Annotate This!

Semiotization, Automation and the Recursive Causality of Images

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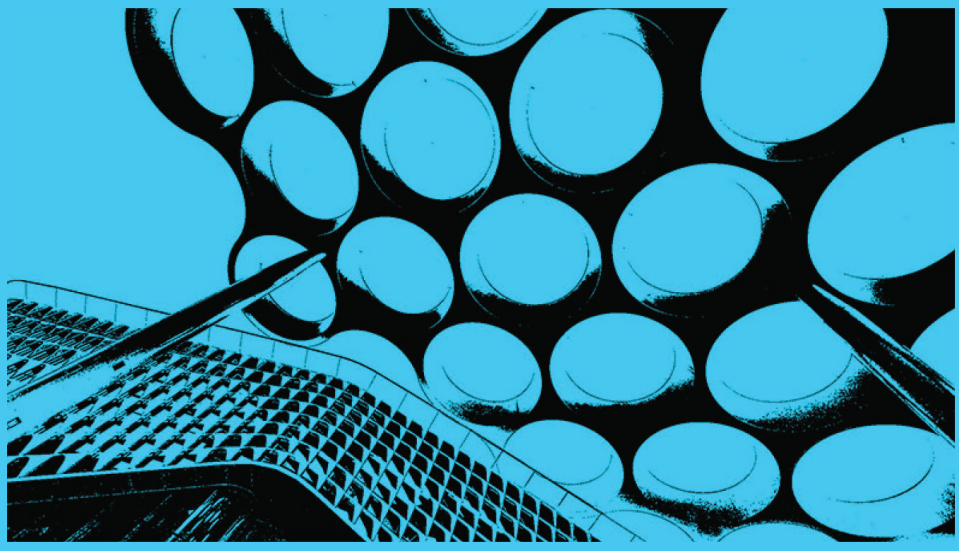

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Book Abstract
Desperate times demand optimistic transdisciplinary measures. This volume unites a select group of thinkers who courageously traverse disciplinary boundaries. What brings them together iWs the least stratified 'component': a shared problem. It is a widely recognised that a problem gets the solution it merits. However, only a few acknowledge that a problem seldom neatly fits within a single discipline, nor does it conform to the principle of general equivalence. Handling its irreducibility and non-entailment is a skill possessed by very few. Even fewer take the quasi-causal capacity of what we term the 'space of technicity' seriously.

The space of technicity, the shared problem of this volume, is a consequence of immanence. Each configuration of surfaces comprising the built environment produces an intangible effect, acting as a quasi-cause. It can be referred to as downward causation or the timely rediscovery of (neo)finalism.

In this volume it is approached it from the perspective of axiology. The space of technicity allows us to evade techno-determinism without adopting an anything-goes attitude. That which has become manifest could have individuated differently. However, the potential of a body cannot be discerned before intervening in the causal fabric of agential reality to extract the singular points that make certain outcomes more likely than others, surpassing mere probability.

Series Abstract
The *Ecologies of Architecture* Book Series promotes a transdisciplinary approach to architectural thinking and doing by extending its interest to topics that bring together the three ecological registers, namely the environment, the social and the individual. Such an approach accounts for what the built environment will come to be, and speculates about who will become alongside it. The series focuses not only on the why, what and how of architecture, but also on the who, who with and for whom.

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Annotate This! Semiotization, Automation and the Recursive Causality of Images

Stavros Kousoulas and Andrej Radman

Unnatural Birth

It is common enough question: What is the human? Sure enough, it is also a question that has troubled some of the greatest minds to walk this planet. Nevertheless, one might wonder, is it really a good question in its own right? To show our allegiances from the outset, we categorically declare it an extremely bad question – in the sense of being unproductive. Like most "what is" questions, to ask "what is the human" cannot avoid but fall victim to an implicitly essential and reductionist definition of the human that would, in addition, aspire to remain eternal and unchangeable, a supposed one-size-fits-all account. However, many of those same "what is" thinkers have appraised the human as the greatest among animals, the one who possesses logic, the one who can adapt to anything that this harsh and cold existence throws at it. The contradiction becomes obvious then: how can there be a universally applicable and everlasting definition of the human if the human is the animal that can (supposedly) adapt and transform better than any other? To avoid this conflict, we propose to follow Gilles Deleuze (who, on this topic, followed Marcel Proust) and adopt what we can call *minor* questions: *when, where, how* and *for what purpose* is the human?[1] Such questions do not essentialize but rather impose an approach that demands to be returned to experience itself and therefore provide *plastic* – as in, transformable and open to revaluation – definitions.

When, where, how and for what purpose is the human then? We claim, following a specific line of thinkers who – despite their objections to this title – could be qualified as philosophers of technology, that the human is continuously

produced.[2] The production of the human – our beloved thinkers would probably agree on this to a greater or lesser extent – is fundamentally technological. To put it simply: technology makes the human (and not the other way around). This nonetheless begs the question: what do we refer to as technology? In equally straightforward terms, technology is literally any environmental manipulation, any attempt to transform the environment. In the very process of environmental transformations, technology is being born while also birthing the human: not as a biological entity but as one that has the capacity to remember and desire outside its body. In a very Stieglerian sense, the human is human because it can exteriorize its memory and its intentions, its tertiary retentions and protentions.[3] These processes of exteriorization can be understood under the terms of what Gilbert Simondon has called "technicity": how humans relate to and transform their environment through technology, and how these relations transform all of them in turn – humans, technology and environment.[4] Here we propose a twist: what we call human evolution is tightly connected not just to the technicities that produce the human but, crucially, to the degrees of automation that these technicities acquire.

