Big Data”, as *datasets*. Once a test subject was in a Skinner box, it meant the ability to control the “world” or “reality” of that test subject, and all sorts of behavioral patterns could be extrapolated and explored; based on statistics of the previous behavior of this and other test subjects the selected patterns could eventually —by *reinforcing*—be engineered. So he discovered, for example, that when the box, “which Skinner himself likened to a slot machine” as Andrew Thompson writes,<sup>39</sup> was set to work by issuing the rewards (pellets) to pigeons at random presses of the lever—what he called *variable ratio reinforcement* —it was possible to have pigeons diligently “work” the lever at regular intervals by finding a proper ratio between “too little” and “too much” of a reward:

“The Skinner box works by blending tension and release—the absence of a pellet after the lever is pressed creates expectation that finds release via reward. Too little reward and the animal becomes frustrated and stops trying; too much and it won’t push the lever as often.”

As it may seem that the only question for that entire generation of scientists is for which branch of military they worked during WWII, so it was the case with Skinner; his famous box turned into a bomb when he was hired by the U.S. military to develop pigeon-guided missiles. Writer and journalist Ilan Moscovitz offers the following details:

“Skinner trained pigeons to peck at an image of the military target projected onto a screen; whenever their beaks hit the moving target dead center, he rewarded the birds with food pellets. Once the pigeons had learned how to peck at targets, the three of them would be put into a missile cockpit specially fitted with straps attached to gyroscopes that would steer the bomb. When American jets released their pigeon-filled bombs, the birds would peck at an image of the bomb’s target, their little straps twisting and bending, gyroscopes whirling, guiding the bomb and the birds to their final resting place.”<sup>40</sup>

(As similar if not the same principles are arguably behind a lot of what the mechanism of contemporaneity has turned out to be, it is hard not to laugh at the image of humanity being driven to oblivion by a sophisticated machine of destruction run from deep inside by a hungry and confused pigeon somewhere, jailed inside by mad scientists. “Armageddon 2.0 - The Pigeons Revenge”? It becomes somewhat less funny imagining the entire humanity diligently pecking their way towards the end of all meaning. To return to a better mood, a certain “symbolic round-off” can be contemplated: the essence of humanity in the famous “tears in the rain” monologue

scene in Ridley Scott's *Blade Runner* may not be represented by the rebellious replicant of the Nexus 6 series, but by a pigeon he holds firmly in his hands.)

\*\*\*

Through his laboratory research on animals (this alone makes him appear today as the archetype of “mad, modernist, male” kind of scientist as found in comics and conspiracy theories), Skinner discovered that by experimenting with various different ways to stimulate behavior he could manipulate the process of learning—seen as *conditioning*—to achieve seemingly consistent results. (This is how all those *statistics* and *probabilities* could be viewed as qualities and not simply quantities.) From his interpretation of the principles of materialism and evolution, he could see no reason why whatever he learned by testing and observing rats and pigeons could not be applied to humans, and to society at large. He had seen nothing special in *language as category*, and thought of it as one among the many other “behaviors” that humans have a possibility of learning (or not). It appears that he believed that he had found a truly scientific way to overcome any and all ideology, both in understanding and in manipulation of how the individual and society function.

#### WALDEN TWO THOUSAND SEVENTEEN / NINETEEN EIGHTY-FOUR

If his scientific writings presented the blueprint of the logic and the method of his *radical behaviorism*, the application of B. F. Skinner's philosophy and the completion of his worldview—alongside his particular view of humanity—came in his literary works. In parallel with introducing “Verbal Behavior” in the form of lectures, that same year (1948) Skinner published his utopian novel *Walden Two*,<sup>41</sup> proposing a vision of society based on the principles of *reinforced behavior*, applied in the form of a certain *pedagogy*,<sup>42</sup> specific “cultural engineering” and strong communality. This self-contained community (named after Henry David Thoreau's *Walden* published in 1854) in which work is limited to several hours per day and all goods are free is portrayed as somewhat obsessed with constant experiment and improvement, and is bound by a specific form of social contract referred to as *code*. As outlined in *Walden Two*:<sup>43</sup>

“The question is: Can men live in freedom and peace? And the answer is: Yes, if we can build a social structure which will satisfy the needs of everyone and in which everyone will want to observe the supporting code.”

As *Verbal Behavior-as-science* will be challenged as “unscientific”, the reception of *Walden Two-as-political-program* would also be indicative for what will become a phenomenon of contemporaneity in a cultural, and not only a technological sense; the narrative, being by declaration and in structure utopian, was nevertheless *perceived* as dystopian. In a way, it could be said that in a single year and by these two works B. F. Skinner managed to blur, if not break, both the definition of science (to be argued most vocally by Noam Chomsky, below) and the demarcation line between the utopian and dystopian vision of the future. (“*Walden Two* is interesting from a literary standpoint in that many non-behavior analysts did not believe Skinner was being serious when he wrote his novel; they believed that he was in fact being satirical and presenting a dystopia.”<sup>44</sup>)

If, in the beginning, “Skinner was not different from other early pioneers, such as Freud, who attempted to bring human behavior into the realm of science by adopting the working assumption that it is orderly and that regularities are able to be discovered by appropriate methods,”<sup>45</sup> and among the behaviorists cited Freud the most,<sup>46</sup> Skinner’s opinion started to differ from Freud’s concerning the question whether humans can, eventually, take control of their actions by internalizing desired behavior as part of their personality. Skinner was skeptical of the possibility, and through his radical behaviorist approach of “occasional reinforcement” insisted that humans will always require instrumental, or *operant conditioning*, that is, an instance of reward or punishment. He wanted to “abolish the autonomous inner man”;<sup>47</sup> instead, he placed the decisive role in carefully controlling—engineering—the human environment. Differently from many of his critics, Skinner could see no ethical or political concerns regarding such a method; he held the view that “many social practices essential to the welfare of the species involve the control of one person by another, and no one can suppress them who has any concern for human achievements,”<sup>48</sup> and that “a scientific view of man offers exciting possibilities [...] we have not yet seen what man can make of man.”<sup>49</sup> As he wrote (as T. E. Frazier) in *Walden Two* (his emphasis):<sup>50</sup>

“We can achieve a sort of control under which the controlled, though they are following a code much more scrupulously than was ever the case under the old system, nevertheless *feel free*. They are doing what they want to do, not what they are forced to do. That's the source of the tremendous power of positive reinforcement—there's no restraint and no revolt. By careful cultural design, we control not the final behavior, but the *inclination* to behave—the motives, desires, the wishes... By skillful planning, by a wise choice of techniques we *increase* the feeling of freedom.”

This is probably where Skinner’s views on the notions of free will and freedom in general are precisely defined to be no more (and no less) than a *feeling of freedom*. His interpretation of self-management was literally about a specific *management of the self*. He compared his discovery as similar to those of Darwin, Copernicus and Freud, and precisely in such comparisons he found the explanation as to why his work could not be easily accepted: if Copernicus had to bring the news that the Earth was not the center of the Universe, Darwin that human bodies are natural and not divine phenomena, and Freud that humans are driven by undercurrents of emotions and not by reason, which in their own time were all seen as significant blows to then-current beliefs and human self-esteem, it took some time for such views to be accepted.<sup>51</sup> Seeing himself as standing at the end of this line, Skinner believed that he presented the biggest challenge to humanity yet by proposing the “hardest truth” of all: that everybody is shaped entirely by the environment, and there is nothing in particular to be found “in the depth of our beings”; that the words “individual” and “freedom” are precisely just words. He expected that people would have difficulties “reconciling” with this truth, but that it would be, as with previous great discoveries, just a matter of time before his views are accepted as *natural*.

The population of *Walden Two* is presented as calm, rational, and placid; for a 1970s book review, “this placidity is more important to *Walden Two* than its elemental Marxist economy: Skinner views his creation as an advancement over previous

utopias, which rested on the authority of philosopher-kings, laws or economic principles - Walden Two is organized about psychological concepts. [...] Our behavior, Skinner feels, is in fact controlled; by accepting that, and learning the techniques of control we can create a 'behavioral technology,' with positive reinforcement as its key device."<sup>52</sup>

But such calmness was understood as something eerie, because of the perceived suspect price of "mind control", not conducted by oneself through, for example, a technique such as meditation, but *by others*. Apparently, this made all the difference; as observed by Phillip E. Wegner, "despite the cautious experimental nature of its proposals, arguing as it does for a more general application to social problems of the tenets of Skinner's behaviorist psychology, *Walden Two* had the misfortune to be published only a year before *Nineteen Eighty-Four* and was unfairly measured against it".<sup>53</sup> (Following George Orwell's book and the general atmosphere of 1948, what was recognized in Skinner's methods was the possibility of totalitarian governance by the ideological regimes of the State, and not the totalitarian control of economic regimes run by corporations.) It took some time for the reply: in his essay *News from Nowhere, 1984* (1984), Skinner describes the strange new character arriving in Walden Two, who turns out to be George Orwell in disguise, revealing he had to fake his 1950 death in order to join Skinner's experimental community. Orwell would not be alone; "during the 1960s and 70s, this novel went on to inspire approximately three dozen actual communities",<sup>54</sup> and some still remain in operation.<sup>55</sup> The complex and intensive relationship between Skinner's work and the work of Orwell or that of Aldous Huxley is beyond the scope of this text.)

Skinner never revised his methods and propositions, considering them the products of what he saw as "scientific and objective methods of investigation". "It's the science of science - a special discipline concerned with talking about talking and knowing about knowing."<sup>56</sup>

### (30) "MANUFACTURED REVOLUTION"

Noam Chomsky, a young linguist who had just published his own theory of *generative transformative grammar* (*Syntactic Structures*, 1957), stood up against "the whole package", and decided to focus his criticism of Skinner's science.<sup>57</sup> His 1959 paper "A Review of B. F. Skinner's Verbal Behavior" was described as "devastating" not only for the book, but for behaviorism as a discipline: the review became "much better known than the book", as Skinner himself admitted. The entire issue is still—or, it can be said, especially now—a matter of heated debate. ("Like most of Chomsky's finest arguments, his case against Skinner is as effective emotionally as it is intellectually."<sup>58</sup>)

In his review, rightly or wrongly, Chomsky called Skinner out for being methodologically inconsistent ("Skinner does not consistently adopt either course"), for the lack of evidence ("Skinner's claim that all verbal behavior is acquired and maintained in 'strength' through reinforcement is quite empty"), for being flawed both in thinking and in articulation ("Skinner's claim that his system, as opposed to the traditional one, permits the practical control of verbal behavior is quite false" to the point of "pointlessness"), and for being unscientific in procedure ("to speak of 'conditioning' or 'bringing previously available behavior under control of a new stimulus' in such a case is just a kind of play-acting at science").<sup>59</sup>

Chomsky ends his paper with what was at the time recognized as a prophetic sentence: “If the study of language is limited in these ways, it seems inevitable that major aspects of verbal behavior will remain a mystery.”

It is a complex exchange, but, put simply, Chomsky insisted—and has retained the view till today—that the approach of statistically gathering and analyzing a lot of data about human behavior, even if it may result in some useful predictions of future behavior or find hidden patterns (the more data analyzed, the more probable the success of the analysis), can never result in any understanding of the meaning of such behavior; any attempt to reproduce meaningful behavior in this way would be just a more or less accurate expression of the probability for something to happen so.

(Chomsky’s own position was, in a simplistic reduction, that it is impossible for a language to be learned through imitation alone, that language is innate, and hardwired into human brains; his theory, evolving later to become the theory of Universal Grammar,<sup>60</sup> was based on the hypothesis of the existence of a *Language Acquisition Device* in charge of “instinctive mental capacity”, as outlined in his 1965 *Aspects of the Theory of Syntax*.<sup>61</sup> Like other theories about language acquisition, it remains contested and unproven, but has proved useful for developing certain concepts in computer science and linguistics.)

Chomsky’s arguments against the probabilistic approach resemble in a way what physicist Richard Feynman famously described in 1974 as “cargo cult science”—the attempt to recreate the consequences of a certain event without any other understanding but how it appeared when observed from outside. Speaking about the “people from South Seas” who tried after WWII to make the long-gone American supply aircraft full with goods land once again by trying to recreate the look and behavior of the ground staff through their masks and dances, Feynman concludes: “They follow all the apparent precepts and forms of scientific investigation, but they’re missing something essential, because the planes don’t land.”<sup>62</sup>

In this debate, Chomsky’s argumentation was considered valid and Skinner’s views rejected for a good part of the following two decades. But, with the arrival of enough of a “brute force” in terms of the boosting of Processing Power and the accumulation of a critical mass of what has become known as Big Data, together with algorithms evolving to explore the statistical, probabilistic and other “automagical” possibilities of Neural Networks and Machine Learning, since the late 1980s, to paraphrase Feynman, “*something* has started to land”. (This despite the pilots still being what Arthur Clarke called “morons”.) Eventually, regardless of early warnings by Claude Shannon that his theory was both overused and abused,<sup>63</sup> it was the application of his concept of communication that got to influence significantly what is called AI today. In this development, the Turing redefinition of intelligence and Skinner’s views on humanity stand in a certain proximity, rather than in a timeline, to complete the application.

