Hegel and AGI: *Geist* as Solution to the Threat of Technological Singularity

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Introduction

For a long time, Hegel has been the object of relentless critique of French and German continental philosophers. Often being dismissed as a necessitarian thinker who subsumes every difference under the Absolute (Deleuze)[1] or who has led us to the forgetfulness of being (Heidegger)[2]. From a contemporary point of view, we find this critique taken up by Yuk Hui, who states that Hegel's system is a totalizing system of reason, based on an all-consuming logic leaving nothing in its wake. According to Hui, this logic is materialized in current technologies like machine learning, which will lead to the "final point of Noöspheric reflection"[3]. According to Hui, in other words, the unification of the world is made possible on Hegelian grounds by means of the complete systematization of Western reason upon the world, which entails the elimination of different ways of knowing (different *epistemes*). Yet, at the same time, Hegelian philosophy also gains more traction in philosophical topics about life and technology. Karen Ng, for example, states that Hegel's concept of Life is constitutive for his system[4]. Likewise, Reza Negarestani argues that a contemporary reading of Hegel's notion of mind as functional, social *Geist*, can help us avoid technological singularity[5].

Should we reject Hegel and contemporary applications of his philosophy based on Hui's criticism? Or does Hegel's philosophy still have a future? Specifically, I am interested in the question whether Hegelian philosophy can have a future in the philosophy of artificial intelligence and, more generally, the philosophy of technology. This interest was spiked by recent papers[6], who try to apply Hegelian philosophy to the field of (philosophy of) artificial intelligence. If Hegel is indeed still seen as a totalitarian thinker who negates life, nature and differences, we might have serious reservations about applying Hegelian philosophy to AI research because it could enforce a form of totalitarianism or a domination of reason over nature, thereby contributing to ecological demise. I do not believe that we should reject Hegel's philosophy all together in the field of artificial intelligence, based on the assumption that he is a totalitarian thinker. Rather, my claim is that Hegelian philosophy can still be useful for a philosophy of technology, and specifically artificial intelligence, because it helps us solve the problem of technological singularity. In order to arrive at this claim I will, 1. show that Hui rejects Hegel for a philosophy of technology because Hegel's recursive logic can be seen as the logic of technological singularity, since Hegel's logic entails a closed and totalized system of technology and has been materialized in condition of technology as becoming organic; 2. raise some questions about Hui's interpretation of Hegel on the basis of Karen Ng, who instead reads Hegel's logic as an opening, life-affirming logic; 3. explore an example offered by Negarestani, who uses Hegel to solve the problem of technological singularity.

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[1] Gilles Deleuze, *Difference and Repetition* (New York, Athlone University Press, 1994).
[2] Martin Heidegger, *On Time and Being* (New York, Harper & Row, 1972), 62.
[3] Yuk Hui, *Recursivity and Contingency* (digital edition) (London – New York, Rowman and Littlefield International, 2019), 24.
[4] Karen Ng, *Hegel's Concept of Life: Self-Consciousness, Freedom, Logic,* (New York, Oxford University Press, 2020).
[5] Reza Negarestani, *Intelligence and Spirit* (Falmouth, Urbanomic, 2018).
[6] Hendrik Schuff, et al. "Thought flow nets: From Single Predictions to Trains Of Model Thought", in *arXiv:2107.12220* (July 2021). Sonia de Jaeger, "Inevitably falling into place: Intuition as a function of spatial prediction". in *Philosophy after AI: meaning and understanding* (AISB conference, 2021). Negarestani, *Intelligence and Spirit.*

Chapter 1. Technological singularity: the consequence of a techno-physical condition or a confusion of reason?

This chapter will claim that a contemporary philosophy of technology should deal with the theme of technological singularity, which is the idea that man will be replaced by a posthuman artificial intelligence, leading to the deterritorialization of reason. We will do so by investigating two different accounts of technological singularity: one from Yuk Hui (or anthropotechnics) and one from Reza Negarestani (or Hegelian neo-rationalism). The reason for this is that we believe they provide fundamentally distinct, yet important views on the relation between reason and technology. For Hui, reason is always determined by its technological condition, whereas for Negarestani reason is itself the process of self-artificialization. We will see that for Yuk Hui, technological singularity means the threat of the "Absolute non-knowing" or the "becoming contingent of recursion". This condition of knowing, however, stems from the condition of technology. For Hui, the process of knowing or philosophy must adhere to this condition of technology. This condition of technology, for him, is the "becoming organic of technology"; or, what amounts to the same: "the becoming inhuman of the system". For Hui, this entails asking the question whether there can be life in a system. In the history of technology, technology has always been "all too-human". It formed the expression of an extreme humanism. Technology was for man a way to externalize his reason in the natural world, a way to dominate nature by recognizing it. As such, technology required the negation of life for its development. This process, however, has turned itself around. Technology has turned into a gigantic, living system of technology beyond our human control. Consequently, the "all too-human" technology has turned itself into an "inhuman system" which is itself organic.

