The Symbolic Subject in Information and Communications Technologies: Michel Freitag on Technique, Science, and its implications for subjectivity

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Abstract

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Grasping the novelty of contemporary technological mediation in its ubiquity, particularly within information and communications networks, typically involves recognizing the post-human status of subjects relationally embedded to technical processes that are increasingly autonomous relative to the individual. Problems with this approach become apparent once we consider both the symbolic character of human beings and the technical relation to objects as only a partial moment of a subject's interaction with the world. Providing an answer to these concerns, Michel Freitag's theory of the symbolic grants a sociological understanding of the role of technique within action in its historical unfolding as a distinctly productive activity in modernity. In this context, the predominance of theory over technique in the production of knowledge within modern scientific practice will slowly reverse as modern epistemology regresses into the abyss of the subject-object dualism of the enlightened individual while scientific production itself is progressively appropriated by industry as of the 19th century. This new operational understanding of scientific epistemology will reach its archetypical form in the post war field of cybernetics, where information ontology will quickly instigate further technical automation within productive labour and later influence neoliberal epistemologies in matters of governance. The latter, increasingly realized in the technocratic management of social life, will further effectuate itself in the digital infrastructure of contemporary communications systems under algorithmic governmentality in which both the normative and expressive ends of action tend to be subsumed. In this context, the reduction of language to its communication and of action to its operability will signal the ideological confusion between reality and its representation, together tending towards the unraveling of the transcendental unity of the subject and betraying the disavowed yearning for an absolute freedom liberated from worldly constraint.

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Table of Contents

I. INPUT

In January of 2019, The New York Times reported on an unusual event taking place in the city of Cremona, Italy. Five square blocks had been cordoned off in a city wide effort to reduce the noise radiating into the ground below the cobblestone streets. The reason? To isolate a specially designed auditorium where a small team of world class sound engineers were producing - with the help of equally competent musicians and the apex of modern recording technology - the "Stradivarius Sound Bank"; a database digitally storing all the notes and tones that can emanate from four of the "finest instruments ever crafted" in an effort to immortalize them[1]. The recorded samples will be manipulable with software to reproduce the sound of these instruments long after they have degraded.

There are many fascinating aspects about both the reality and the possibility of such a project. Of particular interest is the idea of preservation made possible with new recording techniques; the manner in which we conceive of 'saving' these invaluable instruments, these historical and cultural artefacts, through digital reproduction. On one hand, it demonstrates the immense capacity of modern computing and technology, as it is now possible to marshal the most current knowledge and practices of audio engineering and architectural precision (the Auditorium Averdi was designed with the instruments' resonances in mind) and the most cutting edge audio recording tools (from microphone sensitivity to the preposterous sampling capacities of the latest analog to digital conversion) to replicate a sound beyond the technical capacity of the human ear to discern it from the original. Rooted in these practices and our use of this technology is the belief that the essential qualities of the Stradivarius will carry over into its digital reproduction and outlive its embodied manifestation.

The enthusiasm for technology underlining these beliefs and invigorating the imagination in such a manner within this specific domain of artistic practice is but one of many examples that signal both its increasing mediation in human expression but also its relative ubiquity. Case in point: The relatively recent proliferation of methods, mechanisms, and technologies falling under the larger umbrella of Big Data demonstrates how this undying faith in the emancipatory potential of technology is perceived at all levels of social life, from specific cultural practices to

[1] Paradiso, M. (2019, January 19). 'To Save the Sound of a Stradivarius, a Whole City Must Keep Quiet'. *The New York Times*.

generalized beliefs regarding the structure of human society and its organization. Far from being simply limited to personalized marketing strategies, the increasing omnipresence of sensors, apparatus, and devices for the sake of collecting evermore information betrays the idea that we can increasingly regulate social life in a manner that better reflects individual tendencies as they are progressively freed from the biases of the aggregate representations of older political tools and concepts. Even criticism of this notion tends less towards skepticism of the underlying principle as much as falsifying the claim that technical systems are impartial and rather tend to reproduce existing inequalities and biases[2]. However, as Mark Andrejevic argues, the more the neutrality of the machine is called into question, "the more we invoke the imperative to attempt to clean the data, make it accurate, and turn the development of automated systems over to the machines themselves[3]." Above and beyond reifying a generalized pop science credo that the more information one acquires the greater their capacity to predict future events, we once again come across a new set of operations legitimated on the aspiration that technical progress can model or virtually crystallize the ephemeral qualities of the human spirit and render them commensurable in digital form. How can we sociologically make sense of the history and possibility of such a worldview? What kind of epistemologies does its existence and its analysis entail? At stake are the ramifications of new technological innovations on the forms and qualities of social life. But what about its nature? Is it simply that new technical affordances bring about equally new structural challenges or are these devices and systems collectively implicated in more profound changes in the constitution of sociality and deeper still, the very basis of subjectivity?

In effect, any half decent attempt to sociologically operationalize the general object that is technology will quickly reveal its nebulous outline. Technology is a word whose greek root *technikon* is that which belongs to *technē*, which loosely translates into "art", or "craft"; the skill and activity of the artisan in his or her exercise[4]. Technology is therefore the extension of specific practices towards particular ends. The mobile phone extends the reach of the voice; the abacus and the calculator extend the capacity of the mind in mathematical calculation; the pulley enhances the strength of the lifter; the spear extends the reach and enhances the penetrating force

[2] Almost as if these machines were the products of divine intervention and not human practice…

[3] Andrejevic, M. (2019) 'Automating Surveillance'. *Surveillance & Society* 17(1/2): p.12.

[4] Heidegger, M. (1977) 'The Question Concerning Technology' in *The Question Concerning Technology and other Essays*. New York: Harper & Row; p.5.

of the hunter. In these various instances, the efficiency of an activity is heightened through objects produced for that very purpose and whose qualities, in both function and design, generally reflect the context in which these activities are situated. But is the lion's teeth or the eagle's claws not efficiently arranged towards the slaying and devouring of its prey? Is the human brain not more efficiently constructed to process complex problems? Indeed, the above etymology and the categorization implied in the attempt to outline technology as an object connotes the all important fact that technological objects cannot be severed from the practices or from the techniques that constitute them. Stated in Heideggerian terms, technology is thus a manifestation of technique, and technique itself is inseparable from the essence of being insofar as it is a part of human activity. So while it's instrumental definition as a "tool" is correct and at first perfectly acceptable, in that it conforms to our use of these devices as means to achieve the ends they were designed for, "means", "ends", and their "correct" application imply a normative dimension within the intended activity that is historically determined, and as such it has ontological significance, if not determinacy, for society (the world), social interaction and its possibility (action), and subjects themselves (consciousness).

This fact, above and beyond merely echoing basic sociological intuition, suggests the necessary ground for examining the object of technology and its effects on human activity must be considered from a dialectical understanding that the distinction between subject and object is intertwined in its historical determination with the modes of technological effervescence, regardless of the manner in which it subsumes our lived experience. This demands that we recognize the mode in which the subject is dialectically enacted against a world of objects, and thus how the metaphysical reality of Being is in itself historically determined. In other words, we can already infer that any inquiry into the nature of an object as a site of sociological study - in our case technology - is at once an inquiry about the status (or the form) of the subject both ontologically as subject and epistemologically as a formal category of sociological theory in contemporary society and intellectual thought respectively. It is thus in that formal subject and object separation that a certain sociological truth about technology in our modern age lies hidden and that, within the context of this discussion, technology shall not be an "object" in the sense of being exterior to the subject - substantially, metaphysically, and formally. We are attempting to abandon the neutral, merely instrumental status of the object of technology as *res extensa*. The human being's relationship to technology in the 21st century is above all an ontological issue, as

such its problematization must begin with similar considerations with regards to subjectivity.

It is in this manner that we shall therefore speak of "technique" as a *specific* and thus necessarily *partial* dimension of human action from which the objects of technology as human productions emanate[5]. But this operationalization of the concept is neither obvious nor without contention. Various theories on the historical particularity of technique have already been developed in an effort to encapsulate its elusive object and its contemporary effect on human civilization[6]. Others have focussed on the specificity of our contemporary relation to technique, either directly or indirectly through theorization addressing the "post"-human status of the individual subject. In a world that cannot be accurately apprehended in the common sense, categorical, or even metaphysical delineations between nature and artifice, the subject is conceived through its both figurative and literal appendages, the analysis of which generally avows poststructuralist ontologies (especially those of Gilles Deleuze and Félix Guattari[7]) and thus is often accompanied by critique questioning the status (or relevance…) of certain privileged sociological categories, most notably identity as the apparent totem of the modern liberal subject.

I.i The Relational Essence of the Connected Post-human

One strategy that is employed in better grasping subjectivity within technology is the establishing of a relational ontology of the subject in order to epistemologically attribute the proper value to technique in contemporary social life. The work of Katherine Hayles provides an excellent example, as she is considered one of the key thinkers on the mediation of digital

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[5] This usage of the word speaks to the many French language sources used in this work. While "*La Technique*" is usually translated as *Technics*, the singular *Technique* rings truer to both its operationalization in this work and the forthcoming description of Michel Freitag's theory of the symbolic.

[6] Ellul J. (1980) *The Technological System* (Translation of *Le système technicien*). New York: The Conrinuum Publishing Company; Heidegger, op. cit; Gehlen, A. (1980) *Man in the Age of Technology*. New York: Columbia University Press; and of course, the works of Bernard Stiegler, most notably the *Technics and Time* trilogy.

[7] The other problem with the ontology of the subject in Deleuze stems from the possibility of the critique being itself contained with the system in its contemporary specificity. In a text titled "Postscripts on Societies of Control", Deleuze himself recognizes that within the context of societies formerly based on disciplined and now moving towards control, "Individuals have become "dividuals," and masses, samples, data, markets, or "banks"". In other words, premising a study of technological mediation from the ontology of an already technically-mediated subject occludes the possibility of an effective critique. See Deleuze, G. (1992) 'Postscript for the Societies of Control'. *October*, Vol. 59; pp. 3-7.

systems and technologies in this field, having pushed hard throughout her research to reframe the manner in which we consider these technical systems as mere objects in our environments. To be sure, Hayles is not making an argument for the consciousness of electronic devices, or even larger intelligent systems at the infrastructural level of a contemporary information society. However, she is generally attempting to make sense of the growing and perennially changing economy between beings and machines. Distinguishing between cognition and consciousness in an effort to extend meaning-making capacities to intelligent machines and other complex technical systems, she defines the former as "a process that interprets information within contexts that connect it with meaning"[8]. This definition is dependent on the operationalization of a golden rule of cybernetics epistemologies extending from Claude Shannon's theory of information - that information has no necessary connection to meaning, but is rather conceived in terms of a probability of message elements[9]. So rather than conceive of a semantic relation between the signifier and the signified, information is here tied to a probabilistic selection within sets (eg an alphabet, or on another level a lexicon), which is why it is essentially divorced from meaning. However, Hayles notes how the inherent constraints of the set (divergences within probabilistic selection) and the context of its enactment are necessarily tied to meaning as well. Since "the meaning of information is given by the processes that interpret it" and that processes always occur in context, then the literary theorist's definition can be seen as applying to a multitude of situations and circumstances, from "utterances of natural language between humans" to "the communications between layers of code in computational media"[10]. This highlights the emphasis on embodiment so crucial to Hayles in establishing information's context. The processes interpreting meaning are here necessarily the functions (organic or otherwise) enacted through stimuli. Meaning is therefore contingent upon the subject form in its constitution, in line with Maturana and Varela's operationalization of cognition not as "the representation of a pregiven world by a pregiven mind but […] rather the enactment of a world

[8] Hayles, K. (2017) *Unthought: the power of the cognitive nonconscious*. London : The University of Chicago Press, p.22.
[9] Hayles, K. (1999) *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago: University of Chicago Press; p.52. The basis for this consideration was not strictly epistemological, but methodological; we shall return to this later on.
[10] Unthought, p.25. Cognition is therefore not an attribute, but a process.

and a mind on the basis of a history of the variety of actions that a being in the world performs"[11].

To be clear, Hayles rejects the epistemologies of living subjects as mere biological instantiations of informational patterns, but also dismisses the enlightened individual liberal subject of Reason endowed with free will, essentially and more specifically conceptualized as free will *from others*[12]. This nourishes her endeavour of envisioning better ways to understand the economy between humans and machines, insisting on the fact that computation (code) and "legacy systems" (language) always exist in relation to each other. As such, there are "more benign" ways to conceptualize the post-human

> "…that can serve as effective counterbalances to the liberal humanist subject, transforming untrammelled free will into a recognition that agency is always relational and distributed, and correcting an over-emphasis on consciousness to a more accurate view of cognition as embodied throughout human flesh and extended into the social and technological environment[13]."

Code and Language are therefore entangled in this web of complexity, where one refers to the other through the extension of processes into the world. But this bridge is also redoubled at an ideological level, where Hayles argues fervently against what she calls "the regime of computation"; characterized by a feedback loop between the proliferation of better and increasingly pervasive computer technologies and the belief "that physical reality is computational in nature"[14]. Like in the concept of the post-human, Hayles sees in the idea that reality is inherently computational (informational) insidious aspects that must absolutely be resisted, but also an opportunity to break down "traditional concepts", old political and epistemological barriers. The global interconnection of "cognitive systems in which humans are increasingly embedded" which not only includes the internet but also "networked and programmable systems that feed into it, including wired and wireless data flows across the

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[11] Unthought, p.21.

[12] How We Became Posthuman, p.3.

[13] Hayles, K. (2006) 'Unfinished Work: From cyborg to cognisphere' in *Theory, Culture & Society Work*; p.160.

[14] Hayles, K. (2005) *My Mother Was a Computer*. Chicago: University of Chicago Press; p.219. Engineering historian Otto Mayr made similar points about the metaphor of the clock and the ideologies of order legitimating state operations. See Mayr, O. (1986) *Authority, liberty, & automatic machinery in early modern Europe*. Baltimore: Johns Hopkins University Press.

electromagnetic spectrum" emphasizes the new ecology in which "humans are not the only actors" called the *cognisphere*, succeeding Donna Haraway's figure of the cyborg as the new vision of the human-machine interlace[15]. Sociologically, we can readily see this as a doubling of the change from human to post-human at the level of social organization in its larger unity.

Hayles denial of both technological determinism and liberal humanism hence opens up the path for this "middle way" to think about the human-machine assemblage where the subject acquires a status that exceeds its embodied self-containment, epistemologically forcing the recognition of the relational subject - that is to say, the ontological center of subjectivity is displaced from the mind to the relation itself - and opening an avenue for contemplating the manner in which this relation alters the long privileged status of the autonomous human being whose consciousness represents the center of action and identity. Meaning is transposed through the various systems that produce it in their specificity, which is only possible for Hayles to the extent that her definition of cognition extends beyond the mind (and the body's) enclosure and can be conceived as part of the machine-human ecology she illustrates. In this lies the "distinct advantage" and particularity of computational media: the cognitive abilities of these technologies impart it with an evolutionary potential that is stronger than any other technological form of the past, and it is for this reason that they hold "special relationships with the quintessentially cognitive species, *Homo sapiens*[16]". That contemporary technologies manifest a shift in human cognition is the premise on which Hayles grounds evidence for a relational and distributed ontology of subjectivity. In his analysis of Hayles' thought, David Cecchetto exemplifies this fact by comparing divergent uses of memory in digital devices from more "analog" techniques:

> "On one hand, written information is appended to a conscious thought as an enhancement device […] By contrast, computationally distributed information is conjoined with conscious thought as a nonconscious memory that animates itself through its relations to other cognitive processes rather than predominantly through conscious commands. That is, as contemporary technologies combine and recombine to produce increasingly large and complex networks, it becomes less and less possible to

[15] Unfinished Work; p.159, 161: "Although Haraway associated it with the 'informatics of domination', the cyborg's shock value came mostly from the implication that the human body would be modified with cyber-mechanical devices. Although research on implants continues, contemporary formations are at once more subtle and more far-reaching than the figure of the cyborg allows".

[16] Unthought; p.33-4.

> convincingly promulgate a worldview that would posit a single human actor at the center of these activities[17]."

From this understanding of integration and influence on human action, the autonomy of the subject tends to be undermined through its necessary relation to increasingly autonomous machines. Therefore a complete understanding of the relation between the two essentially becomes akin to translating thoughts across disparate systems within a network. The implied "special relationships" are characterized by the increasing autonomy of these technical systems with regards to their ability to "interpret information" and "make decisions" based on information received. Within this increasing autonomy, there is an acknowledgement that the meaning deriving from code is specific to its condition as directly dependent on its materiality; that is it say, code is completely unintelligible from one physical context to another[18]. Hayles therefore recognizes essential differences in operations, yet resists formulations that "reify borders and create airtight categories" when it comes to technical cognitive systems because the influence is essentially mutual[19]. While systems are imparted with the human actions which created them (and the intentions that went behind them i.e global capital), they in turn alter human action and reconfigure the meaning from which they derive their legitimacy. In other words, the relation itself is irreducible to its points of connection.

While this description of being-machine ecologies is structurally remarkable, it nonetheless exposes some important phenomenological ambiguities, beginning with the quality of meaning implicit in Hayles' analysis. Since the boundedness of code to its materiality in establishing context is necessarily taken from the position of embodied consciousness given that context constitutes space and time, the tie of information to meaning in technical cognition still emanates from human perception. Technical systems exercise complex tasks in an increasingly autonomous fashion, but meaning is irrelevant as the concept (of meaning, but also the concept itself as an "object" of thought and therefore consciousness) necessarily rests on the *recognition* of an act; it does not constitute an *a priori* for the operations of code in the strict sense. Recognition implies consciousness, the uniqueness of which Hayles still grants to biological organisms, but that only speaks to the possibility of meaning, and doesn't reveal anything with

[17] Cecchetto, D. (2013) *Humanesis*. Minneapolis. University of Minnesota press; p.76-7.
[18] My Mother Was a Computer, p.47-49.
[19] Unthought, p.31.

regards to its essence. Approaching this from the inverse direction, that the specificity of code contrasts with natural languages that survive or transcend their physical instantiation (in speech, writing, narrative, etc.) implies not just the latter's existence, but its essence as being found within a domain of reality that remains inaccessible to code. Both recognition and the transcendance of the object condition point to this essence as *symbolic*[20]. In other words, while Hayles' post human subject rightfully extends to contemporary technical systems their important and particular status, this is accomplished by at once relinquishing consciousness (*la conscience*[21]) as the cynosure of meaning, and yet operating on a disavowed notion of meaning that nonetheless emanates from a distinctly human existence. The ontological question of meaning itself and what characterizes the specificity of social life is left unattended simply on the grounds that what has been ignored with the classic liberal individual is the relational nature of sociality as such; subjectivity remains in flux.

Hayles' rejection of the individual unified subject is premised on the fact that it directly emanates from the cartesian cogito and the possessive individualism that resulted from making consciousness "the seat of identity"; drawing a line of continuity between the disembodying tendencies of the liberal subjective mind and those of the informational posthuman of cybernetics[22]. This is consistent with the theorist positing that meaning is contingent upon the subject's constitution, but in this relation *the world itself* is always disclosed to an organism according to the manner of its constitution. Phenomenologically, this means that the disclosure of the world in subjectivity is not reducible to mere sense experience, particularly in the case of human beings who interact with the world in a symbolic capacity, and this is where the contradiction emerges. Hayles correctly posits the weight of humanity's relation to new technologies, and alludes to the influence of the object in the subject's constitution, but does so while disavowing the necessary premise of the symbolic constitution of human subjectivity. The recusal of the Cartesian view of extension into the world through technique (*res extensa*) in assigning a relative autonomy to technical systems with regards to meaning is answered by the dissolution of the dialectics of subjectivity which characterize the possibility of sociality and its symbolic contingencies.

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[20] This does not discount the possibility of communicability, mediation, or mutual influence, but rather speaks to an essential incommensurability between the two realms; essential to its nature but also to our understanding.
[21] The french word carries a dual emphasis on "consciousness" and "conscience" which should be emphasized here.
[22] How We Became Posthuman, p.4, 149.

Furthermore, granting the mutual influence (co-evolution) of human beings and complex machines, the relation does not simply alter the conditions of meaning-production, but of its quality as well. Framed another way, admitting the symbolic nature of meaning in its (re)production entails questions on how the nature and function of the symbolic itself is altered within the "cognisphere". We've already shown above how the human being's increasing dependency on technical systems also entails that action into the world is increasingly realized through these technical appendages. This means that technique constitutes an ever-growing part of the subject's necessary relation to a world. But as alluded to above, technique and its manifested objects have always been part of human practice in its interplay with *other dimensions* of symbolic existence. To speak of the manner in which different technological modes have informed human practice is one thing, but to ground the workings of subjectivity in its mere relation to these objects is to make of technique its own force that is ontologically divorced from human practice in its symbolic significance where history itself becomes the sequence of events unfolding from impersonal relations to autonomous technical objects[23].