About “AI” and “today”, scientist and writer Yarden Katz offers a concise overview, in which he finds the current AI revolution a “manufactured” affair:

“Governance by the numbers is aided by the confusion over what AI is and whether its inner logic can be deciphered. AI might be the perfectly nebulous term to use if the task is to convey a sense of technological disruption that licenses sweeping political change (especially when many are already willing to believe in the unbounded power of big data). This is epistemology in the service of power. It’s obviously not the first time that a techno-scientific field’s promise to bring about utopia (or dystopia) has been exploited. Given the behaviorist core of today’s celebrated AI systems, it’s worth revisiting the 20th century debates on behaviorism-based visions of a future society.”<sup>64</sup>

“The label ‘AI’ has in fact recently undergone a rebranding. Corporations have helped manufacture an ‘AI revolution’ in which AI stands for a confused mix of terms—such as ‘big data,’ ‘machine learning,’ or ‘deep learning’—whose common denominator is the use of expensive computing power to analyze massive centralized data. AI has essentially become a convenient redressing of a stale vision long promoted by Silicon Valley entrepreneurs. It’s a vision in which truth emerges from big data, where more metrics always need to be imposed upon human endeavors, and where inexorable progress in technology can ‘solve’ humanity’s problems. Powerful companies have played a crucial role in the rebranding by hiring academics working on statistical analysis of big data (a term now interchangeable with AI), intervening more aggressively in academic research, and dominating mainstream discourse on AI.”<sup>65</sup>

\*\*\*

Did a “potentially post-historical situation” and a “spiritual revolution” as Vilém Flusser could see it from the position of the late 1980s got transformed—or *manufactured*—into dystopia simply “by numbers”? To quote a computer scientist and director of research at Google, Peter Norvig, from his recent reply to Chomsky (who to the present day continues to call the current approach to AI a kind of fraud, or, from the perspective of science, a kind of *treason*<sup>66</sup>):

“And while it may seem crass and anti-intellectual to consider a financial measure of success, it is worth noting that the intellectual offspring of Shannon’s theory create several trillion dollars of revenue each year, while the offspring of Chomsky’s theories generate well under a billion.”<sup>67</sup>

### (03) – A BORING REVOLUTION

So it appears that not much spectacle should be expected out of this AI. Efficiency, speed, cost-effectiveness, yes. In the influential article in *Wired*, technologist and writer Kevin Kelly observed only three years ago that the “AI on the horizon looks more like Amazon Web Services—cheap, reliable, industrial-grade digital smartness running behind everything”, that “like all utilities, AI will be supremely boring, even as it transforms the Internet, the global economy, and civilization”.<sup>68</sup> (He announces this thought with an interesting sentence: “this common utility will serve you as much IQ as you want but no more than you need.”) On the surface, it’s a calming picture of the general progress-as-usual of everything, only faster, cheaper, better now. But a lot of questions arise today.

The more obvious, more explicit costs of such a choice, for example what it means to automatize weapons in this way, will be *taken as obvious* and will not be examined on this occasion; what is of interest now is how the principles of commerce and of competition are influencing the core functioning of what, based on all of the above, can also be called “Austere AI”. (Kelly opted for “Utilitarian AI”.)

“There is no governance of algorithms by some form of power or regulatory regime. It is something we can demand,” Geert Lovink said this September,<sup>69</sup> explaining that “In a way, algos are the follow-up of the proprietary software, which the free software movement has been fighting since the 1980s. To then use this term in combination with the term governance (as Michel Foucault used it) is ambitious. The concept is good, I support it, but it is simply not present.” It is true that, still, the official forms of governance are not “algorithmic”, and for various reasons it will nominally continue to be so some time after it will already be widespread practice. It is also true that AI is already being used to set criminal sentences, while defendants and those sentenced are being denied the right to know on what exact basis the algorithms used bring in their verdict.<sup>70</sup> Besides the problems of “expensive complexity” in such attempts at analysis,<sup>71</sup> the other reason given for the denial is that “governments signed agreements with commercial providers restricting disclosure of any information about a system and how exactly it was being used.” (This summer, researchers trying to inquire about the use of “predictive algorithms” in the governance of 23 American states concluded that democratically elected officials either knew almost nothing about how these systems work, or were prevented from revealing anything because of the various “non-disclosure agreements” with private companies; these arrangements frequently preventing even the admission that AI software is being used in making decisions of public importance.<sup>72</sup>)

Will the fact that the software will churn out court sentences using parameters not possible to know ever feel “boring”? It is even imaginable, in a very dystopian scenario. If the error in the software of “Amazon Web Services” of the legal system will even be able to be proved, this service will be unable to return the time served to the “user”. Will it offer some free holidays as compensation? So this is how the future of civil and corporate governance appears to be: fast and “efficient” but utterly mysterious and opaque; automatized but glitchy and buggy, in a legal, technological and any other way. Perhaps it is a kind of a new “religious turn”, a form of vengeance for the emptiness left after the 1960s and 1970s when probably everybody became atheists whether they wanted to or not, to undo the modernist structure of the “project”, to leave behind all the complexity and the complementary burden of responsibility and to return to the simpler world, run once again by “destiny”. A Grand AI Lottery to issue sentences, grant jobs and “corporateships”, determine the life-span of individual people, or the number of children allowed? If all this sounds like a tired plot of a cheap dystopian fiction, then it probably is.

(1+1)

So, what will this improved AI technology do? Will it be business-as-usual to have a sophisticated machine-based system tracking populations for individuals in incapacity and distress so that it can sell them at a high price the stuff they haven’t asked for? To manipulate masses with ads and offers and to exploit all the generic human weakness

and emotions in the attempt to sell stuff has been for a long time accepted as being what “adds value” in capitalism, both in the old and the “late” versions of it. This is probably the meaning of the phrase “to run one’s business vigorously”. Once the new mechanisms for the extraction of profit are introduced within the framework of market competition, what business could afford *not* to use it?

Like the prison sentences handed out by the mysterious algorithmic judge, the training for this is already in operation, but it is not a great surprise that what techno-sociologist Zeynep Tufekci exposed in her talk this September<sup>73</sup> did not end up on prime-time news or result in the spontaneous reenactment of the French Revolution. She outlined a grim picture of how the so-called “persuasive architecture” of brick-and-mortar commerce developed to target populations *en masse* evolved to “target, infer, understand and be deployed at individuals one by one by figuring out their weaknesses”. To unleash statistical and probabilistic AI on populations with the task of selling stuff with little reservation or regulation—probably seen as *without much complication*—logically (and mathematically) results in scenarios like this:<sup>74</sup>

“What if the system that we do not understand was picking up that it's easier to sell Las Vegas flight tickets to people who are bipolar and about to enter the manic phase? Such people tend to become over-spenders, compulsive gamblers... [During a recent conference I was told in private by a certain scientist that] he had tried to see whether you can indeed figure out the onset of mania from social media posts before clinical symptoms, and it had worked, and it had worked very well; he had no idea how it worked or what it was picking up on.”

What Tufekci described “as just one of the basic things that artificial intelligence can do” is not only creating the machine aimed at the economic exploitation of the weakest, the least capable, unprepared or disoriented. She reminded, as popularly demonstrated through last year’s “Blue Feed, Red Feed” media experiment, that when what was formerly known as the public is turned into a network of private, distinct “profiles” of a certain corporate service, the targeted individuals are already dispossessed from the very institution of public.<sup>75</sup> Then, by rearranging the various bits of information into individually customized packages sent “to everyone's phone private screen” and invisible to anybody else, it becomes a mechanism to dispossess individuals of the very sense of reality (however this sense may be perceived as already subjective or otherwise contested).

What the Skinner box of the machine of contemporaneity can reveal over time is what exact portion of culture, of human thoughts and feelings, of all what is understood as art and creativity, is based on statistics, patterns, repetition; it is structurally unable to address “the other part”. From this perspective, it seems almost like fair game; this AI will have to see humans as a kind of black box similar to what humans can see looking back at it.

Whatever stories may be offered to the contrary, “business as usual” will be happy to sell a presidential candidate or a political campaign as an “impulse buy”, given that for the algorithms trained in commerce it is no different than selling tickets for this or that, or selling a pair of boots. In this, the only task is to get to a certain number

required by its human operator; a million is always exactly a million, and the shortest path always the better. For these machines, there will be no contradictions resulting in a “short circuit” of machine madness—no HAL 9000 situation is possible.

\*\*\*

Where such technologies of commerce are being physically located today is, as observed by critic and writer Nora Khan, an operation of “mapping AI over the locations of unseen human labor out in the world.”<sup>76</sup> It is true, as Geert Lovink says, that “power these days is abstract, it is digital and moves around at the speed of light”;<sup>77</sup> still, it is both revealing and of no surprise that, according to Khan, “Facebook click farms and their chatbot centers are mapped onto the former sweatshops of Bangladesh, which is where I am from - the exact same buildings are used for AI that’s coming up now.” If the location of the power cannot be pointed at anymore, there is still the crime scene to witness its existence.

(1-800)-REV

Exactly 100 years after the October Revolution, who is called for to explain the present state of affairs? Who are the new (or Alt-)philosophers of today to outline the horizon of the (former) future in most of the media and most high profile international forums, conferences and events? One word comes to mind: “entrepreneurs”. Having entrepreneurs-as-philosophers is not exactly a recent phenomenon. The thinking of the current generation of what is in the media framed to stand for the figures of public intellectuals of the previous century is probably most prominently articulated through the omnipresent Elon Musk (as the current avatar of Plato?<sup>78</sup>), the “move fast and break things” Mark Zuckerberg (is quoting Abraham Lincoln the best way to present a case for Facebook?<sup>79</sup>), or some other people from the lists of the wealthiest and most influential<sup>80</sup> who will decide—or not—to define how democracy should work, what is to be done with medical and space research, what the role of the State will be; these are the voices to share with the world how the future will be, what to be afraid of, what are the best daily routines for a successful life... They will use the word “revolution” frequently. It will be related pretty much exclusively to either the new features or the social effects of their products—in this paradigm the removal of the headphones port on the latest “flagship” rectangle is a revolution, this next mobile data plan will be a revolution, and it is Twitter or Facebook or whatever product and not the people that makes social change possible. For the public record, they will meet in places like Davos.

(14) THE LUNAR SOCIETY

Who is entrusted with the vision, where is the critical debate being conducted, who would be the Lunar Society of Birmingham in this round?<sup>8182</sup> The majority of “Davos people” never actually volunteered for the role of “public intellectuals”, and it seems to be the choice of the media, and the audiences, rather than their dedicated effort, that has put them there. Hence, most of their thoughts on the idea of equality would be something served up as an *afterthought* during the occasional interview about the latest features of their new products and projects. This is when the philosophers of entrepreneurship will turn to one-liners and common wisdom, careful not to be seen as “complicated” or “elitist” in any way, appearing somewhat inconveniently

disturbed in between their really important daily tasks of running the entire world. As most of the other professions already are, so philosophy is increasingly considered to be a kind of hobby, or at best, (as it should be?), an *alt-job*.

Although they themselves communicate with people almost exclusively through interviews and short TED-like talks rather than through books or papers, entrepreneurs do still read books; and, regarding the particular topic of AI, Bill Gates recently recommended<sup>83</sup> Nick Bostrom's *Superintelligence*,<sup>84</sup> the title that entered what is formerly known as public discourse some 2 years ago. This book became a sort of manual and “ABC” of what can be at the moment summarized as the state of scientific knowledge about the opportunities and dangers of developing Artificial Intelligence; it can be taken as paradigmatic for what is recognized as the current role of philosophy of science in the current AI debate (*How powerful will this thing be? How fast it will arrive? What it will do? What should we do? What can we do?*). Many talks, round tables and conferences were based around the AI issues as articulated in *Superintelligence*, placing Bostrom, alongside names such as Stephen Hawking or Max Tegmark with his “Future of Life” initiative,<sup>85</sup> at the helm of the group of scientist-activists seen both as among the best informed as to where this technology is heading, and most concerned about whether humanity will be able to survive it.

Because of its (predominantly) philosophical and scientific rather than economic concerns, there is a certain temptation to dismiss Bostrom's title on account of its ideological origin; he lives in the world where (“in all but the poorest countries”) there is not much left to improve public health, nutrition and education so to reach the maximal possible level of perfection (probably seen as *optimization*).<sup>86</sup> In that regard, he seems to be sending a message from a different planet than the one Guido Alfani and Thomas Piketty repeatedly measured as growing more and more unequal over time.<sup>87</sup> Depressingly, according to the latest “big data” analysis of January 2017, the only periods when inequality was *not* on the rise in the (former) West since 1300 were the Black Death plague of XIV century and the two World Wars. Humans should probably feel uneasiness, concern and caution about feeding such data to the appropriate algorithm of a future Artificial Super Intelligence (the arrival of which is estimated as inevitable in Bostrom's book); it might be devastating to draw conclusions from those numbers alone. (Is the Truth in the Data, as we set it out in our new worldview to be? If it is, can it be spoken in words we use today, shown in a graph we could understand? And what after that, 42?)