Contrary to common belief, automation is not restricted to programming or computer science. As philosopher (of technology, no coincidence there) Benjamin Bratton proposes, the automation of labor-demanding processes needs to be transversally examined, and as such, to be extended horizontally and vertically on a planetary level that expresses its full complexity.[5] Think of the simplest of activities: flushing the toilet. A once laborious activity with an implied sequence of steps – taking a bucket, walking to the river, walking back home – is now automated and initiated by the push of a button. Even in breaking down the now-automated activity via the flush button, we find instances of proto-automations: what is a bucket but a technicity that automated the previous habit of bringing your palms together, creating the cavity where water (or any other liquid) could be gathered, drunk or transported. In terms that Simondon would use, and we will return to this again, the degree of automation in any given technicity highlights its capacity to restore the continuity of action.[6] To this we will add that in doing so, degrees of automations also alter our "response-ability."[7]

Tell us your relations, and we will tell you who you are!

The neologism "response-ability" aims to challenge the moralistic notion of responsibility in favor of a situated ethological and, consequently, ethical capacity to respond, which is inherently relational and, thus, pharmacological. Emphasizing activity as the irreducible grain of reality or the minimum unit of analysis acknowledges that life-affirming measures can only be found through minor or pragmatist inquiries – addressing questions of when, where, and especially how – to prevent

toxic relations. Technicity, in effect, constitutes evolution by means other than life, serving as a potent tool for defatalization.[8] It was clearly not our fate to shit where we eat, a situation that would literally have been toxic. But automating excrement disposal should not be limited to efficient causality. Regrettably, the scientific reason has progressively disregarded not only the "not-rigorous-enough" final and formal causes, but also neglected its "bedfellow", the material cause. The so-called digital turn has worsened the misguided belief in substrate-neutrality.[9] We just have to be reminded that the seemingly immaterial data cloud consumes an astonishing amount of energy.

Thinking ecologically means embracing the irreducibility and non-entailment of the four Aristotelian causes. As Nietzsche had proposed, we should stop separating the doer from the deed.[10] The automated flow of shit is as good an example as any of the profound ontogenetic entanglement of sense and sensibility, where the endo-referential and endo-consistent urban subject, as the *efficient* cause, both engenders and is engendered by the hydraulic *material* cause, the toilet as the *final* cause, and the *formal* cause of what we commonly refer to as hygiene in the exo-referential and exo-consistent sense. Values are not bestowed from the heavens; they are manufactured, much like toilet bowls.[11] They are immanently tied to the contingently obligatory state of the world and our continuously varying abilities to manipulate it. Crucially, such a recursive process of asignifying semiotization that skirts re-presentation invariably unfolds in a collective manner as it adheres to the complexity of problems rather than providing facile solutions.[12] After all, every problem has the solution that it "deserves" or "merits."

Reintroducing all four causes and destabilizing the hegemony of efficient causality – positioning it as one among others – proves to be a crucial move.[13] What the four causes do, even in the case of a toilet bowl, is that they underline (and provide a rough methodological bootstrap with which to approach) the contingent state of the cosmos: the world, in and because of its relationality, is indeterminate. Our proposed twist on the degree of automated technicities can now meet Simondon's requirement as to how one can understand the evolution of technological phyla. When Simondon claims that the progressive perfecting of machines, whereby we could say a machine's degree of technicity is raised, corresponds not only to an increase of automation, but also to the fact that the operation of a machine harbors a certain margin of indeterminacy, he is indeed claiming that it is this margin that allows the machine to be *sensitive* to outside information.[14] Let us rephrase then: degrees of automation alter our response-ability precisely because their sensitivity can crucially determine the margin of our (us, the technologically produced species) sensitivity as well. The *pharmakon* works both ways: once sensitive to what occurs in a river where excrement was dumped daily, now sensitive to the scented sticks that make your bathroom "smell

good." Values – keep the river clean, keep your bathroom scented – are but the expression of an automated (de)sensitization. In other words, there are not just five senses, and their gradients are not fixed; there are as many (and as few), they *feel* as good and as bad, as a continuously techno-modulated and value-generative automation of our sensibilities.