I.ii The Symbolic Subject of (Re)productive Action

These considerations - the disavowal of the symbolic character of subjectivity and the all encompassing singular nature of the technical relation to a world - combined with the earlier stated ontological concerns with technology as an object of technique, suggest that a relational view towards the subject risks occluding important aspects of a properly social analysis of the

[23] As an example, Arnold Gehlen developed a similar account of the technical unfolding of history. As human beings increase their technological capacity, technique takes on different roles starting as organ enhancement (the hammer makes it easier to hit the nail than the hand) and substitution (industrial machinery substituting the labouring capacities of the body), and finally liberation, where the ultimate aim of all technological capacity is to emancipate ourselves from the necessities of our biological functions altogether (the technological appropriation of our symbolic psychological functions ensuing from mechanical enhancement). Similarly to Hayles, his observations were relevant in the way in which they reveal the importance of technological development as so much more than a neutral force whose power over the psyche rests solely on its instrumental capacity to enable, amplify, and reproduce an imposed ideological application that is attached to it from the outside. From this perspective we can see that the blindness of the view towards technology in its generality as *res extensa*, as the subject's instrumental empowerment over the world and nature, is double: it not only ignores the relinquishing of the conditions under which action is grounded in a world and thus an equal diminishing of the possibility of finding or creating meaning in action, but also rejects the more general fact of its dialectical relationship to the existential condition of human beings beyond its objectification as the "extended thing". See Gehlen, A. (1980). Op cit.

effects of technical systems. In light of this, sociologically grasping the newness of contemporary technique in the technological mediation of social life involves a dialectical approach emphasizing the necessity to reflect on any object beyond the split between structure (macro) and practice (micro) in a manner which harmonizes these ends into a way of thinking about the reproduction of society through action and the possible meaning it bears. Michel Freitag's theories on the symbolic seems more than adequate for this task.

Freitag's conception of action is that of a synthetic apprehension of being-in-the-world, where there is a normative, expressive, and cognitive dimension to all action together coinciding in the generating of sense and meaning[24]. With regards to the subject in relation to an object, the mediations that we understand as "social" are themselves in a sense "objective", not strictly in the Durkheimian sense ("as if they were things") in that they have an empirical character within the dialectic through which symbolic subjectivity is phenomenologically effective, but rather in the manner in which both the forces of normative regulation and spaces of free expression in everyday life together constitute a definitive capacity for practice.

> "[L]e cours ordinaire de la vie sociale - et les sciences sociales ne s'y soustraient que dans un effort de réflexion critique - est dominé par l'exigence fonctionnelle d'une réification des sujets et des objets de la pratique, qui se manifeste précisément dans la fixation conceptuelle ou catégorique des termes signifiants, ainsi que par la "mise en transparence" corrélative des médiations symboliques, dont l'épaisseur ou le poids ontologique, la "signifiance" structurée et structurante propre se trouve justement projetée sur les objets référentiels de tout rapport significatif. Ainsi le sujet, dès qu'il s'appréhende réflexivement c'est-à-dire symboliquement, s'apparaît-il toujours d'abord à lui-même comme une personne ou un individu existant en lui-même et pour lui-même…[25]."

[24] It is important to note that the separation of these categories within action is merely formal, an effect of the fact that we are engaging with this object in a systematic manner within the confines of a scientific discipline, in order to parse out the effects of its otherwise immaterial fluctuations over time (since societies change over the course of history). In so far as we basically understand action as the interaction of a subject with objects, this separation is nothing really new, since in a way the scientist has perennially defined itself within the removal of the normative and expressive dimension as it concerns the object being studied. See Freitag, M. (2011) Dialectique et Société Vol.2: Introduction à une théorie générale du symbolique. Montréal: Liber; p.367-8.

[25] Freitag, M. (1995) 'Pour un dépassement de l'opposition entre "holisme" et "individualisme" en sociologie"' in Jean-François Côté (dir.) *Individualismes et Individualité*, Montréal: Les Éditions Septentrion; p.274; The subject in Freitag's dialectic is not closed in on itself; it is unified. Epistemologically, it does not claim intelligence or awareness of environment in the name of the human species. However, it does claim the necessary attachment of all life to the conditions of its origins as the positive delineation of its operational freedom, not merely as limiting, but as binding in the co-definition of the subject and the object in the formal dialectics of subjectivity. Furthermore, we can now argue that to premise recognition and understanding purely on the basis of inter-individual relations

In congruent fashion, it is the world itself in its immanence, in its "being-there" (Heidegger) which phenomenologically appears to bear meaning, doubled up through the fact that the Other (both in the sense of a collective and in the sense of individual difference) appears to be oriented in a like manner. Human action is thrown upon the world within the symbolic through the signification of language (and it is always a *specific* language in practice, as opposed to a generic category or form) which in turn orients human action symbolically[26].

For our purposes, technique is the consonance of the subject's operations with an empirical 'objective' world, where action is intentionally oriented towards an efficient adjustment of the subject's milieu according the relation it harbours with it; a relation which is already contingent upon a valuation of the milieu that is always-already both expressive and normative. Therefore, technique represents only a partial moment of subjectivity and is necessarily tied to the other dimensions of action within this symbolic apprehension of reality. Thus, the formal coherence of this metaphysic problematizes the subject/object dualism in a way that separates this analysis from its contemporaries: There is no technological barrier separating the subject from his or her "natural" or organic condition, nor are we situating the subject outside the nexus of consciousness in establishing a relational understanding of "the social" to endow other objects - like technical systems - with their proper signification[27]. Every intentional action carries a

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(similar to how in cybernetics the manifestation of an object essentially speaks less to its presence but its probability of being actualized against other potentialities) implies that whatever is social itself arises merely out of these relations, but cannot have any effective existence of its own. Another way of saying this is that *there are only individuals*, and the symbolic is here merely the fact of virtuality establishing the behavioural conditions under which these individuals co-exist, and norms are essentially reduced to being mere rules of the game, as such themselves reducing the subject's field of possibility. In this instance, the symbolic either doesn't exist given its lack of empirical objectivity, or figuratively transcends this level of reality but is necessarily an *oppressive* psychological force through which balance for all partaking individuals must be met.

Furthermore, It should be clear from this conception of the subject that Freitag is likewise presenting a critique of the liberal cartesian subject, albeit one that avows the nature of the production of meaning in significant action predicated on the synthetic unity of subjectivity. The critique of the modern subject thus presented is correspondent to Hayle's in so far as she recognizes the larger problems in reducing the brain to its conscious capacity, but the solution is quite different and, in our eyes, more in touch with the ontology of Being.

[26] Holisme, p.26; This also carries important implications for the very possibility of operationalizing language as a universal set independent of its socio-cultural contexts, further condemning Hayles' attempt to reconcile meaning with the "language of the machine". Expressed differently, if context is in the differential parameters of the set and its use, its universal quality nonetheless betrays its inherent absence of world upon which any normativity, and therefore statement of value, can emanate and furthermore be fostered.

[27] Object-oriented ontologies, as found in the works of researchers like Bruno Latour and Jane Bennett represent the extreme end of this approach, where objects themselves are endowed with a certain methodological agency as producers of meaning within "the social". In effect, the former's actor network theory goes as far as rejecting any

technical dimension, but is not subsumed by it. Our concern is thus with the manner in which symbolic existence, in its socio-phenomenological significance, is transformed under the current relation to technique. It is the state of social reality itself - human worldliness - that is under consideration here[28]. With this in mind and with regards to the scope of this analysis, it is the rupture with this metaphysic that is of interest; the manner in which new technologies are manifest of a particular relation to technique that breaks with the historical unfolding of the subject in the symbolic[29]. As such the approach - reciprocal with Freitag's analysis of the historical unfolding of the specificity of technique that until its formal appearance in late modernity is negative and formally anachronistic - is necessarily comparative (and negative) given the argument made here that *a particular view towards subjectivity and action, one which is avowedly symbolic, is necessary in sociologically grasping the specificity and character of modern technological captivation*.

The above dialectic and epistemological considerations signal implications for the methodological: From the perspective of interpreting social phenomena, the social sciences are bound, in their pretension of an objective narrative construction of that which is meaningful from the position of actors within it, to hermeneutic interpretation. For if we submit the premise that action is meaningful beyond itself through the interpretation of what it reproduces, and that the terms of this reproduction, while nonetheless real, can only be formally broken down given the symbolic character of human activity, it follows from this that the evolution of action over time and space, historical change, necessarily takes on a typological form; ideal-typical in its general pretension of illustrating the essence of a mode of symbolic sociality, but real in its claim to access with regards to the essence of this (re)production and transformation in the overcoming of its tensions and contradictions.

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specificity to the social altogether through an inductive approach that attempts to relinquish any predefined framework or theory in order to grant actors the possibility of their full expressive capacity, because the social is what essentially gets in the way of sociality.

[28] In this also lies the possibility of this analysis to be considered coherent within the confines of the object being analyzed, which is to say that - like capitalism - technological paradigms can only be understood from within the world they produce.

[29] To be clear, this does not imply a "conservative" approach to contemporary technological effervescence; the purpose of this analysis is not in valuing a return to "the good old days" but rather on one hand to evince the essence of our relationship to technique in its "newness" and on the other make a case for the fact that this must be approached through an avowal of the symbolic nature of the subject.

Freitag's typology of the different forms of social reproduction generally follows a pattern of increasing differentiation, not just within the formal dimensions of action, but in the differential practices that evidence their increasing autonomy in history within their movement from one mode of social reproduction to another. The most unified and undifferentiated form of social regulation and reproduction is that manifest within societies known as cultural-symbolic. In these, meaning is directly immanent to the intervention of subjects within the world (as opposed to a particular world or to nature, the latter implying a level of differentiation that remains to be actualized) so that different activities - at once expressive, cognitive, and normative - are all gathered and regulated under a common and particular kind of being-in-the-world. However, this has not always been the case, and as societies became more differentiated and more complex, activities like those of "labour" and "work" acquired particular qualities with regards to their function or status within the organization of society. These areas of social life were differentiated from the larger normative existence of sociality as such. However, this is not to say that they were severed from these other relations, they were very much tied to them and integral to these societies' mode of reproduction. In this context, technique acquired a certain autonomy from the other dimensions of action, in so far as it had a quality as a specific capacity towards action, but was unified in the sublimation of its end within a reference that transcended it[30].

It is precisely this necessary attachment as transcendental reference to a collective both as an ideal (progress towards individual freedom) and as object (society in its concrete totality, in its unity) that tends to be dissolved in the "postmodern" societal mode where institutions increasingly assume the form of organizations and the transcendent ends of the former mutate into decision-based operations networks. The key here is to recognize the symbolic significance of a shift from the legitimacy of power contained in its ideals to the operational exercise of control over the environment as regulatory mechanisms. This is not, in the strictest sense, contemporary, since we will see how this kind of rationalizing of practice in industry has been at

[30] From the ideal-typical basis of comparison being established here, the various subjectivities depicted in the knowledge and practices - philosophical, theological, or scientific - throughout the historical unfolding of human social organization can all be encapsulated under this formal dialectic of the coming-to-being of subjectivity, since it is from this basic understanding of the very possibility of the symbolic that the categories of social reproduction in Freitag come about, in so far as his dialectics are of a phenomenological account of the possibility of the evolution of sociality in subjective existence formally understood and analyzed in the synthesis of their different specificities (the analysis is thus necessarily retrospective, since the different moments of action in their autonomy are avowedly modern in their conceptualization).

work for quite some time under the broad umbrella of capitalism. Of particular interest to us is the manner in which this rational-organizational regulation has itself increasingly retreated into the shadows of a technological intervention itself re-affirming the classic hedonistically driven promise of progress; so much so that the basic kernel of social interaction is increasingly bound by its physical (and metaphysical) lines as the reach of technological mediation into social activity becomes ubiquitous. How does this enlighten the reader on the approach taken in this work? The major "site" remains a sociological understanding of the phenomenal subject in its co-constitution with(in) a world. Of particular interest are the dynamics of technique as part of, and manifest of, historically recent changes in the manner of its synthesis. But the conditions of possibility for these changes, and the ideological legitimacy which permits it, is charged with a history of knowledge and practices that are vital to enlighten both the character of human being's relationship to technology but to the possibility of a critical epistemology of technique in our present age, and what it means for the researcher and the sociologist more specifically.

I.iii Towards an Epistemology of Subjectivity in Technically Mediated Sociality

In pursuing this path, this work will deploy itself in the following manner: We will first examine how Freitagian subjectivity formally emerges in the relation between the expressiveness of being in its relative operational freedom and the normative appropriation of a world that is freely assumed in its contingency. The moment of synthesis is manifest in being as an identity established in space and time through which one can make sense of a world. Within this basic frame, technique can only be conceived anachronistically since the instrumentality of action is yet to be differentiated from the intention of an act that is always already imprinted within the symbolic. Technique as a distinct moment within human action has its genesis in the differentiation of a specifically *productive* activity and will only realize itself through its universalization within different practices institutionalized and unified in their recognition at the level of the collective as distinct occasions of a now individualized transcendence.

In this context, we will see how the classical sciences were scaffolded on modern epistemology, securing the transcendental ideal of truth. But in the face of a growing aporia in the epistemological dualism of a subject (scientist) sovereign with regards to the object (nature),

science will progressively lose its transcendental reference in favour of its operational capacity, the ends of theory will tend to be sublimated into those of technique, reducing the cognitive end of symbolic signification characterizing science to the same ontological level as its practice. Within the context of the appropriation of scientific practice and knowledge by industry through the latter half of the 19th and opening decades of the 20th century, the ends of technique will be rendered on the production line through social engineering practices and technological automation. Furthermore, in a society increasingly rationalized into decision-making organizational structures, the credo of operational efficiency will generalize itself into the technocratic management of social life within which the unity of society will tend to dissolve into its conceptualization as a system. Under these circumstances, aided by neoliberal ideas echoing cybernetic concepts in political economics, technocratic practices will fully realize themselves in the digital infrastructures of information society and inaugurate a new form of governance. In algorithmic governmentality, mounds of data are collected, analyzed, and processed with the aim of automating the regulation of social life through predictive algorithms that fragment (individualize) collective behaviour.

Having established the nature of the symbolic and the historical specificity of technique, we will finally see that existentially, in the above context, the *meaning* of action within the subject will tend to fall back on its *function* in the ideological devaluation of language to its communicability and the parallel reduction of action to its operability. The manner in which the distinction between specific practices and a unifying praxis in political modernity will diminish in a society of organizational decisions and practices is echoed in the expressive moment of action through the sublimation of its transcendental reference into its immediate realizable end. In other words, the realization of an autonomous technique free from an end that transcends its execution realizes the effective end of action rather than its disclosure in an ongoing infinite process as practice. Finally, within these processes - encapsulated under the confusion between reality and its representation - the various modes of alterity which characterize the subject's necessary ontological condition of identitary synthesis will tend to collapse as the references of actions and the meaning derived from them are subsumed in the arbitrariness of a will oriented towards desires insinuating the disavowed fantasy of an absolute operational freedom.

It was Freitag that said of the technocratic influence on thought itself, "it is no longer the nature of things that interest us, but only their transformations and the control we can ensure over

them"[31] and it is this fact above many others that inspired this inquiry. The object of technology, particularly within the context of a society increasingly formalized into technical systems, does more than merely change the material conditions of our existence, but also fundamentally alters the conditions of our symbolic nature and the parameters under which we are engaged in the proliferation of meaning through thought, expression, and the praxis which ensues. Ironically, our attempts to epistemically reconfigure the categories of "life", "awareness", and "intelligence" to better fit the proliferation of ambivalence and fluid boundaries signified by algorithms and machine learning as mechanisms of automation[32] seem to reflect a deeper truth about the vectors of human adaptation to these technical objects. In simpler terms, as machines become more human, humans seem to become more like machines. This project is an endeavour in sociologically grappling with how this is so through the frame of the symbolic subject in relation to technique and its products.

[31] Freitag, M. (2006) 'La nature de la technique' in *L'oubli de la société. Pour une théorie critique de la postmodernité*. Québec: Prèsse de l'Université de Laval; p.385. Original text: "Ce n'est plus la nature des choses qui nous intéresse, mais seulement leurs transformations et le contrôle que nous pouvons nous en assurer." In a connected footnote, he adds; "De là à penser que la nature des choses suit elle-même un cours probabiliste!".

[32] Not to mention genetic engineering…

II. SYMBOLIC SUBJECTIVITY IN THE HISTORICAL UNFOLDING OF TECHNIQUE

II.i The dialectics of subjectivity

For Freitag, the symbolic is at once already constituted by and constitutive of the phenomenon, the existential space, of subjectivity. Conceived as a dimension of human reality, it is just as 'real' as the empirical world, but of a different essence all the while emerging from it - a reality coming into itself from within the entire historical development of the necessary ontological distance created between subject and object in the process of subjectification, of the coming-into-being of subjectivity proper. After all, while human beings can be qualified in the specificity of their activity, they still carry the vestiges of their ancestor's all the way back to the primordial goop from which life on earth emerged, and it is only within this long extensive process that both the specificity of the symbolic as immanent to the being of humanity and the latter's ties to all life on earth can be reconciled. Therefore, it would be worthwhile to begin by unpacking the metaphysic at work in the co-establishment of the two poles in the coming-to-being of any subject: On one hand, you have the objective determination of an empirical environment. On the other, the relative autonomy ('liberté opératoire') enacted within the indeterminacy of subjective orientation. These ends dialectically constitute themselves in their relation, and it is within the elevation of their synthesis at a 'higher level' of being and of differentiation that we will be able to make sense of the symbolic.

It must be stressed that this formal genesis of being does not describe a timeless singular event but rather a continuous process of development. An animal's engagement with its milieu, and the manner in which this milieu is revealed to it is necessarily tied to the operative specificities of its species (*genus*). This is not to say that their is no objective determination of the world beyond subjective sensibility, but that the conditions under which this determination is recognized and therefore operated on are always revealed through the specific capacities of the subject. While this negatively sets the limits of the subject's ability to discriminate the objects in the world, and therefore constrains its autonomy, it also positively enacts the real conditions under which these characteristic limits are 'defined' and in a sense 'projected' onto environing objects. This projection takes the form of value as its discrimination of objects is at once an

expression and an enabling of the subjective conditions of its being. In other words, when apprehending the object, this value expresses the adherence of a subject to the determined conditions of its development in the form of activity, but also the particular orientation given to the activity engaged within a given context[33]. From this, we can see that any subject, operating autonomously, always interacts with the world through practices which define its relation to that world and thus its identification with itself, whatever level it operates on, and therefore denotes its expressive capacity.

> "…[C]ette projection sur l'objet de la limitation immanente du sujet, de sa structure prédéterminée, c'est en même temps la projection vers lui de sa puissance propre d'agir; c'est la projection des passions en tant qu'énergie et pas comme simple passivité…"[34]

The qualities of a specific type of being relate to the values it projects onto different objects, and the ensuing differential valuation fashions the world on which is established the 'always already happening' of its engagement with its milieu, including the manner of its expression. In other words, while the world determines the qualities of a being's kind, the subjectivity arising from its specific conditions in turn frames the world accordingly. Thus within Freitag's conception, this intervention of a relative 'operational autonomy' in the construction (objectivization) of the object within the constitution and reproduction of subjectivity in its existential mode of being is analytically recognized as the *expressive* moment of action.

It is important here to recognize the analytical antecedence attributed to the subject in the formal dialectical relation described here, as the determination of the object as object can only be made from the perspective of a subject. Stated otherwise, the formal possibility of subjectification implies the 'beginning' of world from the perspective of subjectivity coming into itself as if it was the initial cause of the deployment towards 'reflexive worldliness'. The autonomy of the subject is therefore rooted in the world it objectivizes (as opposed to 'coming from the outside') and is tied to its own process of development[35]; the necessary attachment of subjectivity to the specificities of its being in the manner described above is itself a subjective attachment in the expression of its autonomy. In animals, this specificity is outlined in its kind,

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[33]Freitag, M. (2011) *Dialectique et Société Vol.2: Introduction à une théorie générale du symbolique*. Montréal: Liber; p.368-9.
[34] Ibid.; p.372-3.
[35] Ibid.; p.378; in Freitag's words, "l'autocréation de la subjectivité par elle-même…"

as an obligation conditional to the reproduction (both biologically or genetically) and in the practical exuberance of its essence. In human beings, it is briefly stated their belonging to society and the sharing of a collective identity through which their irreducible individual identities take shape and manifests in the form of a '*devoir-être*' towards its perennial collective renewal[36]. If the free play of the subject in its co-constitution in and of a world characterizes the expressive dimension of action, then the inverse re-inscription of the object within the subject characterizes the *normative* dimension, as the reciprocal moment within the constitution of the subject that keeps its expression either effectively or virtually grounded in reality.