So, in *Superintelligence*, the matters of economy and of democracy could be said to be the *afterthoughts* of what appears to be a more important line of thinking about the very possibility that humanity — any humanity — will be able to cope or not with what is seen as the inevitable arrival of vastly greater *other power*. In regard to such developments, however fantastic it may sound at this moment, a lot of the scenarios developed by Bostrom are worth contemplating and probably worth complementing by observing their histories and possibilities (or, better, *probabilities?*) precisely through the paradigms of history and ideology, examining *human power*; for precisely in these aspects a lot of the potential solutions of what are framed as technological problems — not argued out in this text — may be articulated. (There is an epidemic of dementia in regard to the history of the field, and most scientists would see

themselves as “apolitical” today; it is worth recalling that in their time the Lunar Society also had principles, and not only interests.<sup>88</sup>) Indeed, it could be said that for the “superintelligence dilemma” as presented by Boström mainly as a scientific, technological and ethical challenge, the proposed solutions could be none other than political. This is where once again the use of the world *revolution* can be noted, this time as paradigmatic for most scientific communication today—seen as an expression reflecting the great leap in science or cognition. The revolution is, in this view, an “intelligence revolution”.<sup>89</sup>

#### (1-4) COUNTING REVOLUTIONS

The idea that what is going on now should be taken as the *Fourth Industrial Revolution* is heralded by many, and here a good example may be Klaus Schwab, the economist, founder and executive chairman of the World Economic Forum.

Described as the International Organization for Public-Private Cooperation, WEF is best known for its (spectacular) annual meetings in the Swiss ski resort Davos, essentially a “controlled environment” with a particular history of philosophical debate,<sup>90</sup> where the superrich and super-powerful once a year mingle with each other, with journalists and an odd expert or two and outline and exchange their current thoughts about the problems of running the entire world. All the public talks are to be dutifully recorded and shared with populations, while the greatest potential of Davos will always be accentuated as being in private, “casual” and secretive meetings among important, history-making individuals; each year will have a sort of overarching theme to reflect what is considered the greatest current challenge of humanity, which would turn out to be essentially a *business* challenge. There will be criticism and protests<sup>91</sup> against Davos from both left<sup>92</sup> and right<sup>93</sup>, and defense of it<sup>94</sup>, and the conference will be frequently accused of arcane media practices;<sup>95</sup> but the general sense emanating from the participants will always be “we are all in this together”, that the rich and powerful can only do so much, with the greatest responsibility for whatever happens with the world eventually, always—somehow—placed on populations themselves.

The theme of choice for the Davos 2016 gathering was precisely the arrival of Artificial Intelligence, announced as the New and Fourth Industrial Revolution by Schwab’s keynote speech and his manifesto-like article discussing what is abbreviated as IR4.0.<sup>96</sup> When it is said that “when compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace, [...] it is disrupting almost every industry in every country [...] and the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance”, it may tell of some great disruption ahead, but speaks little of the character of the change announced. (Since 1989, the notion of *change* relates only to the externalities of capitalism.) In Schwab’s classification, he offered an argumentation claiming a “proper” IR;<sup>97</sup> but a lot of the elements of what would create a historical Industrial Revolution are simply not present.<sup>98</sup>

Very similar to the *Industry 4.0* concept,<sup>99</sup> Schwab sees the State as “outside” of the “natural” system created by people, things and corporations (naturally, what people and things need to complete their mutual relations are corporations, not social

contracts); he sees the Government and not “the forces of market” as an actor who has to adjust, or disappear; he thinks of tomorrow as “a world of disruptive change”, which doesn’t render it very different from how we would describe today.<sup>100</sup>

The use of the word “revolution” in this paradigm has one strong and unambivalent meaning, which creates the impression of credibility, inevitability and, most importantly, the sense of a certain naturalness of the advancing automation of everything. For Schwab and the powers-that-be, for the “Davos people”, this revolution is rendered as an “Industrial Revolution”, whose grand contribution will not be exactly new technologies, but a *new way to combine and improve on the existing*; it is about the “new economy”.

As writer Bruce Sterling said in March in another of his signature talks, “the new economy - it’s terrible, it’s a curse. Everyone hates and fears it, no one is optimistic about it [...] Musicians suffer terribly; whatever happens to musicians will happen to everybody else”.<sup>101</sup>

\*\*\*

And right there in Davos, for a brief moment we catch a glimpse of another dispossession as it happens at almost algorithmic speed—the disappearance from the public of the very scientific research that is being transferred in bulk from the public sector of Universities and Institutes to the walled and guarded R&D facilities of private investors and contractors. Executive algorithms will be proprietary; open-source will continue to cater for the extraction of data; as under the circumstances open-source can conveniently be ideologically connected with sharing, freedom, community, but in practice stays connected with commerce, profit, and competition.

The funding of research now contributes to dismantling, not complementing the institution of independent academic research; to quote the Harvard professor David Cox, who this year half-jokingly offered his services/lab/department/himself during his talk to the wealthy and influential audience of the WEF in Davos:

“And, of course, this [deep learning, neural networks, Big Data] has caused a tectonic shift in the field, so there has been a massive investment by the industry into this field - billions of dollars from the likes of Google and Apple and Baidu. Basically, an entire Academic field has been privatized and brought in. Sometimes I feel like I am going to be the only person left studying this, and if you are a representative of one of these companies and if you would like to buy up my lab, we can talk later.”<sup>102</sup>

## (15) BEFORE/AFTER

The previous time—only 15 years ago—when some kind of *new industrial revolution* had to be proclaimed, the words of Richard Florida of “Creative Class” fame of the early 2000s<sup>103</sup> were literally carved in stone;<sup>104</sup> today, when the arrival of Artificial Intelligence is claimed to be a fully-fledged Industrial Revolution, it all seems irrelevant, as the present incarnation of power needs no Floridas or any such theorists anymore.

Florida is now on what could be called his “Repentance Tour”.<sup>105</sup> The very title of his

latest book is a kind of diagnosis of how the application of his theories of urban transformation materialized in practice (*The New Urban Crisis: How Our Cities Are Increasing Inequality, Deepening Segregation, and Failing the Middle Class*<sup>106</sup>), but once again his logic and his language remain unclear.<sup>107</sup>

David Harvey, who in 2003 introduced the very term of *accumulation by dispossession*<sup>108</sup> in parallel with Florida's advancing of the "Creative Class" concept, in a way announced the escalation of a *creative* approach towards urban development 15 years before it materialized in his 1989 analysis "From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism."<sup>109</sup> In what he called "entrepreneurialism" he had seen a great danger that

"avantgarde municipal socialists will find themselves, in the end, playing the capitalist game and performing as agents of discipline for the very processes they are trying to resist."<sup>110</sup>

Harvey could also see a certain potential of this approach at the time;<sup>111</sup> but within the theory as he created it, Florida would be structurally unable to benefit from these insights, approaching the problem "armed with numbers and sociological and economic studies, while addressing history only in short anecdotes, and politics hardly at all."<sup>112</sup> (There are also details that imply that the numbers given to the public are incomplete—for some reason, it is never a "whole story" with numbers, and there is always more: Florida also offers his "proprietary data and research" on a commercial basis.<sup>113</sup>)

The story of "The Rise of Creative Class" and its "flawed and elitist ideas"<sup>114</sup> deserves more examination; what is of interest for this text is not so much if Florida will admit or not what is "too obvious", but the fact that, in only 15 years, the "mainstream" treatment of theory and the need for the powers-that-be to root and justify themselves in any theoretical sense changed fundamentally. In 2003, to dispossess city centers, river banks, public spaces or industrial sites still required from the side of power to make an effort and find or produce a theory, some theory, to justify, persuade, explain the necessity to create the new law or regulation to do so. (And, additionally, to dispossess the public of millions of its money to fuel future private ventures along the way.) Today, it is increasingly not the case; such project would be from the outset discussed, developed and implemented among and by the governments and private companies, the public will be issued appropriate PR when all the details are agreed, and the openings of this and that are now judged to be better validated by the presence of whoever last week managed to "break the internet" than by speeches of theorists or academics.<sup>115</sup> The current phase of capitalism wants to be seen as "anti-elitist" and comes in "theory-free" flavor now.

There is still a lot of mentioning of Florida's magic word *creativity*, because a lot of the "plans" to be heard for the future involve precisely the mythicized "human creativity" as the *deus ex machina* (*deus ex black boxum?*) to solve both the expected and unexpected problems ahead. But this is not the same kind of creativity as heralded by Florida and the enthusiastic "global Californians"; this is now a dystopian turn towards the "creativity of survival". (For the decidedly non-creative types, there is always the [Dick Florida Twitter feed](#).<sup>116</sup>)

## (110-200) OCEANS OF LEMONADE

The World Economic Forum will more and more openly turn to advocating the idea of a Universal Basic Income (from the 2016 theme of “A World without Work?”, the Davos panels continued discussing UBI in 2017, and announced the topic of “Creating a Shared Future in a Fractured World” for 2018). How might the story of UBI unfold in the present circumstances? If it is to be done so that the corporations allow for a little tax to be collected for the State so that it can service the UBI in order for that money to return to the corporations as profits from the market, this is one scenario no one should consider, and for a reason. Even that “little something”, historically, never came for free. But as history never returns in a verbatim manner and always produces something *new*, so it is also possible to say that the “universal basic income is the operating system of a post-industrial state”.<sup>117</sup> (Regretfully, on this occasion, we have no space to contemplate what it exactly means for the state to have an “operating system”, what it could take to *reinstall* it, or, for that matter, what it means to be “post-industrial” in the middle of the “Fourth Industrial Revolution”.)

The concept of UBI-as-profitable-charity comes from the dystopian side of the ultimate human aim of finally conquering all of nature and taking over power (and responsibility) for the very mechanism of evolution. Its utopian side for ages envisioned a future emancipated from the torture of nature on the one side, and from the terror of society on the other. Pretty much in parallel with itself, Utopia has inspired the various different fascist, dystopian, or outright comical visions of and for the future to emerge. The very possibility of utopian demand is in the ability to claim what at the moment seems impossible, unrealistic, what is not there; the “Austere AI” is about remixing what today allows as possible, endlessly repeating and rearranging what is already there. The historical models of Utopian visions, from Cockaigne to Datong, did not require as mandatory for Utopians to understand how *exactly* things are going to work, as long as some divine mechanism or futuristic science—the magic of some Cornucopia—made sure that they do. (Marxism would say that this is precisely the answer to the question why we don’t live in one today.) What seemed important was to be able to envision, to state and elaborate the demand, to express a tendency, a will; this is why, today, some anticipations of Charles Fourier, the possible originator of the word *feminism*<sup>118</sup> and one of the early utopian socialists, still make sense, like the ones envisioning social equality, while some others—that the oceans will turn to lemonade—do not.<sup>119</sup>

Today, the utopian aspect of “creating God” will be reflected in expectations that AI will grant humans the power to overcome biological limitations in reaching something close to immortality, establishing along the way what is called the “post-work society”, somehow emancipated from the previous models of economy. But equality has become an *afterthought* now, and the best that contemporaneity has to offer is the hope that the corporate and governmental block will provide the populations with at least subsistence levels through this or that UBI scheme. As evidenced in the enthusiastic drowning of even basic social and healthcare services and severe cuts to existing benefits under advanced austerity regimes, even that hope is weak. Also, it is hard to place it in the logic or experience of any form of capitalism; UBI, envisioned as national or corporate and “basic” is, in its concept and

experience, more similar to certain stages of aristocracy, and here political economist Wolfgang Streeck confirms that a turn to something resembling feudalism is not unimaginable, “with corporations becoming independent structures in the style of feudal lords.”<sup>120</sup>

And what is to be expected is that current problems will be amplified regardless of whether some progress is being otherwise made as, in the words of Streeck:

“...without social protection, technological advances in these areas would be destructive of employment and would give rise to further social polarization. Whatever technological progress would add to growth would probably be cancelled out by what it would add to inequality.”<sup>121</sup>

#### (-10 X 200) WANDERING OFF DIAGONALLY

Into what may this situation develop, 10, 60, 200 years from now? One of the most interesting, recent contemplations of how a future society based on the current conception of UBI-as-charity might look like comes from the experienced traveler in the future, writer Bruce Sterling. For this year’s SXSW conference, he delivered the oracle based on the predicaments of the arrival of “post-work” and UBI as future social paradigms.<sup>122</sup> But how to “wrap one’s head around” and contemplate the entire range of possibilities outlined by such dramatically opposed scenarios? In the words of Sterling:

“Maybe there will be zero work with a lot of plenty, and plenty of leisure; but there might be zero work combined with tremendous scarcity [...]; everybody gets a cheap cell phone in the cereal box, but they don’t get any cereal; you get connectivity plus famine and depression; you get universal roboticized poverty.”<sup>123</sup>

So, what if what is happening is not a “genuinely novel situation”, but rather “a lot more like the previous historical arrangements and with [certain] historical parallels”? Sterling presented as possible consequence a bizarre dialectics between *the false* and *the weak*: among the “best” and the “worst” cases there are differences, as in some scenarios people will have to accept that life is aimless and empty of meaning regardless of the wealth distributed, being entrapped in religion and individualism *à la* Huxley, while the other scenarios draw from the history of militant and totalitarian visions of society, exploring the palette of Orwell. The entire list is witty, cynical, dystopian, and quite imaginable in practice; so what historical examples might a future UBI-based “post-work” society decide to reenact? It could model itself after the military or after the academy; it could resemble a structure of a retirement home or a monastery; it could become a kind of “hunting ground” for the rich, with most other humans treated as were Native Americans once, spending their “insignificant existence” in a vast “flyover land”; it could decide to resemble a prison or a gulag or a refugee camp system, or it could turn everything into hospitals and wellness facilities; perhaps it will try to revert to rural communes; it could chose to focus on enlightenment to become an endless pilgrimage for experiences, or it can become a weird and hipsterish urban bohemia, entrapped in the existential journey inwards...