Absolute Forms, Relative Acts

Before delving into the issue of annotation, as indicated by the chapter's title, we require an additional conceptual element, one sourced not from the realm of technology, but from the domain of biology. This perspective is offered by the philosopher Raymond Ruyer.[15] Ruyer concurs with the idea that the process of morphogenesis, or individuation in Simondonian terminology, cannot be adequately elucidated through the lens of efficient causality based on contiguity. In this regard, both Ruyer and Simondon follow Alfred North Whitehead, who famously dismissed the notion of "simple location," viewing it as a bias that overly favors self-presence and the tangible.[16] Ruyer proposes an alternative by suggesting that every process of a temporal, "horizontal" sequence, is complemented by a "vertical," trans-spatial and trans-temporal theme in the musical sense of the term. According to Ruyer, it is non-locality that holds the key, not only to the question of subjectivity but also to the problem of life itself.[17] To underscore the contingency of human sense and sensibility, which simultaneously represents both a conquest and a creation of space and time, Ruyer famously distinguishes between three distinct forms (as opposed to structures). These forms can be likened to melodic themes, and their repetition ("*ritornello*" in Deleuze and Guattari), either in their entirety or as variations dispersed throughout, guides their own development. Form I is a common thread among all living entities, involving self-sustaining, self-conducting, and self-enjoying activities – a domain of space. Form II, on the other hand, possesses a more "reflective" nature and is shaped through the evolution of perception and the development of sensorimotor diagrams – an aspect connected to the *Umwelt.* Finally, Form III is uniquely human, yet it should not be confused with the thesis of human exceptionalism. It pertains to a domain of subjectless subjectivity.[18] According to Ruyer, it "appears when utilitarian perception, which serves only as a signal or index of instinctive life in animals and in humans insofar as they lead an animal life, changes its role, and when the signal becomes a symbol, manipulable by itself, and detachable from every context of vital or immediate utility."[19] In our allegory, where isomorphism exists without resemblance, Form III marks the transition to an acquired response-ability for maintaining the cleanliness of the river and the pleasant aroma of the bathroom beyond immediate utility. As Brian Eno eloquently states, everything we don't have to do effectively qualifies as

culture: "We have to eat, but we don't have to have 'cuisines' .... We have to cover ourselves against the weather, but we don't have to be so concerned as we are about whether we put on Levi's or Yves Saint-Laurent. We have to move ..., but we don't have to dance. ... I call the 'have-to' activities functional and the 'don't have tos' stylistic. ... The first thing to note is that the whole bundle of stylistic activities is exactly what we would describe as 'a culture.'"[20] Drawing from Ruyer's insights, one could argue that every living form is the unfolding of a virtual melodic theme. As "higher" forms evolve from "lower" ones, we observe a growing autonomy in the organization of both time and space. This process results in an increasing separation of subjectivity from morphogenetic formative activity, along with an enhanced independence of aesthetic forms from their vital context. Such a conceptual framework constitutes a mereotopology that challenges the dominance of step-by-step causation and *partes-extra-partes* mereology, all without reverting to vitalism. The rigid mechanistic if-then paradigm gives way to the dynamic what-if dance of value, and time ceases to be a mere measurement of movement. While it may be relatively straightforward to trace part-to-whole relations within actual aggregates, the mapping of multiplicities or "absolute forms" (defined as unities not contingent on totalities) remains the holy grail of automation in general, and machine learning in particular.[21]

An absolute form can be understood as a domain in constant formation, with an irreducible unity.[22] It is to be distinguished from a molar structure (an aggregate) by its having a non-dimensional or absolute survey of itself, which establishes non-localizable bonds between its constitutive components, while those components produce their own zone of overlapping indeterminacies.[23] For Ruyer, anything from a molecule to a virus, from an embryo to a brain and from consciousness to culture (which for Ruyer is an externalized technics) is an absolute form, while a molar structure would be the statistical aggregation (and distribution) of those forms.[24] Our point, in a nutshell, is that absolute forms *cannot* be annotated. Why so? The key lies in their first (and perhaps most crucial) characteristic: the capacity of absolute forms to perform an absolute survey. In his *Neofinalism*, Ruyer claims that one's own visual field is "surveyed" by one's consciousness without there ever being a need to position oneself at a distance from it.[25] In other words, as philosopher Daniel Smith summarizes, "the details of perception are not linked to each other through casual links, like the parts of a machine, but are grasped in the immediacy of an absolute time-survey and space-survey, independent of any supplementary dimension."[26] For Ruyer, consciousness is not to be confused with knowledge or the capacity thereof, but with a domain of absolute survey which, while it needs no extra dimensions cannot, by definition, procure any annotation: there is, simply, nothing that can be measured and pinpointed.

Ruyer will add another crucial element that ties to our argument: what is common to all absolute forms is a domain of absolute survey and *activity*.[27] While an absolute survey is, well, absolute, activity is always plus (at least) one: an organism *plus* its environment and in their activity an absolute form (what Simondon calls a vital individual) emerges that can, indeed, perform a survey of its enacting and enacted self, binding, in other words, action together with perception. Activity, by merit of being non-absolute, has the capacity to be memorized and be *potentially* detached. For Ruyer, absolute forms – from Form I to Form III – are differentiated according to the degree of the detachment of their memory, since, for example, an atom is pure uninterrupted activity that lacks a detachable memory, precisely because it has no need for one, never having to take up again the thread of its uninterrupted activity.[28] For us humble Form III humanoids, what is the toilet's flush button but the detached memory of an interrupted activity? And what is the degree of the automation implied in it but the expression of a more or less seamless restoration of the continuity of that activity? Our point, in more detail now, is that not only can absolute forms in their capacity for an absolute survey not be annotated, but the same applies to their activities, since they are always in indeterminate formation. Absolute forms are relational domains and not isolatable points or moments. In this sense, all that can be annotated is the (potentially detached and exteriorized) molar statistical aggregates of the memorization of an activity: the diameter of the button, the color of the piping system, the distance from the floor, the gap between one's feet. However, if that is so, then what is intelligent about artificial intelligence and what exactly does it automate in its endless demand and pursuit of exhaustive annotating?