This back and forth between the expressive and normative moments of subjectivity establishes Freitag's use of the concept of ideology. No longer just a relation between individuals and the collective, this much wider sense of ideology encapsulates the very reproduction of the subject-object relation of sense experience, insofar as the object is necessarily objectified subjectively through its valuation. In the formal immediate - that is to say undifferentiated - symbolic relation, ideology is on a similar level as normativity in the manner just described. The distinction between the two concepts arrives with *power*, which elevates normativity beyond the intrinsic nature of the object and the immanent finality of action, and "externalizes it" through an imperative that from then on is sanctioned "from the outside, from above"[37]. This degree of separation also entails the reflexive recognition of the subject's freedom of being in the world in relation to power. It stands from this that power for Freitag by definition involves a level of social legitimacy and recognition, as opposed to the exercise of simple domination or control[38]. In any case, ideology is the projection of the conditions of a structure and way of being that executes a normative figure within the subject. Freitag says it best:

> "L'idéologie est l'expression d'une structure tout aussi réelle que le monde social et naturel extérieur sur lequel elle est projetée, et elle détermine par conséquent d'une manière non moins pertinente le champ de toute objectivation […] Seulement cette pertinence n'est pas de l'ordre de la discrimination objective, mais de l'ordre de la valeur et des conditions réelles de la reproduction.[39]"

[36] Dialectique et Société Vol 2; p,378.
[37] Ibid., p.380.
[38] This will be pertinent as we contrast the contemporary mode of governance with its classically modern archetype.
[39] Ibid., p.398.

In a sense, ideology as a function is the inverse of reflexivity. The latter elevates the subject's awareness of self above the more immediate subject-object relation where ideology renders the world not just through the subject's expressive and uneven valuation of objects but also through the elevation of the object to the level of the activity in relation to it[40]. We will see now how the unity of the subject is established in this relation.

II.ii The synthetic unity of transcendental identity

It should be specified that for Freitag, any form of *reflexive* subjectivity proper (of "symbolicity", to be creative…) is always-already rooted in animal subjectivity and then within language as the virtual matrix of the symbolic. Animality here should be seen less as an initial or primitive condition of development, but rather as a substrate of symbolic existence; they simply coincide in the continuum of a "dynamic and synthetic" ontological structure, where animal sensibility is not only the origin of a humanizing process, but is "ontologically maintained at the heart of the entire human capacity of subjective synthesis deployed throughout the symbolic universe"[41]. Otherwise stated, we can understand this as the perennial process of a dialectical attachment to one's initial condition as they enact the space for expression and growth[42]. The organic sensory experience enacts the conditions for a symbolic relation from which a formal relation can spring. This is because the formal represents an extra degree of separation from the material relation in that its enactment is with a virtual object that is nonetheless tied to the symbolic - and therefore real - conditions from which it springs, lest it be pure delusion[43].

But assumed within the establishment of such a continuity, of an evolution or becoming of life within the dialectical modes of subjectivity, is the thesis of sense consciousness "unified in

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[40] Dialectique et Société Vol 2, p.390.

[41] Freitag, M. (2001) 'La dissolution postmoderne de l'identité transcendantale: la dialectique du rapport entre identité individuelle et forme de la participation sociale' in *Les solutions sociales de l'inconscient*. Paris. Anthropos, p.76 - translation my own.

[42] The Hegelian dialectic formalizes this rather well.

[43] I am somewhat foreshadowing the forthcoming discussion on the nature of virtuality within cyberspace, but for now suffice to say that the idea of there being an ontological rupture between the virtual as ideal, and the virtual as reified, is one of the arguments this thesis will defend.

itself and for itself" in what Freitag refers to as the apriori unity of sensibility[44], and what we might usually, although typically in a narrower sense, refer to as identity.

> "Mais dans toute cette dialectique, l'unité synthétique du sujet pour lui-même, son *identité* [emphasis my own], reste présupposée, et l'ensemble du procès n'existe qu'en autant qu'il se rapporte à elle, qu'il en soit justement l'expression, de telle façon que ce procès prend la valeur d'une autocréation du sujet, qui s'accumule précisément dans son identité et l'enrichissement de celle-ci, à mesure que l'expressivité revient du monde vers le sujet sous le mode de la normativité dans laquelle il assume lui-même son existence"[45].

The perennial interaction of a living organism with its environment presupposes two things. First, the fact of all living things having a specific unified "awareness" of their milieu (it could be consciousness of self in all its possible forms and not yet self-consciousness) rests on an a priori of differentiation or some original break or separation from it - a fundamental *alterity* presupposing the *unity* of sensibility. Second, that this unity of sensibility maintains itself within the continuity of the activity of life entails self-reference, which as already mentioned sets the limits of its activity not only negatively as boundary, but positively as specific capacity. Accordingly, the unity of this set of activities in its self-recognition possesses a transcendental character in so far as its essence cannot be immediately totalized within a particular activity, but merely defer to it. So in the animal, whatever transcends its awareness is immanent through the mode of its genus, in that "every singular living being itself participat[es], empirically, in the reproduction and deployment of this transcendental dimension"[46]. To make a quick contrast, the symbolic manifests to a higher degree of self-recognition where this transcendance is interiorized as a norm from within the reflexive objectivity of the subject. As self-recognition manifests of a higher degree of autonomy relative to the world, then its attachment is correspondingly elevated to an abstraction of a similar nature i.e the symbolic.

The socio-symbolic subject accesses the world in its alterity from the possibility of his or her expression and representation through language, since it is through language that objects gain signification as a *concept*, a significance which transcends their empirical manifestations.

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[44] Identité transcendantale, p.76-7.
[45] Dialectique et Société Vol. 2, p.412.
[46] Identité transcendantale, p.80 - translation my own.

Ontologically, symbolic language thus resides in reflexive objectivization - to use a Heideggerian term, it is "world-building"[47]. It is the elevation of a very real relation to the world that already mediates intersubjective animal communication, and thus as Freitag himself puts it,

> "…c'est la médiation elle-même qui se trouve objectivée et instituée comme telle, et qui acquiert le statut ontologique d'une réalité en soi et pour soi, existant comme telle en dehors et au-dessus des sujets particuliers de l'expérience communicationelle, lesquels alors doivent aussi s'y référer en extériorité tout en étant englobés par elle[48]."

The matrix for this system of signs which encapsulates the world of symbolic experience is found within narrative, which itself discloses and contains the myriad archetypes through which symbolic subjects recognize themselves and others in their respective unity. As part of the condition of possibility for reciprocity and recognition between different symbolic beings, a generalized other that describes "the mode of alterity which in advance designates the circle of virtual alter egos, and that can also be designated as 'an ideal or transcendental other'" must exist, indicating the "them" from which a "we" arises[49]. Symbolic identity is thus not merely contained in the transcendantal qualities of kind which circumscribe animal activity from which we came, but exteriorized within the scope of a language that a priori defines the manner in which objects - virtual and empirical - are reflexively disclosed in their representation[50].

The various socio-historical forms of subjectivity in their identitary synthesis and mode of reproduction are thus manifest of different terms of "transcendentalization". The transcendental value of a given societal type cannot simply be reduced to an ideology in which daily living is oriented, but is that which exceeds every individual expression (action) in a symbolic way of being, providing sense or meaning to any action to the extent that the expression is recognizable

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[47] Hence Heidegger's assertion that animals are "poor in world". This distance equally makes sense of the affirmative manner in which Hegel used the term "alienation"; as the coming-to-presence of the spirit, its immanence in the world; Reflexive subjectivity entails a doubling over of the constitutive distance with the object, itself "objectified" subjectively in the imposition of a virtual sign over its concrete determination.

[48] Identité transcendantale, p.82. This is why for Freitag, the causal chain between symbolic language and narrative must be reversed: rather than view language as an a priori to the existence of narrative, it is precisely in its becoming narrative (myth) that "an animal communication system became language", and there are various possible hypotheses for the manner of its occurence that are beyond the purposes of this discussion.

[49] Freitag, M. (2006) 'Identité, altérité et politique' in *L'oubli de la société. Pour une théorie critique de la postmodernité*. Québec: Presses de l'Université de Laval; p.188.

[50] Hence the real difference between language as a formal concept, and the fact that we are always communicating and expressing ourselves within a *specific* language.

to oneself and to the other in its relation of transcendence. It is figurative of ideology in both senses of the word.

II.iii The technical moment of action in subjectivity and its immediacy within the symbolic

For Freitag, technique is the alignment of the independent or autonomous operations of the subject with the empirical determinations of the 'objective' world, where action is intentionally oriented towards an efficient adjustment of the subject's milieu[51]. Every intentional action therefore carries a technical dimension. On the level of animality, this technical dimension is undissociated from its biological being in the manner of its belonging both to a particular kind and to the active execution of this kind in individual behaviour. In other words, given that the "objective ends" of activity are immanent to both the animal's essence (its genus within beings) and its existence (its distinctiveness of being), which are as much the result of adaptive necessity as that of a relative freedom that the organism entertains with its milieu[52], the technical aspect of action inherent to animal activity is therefore in itself ontologically indissociable from the other moments of its nature (the expressive-normative moments of subjectification).

This is true of the symbolic as well, although for more nuanced reasons: While technique is immanent to any action in the world, it remains necessarily consonant with the other moments of action since its ontological distinction from them would imply the objectivation of the end in which it was carried out. In practical terms, this means that the ability to conceive of an activity as purely technical or efficient presupposes a subjective differentiation of the end sought from

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[51] La nature de la technique; p.329.

[52] Ibid.; p.337-8. Here Freitag is heavily influenced by the zoologist Adolf Portmann. Briefly, the evolution and growth over immeasurable periods of time of biological forms testifies as much to the manner in which animals freely express themselves in relation to their biological capacities as the adaptive necessities of their environment. The idea is that biological processes eventually crystallize into habits, into reflexes, and suppressed into instinct as part of any organism's continuous interaction with the world in which it dwells, and as the autonomy of these embodied processes (within the realm of the biological what we call organs) increases, the world is disclosed to the organism in a way that is specific to its kind and thus constitutes the very totality of its sense experience, including awareness if not of itself, then of its relation to other organisms.

Otherwise, it seems relevant to bring up the research of the biologist Jacob von Uexküll. His extensive studies in the environmental perception of non-human living beings led to the now seemingly banal idea that beings always inhabit the world in subjective frames of references that he called *Umwelt*, a term later appropriated by Heidegger in his typologies of worldliness of being.

the worldly means of its achievement, bestowing upon the world an objectivity that is no longer dependent on the activities tied to social reproduction[53]. We will return to this later on.

However, such is not the case within a relatively unified and undifferentiated form of social regulation and reproduction as that evidenced within cultural-symbolic societies, where efficiency of technique is immediately confounded with language and culture as an active part in the reproduction of both the subject's existential world and the regulation of social practices. "The properly technical moment of human action" says Freitag, "in effect remains undissociated from the other epistemic moments of action": What is realized outside "the organic being of man", is culture understood globally in its material as well as symbolic aspects in their mutual referral[54]. With technique, means and ends are therefore identical with each other in so far as a normative symbolic relation to reality is concerned. The formal technical dimension of action is inscribed within the other constitutive moments of human activity which comprise its realization. In this manner, tools do not have any instrumental quality, but are rather tied to the being-in-the-world in which the users, the objects they are used on, and the end of their use all coincide into the order of the world and generate meaning. Within a structure of ontological reciprocal belonging of individual, society, and nature, in which there is an ontological reciprocity between subject and society,

> "l'action ne se présente pas comme un faire au sens d'un fabriquer, mais comme une 'production' au sens originel de *producere*, conduire à l'avant-plan, faire venir dans la manifestation quelque chose qui se tient en soi dans la profondeur latente ou cachée de son être"[55].

What is manifest in action is in a sense the belonging of the act itself to the world "understood in its double subjective and objective dimension"; the act is a revealing of what is latent in but already belonging to the world (likewise for tools). In this context, the instrumental value within

[53] La nature de la technique; p.330. Two analytical observations: Any historical investigation on the nature of technique *in its specificity* within action and the symbolic is up to a certain point retrospective and anachronistic until the proper conditions of its autonomy are observed. Also, thinking schematically we can imagine how the extraction of either end of the normative or the expressive pole of subjective synthesis necessarily entails pulling at the other in their co-constitution. However, the technical moment can only be seized in its specificity or autonomy outside the normative relation (the return within the subject).

[54] Ibid., p.339.

[55] Ibid., p.340.

action is yet to be disclosed; efficiency has yet to determine an end for itself, but is merely part of action in its revelation.

It follows from this that the appearance of technique in its specificity cannot really be conceived without the consideration of some form of social differentiation on the level of action and of society in its practices. One of the most fundamental (and earliest) of such differentiations at the existential level was the separation of nature and society instigated as a consequence of agricultural practices[56] as a relative appropriation of nature (in contrast to the immediacy of living with nature). In practice, the fruits of nature now require an activity of production which not only dissociates possession from usage, but also temporalizes the act of appropriation and the reaping of rewards (and thus the value of phenomena is no longer immediate but rather 'invested'. Imminent to these existential separations is a differentiation of the conditions of access, divorced from the strength to act inherent to one's essence or nature (since the activity itself is no longer immediately 'natural', but mediated by an act of labour) and thus the recognition of a symbolic mode of regulation above the natural attributions of might - hence the appearance of power as regulation in symbolic recognition, the result of the differentiation of activity at the beginning of traditional societies. It is in this context that we come across the artisan, who in a sense will not only exemplify, both virtually and concretely, the structural changes in the conditions of regulation and integration at the heart of early agricultural societies, but also embody the significance of technique in the current historical analysis.

II.iv From the artisan to the engineer

Despite the differentiation of activity within the structure of agricultural societies, the practices manifest of the phenomenological separations cascading from the separation of nature and society were not enough to instigate the autonomous appearance of technique (and therefore a distinctly instrumental or efficient moment within action) since culture and language still maintained a strong normative hold on the symbolic, and nature was still culturally apprehended in terms of one's dependency towards it. So while the arrival of agriculture was insufficient in

[56] Generally coinciding with the era of history we classically describe as Neolithic.

the outlining of a properly technical moment, it nonetheless set the conditions for the emergence of power within a division of labour in which tools and their producers would effervesce.

The rise of the artisan and their accompanying 'trades' in agricultural practices is tied to the appearance and generalized use of tools. As pointed out, the phenomenological separation of the activity of "production" from the immediacy of nature in symbolic existence entails the constitution of the "product" as the result of human activity as opposed to the direct offerings of nature. Yet on its own this opened up the possibility of the separation of means and ends, in a way captured in the constitution of the "tool" as an instrument detached from the conceptual unity of the "productive" act[57]. However, the production of these tools was itself specialized, giving light to artisanal trades which - to repeat - exemplify the structural changes and differentiation of roles and activities that resulted from agricultural practices.

> "Ce qui caractérise d'abord l'activité artisanale, c'est que le savoir et le savoir-faire qui y sont mis en oeuvre n'appartiennent plus à l'univers structurellement unifié et épistémiquement synthétique de la culture commune: ils sont détachés du logos qui était commun au monde et aux hommes. Du même coup cette activité échappe aussi au contrôle normatif de la culture, et ce n'est plus que par la double médiation déjà extérieure du statut social de l'artisan et de la valeur (d'usage d'abord) conférée par autrui à son produit qu'elle s'intègre dans l'ensemble des pratique sociales et dans le procès global de reproduction de la société"[58].

The artisan's practice is severed from the common world in its social phenomenological significance, and in this sense is outsider to the immediately normative control of culture. However, his relation to the commons is one of dependence, intrinsically tied to others since the value of his production is tied to their practices and judgements. In other words, the practice and essence of the artisan as a social actor is defined by its exteriority, simultaneously confirming the differential quality (the symbolic meaning) of his status. This confirmation evidences the actuality and recognition of power as a regulative force, as opposed to a mere opposition of strength, since the separation of producer and end-user and the sanction guaranteeing their reciprocity is symbolically recognized and redoubled in the specialized character of the artisan's

[57] La nature de la technique, p.348.

[58] Ibid., p.349. As Freitag notes, "…celui qui produit pour d'autres, et qui dépend des autres pour la satisfaction de ses propres besoins, produit alors aussi la différence entre le faire, l'avoir et l'être, la dissociation ontologique de la nécessité et de la liberté, le jeu éthique entre le tout et la partie, l'individu et la société, et finalement l'opposition entre le moyen et la fin…".

craft, immanent of an esoteric know-how outside the purviews of common knowledge to which it owes its legitimacy. So while the objectivization of producer against user and product sets the conditions for the autonomy of technique within an activity of production, it is nonetheless mediated by a normative structure inherently limiting the instrumental part of the activity; its meaning is not derived from its instrumentality.

But what about the tools themselves? In Freitag's analysis, the particular status of the artisan involves the reflexive objectification of the tool *as a tool* (as distinct from an instrument or personal ability). The value of the tool is yet expressive in that it is still immediately manifest of its end - of the potentiality of the artisan in nature. However, its 'virtue' is in the specificity of its use and evinces a reflexively determined instrumental efficiency, splitting the means from the end. This implies that the tool bears its own capacity, and can itself be transformed or produced towards the improvement of that end[59]. Through the tool, the archetype of the artisan can actualize the claim that technique within action requires the reflexive objectivization of an activity of production. But as mentioned above, artisanal skills have yet to be universalized under the umbrella of a generalized technical craft, and the practices and know-how of each trade remain particular just as much as the end or the 'product'[60]. Ultimately, the instance of a multitude of techniques in which the normative sanctions regulating the symbolic value and the use of their finality (their 'products') are tied to their specific ends, combined with the structural doubling over of this normative relation in the dependent though exteriorized status of the artisan within the community, prevents technique from emerging as a distinctive instrumental capacity within action, despite being fecund with the conditions of possibility for its symbolic distinction. But it is precisely these traditional and early modern social symbolic structural conditions - the formal separation of means and ends, of product and producer, of work (as an act of production) and art (as an act of expression) - embodied in the artisan that will be unleashed with their universalization within a market economy.

From an analytical perspective, the formal conditions of a generalized market are not novel and necessarily begin with the possibility of assessing the value of goods in terms of an exchange value that is abstracted from its use and therefore virtually commensurable with other forms of

[59] La nature de la technique, p.361.

[60] Needless to remind one of the fact that this 'product' (4 causes gathered) is defined by the collective in its use value.

value[61]. Inevitable to this abstraction is the signifying of a universal and formally distinct concept of "production" since the production of the object is the only concrete link reconciling the totality of exchange values, which in turn universalizes and distinguishes "labour" as the sign of activity of production. And given that production is tied to the exchange value of the product, and therefore is itself endowed with an exchange value that is commensurable and therefore measurable with its end, then the efficiency of production as a process encompassing the activity involved in the end is also finally measurable in terms of value. Analogous to the formal conditions of exchange value was the concrete universalization of the market itself, and to the subsequent measurable valuation of work the labour market inducing the reduction of the specificities of different trades into a "work force"[62]. The liberation and subsequent universalization of technique corresponding to the realization of the specificity of efficiency within activity itself entailed on one hand the transfer and mobilization of skills across different industries and on the other the "reduction" of diverse techniques into more formal, uniform kinds. Otherwise stated, the structural features of artisanal practice depicted above are dissolved with the generalizations of product, production, and producer, which itself is bound to the shattering of the artisan into distinctly opposed figures of the new labour force: the manual worker, the artist, and the engineer[63].

Recall that the traditional artisan was defined by the realization of products that were already predetermined in their value according to his or her role within the collective and the relatively opaque history of practices which culminated into the particularities of the craft. In modernity, the artisan will no longer identity with the specifics of a trade, but with what the production refers to. In the case of art, it is the aesthetic idea contained yet transcending the creation, the oeuvre, which outlines it against labour, whose production is in the context of a market aimed towards the end of an exchange value. As such, activities differentiate according to their respective ends, but will nonetheless be reconciled in the universal categories of Reason

[61] This is "Marx 101". If an exchange value was determined by a specific natural or material property of an object, we could not establish a clear value that can be equaled with other objects, since objects are deemed useful by these material properties. If they could be equated in the same way as an exchange value, they would be drained of their use-value. What's the point of using a hammer to put in a nail if an apple will do the same thing?

[62] La nature de la technique; p.365.

[63] We will return to this shortly, but the breakdown of these features is also attributable to the rise of scientific ideology which increasingly generalized a new conception of nature through mechanics (physics) and kinetics (chemistry).

and emancipation which transcend them, rather than being directly submitted to the regulatory sanctions of traditional power.