Such a story could have lingered less on historically-existent ideas, and a bit more on the Utopian, but again, the pessimism is apt and justified, and Sterling remained true to the method of extrapolating scenarios from the historical “Big Data” (exactly as “probabilistic AI” would do). He expressed a certain, very necessary hope in the ability of people faced with the loss of work to “wander off diagonally”<sup>124</sup> and find or establish new and unexpected jobs and lives. It happened before, and is quite imaginable when applied at a scale of a certain industrial sector or two. And certainly, we need to share such hope and trust in the resilience of humans. But if even the vast majority of the very actors of the tech scene—as the situation develops<sup>125</sup>—become redundant, not to speak of most of the other specialist jobs that will already be automatized, what happens when pretty much everybody starts out in such diagonal motion? When 8 out of 10 people have to “wander off diagonally”, it is not easy to imagine where all these diagonals would lead, as the grid itself (probably) disappears.

And what if “it is really different this time and that something genuinely new is happening”? The default condition would be that “human labor will simply fall below commodity rates for the foreseeable future; it just won’t pay to have people do what they normally do. Which would be the proletariat turning into the precariat and then becoming the unnecessariat.”<sup>126</sup>

\*\*\*

Bruce Sterling imagined a dozen ways UBI could go wrong; Wolfgang Streeck thinks “the right” version of it may be the worst:

“[The corporations] are demanding a universal basic income and redistribution because they see they will have a problem if states do not redistribute wealth. [...] They need people to participate in the Facebook game of buying—or no one will pay Facebook for advertising. [...] Ironically, the same people move fortunes in order not to pay for the universal income.”<sup>127</sup>

Besides “traditionally wandering off diagonally”, what still seems like an elegant and very human—or very algorithmical?—way to deal with *the ways of the world*, what other options could people derive from history when faced with such a situation of total dispossession? What about a “traditional” revolution?

(100 X 100 - REVOLUTION)

Exactly 100 years after that October, which in the meantime became November, the word “revolution” is still being frequently mentioned. Besides being connected almost exclusively with telecommunication products, it is used to describe the *expectation* of the present as “spiritual revolution”, “industrial revolution”, “intelligence revolution”, “manufactured revolution”, and “boring revolution”. But it turns out to be not very spiritual, dubiously *intelligent*, and very post-post-industrial; it is probably indeed “manufactured”, and somewhat “boring” but in a new sense of the word. So, what is it? Pretty much everybody agrees that a “historical” revolution, like the October one was, is not very likely today, and that it probably never will be. But, to use the old trope, how likely was the October from the perspective of September 1917 anyways? What were the *probabilities*?

(-72)

Today, the best hope for tomorrow seems to be that it could be a slightly better, and not slightly worse, rendition of today. By constantly condensing all time into “real time” and constantly re-arranging the past, the future is being dispossessed as category. All history runs in parallel now, and once again we no longer know who will win World War II. It has to do with the case of missing future; as Franco “Bifo” Berardi notes, all 20th century movements, from liberalism to social democracy, from communism to anarchism, shared the same certainty embodied in the formula “notwithstanding the darkness of the present, the future will be bright”.<sup>128</sup> But, such dynamics seem to be finished; with Bifo defining the future as “a feature of expectation and attention”,<sup>129</sup> what “has disappeared more than anything else” is “the credibility of a progressive model for the future”:<sup>130</sup>

“Of all the utopias of the 20th century, the Virtual Utopia is one that has produced more consistent effects in the spheres of technology, economy and daily life, giving way, in a sudden (but largely predicted) reversal, to the final Dystopia: the disappearance of the human, or perhaps the submission of the human to the chain of techno-linguistic automatisms.”<sup>131</sup>

The future did not simply disappear to some nowhere: however much it is non-existent, or precisely in being so, such a future will act and intervene into shaping present-day reality. As Boris Buden confirmed, seeing the similar dystopian horizon at the very end of 2017 and describing the future as the place from which present-day fascism arises,<sup>132</sup> it is precisely about how this cultural “expectation and attention” is being set, what it is being sensitive towards. He finds that the current *incapacity* of art, history or any culture to intervene in defending against *the fascism from the future* is based on the inability, first of all, even to detect it, and further, on the inability to process it. It has to do with both the change of the perception of meaning (where fascism is being guarded against *in the wrong time*), and with technological protocols transforming the nature of communication (leading the instance of evaluation to unfold in *the wrong place*):

“There is no subject anymore to rationally evaluate what the past is, as the past is being crystalized through the practice of communication, through the rationality of conversation. The German mechanisms of ‘coming to terms with the past’ are extremely sophisticated,<sup>133</sup> but what they all have in common is this immense belief that the means against the fascism, against the return of fascism, are found. And, of course, no one asked ‘but what if the fascism will not in any way return from the past, but arrive from the future’? That question was not posed.”

Over time, such visions of the future, or the lack of it, become internalized as depression, disorientation, as hopelessness and a sense of loss, as a certain pessimism-as-paradigm. (Pessimism, being “a melodrama of the futility of the brain ... always falling short of being philosophical”, as Eugene Thacker notes, also renders the problem as *unthinkable* in a particular way.<sup>134</sup>) Everything should end once; what does it mean to keep losing the same war, seemingly forever? For how long can “losing” be extended before it becomes a defeat? To understand oneself to be exposed

to the consequences of the fascist time capsule devastating the present from its non-existing, non-accessible fortress of the future is beyond defenseless, beyond frustrating, beyond hopeless. And probably reason enough for channeling collective depression towards manic *jouissance*.

(10 X 10)

It is one thing if the future is being perceived as inaccessible to intervention but still open-ended, and quite another if it is seen as the inevitable, unavoidable, irreparable dystopian destination. Can it be said that the more—the longer—the future is cancelled, the more fascism it will bring? The “winners” of today would have no reason not to want more of the same. Perhaps the fascism from the future is (simply) about the future turning into the “futch”? In the words of writer Joanne McNeil:

“As a way of thinking about the internet, ‘the future of’ is a particular form of procrastination. Recently, Kanye West said in an interview that he talks about ‘the futch’ with his pal, Elon Musk. I suggest we borrow West’s coinage the ‘futch’ to describe the ‘futurism’ of snake oil internet gurus. The Shingys. The idea-ators. Everyone who instructed us to keep looking toward the horizon and never look down is guilty now. The ‘futch’ is the recognition that we cannot begin to categorize let alone solve any problems in this moment now.”<sup>135</sup>

One of the early articulations of such a state of affairs came in the 2005 Chaos Computer Congress talk by Frank Rieger and Rop Gonggrijp, as documented in Rieger’s text “We lost the war. Welcome to the world of tomorrow.” in which the previous enthusiasm is reflected as the measure of the current despair:

“The waves of technology development seemed to work in favor of freedom, most of the time. The future looked like a yellow brick road to a nirvana of endless bandwidth, the rule of ideas over matter and dissolving nation states. The big corporations were at our mercy because we knew what the future would look like and we had the technology to build it. Those were the days. Remember them for your grandchildren’s bedtime stories. They will never come back again.”<sup>136</sup>

As explained by Magnus Eriksson and Evan Roth from Free Art and Technology Lab (FAT), “the context of this talk came out of the last great battles for privacy and against biometric identification in a Germany with the cold war still fresh in memory, and from the fight against surveillance in a terrorism-frightened Netherlands.” Free Art and Technology Lab will underline the problem McNeil wrote about by creating “The Futch Firefox plugin”,<sup>137</sup> which for whoever uses it will replace all the instances of the word “future” with “futch” in everything one reads online. (This text would probably benefit from a similar intervention that will replace all the instances of the word “revolution” with a series of question marks or a random string of garbled text). But now all this, and more, has settled in; and again, there is another ten-year mark. Reflecting the general sentiment of the recent turning towards pessimism and acknowledgement of defeat by almost *everybody* (perhaps exploring the new and yet untested *tactics of the weak*), Eriksson and Roth will announce the closure of FAT,

quoting the Transmediale 2015 talk by colleague Peter Sunde of Piratbyrå and The Pirate Bay<sup>138</sup> as the certain reenactment of Riegler's declaration of defeat:

“[Ten years later], the message is the same - we lost. We, who believed the Internet could change society, that technology could take other paths than surveillance, centralization and consumerism. The battle is lost and the juggernaut of the security industry, power and capital has been unable to stop. [...] It would be unwise to predict ten years into the future again. But one thing is clear, tactics of the last five years whether legal, political, activist or artistic have resulted in little progress and have not kept up with the latest control measures. There's no use banging our heads against the wall anymore. Either your head will explode or they will simply open the door and let you in. Either way, no house will come crumbling down. It was as true in 2005 as when Peter says it in 2015. Let's face it, we lost, we all lost.”<sup>139</sup>

\*\*\*

The already vanishing momentum of the “hacker's paradigm” was replaced by the “leaker's paradigm” approximately 10 years ago, at the onset of Austerity and smartphones. This brought fundamental changes in the image of resistance. The enthusiastic hacker, a bottom-up figure able to find the way around any walls, was replaced by the figure of cynical “leaker”, who already has to be positioned *on the other side* of the same walls. The hacker is someone about to learn, and wants more of *the thing*; the leaker is someone already involved, who already knows, and wants less of it. The situation once again turns dystopian; the fortress can only be opened and exposed from the inside, and what matters is only what may or may not happen *in there*. (*If you look for any chance to influence anything, you must first become part of it. First you need to capitulate, before trying to negotiate.*) In this very issue of Red Thread, theorist Rastko Močnik gives some reasons for why leaking in its established form is structurally incapacitated from producing *change*, and why, after all, leakers are “inefficient and reproductive [of the system]”. Within the current constellation what leakers do is rendered in effect as “grand gestures, dissident gestures, gestures that prove the liberalness, the openness, the freedom of expression, but gestures that never represent a collective act of resistance”.<sup>140</sup> The leakers, as the atomized reminders that change was once possible, remain individual heroes; they remain entangled in the net of contradictions of the *age of one-person Utopia* that results in and from the insurgence of the *individual guerilla*.

So the dystopian sentiment continues: in late 2017, with the idea of “democratizing” surveillance, so that everyone could use their mobile phone left in a convenient place to track and record remotely what is happening at a certain location, Edward Snowden presented his latest application called Haven.<sup>141</sup> The idea is that potential leakers could, for example, monitor who may be accessing their computers when they are not around. While certainly useful for activists (but also for various blackmailers and psychopaths), what is proposed is to fight suspicion by creating a “chaos of suspicion” in which no one will be sure who is spying upon whom. It can be viewed as the way people can take over the power of technology from agencies and corporations. But despite their practical intentions, things like Haven deepen the sense of prevailing social cynicism. Such things also redefine the notions of victory and

loss. Would the people stripped naked and tied to their airplane seats as part of standard procedure feel like winning or losing in the “war on terrorism”?

\*\*\*

The last days of 2017 brought more news; after all, the long battle for Net Neutrality was eventually (the hopes are weak, but perhaps not finally) lost.<sup>142</sup> The algorithms advanced so they can manipulate and alter real-time video now pretty convincingly,<sup>143</sup> and the idea of a “shared reality” seems to be the next concept to be seriously revisited and revised. Facebook announced “Messenger Kids” so that children under 13 can now legally be part of the world of profiles.<sup>144</sup> 2018 is just about to begin. (This paragraph last accessed December 30, 2017.

(-)

Whenever this text attempted to bring itself to a finish, the results were the same: it auto-magically restarts anew over and over again. Perhaps reflecting the problem it observes, it constantly wants to add to what is already too much to take; it wants to continue further before what is already there is even recognized; it wants, deceptively, to offer a clear, streamlined passage through the complexity of the matter, as if it sees any clear direction itself. What it eventually does is that, unable to distance itself so as to show the full picture, it zooms from one thing to another before any narrative is settled, turning itself into another declaration of defeat. It became the hostage of what it aimed to observe, unable either to turn the gaze, or to decide what it is looking at. This text is sorry for the inconvenience. What can we do? The internet doesn't refund time.