Non-Statistical Intelligence

Let's address these questions one at a time. It is already clear that the early twenty-first century will be defined by the emergence of artificial intelligence and the ongoing exploration of the distinction between human and cybernetic intelligence. According to Catherine Malabou, until recently, we were in an era of weak artificial intelligence, because it appeared unable to compete with human intelligence.[29] However, it seems that we are now transitioning into an era of strong artificial intelligence, and this shift owes its existence to two recent inventions. The first is IBM's revolutionary neurosynaptic chip TrueNorth.[30] If we relate traditional Neumannian computers to left-brain-like fast symbolic number-crunching calculators, then TrueNorth can be compared to a slower right-brain-like sensory pattern recognition. It is constructed with different neural synaptic correlates that function autonomously and asynchronously, so that its inactive components remain dormant, resulting in significantly lower energy consumption. This chip's ability

to mimic the brain stems from its capacity to exhibit a certain degree of plasticity. It can vary its energy use based on its synapse-like connections, allowing the system to develop its own form of "experience." It's a chip with its own learning capabilities insofar as it can adapt to the context in which it operates.

The second ground-breaking invention is what is known as the recurrent artificial neural network. In simple terms, when these neural networks are sufficiently exposed to annotated images (for instance, "horse" or "not horse"), they autonomously identify additional images (of horses) and devise their own recognition rules as they function. This process is referred to as "deep learning," where neural networks acquire knowledge without explicit programming. It is thus safe to conclude that intelligence becomes truly intelligent through its plasticity. This in turn prompts a discussion about significant observables and the mapping of singularities that can be seen as the "memory of the future."[31] In other words, to what extent does the system asymptotically converge towards neofinality? The focus isn't on categorizing all types of entities under an essentialist concept like "horseness." Instead, it involves linking each singular concept or multiplicity (used as a noun) to the variables that define its individual transformative evolution or the *unlimited* process of ethico-aesthetic (asignifying) semiosis.[32] It becomes evident that the depth of deep learning relies on the absolute surface in Ruyerian terms. Therefore it should not be surprising that until now, deep learning has heavily depended on human (neofinalist) activity, particularly involving precarious and secretive human labor. To quote an industry insider:

> You might miss this if you believe AI is a brilliant, thinking machine. But if you pull back the curtain even a little, it looks more familiar, the latest iteration of a particularly Silicon Valley division of labor, in which the futuristic gleam of new technologies hides a sprawling manufacturing apparatus and the people who make it run.[33]

As the saying goes, "it's only fools and horses that work," not AI. While a responseable annotator can grasp the concept of "horse" with just a few examples, machine-learning programs require thousands of examples. These examples must be (pre)categorized with perfect consistency, yet contain sufficient variation (black horses, white horses, racehorses, working horses, painted horses, etc.) to enable the highly literal (or should we say, literary?) system to handle the diversity and unpredictability of the ever-changing world.[34] As Deleuze and Guattari put it, "the concept speaks the event, not the essence of the thing."[35] To quote Ruyer, "the horse is not material organic tissue *plus* the Idea of Horse! The horse is a horse because it 'horses'."[36] This is what we refer to as the extra-propositional "sense," as exemplified in the infinitive "to horse," itself a trans-spatial and trans-temporal theme.[37]

Still Life

What, then, does artificial intelligence automate? In the most straightforward manner, we claim that artificial intelligence automates perception, but to achieve that, it needs to rely first on a perception that is separated from action. That perception, no longer tied to action, needs a different name altogether. Let us unpack this claim, while also devising a name for it. To account for a perception that can (potentially) be separated from action, we need to, counterintuitively, destabilize perception itself, and to achieve such a destabilizing move, we turn again to none other than Simondon. This time, we will rely on a part of his work that has only recently started to gain traction: his provocative understanding of images.[38] Recently published in English, Simondon's work on images is part of a seminar he taught at the Sorbonne during 1965–66. What makes his theory so fitting is that, especially after his work on individuation, information and technical objects, his approach to images finds him at perhaps the most mature (and most radical) moment of his unfortunately limited academic output. Simondon wishes to provide an account of a genetic unity between distinct phases of individuation that are bound together by the transductive dynamism of the image.[39] At the core of his concerns is precisely the problem of the relation of imagination and invention to perception itself; he addresses this concern by making clear that if we account for the evolutivity and the genetic character of the image, then we cannot but admit that *images precede perception*. To be precise, Simondon claims that perception and imagination cannot be separated; on the contrary, one must think them together, without, however, confusing them.[40] As he claims, "the capacity to perceive is hardly distant from the force of imagining," and it is his careful choice of words that makes all the difference here: perception is a capacity whose potentiality depends on an imaging force.[41] For Simondon, the potential of perceiving and the genetic force of imagi(ni)ng are tied together in the *a praesenti* of activity itself. As philosopher Jean-Yves Chateau writes in the preface of the English translation of *Imagination and Invention*:

> Perception and, generally, behaviors of *reaction* to the milieu are not primary; it is the *spontaneous* motor behaviors that are primitive, which one misrecognizes when perception is made to be an exclusive, *sui generis* essence of any influence of the imagination and, more originary, of all motor spontaneity: images do not first come from antecedent perceptions, and the worry of confounding them with perception is not decisive in defining them; they come from spontaneous movements – and as for their relation to perception: they precede it and inform it.[42]