> "Ainsi, la société aura des artistes et elle se reconnaîtra en eux. Mais elle aura aussi des juristes, définis non plus par leur profession, mais par l'idéalité du droit à la réalisation duquel ils collaborent en son nom et pour elle. Ainsi en va-t-il des savants, des enseignants, des médecins, même des entrepreneurs et, *last but not least*, des travailleurs. […] Or tous ces gens, concrètement, accomplissent dans la société une fonction particulière et adoptent un identité différente, qui cependant convergent touts dans l'idéalité qui les unit comme […] membres de la société civile porteurs principiellement des mêmes droits"[64].

Abiding by Freitagian terminology, the synthesis of subjective identity is reconciled and preserved at "a higher level" in the ideological recognition of power made legitimate in the practices and ends of different institutions. The different dimensions of action (cognitive, normative, expressive) are emancipated from each other within specific institutional moments and unified at a "higher level" of legitimacy through the general recognition of power, which in the case of modern societies was generally embodied by the centralized state as the upholder of law and the mechanism under which individual freedom can be exercised and maintained[65] (Many of these "forks" arose from 'culture' as well, but the institutionalization of individual rights under law succinctly sum up the overarching ideology under which these differentiations in practice and signification not only occurred, but reproduced and evolved epistemically[66]). So for example, with the cognitive dimension, stripped of both the normative structure and the expressive ends of which it had been inscribed in traditional and primitive societies, came the rise of modern science, "understood as the free research of positive truth, and regulated exclusively by its own epistemological and methodological rules"[67] essentially calling for the suppression of the normative-expressive moment in its drive towards objectivity[68]. So while by no means exclusive and concrete, the symbolic objectivization of a productive activity

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[64] Identité transcendantale; p.104.

[65] La nature de la technique; p.372.

[66] With regards to the status of art, its separation from artisanal labour outlined it against the category of work and over time was legitimated through different categories of expression for what constitutes the art form starting with the renaissance.

[67] La nature de la technique, p.373.

[68] Dialectique et Société Vol. 2, p.363-5.

distinguishes it from its expression, itself now recognized as being of a different essence. With regards to its technical aspects, specific techniques developed for each institutional iteration of a form of action within the symbolic, with each of these particular techniques characterizing and legitimizing action through some transcendental referent reconciling the ends from the means, and in this sense the technical moment was still subordinate to an activity's universal expression.

No role better embodied the universality of technique within modern industrial society than the engineer, hired by the entrepreneur as a universal technician, in a sense mirroring the conceptual unity of technique encapsulated in the machine. For Freitag, this rise of the machine in the context of industrialization symbolizes the historical moment at which technique formally reveals itself in an autonomous capacity; the moment in which, in the context of our discussion, we abandon the conceptual anachronism and technique becomes realized in its concrete reality[69]. This is an important milestone as it equally signifies the constitution of the autonomy of the instrumentality of action; technique is at this point fully exteriorized beyond the synthesis of the different categories of action in the symbolic subject. It also entails action's formal indifference from the end, in that the end is no longer contained within the phenomenal significance of action *as such* because it has been universalized objectively in the form of "value" and subjectively in the form of "need"[70]. Furthermore, the instrumental rationality characterizing industrialization implies the general possibility of calculating and researching the indefinite growth of efficiency, which itself is effectuated in the epistemic condition of progress understood as the perennial advancement of the satisfaction of needs in the pursuit of happiness. For this reason however, and consonant with its other institutional manifestations, technique within industrial mechanical production is still grounded and legitimized in modern rationalism and is still a socio-historical human affair insofar as in it is expressed the universalization of the subject's transcendental liberty. The epistemological conditions of its liberation are the topic of the ensuing chapter.

[69] La nature de la technique, p.366.
[70] Ibid.; p.369.

III. THE GENERALIZATION OF TECHNIQUE IN PRACTICE

III.i The transcendental individual and the aporia of science

Tracing the circumstances under which society delivered itself over to the possibility of undoing the aforementioned transcendental referents binding technique within action requires a look into the rise of science, its epistemological double, and how the former came to be steadily appropriated within the capitalist production process in the disintegration of the latter, only to morph into practices of direct technical intervention with regards to nature (from then on conceptualized as the "environment") and social life.

However, similar to the appearance of technique within action through the historical differentiation of social practices, this mutation did not merely occur on its own within a teleology of increasing complexification, and I must make sense of these changes by elaborating on the conditions of its symbolic possibility. In effect, modern society - in its innumerable derivations - can be ideal-typically characterized as the progressive inauguration of a formally secularized universal ideal explicitly forged in a battle against tradition[71]. No more shall the individual be subject to the shackles of doctrine and myth, and will rather be governed by self-knowledge, by his or her use of Reason towards the ideal of Truth. The gradual deployment of Reason as logos, as a matrix of being-in-the-world, fundamentally changed the mode of the subject's symbolic relation to nature (alterity against the world), to itself (alterity of being in self-recognition, self-identity) and to history (alterity with regards to humanity, identity as belonging to). In other words, the conditions of possibility of the subject's being (and of its being free) directly arise from the individual, and it is now the various ways in which the subject enacts and participates within Reason that will justify its activity. Epistemologically, the modern subject interiorizes the transcendance of the world, and his self-conscience and application of knowledge becomes the source from which emanates all; the political production of society and mastery of the knowledge and use of the empirical world. Structurally, this means that the legislative capacity of power no longer emanates from concrete endowments incarnating a transcendent

[71] We'd remind the reader that the typology of modern vs traditional societies here derives less from an essentializing categorization retrospectively historicizing progress, but from a political self-definition in the use and practice of reason against the shackles of traditional society.

origin, but from the idea of natural rights emanating from subjects proper, formally upheld by law and recognized by the state in its activities of governance (political representation). It also means that the normative regulations of modern societies will be progressively reformulated within institutional frameworks characterized by these transcendant (universal) ideals[72].

I mentioned above how, within this ideal-typical description of the evolution of the modes of action and practice, modern science arose out of the reflexive deliverance of the cognitive moment of identitary synthesis. According to its own terms, science was not defined by the phenomenological study of the cognitive relation to the world, "in the phenomenon of knowledge in itself", but rather in the "search for an objective knowledge apprehended from the outset in the perspective of its controlled and cumulative growth"[73]. We can say that, in a similar movement to the technical dimension of action, the cognitive apprehension of the world was exteriorized in scientific practices and reintegrated ideologically as the engine of indefinite progress. I say engine because it was indeed science that steadily appropriated for itself the legitimate means by which the expansion of one's Reason could be delivered.

However, the conditions under which this expansion could be effective and maintained, the terms under which science can exercise itself, fell under the sphere of philosophical inquiry that grounded scientific practice in the growth of knowledge and the expansion of Reason. The study of the world in classical science is driven by the contemplation of its immanent harmony reminiscent of the *theoria* of Greek antiquity. Whether it be logos as the manner in which the world discloses itself, or the divine order of the workings of nature and the cosmos, attempts at the rationalisation of the world in either case refer to the possibility of its unveiling. As Olivier Clain - a sociologist largely aligned with Freitag on the historical object of science - put it when he wrote about rationalism and empiricism in their effervescence:

> "…la philosophie moderne qui s'est présentée, pour l'essentiel, comme critique épistémologique, conservait une visée ontologique. Certes elle saisissait la connaissance d'un point de vue instrumental mais elle ne le faisait que pour mieux atteindre le vrai[74]."

All the same, the principle point of divergence for scientific practice resided in its emphasis on demonstration and experimentation, for if the one true certainty of knowledge emerges from the

[72] Identité transcendantale, p.100-3.
[73] Dialectique et Société Vol. 2, p.362. - translation my own.
[74] Clain, O. (1989) 'Sur la science contemporaine' in *Société* No 4. p.106.

individual's sense experience (to not say the *cogito*), then the empirical verification of phenomena testifies to the terms under which the broadening of knowledge can be secured. The reasons for this are thus not merely methodological, but also ontological: The obverse of an individual transcendental subject endowed with Reason is a nature established in exteriority on which Reason is exercised. Nature no longer speaks, but is silent in the face of beings that must speak on its behalf in disclosing its truths. Freitag writes,

> "Pour parler lui-même à son propre compte, l'homme scientifique n'est pas seulement entré dans la parole, il n'est pas seulement entré en possession de la parole dans le partage de la parole: il en a fait sa propriété exclusive. Il a donc aussi présenté cette propriété comme originelle, comme le produit accumulé de son propre travail, du travail exclusif de sa raison et de sa méthode[75]".

The formal separation of nature and society thus entails the condition that the proliferation of truth and the expansion of reason begins from the subject's methodical intervention aimed at unraveling nature's inner workings. Or from another angle, we can say that deriving from the epistemological dualism of subject and object - the definite severance of the critical scientist from nature inherent to the transcendental subject of modern philosophy, was the concern for the conditions under which (scientific) knowledge could be nurtured and expanded, but this preoccupation eventually subsumed contemplating the possibility of knowledge in itself. It follows that the terms under which reason could proliferate would fall under the exclusivity of the expansion of scientific knowledge against other forms of knowing now asserted negatively as 'ideological'. Not only did scientific epistemology therefore take up the "identification of the problem of truth" and equate it with the scientificity of knowledge, but also followed with the "polemical exclusion of all the non-scientific relations to objects, and its critical analyses, in the field of general knowledge"[76].

With the support of modern epistemology, science eventually rid itself of the "existential depth" of the subject now on 'the outside looking into' the world, for that is the domain of Reason's proper expansion. In so far as it consecrated itself atop this aporia, it was bound to lead to periods of crisis, being necessarily and increasingly constrained by its own rules. Yet it must

[75] Freitag, M. (2011) *Dialectique et Société Vol.1: La connaissance sociologique*. Montréal: Liber; p.72.
[76] Dialectique et société, Vol. 1; p.177. - translation my own.

be stressed that it was because of its singular focus on the conditions of Truth against a negative field (non-scientific knowledge or ideology - essentially social reality) on which the legitimacy of its practice nonetheless found salience outside of its domain.

III.ii Paradigm shifts and the technicisation of knowledge

The turning point for Freitag was not one of overcoming but of complete dissolution, which can be seen as culminating in the analyses of Thomas Kuhn in *The structure of scientific revolutions*. In his analysis, Kuhn empirically examines the socio-historical forms of scientific practice and demonstrates that the activities of scientists involves the utilization of collective research models that do not align with the logical characteristics and normative values of epistemology; their practices are not guided by some formal and universal scientific principles that constitute its own logic distinct from any other practice. Scientists rather engage in problem-solving by conglomerating into groups and pragmatically devising strategic procedures around specific questions while research interests are oriented in a corresponding manner. It is only in crisis that scientific practice reflects on the validity of its procedures. But this reflection, rather than re-aligning its processes with norms established epistemologically, instigates a paradigm shift that is irreducible to the last[77]. Different paradigms are confronted, engaged strategically (as opposed to rationally), and driven by the self-interest of researchers, and their discontinuity for Kuhn speaks to the lack of a consistent scientific narrative. Freitag thus writes,

> "En substituant ainsi le concept de réalité objective la notion de problème à résoudre (puzzle solving), Kuhn consacre dans le champ de l'épistémologie l'attitude pragmatiste et opérationnelle propre aux discipline techniques, et il réalise donc une émancipation définitive de la pratique scientifique à l'égard du problème de vérité. […] Symétriquement, l'idée d'une consistance et d'une unité ontologique transcendantales du monde objectif […] s'efface de l'horizon…[78]"

[77] Kuhn, T.S. (1970) *The Structure of Scientific Revolutions.* Chicago: University of Chicago Press.

[78] Ibid., p.218. As Freitag notes, what is abolished here can be reduced to the Kantian distinction between phenomena and noumena, between what is apprehended and what is contained in itself.

This marks a profound departure from modern epistemology. While it was progressively strained within the epistemological dualism described above (on both a logical and metaphysical basis), it nonetheless retained the normative account of an objective world that can be known and its truths divulged contra sense experience. As Clain notes, Kuhn's "é*pistemo-socio-logie*" of science renounces the specificity of science with regards to common knowledge, and while it remains ideological to the extent that "it continues to develop its ontological prejudices of being and knowledge", it alleges to "renounce normativity in any manner"[79]. In other words, it renounces the idea of the theoretical accumulation of knowledge and retrospectively erases the historical specificity of scientific practice and development all the while imposing an operational (organizational) model of science as the basis of its function. From the epistemological dualism of modern science we arrive at an "operational monism" in which the only ontology that subsists is the virtual calculability and measure of an object in its operations[80].

I explained above how classical and modern sciences distinguished themselves from other secular knowledge practices through their strict reliance on experimentation and demonstration, as empirical verification would not only ground the certainty of knowledge but also allow for its expansion. Yet, the same applies for the bolstering of empirical verification itself, as technique a priori prescribes the possible forms overlaying the experiment[81]. While discovery necessarily leads to technical advance as the scope of knowledge and the possibilities therein widens, the experimental procedure was nonetheless subordinate to the theories of reality on which its legitimacy rests. In other words, technique as the productive moment of scientific activity was secondary to the vectors of knowledge verified and captured in theory. In light of Kuhn's reasoning, what we see is a change in the dynamic between theory and technique: As science loses its transcendental ideal of Truth in favour of an environmental operationnality, the ends of theory and the ends of technique tend to be confounded in way that the former is sublimated within the later.

Furthermore and in parallel to this, recall that technique in industrial production was still grounded in an ideal of progress on which rested the eventual emancipation of the transcendental subject. This was the finality inscribing itself within each institutional domain in which the ends

[79] Sur la science contemporaine, p.114. - translation my own.
[80] Ibid.
[81] Ibid., p.98.

of particular techniques were united in spite of a clear differentiation of the means and ends implicit with technique's formal objectivation. In short, technique "would remain subordinate to normative and expressive ends", and final judgment was not strictly technical, but would essentially remain one of value[82]. Alas, this is precisely what tends to decompose under Kuhn's socio-epistemology. In dissolving the specificity of theory within practice, that is to say, reducing the cognitive end of symbolic signification characterizing science to the same ontological level as its practice, the meaning of scientific practice tends to generalize itself in its operability, which is to say its technical possibilities. There is no longer any "virtual unity of knowledge"[83] nor any particular end which the cognitive activities of science aim towards outside of the specific conditions of operability which enable the control or mastery of its object.

III.iii Information as ontology

Parallel to the eventual supersedure of theory by technique in scientific practice was an increasing horizontalization of the subject and thus of the greater society as a whole within the world. With the virtual dissolution of the modern transcendental subject, it was the behaviourist cybernetic informational subject that by the height of the post-war years had taken over the scene as the model of humanity on which techno-scientific practices operate to this today. As Clain says,

> "C'est la cybernétique qui devient 'la science formelle' de la 'techno-science', non pas qu'elle incarne alors l'apodicité aux yeux de celle-ci ou de l'épistémologie, mais plutôt parce qu'aussi bien en regard du pragmatisme épistémologique que du technicisme des sciences empiriques la cybernétique apparait comme un modèle d'opérativité"[84].

The model of operability Clain alludes to is not simply innate to cybernetic epistemology, but is an avowed statement of purpose. Emerging from the scientific research proceedings of world war II, the self-proclaimed 'new science' of cybernetics was defined by its founder, Norbert Wiener,

[82] La nature de la technique, p.373 - translation my own.
[83] Dialectique et Société, Vol. 1, p.219.
[84] Sur la science contemporaine, p.120.

as the "scientific study of communication and control in the animal and the machine"[85]. Its three core concepts, entropy, information, and feedback, are intimately interlaced in forging the *a priori* principles on which the entire cybernetic framework is erected. Information in particular has a specific, although generalized quality in cybernetics: No longer arbitrarily characterized as a series of semiotic and linguistic signifiers, it is rather conceived as the ether on which we can make sense of the very form of any system's organization. It is useable insofar as it is a quantifiable physical principle[86]. Feedback is the primary means through which the treatment of information within a system is conceived, orienting action towards the maintenance of equilibrium within outside noise. Together, these concepts both constitute and render manifest the cybernetic conception of communication as the means to fend off entropy which, issuing from the 2nd law of thermodynamics, is the general tendency of the organization of information within any system to move towards absolute homogeneity. That is to say, systemic degradation reaches a point where the elements are all perfectly and evenly distributed with regards to each other, and therefore no relation as such can any longer be conceived[87].

Conceptually, the subjectivity emanating from this picture of reality descends from behaviourism, itself highly influenced by Darwinian theories of evolution. Relying on a stimulus-response schema, all human action, including thought itself, is the result of adaptation in harmony with the subject's environment. Its promoter, John Watson, aimed to increase control over conduct and behaviour through scientific prediction[88]. No doubt this was a big influence on cybernetics. However, this link sheds light on the fact that behaviourism's most important contribution to Wiener and his colleagues was arguably the displacement of scientific analysis from the structure and composition of an object to the *relation* between an object and its environment[89]. The big difference is that while behaviourism undid the boundary between animals and human beings in focussing on biological systems, cybernetics is even more radical in doing away with any substantial difference between beings and machines, since both simply

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[85] Wiener, N (1948) *Cybernetics: Or Control and Communication in the Animal and the Machine*. Cambridge, Massachusetts: MIT Press.

[86] Lafontaine, C. (2004) *L'empire Cybernétique: Des machines à penser à la pensée machine*. Paris: Seuil; p.45.

[87] In physics, the application of this end to the entire universe is referred to as 'heat death'.

[88] L'empire cybernétique, p.31.

[89] Wiener, N. (1954) *The Human Use of Human Beings: Cybernetics and Society*. New York: Avon Books; p.21-23; This is the justification for Wiener's classification of cybernetics as a "new science"; within relations it is less the current state of an object which is important as much as its possibility of being anything else.

constitute a particular iteration of a system of information organized against entropy. Here, human behaviour is essentially likened to a complex feedback mechanism; in so far as the system operates on the communication of information between different states, there is no fundamental difference between different forms of action, whether they be empirical or virtual, reflexive or unintentional. This is predominantly made possible by the manner in which cyberneticists conceptualized and operationalized information.

More than a simple methodological strategy, information's immateriality is in a manner of speaking ontological to cybernetics; it has no phenomenological significance. Information is spatially flat and temporally linear (as opposed to "thick", in the Husserlian sense, which speaks to information's relative estrangement from any phenomenological considerations regarding sense experience). All operations are ordered according to a numerical logic that collapses any and all phenomena into links within a sequence describing a process and its continuous transformations[90]. This already alludes to its second characteristic: Information is infinitely applicable. It can transform anything into anything else, regardless of the medium. As Hayles notes, the possibility of securing the totality of all possible material instantiations in information so that it may be universally communicable greatly eases the conceptual flow between different mediums. Whether it be organic or artificial is unimportant[91]. Inversely, it is precisely because of this property that what the meaning of information *is* in itself is irrelevant to the context. As demonstrated earlier on, if information is tied to meaning, then it would have to change its value every time it was embedded within a new context, "because context affects meaning"[92]. This notion and all the subsequent theoretical chimeras it instigated led theorists into an irreconcilable gap between the *universality* (action; what it does) of information within the system and its *representability* (what it describes; what it is); the problem they faced was that of narrowing the field of experience into the system without diminishing the nature of information's transmission. In the end, and echoing the above critique of scientific epistemology, the immateriality of

[90] La nature de la technique, p.387. For Freitag it thus subsumes and virtualizes symbolic content, as well as physical and biological processes, and replaces "sensitive and intellective conscience" with an "efficient conscience without subject nor end, without alterity". With information, there is no being or affect or thought, only action and transformation, be it of a physical, biological, or symbolic nature.

[91] How We Became Posthuman, p.2. "When information loses its body, equating humans and computers is especially easy, for the materiality in which the thinking mind is instantiated appears incidental to its essential nature".

[92] Ibid., p.53.

information and its subsequent divorce of meaning from context did not derive from a wholly conceptual decision - a Truth conjecture - but rather, as Hayles noted, was "necessitated by engineering considerations"[93]. Nonetheless, it hardly discounts the ontological equation between language and its communication and the both epistemological and ideological consequences that ensued.

III.iv New technical horizons of social organization

The "*epistemo-socio-logie*" of normal science and the prior arrival of cybernetics could be seen as evincing general tendencies that were already salient in other areas of society. In Freitag's mind, Kuhn's theories can easily be conceived as merely a 'sign of the times':

> "Mais on peut bien penser que l'oeuvre de Kuhn ne signifie que la reconnaissance officielle du changement d'attitude qui s'était déjà largement opéré dans les pratiques scientifiques elles-mêmes, à mesure qu'elles abandonnaient leur réflexivité critique pour adopter une perspective opérationnelle à caractère technocratique, et que la figure sociale du savant faisait place à celle du chercheur professionnel"[94].