## ENDNOTES:

- <sup>1</sup> “As far as the financial markets are concerned, August 9 2007 has all the resonance of August 4 1914. It marks the cut-off point between 'an Edwardian summer' of prosperity and tranquillity and the trench warfare of the credit crunch – the failed banks, the petrified markets, the property markets blown to pieces by a shortage of credit.” Larry Elliott, economics editor, quoted in Patrick Kingsley, “Financial crisis: timeline”, *The Guardian*, August 7, 2017, <https://www.theguardian.com/business/2012/aug/07/credit-crunch-boom-bust-timeline>.
- <sup>2</sup> Rani Molla, “How Apple’s iPhone changed the world: 10 years in 10 charts”, *Recode*, June 26, 2017, <https://www.recode.net/2017/6/26/15821652/iphone-apple-10-year-anniversary-launch-mobile-stats-smart-phone-steve-jobs>.
- <sup>3</sup> Tim Urban, “The AI Revolution: The Road to Superintelligence”, January 22, 2015, <https://waitbutwhy.com/2015/01/artificial-intelligence-revolution-1.html>.
- <sup>4</sup> In 2016 Anthony Levandowski, a self-driving car engineer from California, established the religion called Way of the Future (WOTF), (<http://www.wayofthefuture.church>), see for example Mark Harris, “Inside the First Church of Artificial Intelligence”, *Wired*, November 15, 2017, <https://www.wired.com/story/anthony-levandowski-artificial-intelligence-religion>.
- <sup>5</sup> See David Levy, *Love and Sex With Robots*, Harper Perennial, 2008; also “The Third International Congress on Love and Sex with Robots”, London, December 19-20, 2017, <http://loveandsexwithrobots.org>.
- <sup>6</sup> Describing the current success of neural networks technology, a Google senior fellow Jeff Dean stated: “But, fast forward just five years, and we are now at 3% of errors, using machine learning and much more of computing power. *We are actually better than humans in this task.*”  
Jeff Dean, “How Will Artificial Intelligence Affect Your Life”, TEDxLA, January 2017, <https://youtu.be/BfDQNrVpHLQ?t=499> [08:18].
- <sup>7</sup> See Jelena Vesić & Vladimir Jerić Vlidi, “Under The Sycamore Tree - Curating As Currency: Actions That Say Something, Words That Do Something”, *The Curatorial Conundrum – What to Study? What to Research? What to Practice?*, edited by Paul O’Neill, Mick Wilson and Lucy Steeds, MIT Press/CSS Bard, 2016, <http://networkfailure.net/published/under-the-sycamore-tree>.
- <sup>8</sup> “The poet, like a careful observer, reads the image for us, in the words of Flusser, to ‘bestow significance on it’, to engage both conceptual and imaginative thought in order to reinforce them.” Teresa Bruś, “Fathoming Snapshots and Poetry”, in *Belgrade BELLS* (Belgrade English Language and Literature Studies), Department of English Language and Literature, Faculty of Philology, University of Belgrade, vol. 2, 2010, p. 209, [http://www.belgrade.bells.fil.bg.ac.rs/Bells\\_2.pdf](http://www.belgrade.bells.fil.bg.ac.rs/Bells_2.pdf). Bruś refers to Vilém Flusser, *Towards a Philosophy of Photography*, Reaktion Books, 2000, p. 9 (first published in English 1984).
- <sup>9</sup> Walter Benjamin wrote this in 1928 and published it in German as a part of the collection titled *Einbahnstraße* (Berlin: Rowohlt). Available online at <http://archive.org/details/Einbahnstrasse>. The translation into English was published in the collection *One-Way Street and Other Writings*, New Left Books, London, 1978, p. 89.
- <sup>10</sup> Some clues to the theoretical and terminological approach towards the notion and the mechanisms of *dispossession* could be found in this very issue of *Red Thread* in the interview with theorist Rastko Močnik. (Jelena Vesić & Vladimir Jerić Vlidi, “Interview with Rastko Močnik: There is No Theory Without the Practice of Confrontation”, *Red Thread*, Issue 4, <http://red-thread.org/en/article.asp?a=75>).
- <sup>11</sup> Michael Passingham, “Apple A11 Bionic: The fastest six-core mobile processor around”, *Trusted Reviews*, September 12, 2017, <http://www.trustedreviews.com/news/apple-a11-processor-specs-performance-benchmarks-3286346>.

<sup>12</sup> “I try to say in this book [*Die Schrift. Hat Schreiben Zukunft?*, Göttingen: Immatrix Publications, 1987] the following: when alphabetical writing was invented, let’s say 3500 years ago, a total transformation of our – not only our experience, but even our action was involved. Before the invention of writing, traditional images were used as maps of the world, and the structure of images involves a specific way of looking at the world which is the mythical way. Now when the alphabet was invented, mythical thought gave way to historical critical thought. Because the structure of linear writing is a uni-dimensional, un-directed line. So that, by and by, people started to think historically in a causal way, and in a critical way. Now that this line has been disrupted into points, now that discourse has been substituted by calculus, historical progressive thinking is being abandoned in favor of a new type of thinking which I would like to call, let’s say, a systemic or a structural way of thinking. So that I believe that we are present and witness to a revolution which can be compared to the one which gave origin to history. In my terminology I say that before the invention of writing, people thought in a prehistoric way, after the invention of the alphabet, historical consciousness was elaborated. And now we are in the process of elaborating a post-historical, structural way of thinking.” Mikós Peternác, Interview with Vilém Flusser, “1988 interview about technical revolution”, Osnabrück, September 1988, <https://youtu.be/lyfOcAAcoH8?t=180> [03:00].

<sup>13</sup> Peternác, Interview with Vilém Flusser, *Ibid.*, <https://youtu.be/lyfOcAAcoH8?t=558> [09:20].

<sup>14</sup> McKenzie Wark, “Considerations of a Hacker Manifesto”, *Digital Labour: The Internet as Playground and Factory*, edited by Trebor Scholz, Routledge, 2012.

<sup>15</sup> Alexander R. Galloway & Eugene Thacker, *The Exploit. A Theory of Networks*, University of Minnesota Press, 2007, p. 131 (from “Part 2: Edges”).

<sup>16</sup> McKenzie Wark, “Metadata Punk”, *Public Library*, What, How & for Whom/Multimedia Institute, Zagreb 2015, p. 117, [http://www.whw.hr/download/books/medak\\_mars\\_whw\\_public\\_library\\_javna\\_knjiznica.pdf](http://www.whw.hr/download/books/medak_mars_whw_public_library_javna_knjiznica.pdf).

<sup>17</sup> Geert Lovink, “Overcoming Internet Disillusionment: On the Principles of Meme Design”, *e-flux Journal* #83, June 2017, <http://www.e-flux.com/journal/83/141287/overcoming-internet-disillusionment-on-the-principles-of-meme-design>.

<sup>18</sup> Jared Hill, “Can you name Arthur C. Clarke’s top 5 astounding predictions?”, November 14, 2014, <https://damiengwalter.com/2014/11/14/can-you-name-arthur-c-clarkes-top-5-astounding-predictions>.

<sup>19</sup> “I think that we are doing now is in a sense creating our own successors. We have seen the first crude beginnings of Artificial Intelligence. It doesn’t really exist yet on any level, because our most complex computer systems are still morons, high-speed morons, but still morons. Nevertheless, some of them are capable of learning, and we will one day be able to design systems that can go on improving themselves, sort of. At that stage, we have the possibility of machines which can outpace their creators, and therefore become more intelligent than us.” Arthur C. Clarke in “The Mind Machines”, NOVA, series 5, episode 10, March 22, 1978, <https://youtu.be/2Nk-m7ZJ3wo?t=13> [00:13].

<sup>20</sup> “A long time ago when I studied Artificial Intelligence lecturers and other AI experts often told me we are only a decade or so away from machines as intelligent as humans. Ten years later I was informed that we’re only a decade away from machines as smart as cats. Another ten years, the consensus was we were a mere decade away from machines with the cognitive power of microbes. The truth is that while we aren’t even close to the kind of thinking machines that are a given of so much science fiction, a different kind of Artificial Intelligence has permeated almost every aspect of our existence. In hospitals, AI monitors and diagnoses patients, in offices software does accounts and vets job applications, and in our phones and computers algorithms filter our searches and alter our world view.” Quentin Cooper (host), “Do We Need Artificial Intelligence?”, *The Forum*, BBC World Service, October 2016, <http://www.bbc.co.uk/programmes/p04c7kdx> (with guests Zoubin Ghahramani, Lydia Nicholas, Kentaro Toyama).

<sup>21</sup> Chabert, Jean-Luc (Ed.), *A History of Algorithms; From the Pebble to the Microchip*, Springer, 1999, p. 260.

<sup>22</sup> “The new computer codes are in fact extraordinarily simple (as simple as artificial intelligences), but it is not simple to use them. They are structurally simple and functionally complex systems.”

Vilém Flusser, *Does Writing Have a Future?*, University of Minnesota Press, 2011, p. 55 (published in German, 1987).

<sup>23</sup> [Since the late 1980s and replacing the construction of the past as a singular and common history by the production of various different timelines, all of which may appear as internally coherent and substantiated, the very process of agreeing on the correct interpretation, frequently agonistic and tedious, could be finally removed as unnecessary.]

<sup>24</sup> [Wikipedia articles on astrophysics or quantum phenomena are naturally expected to always be updated, amended, or transformed entirely according to some sudden new insight. This opens up the question of completeness of and within history - can the article on, for example, World War Second ever, and under what conditions, be considered as complete?]

<sup>25</sup> “If controversies were to arise, there would be no more need of disputation between two philosophers than between two accountants. For it would suffice to take their pencils in their hands, and say to each other: *Calculemus*—Let us calculate.” (Gottfried Wilhelm Leibniz, *Dissertatio de Arte Combinatoria*, Leipzig, 1666.)

<sup>26</sup> “It is the crucible of modernism, which we can very loosely describe as the process of making only those things that fit and speak of our ever more complex times, creating new things for a new world. Postmodernism, which has probably lasted longer than modernism, is the process of interrogating the aesthetic discourse, disrupting the narrative. Modernism says that *things can be right*. Postmodernism says that *nothing can be right*. So if you ever wonder why nothing new ever seems to happen anymore, find a postmodernist and beat the shit out of them.” (Warren Ellis: “Some Bleak Circus”, FutureEverything 2015 Conference, <https://youtu.be/9cfAmvdeZD4?t=245> [04:04].)

<sup>27</sup> McCorduck writes that “the Hellenic point of view [...] generally welcomes the idea of thinking machines”, and she finds a similar attitude and thinking in China in the same period; she traced the early division on the issue to “the time in human history when the Second Commandment was codified, prohibiting the making of graven images, which in reality forbids humans to take on the creative privileges of divinities”, resulting in what she calls “the Hebraic [point of view], which finds the whole idea of thinking machines wicked, even blasphemous”. [So it can be said that the first so-called “AI winter” lasted for quite some time.] Pamela McCorduck, *Machines Who Think: A Personal Inquiry into the History and Prospects of Artificial Intelligence*, 2nd edition, A K Peters / CRC Press, 2004, p. 440.

<sup>28</sup> Alan Turing, “Computing machinery and intelligence”, *Mind*, new series, vol. 59, no. 236, 1950, pp. 433-460.

<sup>29</sup> “Shannon’s ideas exploded with the force of a bomb. ‘It was like a bolt out of the blue,’ recalls John Pierce, who was one of Shannon’s best friends at Bell Labs, and yet as surprised by Shannon’s paper as anyone. ‘I don’t know of any other theory that came in a complete form like that, with very few antecedents or history’.” M. Mitchell Waldrop, “Claude Shannon: Reluctant Father of the Digital Age”, *MIT Technology Review*, July 1, 2001, <https://www.technologyreview.com/s/401112/claude-shannon-reluctant-father-of-the-digital-age>.

<sup>30</sup> Warren Weaver, “The Mathematics of Communication”, *Scientific American*, vol. 181, no. 1, 1949, p. 12.

<sup>31</sup> Claude E. Shannon, “A mathematical theory of communication”, *The Bell System Technical Journal*, vol. 27, no. 3, 1948, <http://www.mast.queensu.ca/~math474/shannon1948.pdf>.

<sup>32</sup> “This date has been chosen for several reasons: 1949 is the year of Shannon and Weaver’s *Mathematical Theory of Communication*; and 1956 is the year of a book which had been influenced by research in the theory of information, Jakobson and Halle’s *Fundamentals of Language*.” Umberto Eco, *Semiotics and the Philosophy of Language*, Indiana University Press, 1986, p. 166.

<sup>33</sup> “In the texts of the theoreticians of information, there is a sharp distinction between information, as the statistical measure of the equiprobability of events at the source, and meaning. Shannon (1948) distinguishes the meaning of a message, irrelevant to an information theory, from the measure of information that one can receive when a given message (which can also be a single electrical signal) is selected among a set of equiprobable messages.” *Ibid*, p. 169.

<sup>34</sup> The concept was abridged for clarity by Nils J. Nilsson in “John McCarthy: A Biographical Memoir by Nils J. Nilsson”, National Academy of Sciences, Stanford Artificial Intelligence Laboratory, 2012, p. 6, [http://ai.stanford.edu/~nilsson/John\\_McCarthy.pdf](http://ai.stanford.edu/~nilsson/John_McCarthy.pdf); for somewhat different and longer elaboration of the goals to be achieved see the original project proposal: John McCarthy, Marvin L. Minsky, Nathaniel Rochester, Claude E. Shannon, “A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence”, August 31, 1955, *AI Magazine*, <https://www.aaai.org/ojs/index.php/aimagazine/article/view/1904>.

<sup>35</sup> Turing, *op. cit.*, p. 433.

<sup>36</sup> Also in 1948, Alan Turing wrote the influential “Intelligent Machinery” report for the National Physical Laboratory (<http://www.turingarchive.org/viewer/?id=127&title=1>, first published in *Cybernetics: Key Papers*, University Park Press, edited by C. R. Evans & A. D. J. Robertson, 1968), where he initially presented the concepts to be developed further in the abovequoted 1950 “Computing machinery and intelligence” (Turing, *op.cit.*). He continued to advance this line of thinking publicly through the series of broadcasts: “Can Digital Computers Think?” (BBC Third Program radio broadcast, May 15, 1951, <http://www.turingarchive.org/browse.php/B/5>), “Intelligent Machinery: A Heretical Theory” (a talk given to ‘51 Society’ radio discussion programme, BBC Home Service, Manchester, 1951; the corresponding essay is published in *Philosophia Mathematica*, vol. 4, issue 3, September 1, 1996, pages 256–260, [http://viola.informatik.uni-bremen.de/typo/fileadmin/media/lernen/Turing-\\_Intelligent\\_Machinery.pdf](http://viola.informatik.uni-bremen.de/typo/fileadmin/media/lernen/Turing-_Intelligent_Machinery.pdf)), and “Can Automatic Calculating Machines Be Said To Think?”, (BBC Third Program radio broadcast, January 14, January 23, 1952, <http://www.turingarchive.org/browse.php/B/6>).