To understand this, we need to briefly examine the four different phases of the cyclical (and independent) life of images. What makes the image to be of such great interest for Simondon is its peculiar (and as such, transductive) in-betweenness: both objective and subjective, abstract and specific, of the world and of the self.[43] Far from being confused with their representational or annotational modes alone, images can be first approached in terms of their relation with time: there are images that are turned towards the past – or what we can call memory; there are also those images that constitute a rapport with the future – in the sense of anticipating, desiring, inventing; and there are images that are of and act in the present – these are the images that Simondon relates directly to perception.[44] All these different temporalities do not imply different images, and this is a crucial point for Simondon: there is but one single activity, *imaging*, undergoing a developmental process and the different stages that correspond to it.[45] For Simondon, much like for Ruyer, activity has primacy over consciousness and perception. Or, to be true to our Ruyerian origins, activity is consciousness and perception, as this is precisely the point Ruyer is trying to make through his account of the progressive differentiation between Forms I, II and III. Therefore, for Simondon, the first images "are not conscious ... since they precede perception (the reception of signals coming from the milieu), they are motor, linked to the most simple behaviors through which the living take possession of the milieu and proceed to the first identification of the (living or non-living) objects they encounter."[46] Far from being confused with any representational fixation, the primitive motor images have no other content than movement itself: they are autokinetic and non-finalized.[47] It is this dimension of motricity and movement that constitutes the first phase of images, what we can call a motor-image. Through and in movement, experience registers its own "being experienced," leading to what Simondon identifies as the second phase of imagistic life, that of perception. As a result of perceiving, images are organized and systematized, allowing therefore the exercise of capacities we associate with consciousness – or, Form III – such as remembering and anticipating. In other words, through the a praesenti of the activity of movement, the potential of an a priori (memory, the past) and an a posteriori (the future one longs for) is produced. These three phases constitute the life of the image that, by simplifying, we can claim belongs to the relationship between the individual and the environment proper: movement/space (Form I), perception/Umwelt (Form II), consciousness/nomadic subject (Form III). It is at this exact point that Simondon introduces a fourth phase, capable of being a germinal pharmakon that can either allow the cycle of images to progressively differentiate in a heterogeneous manner by repeating itself while differing, or it can simply fold upon itself, remain rigid, impenetrable, and simply recycle itself to a homogeneous exhaustion. This final phase, the inventive phase of the object-image is precisely what machine learning attempts to automate.

If the tensions between movement, perception and the conscious systematization of both cannot be resolved through bodily dispositions alone, then, Simondon claims, the need arises for a heterogeneous mediator,[48] or in terms that avoid the dangers of mediation, a transductor arises. Think of the toilet flush, the bucket or the scented candle of our previous examples, as well as the degrees of automation each implies. In all of these cases, as media theorist Aurora Hoel would claim,

> object images allow the human being to handle phenomena from extremely disparate orders of magnitude (the very small, large, heavy, hot, cold, toxic, corrosive, etc.) as if these phenomena belonged to an order homogeneous to its own. The introduction of an object image (say, a lever) induces an inventive phase shift in the human-world system by initiating a new middle-order regime of reality in which a new readiness for action comes to prevail: equipped with a lever, the human being can lift loads many times its own weight. In addition to tools and machines, Simondon's list of object images includes artworks, monuments, clothing fashions, and proverbs in language. Indeed, by his lights, all created objects or artifacts are to some extent adaptive mediators.[49]

The germinal effect of object-images is that in their transductive potential of resolving disparate tensions between different orders of magnitude, they effectively restore the continuity of activity that has been interrupted. In doing so, object-images restore movement (albeit differentiated), and in restoring movement, they are bootstrapping the imagistic cycle once again (albeit differentiated): a transductive object-image that alters motricity and therefore leads to novel perceptions (remember our discussion on senses and their dependence on the automation of our sensibilities), leading to eventually differentiated systematizations of past and future values. In addition, by dint of their detachability, object-images can be circulated, shared, communicated and transmitted to a radically broader extent, so much so that it would demand the development of a plethora of sciences (those that can be called generic, major or royal) that deal precisely with that: how one can study and optimize the circulation of object-images, from early Enlightenment encyclopedias to endless typologies in architecture. It is these generic sciences that find their ultimate (automated) apotheosis in contemporary artificial intelligence, albeit with a crucial twist.

The breaking of the imagistic cycle that artificial intelligence induces by exhaustingly annotating object-images effectively disables their transductive capacities, in the sense that it deprives them of any indeterminacy. Remember Simondon's claim that the degree of any technicity is raised when automation

leads to an increase of sensitivity to indeterminacy, to outside information, and subsequently that a rise in degrees of indeterminacy allows our sensitivity to be modulated. The thousands upon thousands of heavy, underpaid, human labor hours of annotating literally every object-image that can be of (commercial) interest, make those object-images so determined but also so dependent simply on each other, that new rules emerge in order to sustain a now annotative (and not imagistic) cycle. Due to the demands of the annotative cycle, motricity, perception and temporal systematization are completely cut off: movement and activity are of no interest, besides the activity implied in annotation itself. In the emerging regime of imagistic alienation, not only does the horse never horse but, almost by definition, there is no interest in any invention other than those that restore the continuity of annotative activity.