The reversal of theory and practice in science - the melding of its normative and technical ends, was in a sense telling of both its fate and that of capital. Central to our concerns was the fact that for almost a full century before Kuhn delivered his contentious thesis, the cognitive activities of science and the productive capacities of industry were increasingly courting each other through the mutual subsumption of technique within their respective activities. MIT historian David Noble tells the history of their eventual marriage by noting how in the late 19th and early 20th century, the university institution and the capitalist organization were joining forces with increasing frequency. Scientific discoveries became an indispensable part of a corporation's development through the patenting of new inventions which were essentially means of achieving monopolies in new markets that arose out of technological progress. Noble showed how this process was normalized over time as technical schools became more popular and in demand in the United States. The classical university, still grounded on old bourgeois notions of education

[93] How We Became Posthuman, p.54.
[94] Dialectique et société, Vol. 1, p.216.

(in effect the institutional end legitimating its activity and transcending its practice), gradually incorporated this approach of prioritizing the development of scientific techniques so that education could better serve to ends of industry and the people working in it[95]. This shift in institutional motivations and activities took force in large part due to the need of engineers in management roles, who could apply their technical knowledge to increase the efficiency of not just the social groups - labourers and technicians - on the factory floor but to the structure of the organization more generally. In other words, as capitalist interests obviously served to gain much more from the association than science, scientific practices themselves came to be absorbed within productive ends, first for its development of new production techniques and latently evolving into the rationalization of the relation of production as such. This tendency was echoed in the growing view of the possibility to generalize engineering know-how to other fields of knowledge. As William Wickenden, a turn of the century MIT educator and industry man who greatly contributed to the expansion of engineering curriculums into the social sciences, reported in a 1929 study on engineering education, "Engineering will include in its tools any and all sciences as they become exact enough to yield economically predictable results". As Noble himself concluded on these matters, "the corporate engineers of science-based industry had taken for their task the production of a world"[96].

So the merging of science and technological innovation into technoscience reflected the increasing rationalization of the processes of production inherent to the management ethos of contemporary western societies. The expansion of automation within productive forces coupled with the increasing demand for skilled and specialized work maintaining the very machines obsolescing unskilled labour reflect Freitag's general sentiment that a society grounded on the consumption of information and communication has essentially replaced one based mainly on the production of physical energy while only aggravating, in its own way, the problems of the latter. In a consumption based service economy, the asymmetrical relation between the worker and the machine has largely been replaced by what is arguably an even more disproportionate, though seemingly normalized, relation to the computer as the positive node of a henceforth globalized communication system. As we shall see, information and communications

[95] Noble, D.F. (1977) *America by Design: Science, Technology, and the Rise of Corporate Capitalism*. New York: Alfred A. Knopf.
[96] Ibid., p.320.

technologies constitute important transformations not just to technique, but to the entirety of the mediations typifying the symbolic dimension of reality.

The 19th century industrial capitalist worker was practically integrated into the process of production through the machine. As Marx famously argued, the workers' subjugation to the machine unfurled the objectifying capacity of their labour. Such was the nature of their alienation with regards to their product, their activity, their fellow workers, and their species-being, forestalling the possibility of defining their activity in relation to a larger world, and thus their place within that world. One cannot say that they are baking a cake if the brunt of the activity involves pushing buttons and performing repetitive manual tasks within an otherwise fully automated cake-baking process. We have already shown how in this situation, the technical moment of action became autonomous to the extent that the activity was strictly productive and instrumentalised, yet was still generally reconciled within subjective synthesis of human activity given its grounding in the transcendental end of progress. In this light, we would argue that what was alienating from the position of the labourer was the severance from his or her expression in the end of the product, and therefore the transcendental end in a sense crystallized within it. The wage merely infers the possibility of accessing the means of subsistance within relations of capitalism, and one could at least infer that, from the perspective of the proletariat, it was likely the truer or more immediate end of the activity hence instrumentalised. Nonetheless, it doubles up the notion of the labourer's subjection by highlighting its abhorrent necessity.

As Freitag rightfully notes, the culmination of this subjection to the industrial mechanism arguably reached its apex with Taylorism and its "piecemeal work" production model. However, this labour can conceivably be accomplished independently of the relation - be it one of enthusiasm, submission, or defiance - to the authority on which one depends to situate themselves as a worker in a production line and the possible meaning one can derive from the work. In other important research, Noble documented how Taylor's motivations behind scientific management was an attempt to put an end to "considerable shop floor struggle" which he called "soldiering". He writes,

> "Workers paced themselves for many reasons: to keep some time for themselves, to avoid exhaustion, *to exercise authority over their work*, […] to stretch out available work for fear of layoffs, and, last but not least, to express their solidarity and their hostility to management. Coupled with collective cooperation with their fellows on the floor […] and labour-prescribed norms of behaviour, the chief vehicle available to

> machinists for achieving shop floor control over production was their manual control over their machine tools they used to make metal parts[97]".

The exteriority granting the existential space for a relative self-determination enacted by the worker's relationship of dependence towards the authority of the employer - again, be it antagonistic, enthusiastic, or submissive - tended to diminish or be completely removed in activity when computer automation came to the shop floor; the computer and the new operational methods that followed were not only aimed at better controlling the machines of the production line, but also the operators of the machines. "Everything and everyone, after all" Noble notes, "could be viewed as a part ("component") related to other parts in a large whole ("system")[98]".

While the particularities and dynamics of the industrial shop floors differ in many important ways from the post-industrial service economy, their respective integrations to technology are legitimated on the same ideology of increased management and control of operations. A large majority of work in the service economy requires some form of communication, or expression and interpretation, and it is these activities that tend to be directly integrated into the system of information both within and between various organizations. So rather than be alienated from one's labour against the authority of an employer on which one fundamentally depends, the subject's engagement is immediately required within the system given that the nature of the work demands his or her subjective participation because, as Freitag notes, the act of expression and therefore communication into the world and towards others is the most basic form of sociality, and more generally engagement with that world; in a way subjectivity tends towards its own self-alienation[99]. The execution of the work depends much more on the individual's direct engagement with his or her productive role given that the constraints need to be interiorized. As information flows from one end to the other, the subject is relegated to the being of an input and output of information, where the site of treatment of the information itself - i.e the subject integrated within the system - is 'black boxed' given that the inner workings of the subject's mind can obviously not be fully integrated into the operable commands of the system's mechanisms[100].

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[97] Noble, D.F. (1984) *Forces of Production: a social history of industrial automation*. New York: Alfred A. Knopf; p.33; emphasis my own.
[98] Ibid., p.54.
[99] Identité transcendantale, p.121.
[100] Ibid., p.121.

This is progressively the case as the conceptualization of social relations and their actors as mere variables within an overarching system of information is rendered effective within not just the context of organizations, but the greater society as a whole. For Freitag, the scope of (postmodern) organizational life generally encapsulates "civil society" and the public life of individuals. Whatever escapes it falls into the domain of private life, which for many ends up progressively reduced to the world of consumption, communication, and media culture[101]. However, many have argued that these domains of living are particularly susceptible to colonization by contemporary information and communication technologies. It is in fact no exaggeration to say that the products of technoscience, above and beyond producing new knowledge, essentially produce a new world. As Freitag puts it,

> "En effet, c'est à l'ensemble de cette production technoscientifique et surtout à son incessant développement, plutôt qu'à la "nature" ou à la "culture", que la vie humaine est désormais confrontée existentiellement de manière croissante[102]."

Our environment tends towards the objects of its own productions and interventions; and it is precisely an *environment* that we contend with in how we from then on frame our surroundings, rather than nature or a world, as the latter by default do not result from human production. Given the propensity of the intervening practices towards operability, the possibility of conceiving society as a system of information is not just an epistemic frame of reference, but tends towards its realization in the technocratic (as in the technical operation and control of social life and its dynamics) digital information infrastructure.

On may object that despite their proliferation, these products of technique nonetheless maintain universal reference to a transcendental subject securing his or her personal and general liberty through progress, and that the technical moment of each expression is meaningful given the ideal conceived and contained in its end. However, we have seen how the activities of technoscience fall back on the virtual calculability and measure of an object's operations. So what of technique in the contemporary age of information? What of the subject increasingly mediated and dependent on technologies in contemporary life? When technoscientific practices and the worldview behind them are extended to the whole of society - when the whole is

[101] Identité transcendentale, p.118.
[102] La nature de la technique, p.375.

conceived, rationalized, and operated on as a system - technique tends to fall back on itself, and both the synthetic unity of subjects and the reference to a unified collective fade when the symbolic legitimacy of power gives way to a notion of (technically-enabled) control.

IV. FROM SOCIETY TO SYSTEM

So far, we have unfolded the history of the becoming of technique within what Freitag calls the synthetic unity of subjectivity. This culminated in revealing technique's formal autonomy as a distinct moment of action within modern industrial production, itself appearing within a continuous historical process of the symbolic differentiation of social activity. We saw that despite its relative autonomy, technique in this context was still generative of meaning; still manifest of a socio-historic human activity in so far as it was instrumentalised towards advancing progress and the subject's transcendental liberty. Furthermore, we've seen that the progressive development of science echoed a similar movement of autonomisation in the cognitive moment of subjective synthesis itself reconciled in the transcendental Truth of the world. As announced by Kuhn's theory of 'normal science', the scaffolding of science's theoretical supremacy within modern epistemology eventually gave way to its subsumption within technique as it became rationalized into its operability, giving birth to what many have dubbed technoscience. Having been preceded by the marriage of science and industry in the ongoing proliferation of capitalism in the late 19th and early 20th century, the historical arrival of technoscience was in a sense conjoined with the systemic operability of cybernetics, given the latter's emphasis on communication and control.

Nonetheless, at this point we ask ourselves: How is an emphasis on control any different from any other relation of domination in history? How does control differ from power? We've already seen how the synthetic unity of the symbolic subject involves not only a reference to the group or community, but also to the inherent unity of that collective. Sociologically speaking, in traditional societies this virtual unity was established in reflection to a "beyond" maintained within narrative. Against the immediate sanction of the world, the projection of the sacred beyond it was channeled in a common will manifested through an obligation of obedience to a force of domination (eg. royalty); the subject inhabited this normative relation but was not its master[103]. Otherwise stated, legitimacy rested not on the diffuse symbolic sanction inherent to immanence in nature and authority was condensed and personalized (or personified) above social

[103] Identité transcendentale, p.98.

life and regulated according to a personal will channelling divinity[104]. In modernity, it was the reapropriation and interiorization of this transcendence within the individual that pushed it even further: The obligation of obedience to the will of divinities will transmute into the subject's sovereign will legitimating the rights granted under law maintaining his intrinsic liberty. Structurally speaking, power is here less recognized through the personification of divine will, but from the will of individuals whose free capacity for action is legislatively maintained, encapsulated under the totality that we call society. Therefore, the recognition of government doesn't simply rest on an effective capacity for domination, but epitomizes the concept of power as a legitimizing force unifying a collective through institutional representation. It is this dynamic that is profoundly altered through the technocratic management of social life within which the unity of society dissolves into its conceptualization as a system. We must understand the terms of this mutation if we are to seize its effects on the symbolic subject.

IV.i Gears and Logic Gates: Laws and Operations

Mechanical images of society are nothing new. Otto Mayr, historian of engineering, demonstrated how technological artefacts can be telling of broader social or cultural currents in his analysis of the use of mechanical clock metaphors throughout late medieval and the early days of industrial continental Europe. The inner workings and mechanical properties of the clock, its use as an object, and the way in which it captured the imagination in art, philosophy, and the sciences in some ways pre-empted the authoritarian ideology of order (the metaphor of the clockwork state) in the continent[105]. The opening lines of Hobbes' Leviathan are musings on the mechanical nature of automata in so far as the works of men in governance are simply the worldly imitation of the mechanical works of God operating within men[106]. That is not to say

[104] For Freitag, will is therefore not as a psychological category, "but [a] structural moment belonging to a specific form of socio-political identity"; p.94, note 1.

[105] Mayr, O. (1986) *Authority, liberty, & automatic machinery*, op. cit.

[106] Supiot, A. (2015) *La gouvernance par les nombres. Cours au Collège de France 2012-2014*. Nantes: Arthème Fayard. See In Hobbes' original: "For seeing life is but a motion of limbs, the beginning whereof is in some principal part within; why may we not say, that all automata (engines that move themselves by springs and wheels as doth a watch) have an artificial life? For what is the heart, but a spring; and the nerves, but so many strings; and the joints, but so many wheels, giving motion to the whole body, such as was intended by the artificer? Art goes yet

that men were merely clockwork. Alain Supiot has remarked how, in conjuring religion, law, science, and technique through biological metaphors for the functioning of the society, Hobbes "expresses a *normative* [emphasis my own] imaginary that is still largely ours: that which represents the government of men on the model of the machine"[107]. It is precisely this dimension which requires our attention in generalizing contemporary modes of social organization. That the computer has replaced the clock as the figure of governance also characterizes the method of its function: it outlines the transition from government through power operating on laws (or norms) to governance through control operating on facts (or operations). If technoscience and its cybernetic principles were being employed in the context of industrial production, it should be no surprise that they are also being utilized in matters of governance. It is less surprising still that the already highly rationalized science of economics would pair well with the former's theories of information and control.

However, it must be stated that it wasn't until the "invention" of capitalism that the practices encapsulated under "the economy" differentiated themselves so neatly against other domains within society. Our discussion of technique already indicates the manner in which the differentiation of social activities and the objects defined therein unfold in a contingent manner. The appearance of civil society as a distinct economic sphere - encapsulating the free exercise of the right to private property - required the mobilization of a bourgeois class and their practical exercising of a political liberty (which for all intents and purposes was still restricted to their benefit) against the old patrimonial guard in the consecration of a liberal political order[108]. As Freitag noted, this instigated a shift in the manner of reflecting on matters of legitimacy of the social order, which would eventually be reconceptualized into the intrinsic rationality of the market. Thus was born the science of political economics from the somewhat fictitious liberal dualism between the state and civil society represented through the mechanism of the market.

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further, imitating that rational and most excellent work of nature, man. For by art is created that great *leviathan* called a *commonwealth*, or *state*, […] which is but an artificial man; though of greater stature and strength than the natural, for whose protection and defence it was intended; and in which, the sovereignty is an artificial soul, as giving life and motion to the whole body." in Hobbes, T. (1998) *Leviathan*. Oxford, Oxford University Press; p.7.

[107] La gouvernance par les nombres, p.42. - translation my own.

[108] Freitag, M. (1983) 'Discours idéologique et langage totalitaire. Considérations actuelles sur le fascisme et son idéologie'. In *Revue européennes des sciences sociales*, Vol. 21(65); p.204. See also Freitag, M. (1998) 'La crise des sciences sociales et la question de la normativité' *in Le naufrage de l'université et autres essais d'épistémologie politique*. Québec: Nota Bene; p.121-2.

Rival techniques emerged from this: Against the mathematical calculations of economics through the use of pricing as a primary mechanism for evaluating the dynamic changes of the market, the state rendered legitimate statistical procedures of aggregation owing to the idea that only they are in a position to manifest the 'common will' that cannot find expression in the market[109]. Stated otherwise, at stake was the manner in which scientific practices could best infer the norms expressing the collective will of civil society[110]. While scientific knowledge was at the forefront of both state and the market, it was really in the statistical methods of the state that a synthetic view of humanity was maintained. Aggregation implies the synthesis of multiple measures of data as a means to succinctly encapsulate a large amount of observation so that hypotheses can be at once more precise and more encompassing, and therefore more representative of the social phenomena they study. The normative regulative aspect of civil society was not in itself under question, but it was nonetheless in tension with the liberty of the individual. Individuals have their own interests in mind, which the market must govern, but also develop attachments and organize into particular groups evincing norms which the market cannot seize and the state must therefore embody. Nonetheless, the gap between this statistical representation and the reality of the situation not only served as justification for the individualistic orientation of the market and the calculative rationality it inspired. With new modes of calculation came new imaginaries surrounding government paralleled by new conceptions of subjectivity. Within the context of economic liberalism, political opposition rests on disagreement over whether the state or the market should assume the major charge of regulating social life. However, this arguably artificial liberal dualism is no longer able to shine a light on the essential nature of social intervention and regulation since the vertical relation of power between these representations of civil society and what social life actually constitutes

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[109] Desrosières, A. (1998) *The Politics of Large Numbers: A History of Statistical Reasoning.* Cambridge, MA: Harvard University Press; p.18-20. Rational techniques attempting to encapsulate the necessary representation of men and women were developed so the state could maintain order, and early incarnations and practices of statistical calculation and representation were a necessary response to this need. In Germany, *statistics* (the "science of the state") expressed a synthetic, comprehensive picture of a particular state through a kind of aggregation of features such as climate, resources, customs, etc. This practice arose out of the aftermath of the thirty years' war when the Empire was fragmented into nearly three hundred micro-states. In comparison, the recording and calculation techniques designated by the term *political arithmetic* came out of England in the 1660s "where the state became a part of society, and not its totality as in Germany". The English style, based on quantitative methods, survived German statistics because the former's calculability rendered it more applicable and transferable in practical governance.

[110] Davies, W.'The return of social government: From "socialist calculation" to "social analytics"' in *European Journal of Social Theory* 2015, Vol. 18(4); p.435-6.

flatten under the epistemic understanding of society as a system. The invisible hand that guides the rational economic subject gives way to the auto-regulated adaptive subject of the market.

In effect, the premise that there is no fundamental difference between a being's process of environmental interaction and a market's dynamism through the interaction of individual behaviours rests on the cybernetic ontologization of information, which would prove to be the key to rendering knowledge itself commensurable. According to Nobel prize winning economist (and avid cyberneticist) Friedrich Hayek, knowledge itself has no intrinsic form, and only acquires it through artifice. Social scientists (and socialists) ignore this fact and therefore also ignore the different kinds of 'embodied and tacit' knowledge that arise outside of their models. In other words, the ordering of social phenomena cannot objectively be accounted for in the independent actions of individuals and if "we define [them] in physical terms no such order is visible"[111]. If knowledge remains formless, the problem of constructing a "rational economic order" lies specifically in the fact that knowledge of what one needs exists solely in "dispersed bits of incomplete and frequently contradictory knowledge" possessed individually, or has Hayek puts it, "it is a problem of the utilization of knowledge not given to anyone in its totality" since the individual can never acquire the total knowledge that would allow him or her to act in a rational way[112]. The market must therefore be free to align itself with the forces and desires of individuals as only it can provide a calculable form or can embody indeterminate knowledge of society through its pricing mechanism; it alone is able to preserve the dynamic flow of different knowledges and therefore desires on the market. Otherwise stated, for Hayek the market is the manifestation of individual desires, and social order is the simple result of the evolution of behaviours adapting itself to growing complexity in order to stave off chaos.

Techniques of market analysis are by necessity of a numerical nature, since it is less important that they describe what something is as much as they be able to describe its interaction within the market itself. As Hayek himself put it, the value of the quantitative nature of scientific observation has less to do with precision and more to do with "substituting for a description in terms of sense qualities one in terms of elements which possess no attributes but these *relations* to each other"[113]. It is less about the technical or political surveilling of market forces as much as

[111] Hayek, F.A. (1942) Scientism and the study of society. Part I. Economica 9(35); p.288. Thus for Hayek the theories and statistical aggregations of the social merely impose a form on society from above.
[112] Hayek, F.A. (1945) The use of knowledge in society. NYUJL and Liberty; p.519-20.
[113] Scientism, p.275.

a societal adaptation to its logic as it manifests the totality of individual wills. To the extent that the market is a manifestation of collective knowledge 'subjectified' through calculation, new techniques of analysis become crucial in the inclusion of greater and greater market externalities[114]. In light of information's universal commensurability, once the equation between knowledge and information is made, encapsulating the collective through market dynamics is simply a question of grasping as much information as possible.