<sup>37</sup> Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine*, MIT Press / Hermann & Cie, 1948.

<sup>38</sup> B. F. Skinner, “Verbal Behavior”, William James Lectures, Harvard University, 1948, <http://www.behavior.org/resources/595.pdf>, p. 10.

<sup>39</sup> Andrew Thompson, “Slot machines perfected addictive gaming. Now, tech wants their tricks”, *The Verge*, May 6, 2015, <https://www.theverge.com/2015/5/6/8544303/casino-slot-machine-gambling-addiction-psychology-mobile-games>.

40 Ilan Moscovitz, “Artificial Intelligence’s ‘Holy Grail’ Victory”, *The Motley Fool*, December 31, 2017, <https://www.fool.com/investing/2017/12/31/artificial-intelligences-holy-grail-victory.aspx>.

41 B.F. Skinner, *Walden Two*, Hackett Publishing Company, 1948, (revised 1976 edition).

42 The expression Fredric Jameson insists on using in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions, Part one: The Desire Called Utopia*, Verso, 2005, p.13.

43 B.F. Skinner, *Walden Two*, *op. cit.*, p. 247.

44 Bobby Newman, “Why is Walden Two Considered a Dystopia?”, *Behaviour Analyst*, vol. 16, no. 2, 1993, pp. 167–175, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2733639>.

45 D. J. Delprato & B. D. Midgley, “Some fundamentals of B. F. Skinner’s behaviorism”, *American Psychologist*, vol. 47, no. 11, 1992, p. 1509.

46 Marc N. Richelle, *B. F. Skinner – A Reappraisal*, Psychology Press, 2016, p. 56 (from Chapter 5, “Freud in Skinner’s Writings”).

47 “Early versions of environmentalism were inadequate because they could not explain how the environment worked, and much seemed to be left for autonomous man to do. But environmental contingencies now take over functions once attributed to autonomous man, and certain questions arise. Is man then ‘abolished’? Certainly not as a species or as an individual achiever. It is the autonomous inner man who is abolished, and that is a step forward. But does man not then become merely a victim or passive observer of what is happening to him? He is indeed controlled by his environment, but we must remember that it is an environment largely of his own making.” B. F. Skinner, *Beyond Freedom and Dignity*, Penguin Books, 1971, p. 210 (from Chapter 9, “What is Man?”).

48 “The literature of freedom has encouraged escape from or attack upon all controllers. It has done so by making any indication of control aversive. Those who manipulate human behavior are said to be evil men, necessarily bent on exploitation. Control is clearly the opposite of freedom, and if freedom is good, control must be bad. What is overlooked is control which does not have aversive consequences at any time. Many social practices essential to the welfare of the species involve the control of one person by another, and no one can suppress them who has any concern for human achievements.” *Ibid.*, p. 47 (from Chapter 2, “Freedom”).

49 “The evolution of a culture is a gigantic exercise in self-control. It is often said that a scientific view of man leads to wounded vanity, a sense of hopelessness, and nostalgia. But no theory changes what it is a theory about; man remains what he has always been. And a new theory may change what can be done with its subject matter. A scientific view of man offers exciting possibilities. We have not yet seen what man can make of man.” *Ibid.*, p. 210 (from Chapter 9, “What is Man?”).

50 B.F. Skinner, *Walden Two*, *op. cit.*, p. 246, p. 248.

51 For example see Richelle, *op. cit.*, p. 204; William O’Donohue & Kyle E. Ferguson, *The Psychology of B. F. Skinner*, SAGE Publications, 2001, pp. 204-207; Richard E. Creel, “Skinner’s Copernican Revolution”, *Journal for the Theory of Social Behavior*, vol. 4, no. 2, October, 1974, pp.131–146.

52 Richard Todd, “‘Walden Two’: Three? Many More?”, *The New York Times*, March 15, 1970, <http://www.nytimes.com/1970/03/15/archives/walden-two-three-many-more-walden-two.html>.

53 Phillip E. Wegner, “Utopia”, Chapter 5 of *A Companion to Science Fiction*, edited by David Seed, Blackwell Publishing, 2005, Part 2: “Topics and Debates”, p. 90.

<sup>54</sup> See Hilke Kuhlmann, *Living Walden Two: B. F. Skinner's Behaviorist Utopia and Experimental Communities*, University of Illinois Press, 2005; Kat Kinkade, *Is It Utopia Yet?: An Insider's View of Twin Oaks Community in Its Twenty-Sixth Year*, 2nd edition, Twin Oaks Publications, 1994.

<sup>55</sup> See for Twin Oaks Community, <https://www.twinoaks.org/culture-government-65/walden-two-community>; for Comunidad Los Horcones, <http://www.loshorcones.org>.

<sup>56</sup> B.F. Skinner, *Walden Two*, *op. cit.*, p. 281.

<sup>57</sup> One of the fiercest ideological critics of Skinner (as to be expected) will come to be Ayn Rand. For the original article, see: Ayn Rand, "The Stimulus and the Response: A Critique of B.F. Skinner", *The Ayn Rand Letter: Volumes I-IV 1971-1976*, Second Renaissance Press, 1990, p. 33 (For the article as published in *Philosophy: Who Needs It*, Bobbs-Merrill Company, 1982, see <https://archive.is/OQdHj>.) See also: Keenan Dakota, "Ayn Rand hates Twin Oaks", Keenan's Twin Oaks blog, January 29, 2012, <http://keenandakota.blogspot.rs/2012/01/ayn-rand-hates-twin-oaks.html>.

<sup>58</sup> Randy Allen Harris, *The Linguistics Wars*, Oxford University Press, 1993, as cited in David C. Palmer, "On Chomsky's Appraisal of Skinner's Verbal Behavior: A Half Century of Misunderstanding", *The Behavior Analyst*, vol. 29, no. 2, 2006, pp. 253–267. See also: David C. Palmer, "The Influence of Chomsky's Review", <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2223153/#s3title>.

<sup>59</sup> Noam Chomsky, "A Review of B. F. Skinner's Verbal Behavior", *Language*, vol. 35, no.1, 1959, pp. 26-58, <http://cogprints.org/1148/1/chomsky.htm>.

<sup>60</sup> See Noam Chomsky, "A minimalist program for linguistic theory", in Kenneth Hale & Samuel Jay Keyser (editors), *The View From Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, MIT Press, 1993. Similarly as with Claude Shannon's information theory, the article evolves to become *The Minimalist Program* book (MIT Press, 1995, <https://muse.jhu.edu/chapter/1441604>). See also "Noam Chomsky - Lectio Magistralis: 'The minimalist program and language acquisition'", SISSA - International School for Advanced Studies, September 17, 2012, <https://www.youtube.com/watch?v=GL1GcRrbPm0>; Marc D. Hauser, Noam Chomsky, W. Tecumseh Fitch, "The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?", *Science*, vol. 298, issue 5598, November 22, 2002, pp. 1569-1579, <http://psych.colorado.edu/~kimlab/hauser.chomsky.fitch.science2002.pdf>.

<sup>61</sup> Noam Chomsky, *Aspects of the Theory of Syntax*, MIT Press, 1965, Chapter 1: "Methodological Preliminaries", p. 32.

<sup>62</sup> "In the South Seas there is a cargo cult of people. During the war they saw airplanes land with lots of good materials, and they want the same thing to happen now. So they've arranged to imitate things like runways, to put fires along the sides of the runways, to make a wooden hut for a man to sit in, with two wooden pieces on his head like headphones and bars of bamboo sticking out like antennas—he's the controller—and they wait for the airplanes to land. They're doing everything right. The form is perfect. It looks exactly the way it looked before. But it doesn't work. No airplanes land. So I call these things cargo cult science, because they follow all the apparent precepts and forms of scientific investigation, but they're missing something essential, because the planes don't land." Richard Feynman in Caltech's 1974 commencement address "Cargo Cult Science: Some remarks on science, pseudoscience, and learning how to not fool yourself", <http://calteches.library.caltech.edu/51/2/CargoCult.htm>, later published in Richard P. Feynman, "Surely You're Joking, Mr. Feynman!" *Adventures of a Curious Character*, edited by Ralph Leighton, W. W. Norton & Company, 1997.

<sup>63</sup> “Within a year or two of his paper’s publication, however, Shannon was horrified to find that information theory was becoming, well, popular. People were saying ridiculous things about the amount of information coming out of the sun, or even the information content of noise. Scientists were submitting grant applications that referred to ‘information theory’ whether their proposals had anything to do with it or not. ‘Information theory’ was becoming a buzzword, much as ‘artificial intelligence,’ ‘chaos’ and ‘complexity’ would in the 1980s and 1990s. And Shannon hated it. In a 1956 paper entitled ‘The Bandwagon,’ in the journal *Transactions on Information Theory*, he declared that information theory was being greatly oversold. “It has perhaps ballooned to an importance beyond its actual accomplishments,” he wrote.” [Waldrop also writes that Shannon later “dropped out”, “turned down almost all the endless invitations to lecture, or to give newspaper interviews”, “quit responding to much of his mail”, started to “withdraw not just from the public eye but from the research community” and “by the mid-1960s, had stopped teaching”.] M. Mitchell Waldrop, “Claude Shannon: Reluctant Father of the Digital Age”, *MIT Technology Review*, July 1, 2001, <https://www.technologyreview.com/s/401112/claude-shannon-reluctant-father-of-the-digital-age>.

<sup>64</sup> Yarden Katz, “Manufacturing an Artificial Intelligence Revolution”, SSRN, November 27, 2017, p. 17, <https://dx.doi.org/10.2139/ssrn.3078224>.

<sup>65</sup> *Ibid.*, p. 2.

<sup>66</sup> “Behavior is evidence. It's not what you are studying; what you are studying is competence, capacity. If you study man's insight you want to know what is going on in his brain; behavior gives the evidence for that. [...] In a serious field, you wouldn't identify the subject with the study of the data.” Noam Chomsky quoted in Javier Virués-Ortega, “The Case Against B. F. Skinner 45 years Later: An Encounter with N. Chomsky”, *The Behavior Analyst*, vol. 29, no. 2, 2006, p. 245.

<sup>67</sup> Peter Norvig, “On Chomsky and the Two Cultures of Statistical Learning”, <http://norvig.com/chomsky.html>.

<sup>68</sup> “Amid all this activity, a picture of our AI future is coming into view, and it is not the HAL 9000—a discrete machine animated by a charismatic (yet potentially homicidal) humanlike consciousness—or a Singularitan rapture of superintelligence. The AI on the horizon looks more like Amazon Web Services—cheap, reliable, industrial-grade digital smartness running behind everything, and almost invisible except when it blinks off. This common utility will serve you as much IQ as you want but no more than you need. Like all utilities, AI will be supremely boring, even as it transforms the Internet, the global economy, and civilization. It will enliven inert objects, much as electricity did more than a century ago. Everything that we formerly electrified we will now cognitize. This new utilitarian AI will also augment us individually as people (deepening our memory, speeding our recognition) and collectively as a species. There is almost nothing we can think of that cannot be made new, different, or interesting by infusing it with some extra IQ. In fact, the business plans of the next 10,000 startups are easy to forecast: Take X and add AI. This is a big deal, and now it’s here.” Kevin Kelly, “The Three Breakthroughs That Have Finally Unleashed AI on the World,” *Wired*, October 27, 2014, <https://www.wired.com/insights/2015/02/the-upside-of-artificial-intelligence-development>.

<sup>69</sup> Achim Szapanski, “Economy and Politics of the Net: Interview with Geert Lovink”, August 21, 2017, <https://non.copyriot.com/economy-and-power-of-the-net-interview-with-geert-lovink>. [One of the reasons why people would demand such a thing as algorithmic governance could be to make those responsible for the concept also to be a subject of it, to make the “Davos people” perform in practice for the first time their usual trope of “we are all in this together”.]

<sup>70</sup> Danielle Kehl, Priscilla Guo & Samuel Kessler, “Algorithms in the Criminal Justice System: Assessing the Use of Risk Assessments in Sentencing”, Responsive Communities Initiative, Berkman Klein Center for Internet & Society, Harvard Law School, December 21, 2017, p.18, <http://nrs.harvard.edu/urn-3:HUL.InstRepos:33746041>.

71 “Speakers at EmTech Digital [conference] will discuss the issue of the bias that can become embedded in machine-learning algorithms that are increasingly used to guide important decisions such as the appropriate length of a sentence for a person convicted of a crime, or who is granted a bank loan. As machine learning is deployed in more areas of life, this issue will become more important, and will raise serious ethical concerns. The difficulty of interrogating the latest machine-learning algorithms to find out how they made a decision could compound this issue.” Will Knight, “A New Direction for Artificial Intelligence?”, *MIT Technology Review*, March 27, 2017, <https://www.technologyreview.com/s/603916/a-new-direction-for-artificial-intelligence>.