The Ratcheting of Transindividuation

It should not be surprising that ChatGPT exhibits human-like qualities, given that it was trained by an AI that mimicked humans, who in turn were evaluating an AI that imitated humans pretending to be an improved version of an AI trained on human writing.[50] Unfortunately, the circuitous technique known as "reinforcement learning from human feedback" (RLFH) inherently limits the output to statistical aggregates, cut off from eventful forms. The profound axiological implication can be summed up in the adage "no invention, no transindividuation," and vice versa. Novel norms and values (sense) do not emerge *between* fully formed individuals; rather, they emerge *through* them. By harnessing the spiraling and ratcheting process of imag(in)ing, the transindividual relation bypasses the existing individual and collective reticulations. To genuinely think differently, one must first feel differently, and this is accomplished exclusively by transforming and acting upon life, not by representing it.[51] In his treatise on attention, the Simondonian scholar Yves Citton refers to Bernard Aspe's astute description of the "transindividual":

> It is only in a community that emotion can take place as such. And the fact that it can take place signifies that it can be extended in an *action* on the world. Emotion does not call for an outpouring, but an overturning of individuated structures, which can only be performed communally. … The transindividual relation passes through individuals, incorporating them into a reality that is larger than them: a system of resonance. Before individuals, there is the preindividual; but beyond, there is the system of resonance. It is when it gives rise to a particular consistence that the transindividual relation configures itself as it gives birth to this new being: the group of interiority, or the *transindividual collective*. This can be understood as a

> 'unified system of reciprocal beings', and it is this reciprocity that enables the resonance effect. ... The paradigm of the transindividual collective for Simondon is the group of researchers or rather inventors – because it is in invention that the transindividual relation best reveals its fecundity.[52]

In simpler terms, communities have no teleology. They lack a predetermined purpose but derive sense from their coupling with an (indeterminate) environment.[53] Affectivity therefore takes precedence over perception: "perception always presupposes a certain unity of a perceiving subject, whereas affectivity is a transductive operation, which constantly changes and is changed both by internal impulses and external sensations."[54] Inventiveness is contingent upon the creation of images that transduce anticipation, perception, and (over)saturated memory, much like Whitehead's concept of "non-bifurcated experience."[55] This process, akin to what Deleuze describes as dramatization, involves adopting an artificial or constructivist attitude where the resultant state of metastability becomes a necessary condition for the ontogenetic cycle of imag(in)ing to start anew.[56] Put more straightforwardly, dramatization serves as the antidote not only to optimization, but also to the "bifurcation of nature" that Alfred North Whitehead denounced as the most serious error of modern Western thought.[57] Residing within the non-apodictic realm of metastability entails operating far from equilibrium, where the boundary between facts and values is far from clear-cut, and where resingularization may occur. The radical empiricist (organicist) conception of sense and sensibility simply defies mechanicism, substantialism and hylomorphism. Instead, it adheres to immanent causality or absolute form, which is not linear but recursive.[58] As a result, any strenuous attempts to reduce the (ineffable and incomputable) event of worlding through imag(in)ing and imag(in)ing through worlding condemns us to what Antoinette Rouvroy, an authority on algorithmic governmentality, describes as acquiescence to a transcendental platitude.[59] To guard against the allure of clichés disguised as truths, we conclude with her cautionary list. Ultimately, the value of interesting theories lies in their capacity to challenge essentialist ideas about the world.[60] Print it, read it, and commit it to memory to avoid succumbing to the temptation of reductionism and ceaseless annotation that merely offers a facile capture of thinking.[61] We ought to stop...

> - reducing singularities (or processes of individuation or subjectification) to particularities (the detected or inferred infra-individual attributes or supra-individual patterns that are the grips of subjection of machinic enslavement in semiocapitalism);
> - reducing the status of citizens to that of consumer-user;
> - reducing politics to the juxtaposition of individual interests;

- reducing the commons to the juxtaposition of sectorial logics;
- reducing "the people that are missing" to present political representation;
- reducing the future to the optimization of the state of affairs;
- reducing the virtual to "real time";
- reducing social justice to post-actuarial calculation;
- reducing justice to law;
- reducing hermeneutics to digital seismography;
- reducing imagination and creation to innovation;
- reducing foresight to the extrapolation of past trends;
- reducing work to employment;
- reducing the plasticity and alterability of life to the execution of a genetic programme;
- reducing life to flows of digital information;
- reducing the human person to the sum of his or her digital records and interactions;
- reducing the public to the audience;
- reducing "right measure" to high-resolution;
- reducing people to their behaviour;
- reducing existence to pure presence;
- reducing singularities to symptoms, and so on.[62]