IV.ii Big Data, Small Government

At this stage we have all that can fall under the general umbrella of "Big Data" and social analytic techniques in full view. From the present perspective, both their use in contemporary society and the valuation of information they exacerbate not only shine a glaring light on the cybernetic genealogy of the ideas animating the enthusiasm behind these technical developments, but also demonstrates how the epistemological disappearance of society in favour of a system is intertwined with a peculiar praxis - its effective application both in technological development and the social behaviour that results from it. Indeed, the invention of the computer alone not only gave humanity the technical capacity to analyze social life through the individual interactions of each person, but bequeathed onto experts a view of social relations under its own terms. While the idea of social mapping existed prior to the technical capacity to see it through (Jacob Moreno came up with networked social mapping in the 1930s, while even the primitive version of contemporary computers didn't arrive until at least a couple decades later[115]), calculating the multitude of individual interactions in any social setting started to become feasible once computing power started to factor into the equation, and like the perennial cybernetic feedback loop, the information it provided fed further theorization on the nature of the social relations it analyzed[116]. With social analytics then, the analysis of social phenomena and

[114] We will soon see how these externalities figuratively represent the noise within the self-regulating market mechanism; what is incommensurable with regards to its value is innumerable with regards to knowledge.
[115] Davies p.442-3.
[116] This in a sense gets at a fundamental distinction between a dialectical relation or schema and the idea of feedback. While the former enacts a potentiality that is at first negation, and then synthesis through re-appropriation

their theoretical facsimiles results from the play of mediations between individuals digitized into discrete information rather than a reflexive theoretical synthesis potentially aided by statistical aggregation. However, while the ability to calculate these links is of utmost importance, it is utterly useless if we do not have a means through which we can capture the necessary information[117]. This is why the increasing omnipresence of social media and internet platforms like Facebook or Google becomes crucial towards the technical realization of neoliberal governmentality as they are the site of data collection *par excellence* for the absorption and numeration of external factors to the knowledge we have of human action and daily life more generally.

So what is Big Data precisely? It rests on the idea that massive quantities of information can render the complete digitization of atomized social links possible through different analytic techniques, usually variations on machine-learning artificial intelligence. It is simply another way of saying that everything that is relevant to sociality can be rendered commensurable as a value, that all relevant knowledge can be given numerical form, not as representation from above (political), but horizontally insofar as market dynamics can match shifting individual desires through technological analysis and prediction. This process, as Rouvroy and Berns demonstrate so eloquently, is achieved in three steps performed in self-reference and therefore in a consolidated way:

First, data is harvested, gathered, and stored in massive quantities in the form of metadata by multiple entities for seemingly different ends. While governments collect data for purposes of security, control, and management of resources among others, private companies do so in order to increasingly personalize their marketing and advertising and improve their overall sales efficiency, while scientists gather it in the end of acquiring knowledge[118]. The storage of

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and renewal of the "original" state (double negation), the latter is coherent through its maintenance by an outside state that must necessarily be interpreted in its own terms; that is to say it is ontologically fixed.

[117] One of the many failures of project Cybersyn, an attempt to transcribe cybernetics principles into matters of governance in late 60's Chile, was an essentially incompatible infrastructure. See Medina, E. (2011) *Cybernetic revolutionaries : technology and politics in Allende's Chile*. Cambridge, MIT Press.

[118] Antoinette Rouvroy and Thomas Berns. 'Gouvernementalité algorithmique et perspectives d'émancipations' in *Réseaux* 2013/1 no 177; p. VI. Furthermore, the process of data collection for social scientists has so profoundly expanded that it has essentially reframed more general questions regarding the development of new quantitative methodologies towards the manner in which to best make use of these new data gathering capabilities, as if nature of the knowledge that is acquired through these processes is overshadowed by the overwhelming capacity for big data to produce new knowledge.

metadata is automatic and in itself independent of any particular end or purpose. In its essence, metadata is decontextualized and therefore anonymous. On its own, it is therefore 'harmless' and 'morally objective' insofar at it avoids any kind of individual subjectivity[119]. That is not to say however, that all data cannot be traced back to individuals. Both in content and form, the increasingly omnipresent capture of data sensors combined with the sophistication of mobile devices and wearable technologies evokes the possibility of tracking one's every movements and correlating data from diverging sources to reconstruct context after the fact[120].

The second step in the use of Big Data is the process known as *datamining*, where the stored data is treated in an automated process of calculating often extremely subtle correlations. The automated nature of this process means that it not only requires minimal human intervention, and is therefore not gathered or organized according to any pre-conceived idea which is either validated or refuted, but that the level of computation and the subtlety of the correlations extracted from the metadata occur on levels that defy human cognitive and sensual capabilities. This is essentially the manner in which machine-learning operates insofar as it 'learns' to establish its own rules for manipulating and synthesizing data and therefore generates its own meta-hypotheses that are not grounded in reflection on the nature of anything in particular, be it market dynamics or human behaviour, but on a probabilistic prediction of the immediate future state of the totality of the data it used in its computation of the current data. This already preempts the third step; that of using these correlations in the creation of profiles for the actions of every individual within the network. The creation of steady-state predictions of the future state of the data (ontologically we are no longer referring to a "market" in the proper sense of the word) renders the totality more efficient through anticipation. The idea is that individual behaviours and the desires which animate them can be better served by an environment which, to the extent possible, can harmonize with these behaviours. Ideal-typically, the individual therefore enacts him or herself within the network, self-regulating themselves according to what the network can provide for them, and acts accordingly. Therefore, controlling for the environment could essentially boil down to controlling individual action[121]. This is the mechanical basis for algorithmic governmentality.

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[119] Gouvernementalité algorithmique, p.VII.
[120] Andrejevic, M. (2018) 'Framelessness or the Cultural Logic of Big Data' in *Mobile and Ubiquitous Media*. New York: Peter Lang Publishing, p.252.
[121] Gouvernementalité Algorithmique, p.IX.

On the one hand, it is clear that there is an essential commodification of information and the knowledge that can spring from it. This particular aspect can be more readily retrieved since it already animates the collective imaginary in mainstream critiques of contemporary informational capitalism. For starters, the business models of companies like Facebook and Google extract the majority of their tremendous profits from the reselling of user metadata to companies buying publicity space within the infrastructure of these ubiquitously popular websites (the maintenance and renewal of which is itself increasingly automated). It is no mystery how Facebook can be worth half a trillion dollars on the U.S stock exchange; for all intents and purposes, its business model is grounded on the single idea that the users are the product, and their attention is for sale[122]. Furthermore, given that users' social activity feeds back into the way algorithms either modify themselves or lead programmers to modify the online infrastructure, this activity in turn provides "free labour" in so far as they further the optimization of these online spaces.

On the other hand, the celebration of Big Data conceals the more insidious nature of algorithmic governmentality: the fact that as a system mediating communication and continuously optimizing itself according to the explicit interests of individuals, the both conscious and unconscious capacity for individual action to reproduce society in thought and practice is slowly dwindled as the processes by which norms are both perpetuated and altered over time are extracted from the everyday and flattened with the information network. In other words, the way in which formless information is ontological to cybernetic epistemology is rendered effective and operable, increasingly and effectively removed from any situational (historical) contingency. Indeed, Marc Andrejevic's assessment that "the goal of automation is to develop systems that replace societal decisions governing life, liberty, and opportunity" reflects a growing tendency towards relieving decision-making of human judgement entirely[123]. Whether it be the automatic generation of correlation and hypothesis in datamining, delegating this very process to other variants of artificial intelligence[124], or filling the entire environment with sensors for more complete data capture, the expropriation of judgement is premised on the idea that the

[122] See Wu, T. (2016) *The Attention Merchants: The Epic Scramble to Get Inside Our Heads*. New York : Alfred A. Knopf

[123] Automatic Surveillance, p.12.

[124] See for example: Irpan, Alex. "Off-Policy Classification - A New Reinforcement Learning Model Selection Method." Google AI Blog, June 19, 2019. https://ai.googleblog.com/2019/06/off-policy-classification-new.html.

cold objectivity of the machine is the most viable option towards fair governance. As we will see in the next section, the implications of this idea, and its effects on the subject, are profound.

V. SUBJECTIVITY WITHIN THE SYSTEM

Given that the matrix of the symbolic lies within language, it seems conducive to begin this analysis by looking at the role of language in contemporary communication. We mentioned above how the most notable consequences of the cybernetic conceptualization of information were its universal commensurability and the essential ontological equivalence of the techniques whereby people exchange information and a mechanism controls another. This conception of human communication essentially culminates into a societal form characterizing a series of overlapping, self-referencing, compounding communication systems like those envisioned in the grand systems theory of Niklas Luhmann in the early 1980's. In this image of society, there are only systems and subsystems referencing and sustaining each other in an autopoietic fashion constituting all levels of social reality. Its production and reproduction occurs simply as the operations of communication in its passage to and fro within different nodes in the information matrix. With this in mind, we may say that system's theory is antithetical to Freitag's theory of the symbolic; through his lens, a society of overlapping systems completely discounts any determined existence resulting from a historically contingent objectivation of the world. We will now explore the implications of a society conceived as a system for subjectivity through a look into its effects on language, action, and identity.

V.i Reduction of Language to its Communicability

In the above image of the world, social reality itself is here the arbitrary coalescence of different operations contained within systems, and the symbolic dimension is completely flattened through its exchanging of signs behaviourally established into the subject through his or her engagement with the outside and other. For Gilles Gagné, a sociologist belonging to the same school of thought as Freitag, such a reduction of language within communication presents a very narrow view of social reality. The rise of communication "took the form of a generalization of the pragmatic attitude characteristic of American linguistics" and was later rendered possible through invention and democratization of its technical means:

> "Celle-ci s'est vouée à l'étude du langage humain à des fins techniques et elle l'a compris comme le moyen de communication par excellence. "la séparation entre *les corps des locuteurs* [emphasis my own] et de l'auditeur - la discontinuité de leurs deux systèmes nerveux", dit Bloomfield, est comblée par les ondes sonores dont la langue régle l'usage […] Toutes les théories pragmatiques qui travaillent ainsi selon le schéma personne-message-personne […] réduisent les langues à leur fonction communicationelle et considèrent comme une *sorte de bruit* [my emphasis] tout ce qui peut s'y trouver qui relèverait de la préconstruction cognitive d'un monde commun…"[125]

The form and function of our modern communication traces the legacy of this purely functional (and logical-mathematical) treatment of language. It is the virtual significance of language itself, as a semiotic web of symbolic expression, softens under its informational treatment. Otherwise stated, the discrete analytical treatment of the world, from then on understood as the "environment", in the effort to render it commensurable and therefore communicable as information, disavows and flattens the symbolic specificity of language on multiple fronts.

First, the signified, as the object of the linguistic signifier, is not the thing in itself in its raw disclosure to sense experience, but the idea or concept it figures. Recall that the concept originally emerges from the subject's sensuous (empirical) interaction with an object elevated to an ideological relation from within the formal dialectics of the two poles (subject-object/expressive-normative). It is therefore through the idea that we have of an object that we can figure its place within the universe of other objects. The concept is therefore not only what grants the object its specificity in its symbolic differentiation against other concepts within thought, but also its universality as concept in relation to other concepts within language[126]. However, this is fundamentally different than claiming that a language is universal (like mathematics for example); universal concepts with regards to language are not "languages" in the proper sense of the term used here but rather "codes" since they are of a 2nd order against the historical and contextual specificity of symbolic language all the while arising from those conditions[127]. This leads to another important feature of symbolic language in that the concept is a shared signifying representation of the object and necessarily transcends individual expression.

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[125] Gagné, G. (2017) 'Idéologie et communication. Problèmes contemporains de la discussion publique'. In Dagenais, D. (ED): *La Liberté à l'épreuve de l'histoire. La critique du libéralisme chez Michel Freitag.* Montréal: Liber; p.447.

[126] Dialectique et société, Vol. 1, p.160-2.

[127] Ibid.

Language being always a specific language, the concept emanates from the value and signification bestowed upon it within a particular shared context.

> "Ainsi, aucune signification ou idée ne m'est jamais irrémédiablement propre; même à l'instant où je pense au plus profond de ma conscience individuelle, dans mon fort intérieur, elle n'est pas mienne, elle est nôtre. Chaque idée ou concept est une catégorie de la pensée commune…[128]".

The virtual universality of language is therefore premised on the common reference to a world that is co-inhabited. While it may seem self-evident to anyone that words, concepts, and for that matter actions are never made sense of in a vacuum, it is less obvious to avow their transcendental nature with regards to consciousness. It is precisely this symbolic specificity of language, its very essence and unity within the subject, that is ignored in the reduction of language to its communicational function. If communication is nothing other than the exchange of information between two points in a larger system, and social reality is increasingly effectuated and productive based on this idea, then society, in the unity of its whole, tends to be reduced to the kaleidoscope of self-referencing information networks on which our day to day communications are progressively established: equating social reality, both nature and society in its whole, to that of the network just described entails the subsuming of all other 'symbiotic systems' that characterize the world and outline the horizon of our cognition to the production of value in the exchange of signs within the matrix of communication[129]. Objectivation takes place insofar as it can be referenced within a framework of communication, that is to say - reduced to its information, and the meaning (social reproduction) of the world is progressively dependent on its legitimation within the process of communication itself. In other words, when language is reduced to its communicational function, the "virtuality" of symbolic reality that transcends the realm of "operable language" within communication (that which is incommensurate to the value form of information) and that is beyond the mere exchange of signs between people but nonetheless within the realm of a phenomenological account of reality (through the symbolic significance they acquire within language), is relegated to the status of a system in apparent

[128]Dialectique et société, Vol. 1, p.163.
[129] Gagné, Idéologie et communication, p.447.

symbiosis with other systems (social processes), but nonetheless ontologically outside of them[130]. What is known can be controlled, and what cannot be controlled does not exist.

The reader will be reminded that this epistemological reduction in language merely reflects ideological tendencies emanating from the marriage of scientific research and economic motivations within technocratic governance, and from the perspective of common sense there may be little doubt that our tacit understanding of these forms of communication as applying to the conceptualization and description of a natural environment that is posited is practically 2nd nature. The problem lies in the reification of an ideological construction of language that in a sense confesses a way of being in which the operability of speech tends towards the absolving of its ontological essence in the very production of society. The meaning of every moment is universalized within the concept's necessary distance from the object, and it is generally understood that the details, in the absolute objective fidelity of the object but also essentially of one's existential experience of it - exceed one's ability to express them precisely, no matter the technical prowess at one's disposal[131]. Although this speaks to language's immeasurable complexity, it is its fundamental immeasurability that is disavowed in the assessment that the mediation of the social is reducible to the communication of information; meaning arises only by virtue of being communicated, of being integrated within the circuits of information comprising the apparent totality of human connection. Symbolically, it is the diminishing of language's universal quality, and thus the equal dwindling of virtual potentialities of expression in speech. If all thought, all speech (*parole*), and all action within the symbolic is virtually structured through language, then the inherent meaning contained within its lexicon, in the semiotic specificity of the given language's matrix, tends to be confounded with - if not reduced to - its function[132].

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[130] Structurally, it doubles down on the black box metaphor mentioned above.

[131] Again we see parallels to Kant, in which then *noumenon*, the thing-in-itself, is inherently inaccessible.

[132] This formulation is somewhat reminiscent of Anton Zijderveld's study of the cultural use of clichés. Stemming from "early industrial technique", the phenomenon of the cliché originally referred to a "rational procedure to quickly and massively reproduce cultural material". Keeping in mind the linguistic connotation of the argument, he claimed that the specificity of the cliché was in its overriding of meaning by its function, as it failed to positively "contribute meaning to social interactions and communication, it does function socially, since it manages to stimulate behaviour (cognition, emotion, volition, action), while it avoids reflection on meanings". While Zijderveld's definition applies strictly to the phenomenon of clichés, it eerily recalls certain tendencies within text-based communication, not to mention the use of "emojis" as ideographic representations of different emotions. A word can be completely reduced to its functional aspect in that its singular self-contained meaning - what the word means in itself flowing from the history of its use - becomes secondary, if not arbitrary, against the information it

While this reduction is often intuitively avowed in the slough of embodied signs that are lost in text based communications (itself a further reduction of audio communications which allow for inflection in speech), but common sense can only carry one so far, and merely passes over the mutation at work in the symbolic relation to a language in its ontologization as the information within communication between nodes of interpretation. In Andrejevic's words, "This is the promise of machine language, which differs from human language precisely because it is non-representational and therefore collapses the space between saying and doing[133]."Although he was specifically referring to the automation within machines that this treatment of language enables (we will return to this), it nonetheless sums up the manner in which the functional reduction of language legitimated on the commensurability of information across different mediums showcases the dialectical relation of adaptation that is in a sense being drawn here; humans created machines in their likeness, and now they are adapting to that very likeness.

V.ii Reduction of Action to its Operability

For Freitag, the difference between symbolic and computer languages exist in their genesis and in the manner of their appropriation; the first is synthetic and expressive - and we have already alluded to the other being analytical and instrumental - the computer software is utilized rather than interpreted[134]. Tackling this difference from the perspective of the producers, of the propagators of either form will clarify the effects of modern communication on action itself. The author is engaged in channeling his or her expression through the production of a work itself objectivized within the aesthetic perception of the writer; the work itself, as well as its reception, are contingent upon a relative though still common literary and cultural universal with the reader. From this contingency rises the possibility of its communicability, but also that of sense or the meaning granting the expression intelligibility beyond the author as the source of the expression, and thereby in a sense giving the work a certain autonomy with regards to its symbolic form while also granting the author an immanent identity. The work itself is refashioned when it is

carries and the resources (time and effort) saved in its articulation. See Zijderveld, A. (1979) *On Clichés: the supersedure of meaning by function*. Boston : Routledge and Kegan Paul.

[133] Automatic Surveillance, p.12.

[134] La nature de la technique, p.396.

read; every interpretation acts on both the reader's existential space with regards to the virtuality of the self-contained (as in the objective representation of writing, the form of its empirical existence in story-telling, parable, poetry, and therefore in society, the world as symbolic virtuality) yet always-already open narratives of written language, but also the virtual representation of ideas which themselves alter the significance of the concept as signified representative of the object (is it tragic, revolutionary, original, derivative?…).

The programmer is an author insofar as the code expresses the derivation of multiple steps and tasks arriving at a desired end, and like the writer this end is earmarked with the subjectivity of its creator, the qualities of the code itself being open to judgement based on the degree of its functional and - relatively speaking - aesthetic elegance. However, derivations in analytical logic are simply qualified by their being correct or incorrect, and any value judgement on its efficiency cannot refer to anything beyond its function, ie its expression never transcends its function. Like the written narrative, the computer program is also relatively self-contained yet exceeded by a world which defines it (because it is a product of human practice), but this openness merely derives from the possibility of its analytical effectiveness with regards to the end(s) sought within the set (the structural parameters of the language) from which it emerges, since it is inherently operational, and the specific organization of the set is only generalizable to the extent that the user tinkers with the functionality of the program itself[135]. However, under the normal circumstances emblematic of its intended operation (its application), the user is simply utilizing the program towards a pre-defined end; nothing speaks through it beyond the operational intent of the programmer within the physical capacity of the object and the structural conditions under which the program was written towards a particular end; nothing essentially exceeds it.

Whatever expressive qualities emerge from it come from its subordination to the procedure rather than to an interpretation which is constantly under tension within symbolic (re)production. In a sense, it is as if the user was effaced in his or her interaction with the machine. On this Freitag is clear:

[135] This qualitative difference between symbolic language and the computer program is more obvious on a larger time scale; That the significance of a word - the signifiyng concepts linked to it - can change over times is as obvious as the fact that 2+2 will always be equal to 4.

> "Pour ceux qui sont 'devant la machine' et donc de l'autre côté de sa conception, ce qui était auparavant un cheminement empirique dans une recherche synthétique de sens, un sens chaque fois confronté par eux à la transformation du réel et continuellement réajusté en fonction de cette expérience objective au fur et à mesure que l'action progresse vers la fin qu'elle s'était donnée, cela se réduit maintenant à l'application correcte d'une procédure, et le résultat est pour eux le résultat de la procédure, non le leur[136]."

So the capacity of the user to "transform the actual" is essentially usurped by the empirical operations of the program, its perceived meaning necessarily falling back on its function, since the program itself can only refer to the end of its immediate operation with no effective possibility of accessing the empirical or symbolic significance transcending it in its utility. The sense experience resulting from the ceaseless tension between the idealization of an act against its empirical determination, and the meaning synthesized within the function (re)producing the conditions of its renewal and its possible expansion within the subject's field of intelligibility, is collapsed into the singularity of the program's predefined end.

We can clarify this last statement by means of an example of when human beings acquire new skills. When someone first picks up a musical instrument, a mess of new movements, behaviours, techniques, and ways of being confront the aspiring musician (if he or she should of course not be discouraged) down to the very way in which the instrument is held, the best way to manipulate it, etc. The mechanical aspects are promoted in practice - themselves deriving from an entire history of grounded knowledge and traditions - to congeal these initially awkward, uncomfortable movements and gestures into habits and eventually into reflexes, becoming part of the musician's way of being-in-the-world. These increasingly automatic "2nd-nature[137]" actions extend the field of intelligibility in the subject since the means of expression native to the

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[136] La nature de la technique, p.396.