72 Alex Campolo, Kate Crawford, Madelyn Sanfilippo & Meredith Whittaker, “AI Now 2017 Report”, AI Now Institute, edited by Andrew Selbst, Solon Barocas, [https://ainowinstitute.org/AI\\_Now\\_2017\\_Report.pdf](https://ainowinstitute.org/AI_Now_2017_Report.pdf); Kate Crawford, one of the researchers, commented: “We should have equivalent due-process protections for algorithmic decisions as for human decisions.” (as quoted in Tom Simonite, “AI Experts Want to End ‘Black Box’ Algorithms in Government”, *Wired*, October 18, 2017, <https://www.wired.com/story/ai-experts-want-to-end-black-box-algorithms-in-government>.)

73 Zeynep Tufekci, “We’re building a dystopia just to make people click on ads”, TEDGlobal, NYC, September, 2017, [https://www.ted.com/talks/zeynep\\_tufekci\\_we\\_re\\_building\\_a\\_dystopia\\_just\\_to\\_make\\_people\\_click\\_on\\_ads](https://www.ted.com/talks/zeynep_tufekci_we_re_building_a_dystopia_just_to_make_people_click_on_ads).

74 *Ibid*, [07:08].

75 The future of voting is dating yourself. See: “Blue Feed, Red Feed: See Liberal Facebook and Conservative Facebook, Side by Side”, *The Wall Street Journal*, <http://graphics.wsj.com/blue-feed-red-feed>.

76 Full quotation: “And also, this is making me think how we are mapping AI onto unseen labour, that is, unseen human labour out in the world. So all of the Facebook click farms and their chatbot centers that are mapped onto the former sweatshops of Bangladesh, which is where I am from, like, the exact same buildings are used for AI that’s coming up now.” Nora Khan in Lucy Ives, Nora Khan & Alexandra Kleeman, “Chatbot Laureate - A conversation about artificial intelligence, dumb machines, and the progress of human and robotic expression”, *Triple Canopy NYC*, July 18, 2017, <https://www.canopycanopycanopy.com/contents/chatbot-laureate?sub=video-documentation> [30:25].

77 Lovink in Szapanski, *op. cit.*

78 “Says Musk, “I essentially led them to a conclusion that they created. It was sort of a Socratic dialogue on a technical level. The essence of a Socratic dialogue,” he adds with another of his trademark soft laughs, “is that people wind up convincing themselves. People are much more willing to change their opinion if you’re not forcing it.” Robin Keats, “Interview with Elon Musk”, *Queen’s Alumni Review*, <http://www.queensu.ca/gazette/alumnireview/stories/rocket-man>.

79 Mark Zuckerberg, “Building Global Community”, February 16, 2017, <https://www.facebook.com/notes/mark-zuckerberg/building-global-community/10103508221158471/?pnref=story>. (And comments!)

80 The regular names on such list would be Jeff Bezos, Jack Ma or Satya Nadella... For the “Philosophers of 2017 list”, see “The Richest People in Tech”, Forbes 2017 Ranking, <https://www.forbes.com/richest-in-tech/list/#tab:overall>.

81 This references the historical, not the actual Lunar Society. For the Modern Lunar Society, see <https://www.lunarsociety.org.uk>.

<sup>82</sup> “In the late 18th century, with the ascendant British Empire centered on London, a small group of friends met at a house on the crossroads outside Birmingham and applied their minds to the problems of the age. Between them they managed to launch the Industrial Revolution, discover oxygen, harness the power of steam and pioneer the theory of evolution. They were the Lunar Society, a gathering of free and fertile minds centred on the remarkable quartet of Matthew Boulton, James Watt, Joseph Priestly and Erasmus Darwin. The potter Josiah Wedgwood, another member, summed up the ethos of this group when he said that they were ‘living in an age of miracles in which anything could be achieved’.” “The Lunar Society”, *In Our Time*, BBC Radio 4, June 5, 2003, <http://www.bbc.co.uk/programmes/p00548z8>.

<sup>83</sup> Thu-Huong Ha, “Bill Gates: These are the 2 books we should all read to understand AI”, World Economic Forum, June 6, 2016, <https://www.weforum.org/agenda/2016/06/bill-gates-these-are-the-2-books-we-should-all-read-to-understand-ai>.

<sup>84</sup> Nick Boström, *Superintelligence: Paths, Dangers, Strategies*, Oxford University Press, 2014.

<sup>85</sup> See the Future of Life Institute (<https://futureoflife.org>) founded in 2014 by Tegmark, the Skype co-founder Jaan Tallinn and others (with Hawking and Musk in the scientific advisory board); Nick Boström in 2005 established the Future of Humanity Institute at the University of Oxford (<https://www.fhi.ox.ac.uk>).

<sup>86</sup> “Cognitive enhancement via improvements in public health and diet has steeply diminishing returns. Big gains come from eliminating severe nutritional deficiencies, and the most severe deficiencies have already been largely eliminated in all but the poorest countries. Only girth is gained by increasing an already adequate diet. Education, too, is now probably subject to diminishing returns. The fraction of talented individuals in the world who lack access to quality education is still substantial, but declining.” Boström, *op. cit.*, p. 86.

<sup>87</sup> Guido Alfani, “The top rich in Europe in the long run of history (1300 to present day)”, *VoxEU.org*, February 15, 2017, <http://voxeu.org/article/europe-s-rich-1300>.

<sup>88</sup> “Although the Lunar Society was not a political body - indeed, they never discussed politics or religion at their meetings - many of its members were politically liberal, in a rather ‘New Labour’ kind of way. Many of them sympathised with the ends, if not all of the means, of the French revolution and the American rebellion. They were humane, and sincere in wishing to improve the lot of ordinary people. They abhorred slavery and several of them led the campaign against it. But they believed in private property, in capitalist self help and entrepreneurialism, whilst advocating the extension of the franchise, measures to reduce corruption, and a reduction in the power of the church and aristocracy. They also enjoyed themselves; it is clear from their correspondence that their meetings were fun, as well as being intellectually stimulating, and they cheerfully referred to themselves as ‘lunaticks’. [...] They numbered fourteen.” Bob Miles, “More About the Lunar Society”, <http://www.jquarter.org.uk/webdisk/morelunar.htm>.

<sup>89</sup> In Boström’s *Superintelligence* the word “revolution” is mentioned, if the count is right, 47 times, but exclusively referring to industrial, agricultural or intelligence revolutions, and only in a single instance connected with the idea of social revolution, as in “Revolutions, even when they succeed in overthrowing the existing order, often fail to produce the outcome that their instigators had promised.” (p. 110) The word “capital” is mentioned more than 30 times, “capitalist” once, and “capitalism” not at all.

<sup>90</sup> “Even before he signed up with the NSDAP, [Martin] Heidegger had the reputation of being a reactionary. In the spring of 1929 Heidegger was chosen as the obvious opponent for Ernst Cassirer, humanist and constitutional democrat, in a series of philosophical debates in Davos, Switzerland.” James Heartfield, “Heidegger, the Fuhrer-principal”, *Mute*, May 24, 2009, <http://www.metamute.org/community/your-posts/heidegger-fuhrer-principal>.

<sup>91</sup> “Protesters 'Occupy Davos'—in Igloos”, *Occupy ONLINE*, January 25, 2012, <http://occupy-online.blogspot.rs/2012/01/protesters-occupy-davos-in-igloos.html>.

<sup>92</sup> “The annual gathering in Davos has certainly cemented the power of a tiny global elite, but its real power has been as a spawning ground for neoliberalism’s major advances—the rise of the financial sector, the spread of corporate trade agreements and the integration of emerging economic powers into the global economy. [...] Indeed, the growth and power of the Davos Class has grown with—and spurred—the development of global unrest, protests, resistance movements and revolution. As Davos welcomes the global plutocrats to 2015, no doubt they’ll be reminded of the repercussions of the ‘market system’ as populations around the world remind their leaders of the power of people.”

Andrew Marshall, “World Economic Forum: a history and analysis”, *Transnational Institute*, January 20, 2015, <https://www.tni.org/en/article/world-economic-forum-a-history-and-analysis>.

<sup>93</sup> “For the record, most Right-wingers heartily dislike the Davos racket. The only reason we don’t demonstrate in the slush alongside the Occupy crowd is that most of us have jobs. We know in our bones that Davos Man despises us and our values. As Samuel Huntingdon once put it, the delegates ‘view national boundaries as obstacles that thankfully are vanishing, and see national governments as residues from the past whose only useful function is to facilitate the élite’s global operations’.” Daniel Hannan, “Davos is a corporatist racket”, *CapX*, January 22, 2015,

<https://capx.co/davos-is-a-corporatist-racket>.

<sup>94</sup> In his defense of WEF, Neal Keny-Guyer, CEO, Mercy Corps, after listing the achievements of this year’s meeting (e.g. opening up access for more than two billion people who can’t get basic financial services; planning how to meet the needs of over 65 million refugees; how we can eliminate hunger today for 800 million people; or pushing for an inclusive peace in Syria), wrote: “Davos is easy to criticize and parody. Sure, there is excess and hot air. Diversity, especially gender, remains a real issue. More humility would help. But, at its heart, Davos believes [...] that the biggest global challenges can only be addressed when everyone is brought together to focus on solutions: leaders from governments, the international system, business, civil society—and, most importantly, the voices of the poorest and most vulnerable themselves.” Neal Keny-Guyer, CEO, Mercy Corps: “The Davos I know isn’t the one you hear about”, <https://www.weforum.org/agenda/2017/01/the-davos-i-know-isn-t-the-one-you-hear-about>.

<sup>95</sup> “According to the Media Channel’s Danny Schechter, the ‘working press’ are kept in the ‘dungeon-like basement of the high-tech Congress Centre’, banging out copy ‘based on reams of handouts, session summaries and the snatches of the proceedings watched on live, closed-circuit TV’. Those who write articles that are critical are rarely invited back; the left and alternative media is kept out altogether.” Sean Healy, “World Economic Forum: Corporate club ‘shapes global agenda’”, *Green Left Weekly*, May 21, 2000, <https://www.greenleft.org.au/content/world-economic-forum-corporate-club-shapes-global-agenda>.

<sup>96</sup> Klaus Schwab, “The Fourth Industrial Revolution: what it means, how to respond”, *World Economic Forum, Global Agenda*, 14 January 2016, <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond>. (In this manifesto-like long article discussing the latest Industrial Revolution, the word “work” was mentioned twice, while “workers” were referenced six times; it was first published in the magazine *Foreign Affairs*, December 12, 2015, ironically, behind the paywall.)

<sup>97</sup> In Schwab’s classification he offered the following argumentation: “The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.” *Ibid.*

<sup>98</sup> “In spite of all this, the World Economic Forum spent the entire summit doing its best to make the case that this coming revolution is somehow more new, more different, and more threatening than any we have previously experienced. But its justifications are the same as they have always been and in fact are simply characteristics of technological revolutions in general. The spinning jenny was just as threatening to lower-class weavers as robotic doctors’ assistants are to future nursing staff, with perhaps one exception not highlighted in any of the discussions in Davos: This time, white-collar jobs are on the line, not just manual labor and blue-collar work. Maybe that’s what scares the WEF the most.” Elizabeth Garbee, “This Is Not the Fourth Industrial Revolution”, *Slate*, January 29, 2016, [http://www.slate.com/articles/technology/future\\_tense/2016/01/the\\_world\\_economic\\_forum\\_is\\_wrong\\_this\\_isn\\_t\\_the\\_fourth\\_industrial\\_revolution.html](http://www.slate.com/articles/technology/future_tense/2016/01/the_world_economic_forum_is_wrong_this_isn_t_the_fourth_industrial_revolution.html).

<sup>99</sup> Schwab’s articulation is not to be confused with a concept of *Industrie 4.0* as presented by German industrialists and Government in 2011 (see Gartner: “German-government-sponsored vision for advanced manufacturing”, <https://www.gartner.com/newsroom/id/305492>), with which it has a lot of similarities, sometimes to a point of non-distinction. Robert Bosch and other industrialists behind the initiative are concerned mainly with networking and processing of information, with maintaining both the rise in profits and the distinctively German way of looping capital, the State and the people.

<sup>100</sup> “Ultimately, the ability of government systems and public authorities to adapt will determine their survival. If they prove capable of embracing a world of disruptive change, subjecting their structures to the levels of transparency and efficiency that will enable them to maintain their competitive edge, they will endure. If they cannot evolve, they will face increasing trouble.” Schwab, *op. cit.*

<sup>101</sup> “Musicians suffer terribly; whatever happens to musicians will happen to everybody else. And music as it’s played on contemporary digital hardware sounds worse than it did on analog hardware 40 years ago. The new economy — it’s terrible. It’s a curse. Everyone hates and fears it, no one is optimistic about it, even the very few guys, the very few guys who really made out like bandits are afraid of the new economy. Nobody is happy with it.” Bruce Sterling, SXSW Festival keynote, March 2017, <https://soundcloud.com/officialsxsw/the-future-history-that-hasnt-happened-yet-sxsw-2017> [06:50].

<sup>102</sup> David Cox, “Towards an Artificial Brain”, World Economic Forum 2017, <https://www.youtube.com/watch?v=f9pOtcadVpc&t=231> [3:50]. Cox is Assistant Professor of Molecular and Cellular Biology and Computer Science at Harvard University.