Notes

1 Gilles Deleuze, *Proust and Signs: The Complete Texts, trans.* Richard Howard (Minneapolis: University of Minnesota Press, 2000).
2 Gilbert Simondon, André Leroi-Gourhan and Bernard Stiegler are good company, and good to think with.
3 Bernard Stiegler, *Technics and Time 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford: University Press, 1998).
4 Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Cecile Malaspina and John Rogove (Minneapolis: Univocal, 2017); cf. Stavros Kousoulas, *Architectural Technicities* (London and New York: Routledge, 2022).
5 Benjamin H. Bratton, *Terraforming* (Moscow: Strelka, 2019).
6 Emilien Dereclenne, "Simondon and Enaction: The Articulation of Life, Subjectivity, and Technics," *Adaptive Behaviour* 29, no. 5 (2021).
7 Donna J. Haraway, *Staying with the Trouble: Making Kin with the Chthulucene* (Durham NC: Duke University Press, 2016), 29.
8 'Defatalisation' serves as an antidote to determinism. See: Andrej Radman and Robert A. Gorny, "From Epiphylogenesis to Generalised Organology," *Footprint* 16, no.1 (Issue 30, ed. R.A. Gorny and A. Radman) (2022): 3–19, https://doi.org/10.7480/footprint.16.1.6291.
9 Friedrich A. Kittler, "There is no Software," in *Literature, Media, Information Systems*, ed. J. Johnston (London: Routledge, 1997), 147–155.
10 In Nietzsche's words: "For just as common people separate the lightning from its flash

and take the latter as a doing, as an effect of a subject called lightning, so popular morality also separates strength from the expressions of strength as if there were behind the strong an indifferent substratum that is free to express strength – or not to. But there is no such substratum; there is no "being" behind the doing, effecting, becoming; "the doer" is simply fabricated into the doing – the doing is everything." Friedrich Nietzsche, *On the Genealogy of Morality: A Polemic*, trans. Maudemarie Clark and Alan J. Swensen (Indianapolis: Hackett Publishing Company, Inc., 1998 [1887]), 25.

11 Žižek compares the design of three distinct European toilet bowls, transcending purely utilitarian considerations, so as to elucidate three different existential attitudes: German reflective thoroughness, French revolutionary hastiness and English utilitarian pragmatism: "In political terms, this triad can be read as German conservatism, French revolutionary radicalism, and English liberalism. … The point about toilets is that they enable us not only to discern this triad in the most intimate domain, but also to identify its underlying mechanism in the three different attitudes towards excremental excess: an ambiguous contemplative fascination; a wish to get rid of it as fast as possible; a pragmatic decision to treat it as ordinary and dispose of it in an appropriate way." Slavoj Žižek, *The Plague of Fantasies* (London: Verso, 2008), 3–4.

12 Rem Koolhaas, "?" in AMO and Rem Koolhaas, Countryside: A Report (Cologne: Taschen, 2020), 324–351.

13 Alicia Juarrero, *Context Changes Everything: How Constraints Create Coherence* (Cambridge, MA: MIT Press, 2023).

14 Simondon, *On the Mode of Existence*, 17.

15 Ronald Bogue, *Deleuze on Music, Painting, and the Arts* (London: Routledge, 2013), 62–66.

16 Alfred North Whitehead, *Science and the Modern World* (New York: Pelican Mentor Books, 1948), 50.

17 Raymond Ruyer, *Neofinalism*, trans. Alyosha Edlebi (Minneapolis: Minnesota University Press, 2016), 94.

18 Paul Bains, "Subjectless Subjectivities," in *A Shock to Thought: Expression After Deleuze and Guattari*, ed. Brian Massumi (London: Routledge, 2002).

19 Raymond Ruyer, *The Genesis of Living Forms*, trans. Jon Roffe and Nicholas B. de Weydenthal (London: Rowman & Littlefield, 2019), 149.

20 Brian Eno, "Culture," in *A Year with Swollen Appendices* (London: Faber and Faber, 1996), 317).

21 Ruyer breaks from the hegemony of both mechanism and vitalism, neither of which really understands the nature of desiring machines in Deleuze and Guattari's terms. The difference between the two organising principles – mechanicism as a whole derived from the parts, and vitalism as an "original" whole from which the parts emanate – cannot be resolved by some dialectical totalisation.

22 Daniel W. Smith, "Raymond Ruyer and the Metaphysics of Absolute Forms", *Parrhesia* 27 (2017): 119.

23 Ibid., 119.

24 Ibid.

25 Ruyer, *Neofinalism*, 97.

26 Smith, "Raymond Ruyer and the Metaphysics of Absolute Forms", 123.

27 Ibid, 162.

28 Ibid, 152.

29 Catherine Malabou, *Morphing Intelligence: From IQ measurement to artificial brains, trans. Carolyn Shread* (New York: Columbia University Press, 2019), 87.

30 Dharmendra S. Modha, the founder of IBM's Computing Group at IBM Research, and his team developed the first cognitive chip in 2011. Their ambition was to create low-power electronic neuromorphic computers capable of scaling to biological levels.

This chip comprises 4096 neurosynaptic cores, designed to mimic the structure of the human brain. See: Malabou, *Morphing Intelligence*, 85.

31 Sanford Kwinter, "Radical Anamnesis (Mourning the Future)," in *Far From Equilibrium: Essays on Technology and Design Culture* (Barcelona: Actar, 2008), 142.

32 Gilles Deleuze, *Negotiations*, 1972–1990, trans. Martin Joughin (New York: Columbia University Press, 1995 [1990]), 31; cf. Andrej Radman and D. Hauptmann, "Asignifying Semiotics as Proto-Theory of Singularity: Drawing is Not Writing and Architecture does Not Speak," *Footprint 8*, no. 1 (Issue 14, ed. D. Hauptmann and A. Radman) (2014): 1–12.

33 Josh Dzieza, "AI Is a Lot of Work: As the technology becomes ubiquitous, a vast tasker underclass is emerging – and not going anywhere," *Intelligencer* (June 20, 2023), https://nymag.com/intelligencer/article/ai-artificial-intelligence-humans-technology-business-factory.html.