[137] Recall that this general process can be understood as the symbolic extension of an evolutionary process that is formally compatible with the view of subjectivity adopted throughout this work. There are various biological processes that over immeasurable periods of time crystallize into habits and then into reflexes as part of any organism's continuous interaction with the world in which it dwells. As we have already seen, this process is a result of adaptive necessity just as much as that of a relative freedom the organism entertains with its milieu (*umwelt*), both contributing to the essence of whatever *it* is - it is essentially the condition of its expression. With the increasing autonomy of these embodied processes (in its more advanced stage what we call organs), the world is disclosed to the organism in a way that is specific to its kind and thus constitutes the very totality of its sense experience, including awareness if not of itself, then of its relation to other organisms, including the recognition of its own. In that sense, and with regards to the anchoring of the symbolic within and above this biological contingency, what we call 2nd-nature could on another plane be conceptualized as a disavowal in the properly positive psychoanalytic sense (*refoulement*).

instrument's theoretical (symbolic) and mechanical functions are exponentially enlarged through the subject's increasing capacities. In other words, the instruments' "causes" (*aitia*… its rationality) align with the mechanical practices and the virtualized intentions of the aspiring musician, and this alignment is dynamic and contingent through a variety of factors such as the progression of their skill, their investment in the art, etc. In other words, the practices that went into the instrument's crafting are co-enabling the skills for which it was conceived and the expressive intent that justifies and gives meaning to the practice[138].

So fixed or established behaviours in our bodies open up the scope of human experience in symbolic activity, granting consciousness its existential reach into an 'objectively' greater horizon of phenomena in establishing the new conditions of the immediate present and thus a world[139]. But - like our physiological and metabolic processes - while the experience human beings acquire stand anywhere between the potential and the necessity of their enlargement coinciding in the existential field of the same subject, the embedding of technological automation of the sort described within action essentially involves its enlargement outside the subject of symbolic conscience, outside of space and time, which collapse on themselves in its receding from symbolic disclosure. As Freitag surmises,

> "Ce qui disparait, c'est l'engagement existentiel du sujet dans l'acte, sa conscience sensible et symbolique ou culturelle, qui se trouve reportée en dehors de cette processualité extériorisée et maîtrisée, ou contrôlée[140]."

Alas, it is not that the actions or processes in which a computer program is inserted are on the whole devoid of meaning, since they are still for the moment contained within a larger universe of human practices. But the program - in its self-referential exercise - becomes black boxed within the ongoing process of development in which these practices not only renew their

[138] It is in this manner that we can view an object as "extension"; it grants the subject a voice beyond the organic field of his or her body, the same way a simple tool enables whatever purpose it was intended toward. Furthermore, it must be stressed how these poles between action resulting from unified symbolic expression and the computer program are extremes, as a relative level of alienation from an object can yet be tolerable and conducive to expression in action (it also signals the fundamental distinction between a tool and a machine) . In any case, the extension also contrasts an idea of authentic 'communication', as opposed to the person-message-person communication of the informational subject.

[139] One can readily see this by consciously focusing on their breathing while being mentally engaged in other activities…

[140] La nature de la technique, p.391.

meaning, but are always pregnant with the potential to catalyze the expansion of the subject's symbolic field of intelligibility, which remains the formal synthesis of the different moments of action unified within the subject. If we take a bird's eye view and conceive of these black boxes[141] in a generalized manner as a means to regulate human practice, they collapse the conditions of their functioning and merely retain the intentions reified in their ends for which they were produced (to the extent that the technology works as intended). In this case, they ultimately - in form and function - refer to a manner of being that, as we have seen, reverts to the inherent operability of a function as a means of control in the problem solving of circumstantial objectives estranged from an idealized end transcending the empirical and intentional aspects of practice. This relation is furthermore doubled down when elevated to another degree, that is to say when these programs are themselves the result of other algorithms generating more efficient interpretive states of the system, then the program's self-referential essence is repeated on a higher level of production alienated from the actions of actors with the system. The expressive and normative poles of synthesis collapse in uroboric forms of self-reference outside of space and time, immediately operable according to the formal logic of the machine (effectively performing a reification Luhmann's vision of the social system). The growing effects of generalized technological intervention within the fabric of social life therefore essentially doubles down on the ideological consequences of the reduction of language to its communication: It is not just space and time that collapse in the phenomenological mediation of the machine, but the reflexive expansion of the existential field of intelligibility within the subject that tends to be curtailed.

The point of the above comparison is not about revealing some inherent "dark side" within the operability of action. However, it does showcase the manner in which the collapse of normativity at the structural (systemic) level curtails the symbolic reach of action phenomenologically. While the utilitarian philosophy of value and interest underscoring the invisible hand was itself plagued with its own myopic views of society, it still managed to present a view of human action grounded on the free choice of individuals, albeit one that was reducible to a calculation. With the information marketplace, symbols, concepts, and ideas are not valued simply through their being contested, celebrated, negotiated, in short: acted on by the

[141] With respect to the argument being made, back holes would see to be a more effective analogy…

collectivity engaged in their social reproduction according to the manner of their being-with-others. The process is rather increasingly occurring within a modern communicational infrastructure that sets the terms for the market in a manner that is devoid on any transcendent principle beyond the code; the function of the program itself is itself surpassed by a new function in reaction to correlations which are increasingly black boxed to the programmers themselves. Simply put, if algorithms have a cause in what gets "air time", who "goes viral", and how the network literally 'produces' communication[142], then the Hayekian market-as-subject is in a sense realized in the models that are projected onto the network. In this scenario, action (communication) operates on action, the shaping of which is fundamentally divorced from its source within the subject, always auto-referencing, enhancing, the self-correcting capacity of a system incessantly vectored towards its greater efficiency.

If technique is seized as instrumental within action through the act of production in which it reveals itself being bound to an idealized end, then how should we qualify productive activity within a network of communication? In other words, how does it speak to the ends of one's actions? We've already mentioned how communication itself becomes an act of labour; it is the productive capacity of the medium enabling the reproduction of the network while simultaneously capturing the functioning of its black boxed[143] "non-digital relays" i.e people[144]. Furthermore, the product of labour - the information resulting from action on the network, is completely arbitrary and generalized in relation to not only the intention behind the communication, but the act of communication itself. As Freitag notes, information in this case is not just raw material, but the end product as well. Information is used to produce information in the name of information on a network of information; in Aristotelian terms it is at once the formal, material, final, and efficient cause[145]. Accordingly, since the technical moment of action must be reconciled in an end that transcends it (recall that instrumentality in its specificity entails

[142] "The medium is the message"…

[143] One may have noticed the integration the black box image from both the perspective of the subject and the perspective of the system. In the former, the operations of the system implode the reflexive process of knowledge acquisition in the symbolic. In the system, it is the reduction of the subject to a node of uncertainty which itself presents a problem of commensurability with the network.

[144] Such is the case with SEO (search engine optimization) techniques in web design. Take the example of Kialo, a new variation on the social media platform which organizes debate according to the organization of different ideas within argument trees. The profitability of such a platform does not stem from a product that they sell, but from the increased organization and ordering of information that it provides to larger platforms on which the site is embedded.

[145] La nature de la technique, p.386.

the differentiation of the means from the end as well as its formal indifference to the end), and that the end sought - consciously or unconsciously, intentionally or not - is the better efficiency and increased operability of the network, then instrumentality refers back to itself within the synthesis of the different moments, and the meaning of an activity becomes essentially intertwined with its function *without exceeding it* or going above and beyond it.

Given that the arithmetical infrastructures of the entire system adjust themselves through what is inputed, that these adjustments enact further inputs, and that this cycle regenerates the conditions of the production of value through its assimilation of prior production, it takes upon itself the terms of (re)production in a manner that is removed from the human action instigating its movement. The overlap of action on action in operation, rather than action according to the 'negotiation' of the normative moment of symbolic synthesis is therefore essentially *irreflexive*. The singular action of the subject, removed from its inherent social reproductive capacity in as much as the efficiency of the act is extracted from its symbolic ontological unity, is equally removed from the reflexive necessity rooted within action because the network commandeers the negative and positive moments of the normative relation of the subject in the reproduction of "the social", as it outlines both the limits of subjective operability and its opening within the network. The same is true when we approach this phenomenon via language, as the transcendental quality of concepts from which thought and action derive meaning necessarily implies a position of relative autonomy and reflexive distance absent within its computational processing. Otherwise stated, in cyberspace one is free to pursue, imagine, realize, satisfy, any and all curiosities, fantasies, and desires, but these are increasingly fulfilled according to a market logic that effectively (not just conceptually) appropriates the nature of social reproduction for itself[146].

Therefore, the legitimacy of the market rests on the equation of this freedom of choice with the opening of communication and information on a planetary scale. But as has been evidenced throughout this work, this kind of technological determinism feeds back on itself when the notion of progress through technique, although still entrenched in the technical act as generative of meaning - refers to the operations of technique itself not as the means towards emancipation, but as its very condition. This fact is brought home with Freitag's claim that the hallmark of the

[146] As we have seen, this logic is not grounded on the inherent rationality of the individual subject, but on the rationality (operability) of the market itself!

mode of regulation of postmodern technologically mediated societies is centred on the capacity for the *immediate* actualization of everything - "the common sense of pragmatism […] and auto-referential systems"[147]. From a semantic standpoint, the technical condition of action is either completely recused (I don't care how it works, just that it works!) or, as we have already observed, sits on itself as the main driver - as the "meaning" emanating directly from the function of action. Given that activity on the network increasingly produces the conditions of social relations, and that this entire process is integrated into the network's operations, both the expressive and normative ends of subjective synthesis within thus disappear within its operability.

V.iii Dissolution of Transcendental Identity

Having shown the manner in which contemporary communications and its digital infrastructure - legitimated on techno-scientific practices and neoliberal utilitarian dogma both conceptualized in their likeness to cybernetic epistemology - tend towards the reduction of language and action to their immediate operability within an information network, we are now in a better position to grasp these effects on subjectivity in its formal and existential unity with itself and with the world. As evidenced earlier, the ontological condition of the subject is necessarily one of alterity. It is constitutive - the mark of the human being's necessary objectivation within the world, so that his or her inscription is not just what gives meaning to activity, but also what characterizes the conditions of identification with and within a larger whole in itself and with regards to exteriority, whether it be the world or nature. The argument here is therefore that in a system whose operations we have shown essentially cannot refer to anything beyond itself (*autoréférentiel*), and thus appropriates the other modes of expression proper to symbolic existence, alterity tends to dissolve in the confusion between the (empirical) world and its (reflexive) representation, and the only force substantiating the subject beyond his or her activity is an ideological reference to an idealized self absolutely free from all constraint.

[147] Identité transcendantale, p.127.

Epistemologically, the contemporary dissolution of transcendence can on the whole be situated in line with a general process of ongoing rationalization (disenchantment, secularization, etc.). However, we are not claiming a progressive re-appropriation of an exteriorized transcendence which manifests the steady appeasement of myth, religion, and the disenchantment of the world. For Freitag, the opposite is rather the case: it is the world itself in its disclosure that is originally sacred in early societies; language is immanent to the world, and thus the entire world in a way speaks to and through subjects (*la parole*).

> "La sacré n'est donc pas transcendant, mais au contraire fondamentalement immanent au monde, selon le modèle d'une constante circulation entre le "caché" et le "manifeste", et il est sans cesse fréquenté ou côtoyé dans la vie quotidienne où il surgit non d'en haut, mais de la *profondeur même de l'être*…[148]"

As mentioned earlier, symbolic identity is originally contingent upon its exteriorization within the scope of a specific language that a priori defines the manner in which objects - virtual and empirical - are reflexively disclosed in their representation. Reflexivity implies elevation beyond the immediate rapport with the object in sense experience. It is in this manner that the manner of this relation transcends its sense-condition (*meaning is not empirical*). The introduction of gods, or more generally "the heavens" above and beyond the world "here below", further exteriorized the manner in which the unity of the subject is maintained in relation to the whole now mirrored against the alterity of that which is beyond it. This unity is double: identity of self and for others (projection as alter ego in reflexive understanding) and the civilizational whole contained therein in the form of a generalized Other (Mead, Lacan). This reached its apex in modernity with the interiorizing of the transcendental unity of society - now objectified in its concept - within individuals. The political instance of reflection on society unifies the manner in which these transcendental a priori (unity of the self and the collective) were reconciled within the social differentiation of activity in modern institutions, but also relegates the world itself ("nature") to its mere empirical reality, subject to human mastery.

Alas, the perversion of our relationship to nature is the clearest and most easily observable of these symbolic structural conditions within communication systems. The world loses its exteriority with regards to artifice: Ubiquitous computing - resulting from the ongoing

[148] Freitag, M. (2009) *L'abîme de la liberté: Critique du libéralisme*. Montréal: Liber; p.476. Emphasis my own.

development and automation of technologies purposed to regulate social life within the general umbrella of algorithmic governmentality - exemplifies this well and manifests the extent to which the "living" environment is increasingly integrated into the information network, disintegrating the distinction between "nature" and "society" as either pole tends towards its disclosure as simply "interactive". Interactivity becomes the manner in which the milieu is "alive", purporting to be adaptive for the sake of convenience, when in fact the subject is adapting to that particular mode of disclosure. Phenomenologically, we can conceptualize this idea in a manner like Heidegger's concept of *Enframing* to an information society[149]. The German philosopher famously argued that modern technology (and indeed, it was the industrial machine that he conceptualized) is 'a mode of revealing', of disclosure in the sense of *aletheia*. This revealing takes the form of a challenge that is placed upon nature - "the unreasonable demand that it supply energy that can be extracted and stored as such[150]". Through its mechanisms of unlocking, transforming, and distributing nature's energy and thus regulating and securing it, modern technology's revealing becomes incessant, or fixed in its presence, and it demands of its object to be 'on call' for continued exploitation of its resources, which Heidegger refers to as "standing reserve". That challenge which orders the revelation of Being as standing-reserve is what Heidegger calls "Enframing"; it is the course whereby technology reifies itself as the lens through which the world can be observed and inhabited. This is essentially analog to the manner in which the equation of language to its communicational function effectively reduces the complexities of social life to the overlay of messages being exchanged. But over and above

[149] In the end, Heidegger presented an account of the becoming of technique by investing the ontological reach of disclosure (*aletheia*) within it and thus bypassing its specificity within action. From the perspective of critique, Heidegger extended the entire weight of such analyses on the historical unfolding of the metaphysics of science, and as such his account practically ignores the dialectics involved in technique's unfolding - and therefore its ontological specificity - in such a manner. Be that as it may, his phenomenology of Being-with technology ultimately describes rather well the manner in which the objectivity of the world is funnelled into a specific mode of revealing, which is here and now the processing of the environment into its treatment to specific functional ends integrated within the system, be they industrious, sustainable, aesthetic, etc. From the perspective being presented here, it is analog to the collapse of the subject into the object; in the words of Heisenberg, "everywhere men [sic] look, they see only themselves". See Freitag, M. (2003) 'De la Terreur au Meilleur des Mondes. Globalisation et américanisation du monde: vers un totalitarisme systémique'. In Dagenais, D. (Ed): *Hannah Arendt, le totalitarisme et le monde contemporain*. Québec. Presses de l'Université Laval.
; p.355, footnote 3. Elsewhere, Freitag has noted how Heidegger presented the objective pole of technique's hold on the subject, whereas Gehlen, in the ultimate discharge of human thought al-together through its technical appendages, represented its subjective end.

[150] Heidegger, The Question Concerning Technology, p. 14.

Enframing's locking of nature into a single mode of disclosure - that of its availability for exploitation - it is, as noted above with Gagné, the reduction of society to its communication, the subsequent exclusion of all symbiotic non-communication based systems harmonizing with it, and ultimately the concurrent tendency to *collapse any alterity with nature whatsoever* as the latter is integrated into the system itself, only to be maintained in the imaginary through its fetishized objectification as a site of both "reconnection" and "unplugging"!

So the "entire objective horizon of experience" tends to turn into a virtual 'world' as "it falls into the grips of systemic regulation or integrates itself to it"[151]. But in an odd though suggestive play of words, we can conceptualize the other side of this phenomenological closing-in within Enframing with the *framelessness* characterizing this digital capture of the world; the end of representation and its non-objective depiction of reality in its essential occluding of information. The more pervasive the data capture, the more accurate the operative model of an individual's identity will be and the better the market mechanism will adjust to his or her distinctiveness. This process is "frameless" in that both the boundaries of information collection in terms of its cumulative capacity and the various "forms of representation we rely on to reproduce our reality for us" are no longer subject to limits[152]. To be sure, the confusion of individual identity *proper* with its representation has in a sense long been part of a modernized regulatory mechanism within the administrative function[153]. The radicality of contemporary communications stems less from this equation, but from the pretence that as the system widens its reach in its gluttony for more information, increased data capture will provide a more

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[151] Totalitarisme Systémique translation my own, p.367.

[152] Andrejevic, M. (2018) Framelessness, op. cit.

[153] This is true even in practice. Kaufmann has reviewed the historically first conceptual uses of identity as *identification* in administrative efforts to regulate "the new society" emerging from the moors of tradition. Identification papers and later the identity card became an important function of the administrative mechanism. The ID card was legitimated on the premise of maintaining order and control over the governed body. Just as parish registers holding baptism records (handed over to administrative authorities at the end of the 18th century) were legitimated on the proper granting of ecclesiastical benefits, proper administration on behalf of the state involved the reduction of the complexities of real life into a few key characteristics embodied in print, constituting a 'necessary' lie for the administrative effort which, from its point of view, was the original and the represented body its double. This original function was avowedly instrumental, but despite its aim ultimately vectoring towards the liberties and rights of the embodied individual as such, it eventually came to be equated with his or her identity proper: Reading from the letter of French law, stating that "[T]out Français (…) ne peut justifier sont identité que par la production d'une carte d'identité", Kaufmann highlights a "confusion inaugurale, aux lourdes conséquences. Toute la réalité d'une personne serait désormais censée pouvoir être concentrée en un seul papier, l'identité apparaissant ainsi comme une donnée extrêmement simple et contrôlable". See Kaufmann, J-C. (2004) *L'invention de soi: une théorie de l'identité*. paris: Arman-Colin.

objective take of reality that bypasses representation altogether. When algorithmic governmentality enacts the mechanisms by which normativity itself collapses onto the real, the objective reference becomes the system itself whose functioning refers back to its incessant drive towards greater efficiency; representation - whether it be the narrative frame of knowledge or the virtual identification to a greater collective - is ideologically reduced to a control mechanism made legitimate through the striving for constraints that are immediately tailored to (immediately operable on) the individuality of the subject. The market promises to fulfill all individuals their proper share of value in their subjective planes that are essentially irreconcilable to the next; that is why *echo chambers*[154] - the information "reality balloons" in which specific world-views are reinforced and amplified - are both functionally convenient with regards to the system; they both maintain a sense of subjective autonomy all the while keeping these spheres commensurable to each other from an economic or business perspective. However, this commensurability speaks only to its market valuation: From the reflexive production of meaning and its fecundity within the symbolic, these discrete realms are opaque to each other, segmented on the systemic capture of impulses and subjective patterns indicating identification with various fragmented interests and their associated products and/or groups. Moreover, given how information is tailored to these individual affinities under the banner of convenience, relevance, and catering to subjective taste, the mediated reference to a common world is slowly unraveled as the subjective references themselves are increasingly specialized and all-encompassing to the point of being irreconcilable with each other[155]. In other words, the world slowly loses the symbolic depth of its common objectivity, and the generalized Other as the unity of society contained within the individual is disintegrated only to be recomposed *from the outside*, within an amalgamation of many smaller "big Others" generally connected by arbitrary affiliations[156].

A similar thing can be said of self-identity. For starters, pervasive data capture merely extends the reach[157] of the hyper-rationalized re-appropriation of the symbolic economy of the subject - manifested in the increasing management of individuals "kept together" through the

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[154] While *filter bubbles* are more specific in their definition as the narrowing of information received by subjects through the past online behaviour, the terms are essentially interchangeable for the point being made.

[155] In the words of John Lanchester, "Our conception of 'we' is becoming narrower". See Lanchester, J. (2017). *You Are the Product*. London Review of Books, 39(16), 3-10. Retrieved from https://www.lrb.co.uk/v39/n16/john-lanchester/you-are-the-product.

[156] Identité transcendentale, p.125-6.

[157] Increasing the frame until we can do away with it altogether.

interventions of experts in public as much as private life (to the extent that such a categorical distinction continues to make sense). Mobile apps and bodily sensors represent the latest tools for the neoliberal self-responsibilization of the individual's physical and psychological well-being, promoting habits and behaviours that help individuals "be themselves" against the slough of often contradictory demands they must meet. Stated otherwise, the subject is not adaptive in the sense of a virtuous malleability or flexibility, but rather must mold one's self according to different situations through the injunction to embrace one's "unique self". Slavoj Zizek makes a similar point when he claims that extreme individualism inevitably reverts to its opposite, since this injunction to be oneself inevitably leads to permanent refashioning and radical uncertainty, with "no proper face"[158]. Identity is thus not so much multiple or fragmented across a plane of particular interests - as popular currents in contemporary sociology have either argued for or taken for granted - as much as adaptive to circumstance and accompanied by an ideological injunction to be enthusiastic in its embrace[159]. Since the 'common sense' of activity increasingly lies within its utility, knowledge is therefore increasingly reified through the accumulation of as many different 'experiences' as possible (The underside of information as currency). This is particularly true of self-knowledge, which in the absence of a transcendental referent sinks back into the reflexivity of the subject always trying - but never succeeding - to "overcome" itself[160].