<sup>103</sup> Richard Florida, *The Rise of the Creative Class And How It's Transforming Work, Leisure and Everyday Life*, Basic Books, 2002, and *Cities and the Creative Class*, Routledge, 2005.

<sup>104</sup> “Two hundred years later, the industrial working class in the global north has all but disappeared, and creativity is returning in a different guise. The creative economy has replaced the industrial one. [...] With vocal support from people like Richard Florida, cities and states have tried to use art for utilitarian purposes—hoping to transform human spontaneity into economic growth. [...] Everywhere creativity is expected to do the work that industry once did, sometimes explicitly. For a few months, a vast former warehouse in Manchester was emblazoned with the words “creativity, forged in Manchester on the anvil of the industrial revolution.” The warehouse now hosts ‘corporate events with an urban edge’.” Sam Wetherell, “Richard Florida Is Sorry”, *Jakobin*, August 19, 2017, <https://jakobinmag.com/2017/08/new-urban-crisis-review-richard-florida>.

<sup>105</sup> “Today, even Florida recognizes that he was wrong. The rise of the creative class in places like New York, London, and San Francisco created economic growth only for the already rich, displacing the poor and working classes.” Daniel Brook, “Creative Alibis: Richard Florida and the ruse of the ‘creative class’”, *The Baffler*, no. 35, <https://thebaffler.com/salvos/creative-alibis-brook>.

<sup>106</sup> Richard Florida, *The New Urban Crisis: How Our Cities Are Increasing Inequality, Deepening Segregation, and Failing the Middle Class—and What We Can Do About It*, Basic Books, 2017.

<sup>107</sup> “The urban optimists focus on the stunning revival of cities and the power of urbanization to improve the human condition. For these thinkers (myself among them, not too long ago), cities are richer, safer, cleaner, and healthier than they have ever been, and urbanization is an unalloyed source of betterment. [...] Just when it seemed that our cities were really turning a corner, when people and jobs were moving back to them, a host of new urban challenges—from rising inequality to increasingly unaffordable housing and more—started to come to the fore. Seemingly overnight, the much-hoped-for urban revival has turned into a new kind of urban crisis.” Richard Florida, “Confronting the New Urban Crisis”, *CityLab*, April 11, 2017, <https://www.citylab.com/equity/2017/04/confronting-the-new-urban-crisis/521031>.

<sup>108</sup> David Harvey, “The ‘New’ Imperialism: Accumulation by Dispossession”, *Socialist Register*, vol. 40, 2004, <http://www.socialistregister.com/index.php/srv/article/view/5811>; see also David Harvey, *The New Imperialism*, Oxford University Press, 2003.

<sup>109</sup> David Harvey, “From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism”, in *Geografiska Annaler. Series B, Human Geography: The Roots of Geographical Change: 1973 to the Present*, vol. 71, no. 1, 1989, pp. 3-17.

<sup>110</sup> Harvey, *Ibid*, p. 5.

<sup>111</sup> “But a critical perspective on urban entrepreneurialism indicates not only its negative impacts but its potentiality for transformation into a progressive urban corporatism, armed with a keen geopolitical sense of how to build alliances and linkages across space in such a way as to mitigate if not challenge the hegemonic dynamic of capitalist accumulation to dominate the historical geography of social life.” Harvey, *Ibid*, p. 16.

<sup>112</sup> Full quotation: “Florida comes to the problem armed with numbers. He addresses two crucial issues: the widening economic divide between cities and the widening economic divide within cities. [...] It’s indicative of the tenor of this book, which is heavy on studies from sociologists and economists (at one point, there’s a page where more than half the sentences introduce a new ratio), but addresses history only in short anecdotes, and politics hardly at all.” Henry Grabar, “Fantastical Maps”, *The Slate*, April 11, 2017, [http://www.slate.com/articles/arts/books/2017/04/richard\\_florida\\_s\\_the\\_new\\_urban\\_crisis\\_reviewed.html](http://www.slate.com/articles/arts/books/2017/04/richard_florida_s_the_new_urban_crisis_reviewed.html).

<sup>113</sup> “The Creative Class Group, founded by world renowned urbanist Richard Florida, is a global advisory firm composed of expert researchers, academics, and business strategists. Our proprietary data and research, gives companies and regions leading insights to achieve growth and prosperity.” <http://www.creativeclass.com>.

<sup>114</sup> “There is something quite shocking about seeing a new contemporary map of London in which the rich areas are labelled ‘primarily creative class’ and the poorer parts ‘primarily service class’. But this is how the American writer and Toronto University professor Richard Florida portrays cities and sees people. There are those who create and those who serve them.” Danny Dorling, “The New Urban Crisis by Richard Florida review—‘flawed and elitist ideas’”, *The Observer*, September 26, 2017, <https://www.theguardian.com/books/2017/sep/26/richard-florida-new-urban-crisis-review-flawed-elitist-ideas>.

<sup>115</sup> Yet another problem would be *what* Florida has to say, and where and when he will be allowed to say it; his rhetorics of dispossession, growth and profit were indispensable for “creative capital” 15 years ago and brought him the status of a rock star, but his criticism and now different rhetorics of the need for investment and addressing inequality will suddenly close all the doors of power: “He even praises Scandinavian socialism, hailing it in glowing terms as ‘the high-road path of the Nordic countries, where income inequality is low.’ But the elite he long flattered will have little use for these egalitarian solutions. One can imagine the reaction all of this would get should Richard Florida pitch it to the crowd at the next Aspen Ideas Festival, let alone the Trump White House.” (Brook, *op. cit.*)

<sup>116</sup> “I think it's important we recognize that revolutionary change to the fundamental logics flanking housing, income, healthcare, education, and infrastructure may mean I have to learn a whole new way to dispossess people.” [https://twitter.com/Dick\\_Florida/status/938044915497410560](https://twitter.com/Dick_Florida/status/938044915497410560).

<sup>117</sup> Roope Mokka, “Basic Income Could Be the Moonshot of Our Generation”, *Slush*, October 16, 2016, <http://www.slush.org/news/insight/basic-income-moonshot-generation>. Mokka is a co-founder of think tank Demos Helsinki, one of the advisors in designing the basic income framework of Finland.

<sup>118</sup> This widely cited claim is somewhat disputed by Professor Karen M. Offen, who, despite the fact that the “Invention of the word *feminisme* has long been attributed to Charles Fourier (1772-1837), the audacious thinker who coined so many French neologisms and who understood so well that the essence of women’s emancipation lay in eradicating their legal and economic subordination to men”, concludes that “French dictionaries have erroneously attributed the invention of the word ‘feminisme’ to Charles Fourier in the 1830s; in fact its origins remain uncertain.” Karen Offen, “On the French Origin of the Words Feminism and Feminist”, *Feminist Issues*, June 1988, vol. 8, no. 2, pp. 45-51, and Karen Offen, “Feminism”, *Encyclopedia of Social History*, edited by Peter N. Stearns, Garland, 1994), pp. 271-272, [http://gender.stanford.edu/sites/default/files/Feminism En Soc Hist 1994.pdf](http://gender.stanford.edu/sites/default/files/Feminism%20En%20Soc%20Hist%201994.pdf).

<sup>119</sup> See “Charles Fourier’s oceans of lemonade”, *The Autodidact Project*, January 29, 2017, [http://www.autodidactproject.org/quote/fourier\\_lemonade.html](http://www.autodidactproject.org/quote/fourier_lemonade.html).

<sup>120</sup> “[Streeck] said our society might end in a slow regression too, maybe ending up with structures similar to feudalism, with corporations becoming independent structures in the style of feudal lords.”

Alessio Perrone, “Talk: Wolfgang Streeck: How will capitalism end?”, *The New Internationalist*, November 16, 2016, <https://newint.org/blog/2016/11/16/wolfgang-streeck-how-will-capitalism-end>.

<sup>121</sup> Wolfgang Streeck, “How Will Capitalism End?”, *New Left Review*, no. 87, May-June, 2014, <https://newleftreview.org/II/87/wolfgang-streeck-how-will-capitalism-end>.

<sup>122</sup> Sterling, *op. cit.*

<sup>123</sup> *Ibid.*, [21:48].

<sup>124</sup> *Ibid.*, [43:01].

<sup>125</sup> Today, people are trying to determine if more than 70% or more than 90% of startup companies will fail. See e.g. Neil Patel, “90% Of Startups Fail: Here's What You Need To Know About The 10%”, *Forbes*, January 16, 2015, <https://www.forbes.com/sites/neilpatel/2015/01/16/90-of-startups-will-fail-heres-what-you-need-to-know-about-the-10/>; Erin Griffith, “Conventional Wisdom Says 90% of Startups Fail. Data Says Otherwise.”, *Fortune*, June 27, 2017, <http://fortune.com/2017/06/27/startup-advice-data-failure>.

<sup>126</sup> Sterling, *op. cit.*, [20:42].

<sup>127</sup> Perrone, *op. cit.* See also Wolfgang Streeck, *How Will Capitalism End? Essays on a Failing System*, Verso, 2016, pp. 22-24.

<sup>128</sup> Franco “Bifo” Berardi, *After the Future*, AK Press, 2011, p. 24.

<sup>129</sup> “The future is not a natural dimension of the mind. It is a modality of projection and imagination, a feature of expectation and attention, and its modalities and features change with the changing of cultures.” *Ibid.*, p. 30.

<sup>130</sup> *Ibid.*, p. 46.

<sup>131</sup> *Ibid.*, p. 41.

<sup>132</sup> Boris Buden, “Jezici retrofašizma: Kritisčke napomene uz Deklaraciju o zajedničkom jeziku” [“The Languages of Retrofascism: Critical Observations on The Declaration on the Common Language”], public talk, Cultural Center REX, December 15, 2017, Belgrade, <http://rexfiles.b92.net/index.php/boris-buden-jezici-retrofasizma-kriticke-napomene-uz-deklaraciju-o-zajednickom-jeziku> [49:05].

<sup>133</sup> “The typical German attitude towards fascism, *Vergangenheitsbewältigung*, [“the struggle to come to terms with (the negatives of) the past”], means nothing else but to place the absolute trust in the knowledge, historical knowledge, and in different forms of historical articulation able to prevent the return of fascism. But, the question is, can at all the fascism return? It is very interesting that whenever we talk about fascism, we see it as returning from the past, this is how we perceive it.” *Ibid.*, [12:35].

<sup>134</sup> Eugene Thacker, “Cosmic Pessimism”, *Continent*, vol. 2, no. 2, 2012, pp. 66-75, <http://continentcontinent.cc/index.php/continent/article/view/84>.

<sup>135</sup> Joanne McNeil, “Postcards from the Futch: Nothing looks like the past like talking about ‘the future’ of the internet.”, *The Message*, March 31, 2015, <https://medium.com/message/postcards-from-the-futch-595796d8a45d>.

<sup>136</sup> Frank Rieger, “We lost the war. Welcome to the world of tomorrow.”, *Die Datenschleuder*, no. 89, December 20, 2005, published by Chaos Computer Club; archived [http://frank.geekheim.de/?page\\_id=128](http://frank.geekheim.de/?page_id=128).

<sup>137</sup> See <http://fffff.at/the-futch-firefox-plugin>.

<sup>138</sup> Peter Sunde, “Transmediale talk 2015”, <https://blog.brokep.com/2015/05/29/transmediale-talk-2015>.

<sup>139</sup> Magnus Eriksson & Evan Roth, “We Lost”, F.A.T. GOLD: San Francisco, <http://fffff.at/rip>.

<sup>140</sup> Jelena Vesić & Vladimir Jerić Vlidi, “Interview with Rastko Močnik: There is No Theory Without the Practice of Confrontation”, *Red Thread*, Issue 4, p. 13, <http://red-thread.org/en/article.asp?a=75>.

<sup>141</sup> See “Haven: Keep Watch”, <https://guardianproject.github.io/haven>.

<sup>142</sup> See “Net Neutrality: What You Need to Know Now”, *Free Press*, November 24, 2017, <https://www.savetheinternet.com/net-neutrality-what-you-need-know-now>. See also Martin Giles, “Net Neutrality’s Dead. The Battle to Resurrect It Is Just Beginning.”, *MIT Technology Review*, January 3, 2018, <https://www.technologyreview.com/s/609840/net-neutralitys-dead-the-battle-to-resurrect-it-is-just-beginning>.

<sup>143</sup> Ira Kemelmacher-Shlizerman, Steven M. Seitz & Supasorn Suwajanakorn, “Synthesizing Obama: Learning Lip Sync from Audio”, SIGGRAPH 2017, [http://grail.cs.washington.edu/projects/AudioToObama/siggraph17\\_obama.pdf](http://grail.cs.washington.edu/projects/AudioToObama/siggraph17_obama.pdf) (video: <https://grail.cs.washington.edu/projects/AudioToObama>). See also Jennifer Langston, “Lip-syncing Obama: New tools turn audio clips into realistic video”, *University of Washington News*, July 11, 2017, <http://www.washington.edu/news/2017/07/11/lip-syncing-obama-new-tools-turn-audio-clips-into-realistic-video>.

<sup>144</sup> Facebook Messenger Kids Demo Video, <https://www.youtube.com/watch?v=xYEdY5CygiA>.