34 Affect theory effectively merges Simondonian mechanology and Ruyerian organology. Hence, Deleuze and Guattari assert that there are greater differences between a work-horse and a racehorse than between an ox and a work-horse. This is because neither the racehorse nor the work-horse has the same affects or the same capacity for being affected; the work-horse has more affects in common with the ox. See: Gilles Deleuze, *Spinoza, Practical Philosophy*, trans. Robert Hurley (San Francisco: City Lights Books, 1988 [1970]), 124.

35 Gilles Deleuze and Félix Guattari, *What Is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994 [1991]).

36 Ruyer, *The Genesis of Living Forms*, 164 (emphasis in the original).

37 In the words of a contemporary Ruyerian: "Univocal, semiotic reality – the reality of experience – is not reducible to the mind's own workings (e.g., as in the Kantian synthesis) nor is it to that of a prejacent external physical world in which the mind has no part. It is a limitless interface where the line between what is and what is not, independent of interpretative activity, is a constantly shifting semiotic process." Paul Bains, T*he Primacy of Semiosis: An Ontology of Relations* (Toronto: University of Toronto Press, 2006), 68.

38 Gilbert Simondon, *Imagination and Invention*, trans. Joe Hughes and Christophe Wall-Romana (Minneapolis: Minnesota University Press, 2022).

39 Simondon, *Imagination and Invention*, xii.

40 Ibid., xvii.

41 Ibid., xviii.

42 Ibid., xxvi

43 Ibid., xxiii.

44 Ibid.

45 Ibid.

46 Ibid. xxvi.

47 Ibid.

48 Aurora Hoel, "Technicity and the Virtual," *Humanities* 11, no. 135 (2022): 135.

49 Ibid., 135.

50 Dzieza, "AI Is a Lot of Work".

51 Claire Colebrook, *Understanding Deleuze* (Crows Nest: Allen & Unwin, 2002), xxiv.

52 Bernard Aspe, "Simondon et l'invention du transindividuel" (Simondon and the invention of the transindividual), *La Revue des Livres* no. 12 (July–August 2013): 78, cited in Yves Citton, T*he Ecology of Attention*, trans. Barnaby Norman (Cambridge: Polity Press, 2017), 94.

53 Audronė Žukauskaitė, *Organism-Oriented Ontology* (Edinburgh: University Press, 2023), 7.

54 Ibid., 32

55 Tony D. Sampson, "Nonconscious Affect: Cognitive, Embodied, or Non-bifurcated

Experience?" in *The Affect Theory Reader 2: Worldings, Tensions, Futures,* ed. Gregory J. Seigworth and Carolyn Pedwell (Durham, NC: Duke University Press, 2023), 311.

56 Ibid., 100; cf. Didier Debaise, "The Dramatic Power of Events: The Function of Method in Deleuze's Philosophy," trans. Alex Feldman, *Deleuze Studies* 10, no. 1 (2016): 5–18.

57 The division between primary and secondary qualities, nature, and culture, etc. See: Alfred North Whitehead, *The Concept of Nature* (Ann Arbor: Ann Arbor Books, 1957 [1920]), 26–48.

58 Yuk Hui, *Recursivity and Contingency* (New York: Rowman and Littlefield, 2019).

59 Antoinette Rouvroy, "Re-Imagining a 'We' Beyond the Gathering of Reductions: Propositions for the Three Ecologies," interview by Lila Athanasiadou and Goda Klumbyte, *Footprint 16,* no. 1 (Issue 30, ed. R.A. Gorny and A. Radman) (2022): 129.

60 Murray S. Davis, "That's Interesting: Towards a Phenomenology of Sociology and a Sociology of Phenomenology," *Philosophy of the Social Sciences* 1, no. 4 (Dec. 1971): 309–344.

61 Sampson, "Nonconscious Affect", 303.

62 Rouvroy, "Re-Imagining a 'We' Beyond the Gathering of Reductions', 129.

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Desperate times demand optimistic transdisciplinary measures. This volume unites a select group of thinkers who courageously traverse disciplinary boundaries. What brings them together is the least stratified 'component': a shared problem. It is a widely recognised that a problem gets the solution it merits. However, only a few acknowledge that a problem seldom neatly fits within a single discipline, nor does it conform to the principle of general equivalence. Handling its irreducibility and non-entailment is a skill possessed by very few. Even fewer take the quasi-causal capacity of what we term the 'space of technicity' seriously.

The space of technicity, the shared problem of this volume, is a consequence of immanence. Each configuration of surfaces comprising the built environment produces an intangible effect, acting as a quasi-cause. It can be referred to as downward causation or the timely rediscovery of (neo)finalism.

In this volume it is approached it from the perspective of axiology. The space of technicity allows us to evade techno-determinism without adopting an anything-goes attitude. That which has become manifest could have individuated differently. However, the potential of a body cannot be discerned before intervening in the causal fabric of agential reality to extract the singular points that make certain outcomes more likely than others, surpassing mere probability.

When operating within the ethico-aesthetic paradigm, where sense becomes intricately dependent on sensibility, and vice versa, the volume's attitude might be said to approximate the Spinozian third kind of knowledge that intuits design (and its space of technicity) beyond mere imagination or reason.

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