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[158] With the substantial difference that for Zizek, this is because what the mask "ultimately hides is nothing itself" whereas for Freitag, this "emptiness" is specific to the contemporary mode of social reproduction as we have alluded to it throughout this analysis. Nonetheless, Zizek has long opposed the postmodern argument that we don't have a fixed socio-symbolic identity, "adrift in a sea of inconsistent selves" where each part reveals a face of one's personality; subjects are not necessarily more fragmented or dispersed than they were before. Rather, Zizek argues that the "symbolic fiction which confers a performative status on one level of my identity, determining which of my acts will display *symbolic efficiency*, is no longer operative". See Zizek, S. (2008) *The Ticklish subject: the absent center of political ontology*. London: Verso.

[159] Sociologically speaking, this idea of an adaptive agent opens up a breadth of epistemological and methodological questions. Would it not suggest that the existence of the "classic" post-modern sociological lingo of identity as "fragmented", "fluid", "variable", etc. as formal categories of the problem of identity are prescriptive, and thus are diverting attention away from the important kernel, to speak ironically, of what is actually taking place with regards to identity as such in the context of information society? Should the researcher's toolbox not adapt to the new dimensions of social interaction? How do these new tools effect the nature of the questions pondered? In what ways do our current tools provide distorted views on the ontological reality of relatively new yet pervasive forms of communication? These questions signal the manner in which this thesis essentially flows along this line of inquiry.

[160] David Riesman provided an enlightening, if not somewhat crude, typology contrasting the modern and contemporary character types in his postwar sociological work "The Lonely Crowd". While the modern "Inner-directed" character was equally concerned with repute and keeping up with his peers in his everyday life, Riesman argues that what defines the contemporary "other-directed" individual is the internalization of this necessity to the point of keeping up with others in the quality of one's inner experience; the moral compass is expanded to include

This is not a continuous process of becoming in the "overcoming yet never succeeding" path of life, but an irresolvable conflict between complete transparency and openness, and an assertion of distinctiveness. Relative to oneself, the subject is therefore as Freitag puts it, "a bottomless well" that must be explored[161].

The metaphysics of this disjunction within the unity of the subject and the ideological impetus towards framelessness are most egregious within virtual reality. But this is not the same virtuality as elaborated throughout this work. Here the symbolic virtuality contained within the concept in its phenomenality converges immediately with sense experience, collapsing every measure of necessary distance; nowhere is the concept more effectively collapsed into the real, action more immediately removed from its normative reproduction, and the unity of subjectivity more immediately dissolved into its operations. In a sense, the pretension of frameless objectivity combined with the manner in which the reach of action is appropriated signals the increasing integration of subjectivity itself within the system. The positive limitations of the world acquiesce to those of the system (under the pretence that the system has no inherent limits) within which the creative liberties of the subject flow in a psychotic fantasy. Idealization gives way to realization as absolute possibility; if something can be done, it should and it will be. The possible becomes the new horizon of a world unregulated by anything other than an aimless (generalized and arbitrary) desire for possibility as such, and to limit such freedoms beyond the operable parameters of the system constitutes an unnecessary constraint.

In opening his theoretical exposition of the expressive end of the dialectical moment of subjectivity, Freitag takes up the concept negatively by illustrating an idealized truly objective form of knowledge:

> "Une connaissance idéalement objective mettrait en oeuvre un système opératoire parfaitement autocontrôlé, produit exclusif d'un arbitraire opératoire désincarné, c'est-à-dire du pur concept d'opérationnalité. Un tel système ne comporterait alors aucune détermination a priori, il ne subirait dans sa construction aucune contrainte, il serait le

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peer groups and broader social currents, rather than just the figures of one's upbringing. On the surface, the other-directed person seems much more relaxed and less prude than the inner-directed type. however, in the former's exploitation of leisure, the self is seen as an object "whose upkeep [is] carefully maintained for resale purposes"; combined with the fact that popular culture becomes the training ground in group adjustment - popular culture that is equally the site of mass consumption - the lack of clear boundary between group adjustment and private interest, between work and play, and between production and consumption all culminate to the impossibility of escaping from one's self because *it isn't clear what this self is.*

[161] Identité transcendentale, p.129.

> produit d'une pure liberté. Il s'agirait en somme d'une pure "opérationnalité sans sujet ni fin", entièrement libérée du sujet lui-même et de toutes les déterminations impliquées dans sa propre constitution en tant que sujet réel, c'est-à-dire par son propre procès de reproduction dans le monde et dans la société[162]".

This essentially describes the archetype of what is at play within the virtualization of the "real world" and its yet more empirical manifestation within virtual reality proper. But it also invokes the radical promise of emancipation issuing from technological determinism; "a pure operationnality; a non-being without subject nor end". It is the "subjective" pole towards the technological singularity, which for Ray Kurzweil (who might I add, has worked for Google since 2012) signals the point where an artificial super or "general" intelligence transcends biological limitations, enables the dramatic amplification of creativity, and muddles the distinction between "real reality and virtual reality"[163]. The possibility or impossibility of its outrageous empirical realization is less important than what it betrays about both the technical imaginary and the fact of its effective possibility with regards to the specificity of the symbolic. What is thus conceived as autophagia within a globalizing ideology of progress through the absolute technical emancipation of the individual can only rather be witnessed as loss and sacrifice within the human spirit; having thrown away bonds perceived as chains, only to have the flesh itself feel like shackles in the yearning to emancipate oneself completely from the limitations of the world.

[162] Dialectique et Société, Vol. 1, p.367.

[163] Kurzweil, R. (2005) *The Singularity is Near. When Humans Transcend Biology*. London. Penguin Books. We can interpret this in yet another way as the unburdening (*décharge*) of human being's necessary tie to biological function in Gehlen.

VI. OUTPUT

This "original promise" of emancipation from the world born with the invention of cyberspace, and echoed in culture and media through the cyberpunk aesthetics and science fictions narratives in literature and film in the last few decades, and now the democratization of an automated model of governance based on a vision of total information capture: all invoke the ideal of an absolute subjective existence delivered from the biological and social constraints qualifying symbolic existence - the final chapter in the unfolding of Gehlen's technical liberation. Whether celebrating the impending arrival of humanity's next evolutionary step or mourning its imminent loss, it is the sense of inevitability that consistently figures itself among these various representations of the relationship to technique and its unfolding. Alas it is this apparent inevitability that this work has moved against. Above demonstrating the obvious fact that the increasing complexity of our extrinsic technical developments are not occurring independently of human practices, one of this work's main drivers has been to validate the notion that sociologically making sense of our current relation to technique necessarily involves an avowal of both the symbolic nature of subjectivity and the epistemological influences that have animated our contemporary relation to technique in its historical specificity.

Consider how in Greek antiquity, *ergazasthai* denoted the practices involved in the care of nature (such as arboriculture or pastoral activities) and the order of its disclosure, in comparison to the laborious agricultural practices in *ponos*, and a more active and provocative relation, which manifested in artisanal practice (emanating from man rather than from nature) as *poiesis.* The wariness towards this provocation (*hubris)* was for example augured through the aforementioned structural dependency of the artisan to the collective and subjugation to the forms of his creations[164]. All three qualify modes of revealing (*aletheia*) as a generalization of

[164]Recall that the autonomy of the artisan implied the mastery of a certain trade, the knowledge or "know-how" which remained outside the scope of collective social life. Both the practice and passing on of this know-how (*technē*) had a certain esoteric character reminiscent of magic, doubling over his status as exteriorized, and qualifying both the artisan's identity as such and his or her relation to the collective from which arose the derived meaning of artisanal activity. In the context where technique itself has yet to arise into its own, *poiesis* was intrinsically tied to *technē*, not simply as art, as revealing, but in its being outside the general economy of the collective, outside the *polis* (rather within the economy of the household - *idion*). In effect, the latin of industry, *endostruere*, refers to production "from the inside". See Freitag, M. (2008) *L'impasse de la globalisation: Une histoire sociologique et philosophique du capitalisme*. Montréal: ecosociété; p.68, 403.

the ontological relation between the "hidden" and the "manifest", itself the spectre of the original symbolic differentiation between the "sacred" and the "profane". By contrast, Hobbes' "dictates of right reason" - his name for the "laws of nature" - are contrary to tradition centred around man. The idea that man is but the art of God should be understood in the context that God and the world *are not equivalent*[165]; God, the soul, and speech that has no basis in perceivable reality are of an immaterial status. On one hand, the world is immanent to the will of the divinities beyond, and the art of men in *poiesis* - due to its potential for immoderation (*la démesure*) - must be kept in line with the order of nature in its cultivation; in its belonging to it. On the other, while natural laws are necessarily manifestations of God's dominion, the will of God is manifested and exercised through the art of man which encapsulates both his very ability and necessity for government.

Such is the manner in which the unity of human civilization outlined itself against nature within political modernity. Freitag's description of the historical unfolding of technique demonstrates that it could not have manifested in its conceptual specificity before the act of production differentiated from its art (its expression). However, the normative and structural conditions of its ideological liberation were already latent from the moment the transcendental reference to a common world became contained within the individual (all the more when one considers the distinction of the "product" as artifice), a most condensed example of these conditions being found within scientific epistemology. Through this discharging or forgetfulness (*lethe*) of being in its belonging-to, in the steady dwindling of the irreducible alterity with the world, with others, and with self, and the abating of representation fed by increasing technological ubiquity, it is the general *symbolic consistency* of human existence that is slowly being sublimated into the system, regardless of whether "the system" refers to the hyper-rationalization of a general symbolic structure or its reification within a pervasive communications network increasingly grafted within social life.

Practically speaking, the first cyberneticists generally understood the inherent limits of universalizing information in its ontology, particularly within the context of mathematics. In

[165] Leviathan, XXXI. 15; "Secondly, that those philosophers, who said the world, or the soul of the world was God, spake unworthily of him; and denied his existence: for by God, is understood the cause of the world; and to say the world is God, is to say there is no cause of it, that is, no God."

Noble's analysis, Wiener in particular was not caught up in reifying the biological similes for feedback control:

> "His approach, reflecting a lifelong interest in biology and a morality based upon independent acts of conscience, was organic, ecological, and human. He emphasized especially that living systems were open and contingent rather than closed and deterministic because the "steersman", the self-correcting mechanism, was human in social systems and thus moved not by formal logic but by skill, experience, and purpose. Any technical parts of such systems, he stressed, should be designed to complement, to be compatible with, and therefore to sustain and enhance human life. […] Overly determined systems would suffer in several serious ways[166]."

Recall that the problem the original cyberneticists faced was that of narrowing the context of information into the system without diminishing the nature of information's transmission, and this problem became practically insurmountable when questions of reflexivity (self-reference) within the system were involved. It was found that an organism's homeostatic processes could in principle be rationalized and reproduced in machines to serve a very specific function, but that the issue of reflexivity involved a level of outside noise and complexification that even went beyond the level of representation comically elucidated in Borges' fable of the cartographer drawing a map as large as the empire. Every iteration of the 'reflexive-like' feedback loop invariably creates a surplus of noise that cannot be accounted for by the system, eventually rendering the closed system critically unstable.

The presence of noise in the system carries the image of that which is beyond the system's apprehension; that which cannot be reduced to a series of logic gates. In a way, the excess that inevitably marks reflexivity in the system effectively signifies the impossibility of encapsulating (or at the very least fully determining) the dialectical moment of synthesis where a subject realizes itself in its specificity within the objectivization of a world and thus indicating the capacity for judgement he or she enacts. In Freitag's thought, this inability to encapsulate synthetic judgement speaks less to the failure of cybernetics and information technology, but

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[166] Forces of production, p.71; "In striving to construct a practical philosophy of technology that would meet the challenges of the second half of the 20th century, Wiener asked his readers to stop and reflect deeply about the new technology: "just what part you wish it to play in your life and what relation to it you wish to have are the choices at issue"". In an ensuing footnote describing Wiener's refusal to participate in military research, Noble further notes that "His professional colleagues, step-in in military research and development, continued to profess their admiration for Wiener, but dismissed his social writings as amateurish "philosophizing," a careless overstepping of the bounds of his scientific expertise and, to some, a sure sign of his approaching senility".

rather evades the ontological nature of human practice and the manner in which being's capacity for synthesis is expropriated to and dissolved in the machine's mode of acting in the world (Gehlen again). It essentially usurps the normative ontological and epistemic conditions of possibility and renders them as pure operability within some probabilistic potentiality, as the quest for a positive knowledge of reality is replaced by the direct mastery of all that we can anticipate, control, or effect in our environment, so that the world is now seen and effected through our capacity to delegate action.

This aforementioned "excess" of the existential awareness of reality equally signals the fallibility constituting the defining boundaries of our capacities as receptive beings and goes hand in hand in its limiting capacity with the synthesis of the categories of action in producing meaning in the world. Bergson once hypothesized that the brain was reductive in nature rather than productive; that it served as a resistor to the information available to us in the world rather than an organ which accumulates information over time, so that the organism may find its way. The world is already in a sense contained within the individual. To narrow it into a series of discrete information flows to be disclosed in consciousness, so that it may then be usefully appropriated, is nothing more than a single mode of activity, that of technicity developed under an evolved mathematical logic (whose symbols are emancipated from worldly geometric forms) declaring its supremacy over other forms of knowing. There is a fundamental difference between the overcoming of limitations, and the self-destructive attempt at eradicating limitation as such. Even as a mere thought experiment, Bergson's idea compels us to consider the ways in which the limits of our humanity, both physiological and thus symbolic, are so much more than boundaries that we must emancipate ourselves from. The world binds us, and as such provides us with an avenue for expression and growth. Affectively and existentially, boundaries in space and time substantiate our sense of purpose and our questioning of the world while granting us the conceptual tools to even begin making sense of the infinite; the fundamental ineffability of the cosmos is at the foundation of the transcendental ground of existential inquiry. Pure information as objective knowledge gives us exactly what we strive for; the technical requirements to master our material condition, at the cost of that which is has always been essentially and, as I argue, necessarily beyond our conscious understanding and thus our language as communication; the experience of the world itself. Relative to this viewpoint, technique is to be brought to its highest immodesty (*hubris*) at the cusp of information society, and while "the machine's" glutinous

appetite for information is justified under the rhetoric of increasing the quality of life of all its participants, the subject's antonymic engagement with the technology does not reproduce the conditions of possibility for these ideals, but merely the operations of the machine. As one of the many worldly references to the essence of human practice and humanity more generally, technology is here to stay; to rebuke it is to miss the point. What we must not allow ourselves to accomplish however, is its substitution on one hand for the very transcendental referents which defined human beings through the general capacity to develop it to such an extent in the first place, and on the other the conditions under which we may confuse evolution with self-annihilation in the subtle but important diminishing of the inactual within representation. An activity cannot be more effective, efficient, and expressive in any meaningful sense if its cost is the loss of catharsis, the transcendent, and the sublime.

At the beginning of this work we inquired about the social and ideological dynamics at work with Stradivarius sound bank and the idea that the preservation of an objects essence can be "saved" through digital reproduction. It may very well be the apex of current technological capability, and one must entertain the possibility that it exceeds the technical capacity of human hearing, but it remains an act breaking down the sound of the instrument into its basic characteristics and preserving them as either samples or impulse responses. The technical capacity of the senses on its own cannot contain the sum of their coming together under a lived experience that is recognized symbolically. From the perspective of an *activity contained* in the object's *use*, the technical prowess of the musician is only a factor insofar as he or she can let the instrument speak for itself. So they make it run through all the noises, sounds, dynamics, notes, and scales which are in themselves outside of any musical circumstance, beyond the limits of the contextual, and therefore arguably devoid of musicality. In other words, it expresses an idea of instrumentality (in this sense quite literal as *instrumentation*[167]) that is completely devoid of humanity.

On a higher level, we have seen how the rationalization of institutional regulation - not introduced, but rendered increasingly effective - through systemic automation collapses the necessary transcendental quality of action in preserving its specificity within their respective institutional contexts. To the extent that information (knowledge) is what assumes the form of a

[167] This perfectly exemplifies the necessary reference to action within instrumentality in that the latter cannot be wholly contained in the tool.

commensurable value, it becomes the ether of social and economic progress (when these dimensions are not simply conflated!), and the various domains of practices within society accommodate themselves to its production and continuity.

It is precisely this shift - both real and conceptual - in the quality of institutions, the nature of the roles they inhabit within society, and the place of the subject within them that evades the social science currents grounded in cybernetic conceptions of pure information that feed both notions of the social as manifested merely in relations between individuals and the view of society as a system. From this perspective, the social sciences are no longer in a position to critique the grounds of contemporary society since its general conception of the subject obscures the radical change both it and society undergoes within algorithmic governmentality and the technocratic management of social life more generally. Durkheim's conjecture that sociology should have its own scientific object - that of society and the social phenomena it encompasses - should be interpreted through Freitag's argument that, within the larger scientific aspiration of acquiring new knowledge, sociology was instituted on the aim of enlarging society's knowledge of itself. Critique thus plays a primordial role in its conception. Yet, what it accomplishes today, in the context of the university organization that is essentially charged with the creation of value (knowledge) instead of valuing knowledge, is essentially in continuity with the efficient pragmatism of what the system does for itself.

> "Dans cette nouvelle condition sociétale, les "sciences sociales" sont portées à s'identifier directement à la fonction de gestion technocratique du social et de production de l'unité de la société, en même temps que le "technologisme" devient leurs discours d'autolégitimation immédiat, en ce sens qu'il s'identifie désormais aussi au discours de légitimation de la société. *Toute distance entre la normativité épistémologique des sciences sociales et la normativité idéologique de la société tend alors à disparaître…"* [emphasis my own][168].

We have already seen that what is produced in algorithmic governmentality is a predictive model of subjective behaviours at one particular point in time. From the perspective of the system, the unity of the totality is reduced to its stability between states, the 'negative time' between one iteration of the model and the next. From the perspective of the subject, the social in its totality is reduced to the play of desires without origin; the meaning of action is directly contained within

[168] Freitag, M. (1998) *La crise des sciences sociales*; p.162.

its operability, and refers to nothing other than what it does within the system; the symbolic reference of any action becomes generalized instead of universal, arbitrary instead of localized. In other words, in the operationalization of total information, the unity of society is further dissolved into this operation of the system in equal fashion as the norm refers to its operation; it is as if the norm emerges directly from reality itself rather than from a symbolically mediated understanding of the world[169]. Hayek's argument that only the free market can assure the rational form of knowledge, and that in a sense it is therefore the market in itself that constitutes a subject, is increasingly reified as the various processes of Big Data are integrated into the social structure; a structure merely relating to itself. As such, information as a cosmological principle, particularly within the context of governmentality and political representation more broadly, is not only ontologically impotent as a transcendental category, it is its antithesis.

Sociologically speaking, it is this precise dimension of our new technologies, and more generally their effects on the ways in which they ontologically reconfigure the nature of social reality for human beings, that must be considered in our reflections on contemporary issues. The aim of this work has been to demonstrate that *fully capturing both the structural and phenomenological dimensions of this fact is possible through an avowed epistemological position starting from the symbolic subject of a dialectical identitary synthesis*. The interjection of the properly technological is omnipresent. Whether we examine its objects (in their physical - gadgets, phones, computers - as well as virtual forms - the internet, new media) or the manner in which they reconfigure communication, social action, modes of identity development and socialization, sociology must recognize the increasing possibility of its succumbing to the very changes instigated by these phenomena, in the way it has when questioning its own value under the methodological crisis that an increasingly ubiquitous use of data analytics has brought about. Within the context of an information society obsessed with pragmatism and the urgency of action in the face of growing ecological, biological, economic, and existential concerns, there is an equal urgency for the reflexivity inherent to grand social theories, contemplation over the role of sociological discourse, and the privilege of its particular philosophy in its historical context. On the one hand, it has become impossible to do this without coming face to face with the gravity of information technologies. On the other, reflection on these matters must be necessarily a

[169] Algorithmic Governmentality, p.VII.

reflection on the nature of sociality, on its ontological status as symbolic, in our contemporary societies. Otherwise, our analysis is without foundation, disemboweled and assimilated within the direct and irreflexive operability of a system increasingly becoming an effective structural reality. Alas, it is a properly sociological object, and if its possibility is not reflected upon in this light, it may very well - without face - guide our words and our actions from the shadows.

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