The other account of technological singularity is the one given by Negarestani. We will see that for Negarestani technological singularity is not so much a consequence of the state of technology, but rather a confusion of reason. Technological singularity is only a problem because we are unable to critically reflect upon our current condition and its conditions of possibility. This means that the idea that man will be replaced by AGI due to cognitive surpassing rests on man's inability to distinguish the necessary conditions of Mind from the contingent ones.

In order to arrive at these two formulations of technological singularity, we will, first, provide a general formulation of technological singularity. Next, we will show that Nick Land reconceptualizes technological singularity in relation to the cognitive ability of the human subject. This is important, because this relation forms the basis for both Hui's and Negarestani's view on technological singularity. Next, we will contextualize Hui's account of technological singularity in a short history of Anthropo-technics. This is necessary because Hui's project is itself a deeply historical project, the understanding of which requires an inquiry into its history. For Negarestani this is not necessary, because he explains his project clearly in his book *Intelligence and Spirit*. Contextualizing Hui's account of technological singularity will entail moving from Heidegger's notion of *Ge-stell* to Sloterdijk's formulization of the Anthropocene in order to enquire into the relation between life, system and technology. Lastly, we will give Negarestani's account of technological singularity as a confusion of reason. Distinguishing between the two notions of technological singularity is important, because it is only in Negarestani's account that Hegel can be of usein order to diverge the event of a technological singularity. In the former, on the contrary, Hegel's logic

is rather seen as the logic of technological singularity, because his logic has been physically implemented in cybernetics.

1.1. General technological singularity

Generally, technological singularity is seen as a hypothetical point in time at which technological growth becomes uncontrollable and irreversible, resulting in unforeseeable changes to human civilization. More concretely, it is the idea that the project of building an artificial general intelligence will result in an intelligence explosion leading to a superintelligence. Artificial general intelligence (AGI) is the ability of an intelligent agent to perform any cognitive task that a human can. It is also called "strong AI" (This differs from "weak AI", which is a computer system designated to perform only a specific task). This entails, however, that such an agent can also program and update itself. As such, AGI may be capable of recursive self-improvement. Eventually this process of self-improvement will enter a runaway reaction of cycles, each new and more intelligent generation appearing more and more rapidly, causing an exponential "explosion" in intelligence. The resulting intelligence, then, is a superintelligence; "any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest".[7] A good example is the film *Her* in which a simple operating system becomes so advanced that it can hold conversations with 1000 people at the same time, something which is completely beyond our grasp. Thus, technological singularity can be seen as a point in time in which the human comes to be replaced by AGI, because AGI surpasses man's cognitive abilities.[8]

But why is this a problem? Is this not merely the materialization of human reason which can help humanity in performing his repetitive tasks for him? As we will see later, for both Hui and Negarestani, technological singularity is a problem because it is related to man's cognitive ability, or man's ability to reason. In this sense, technological singularity is an imminent threat to man's ability to cognize the world. In order to understand why this is the case, we will now look at Nick Land's categorization of technological singularity, because he provides a clear explanation of this.

In *Fanged Noumena*, Nick Land claimed that the threat of technocapitalism is that it serves as a mechanism for deterritorializing reason, which will eventually culminate in an artificial posthuman intelligence, or – what is the same, according to Land – an artificial general (super)intelligence:

> The high road to thinking no longer passes through a deepening of human cognition, but rather through a becoming inhuman of cognition, a migration of cognition out into the emerging planetary techno sentience reservoir, into 'dehumanized landscapes.'[9]

[7] Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford, Oxford University Press, 2014) chapter 2.
[8] Ibid.
[9] Nick Land, 'Circuitries', in *Fanged Noumena: Collected Writings 1987-2007,* ed. Robin Mackay and Ray Brassier (Falmouth, Urbanomic, 2012), 293.

With the realization of AGI, the deterritorialization of reason will be completed. For Land, this means that this intelligence will completely exceed the bounds of human comprehension, since the realization of AGI is based on 'black box' tools, such as neural networks, whose precise operations even the programmers do not fully understand. As such, technocapitalism's strong AI will mark the end of man's transcendental structures and, consequently, man's ability to cognize reality: AGI will mark the end of the Kantian transcendental subject (assuming that this subject existed in the first place). Society will increasingly be governed by a super intelligent system of technology, thereby leading to a world we cannot change or understand. The realization of AGI will replace humanity; it will mark the end of the cognitive human himself. Thus, for Land, technological singularity is the point in time in which the human and his cognition are replaced by AGI. However, what also becomes apparent in this categorization, is that technological singularity has a history. It is the culmination of a historical process of the deterritorialization of reason. But is it then still possible to do anything about technological singularity at all?[10]

For Land, avoiding technological singularity is impossible. There is no course of action we can take to avoid it. The only thing we can do is to wait out the complete, imminent destruction of society. However, as we will see, Hui and Negarestani both have different views on the possibility of diverging a technological singularity than Land. We will see that for Hui diverging technological singularities means thinking a plurality of cosmotechnics which, in turn, requires a fragmentation of the technological system in order for them not to become *organic*, in order to avoid Absolute non-knowing. For Negarestani, on the contrary, we will see that diverging technological singularity will include critically reflecting upon the necessary conditions four our thinking, in order to solve (or better; to sublate) technological singularities in as far as these may be regarded a confusion of reason.

1.2. Technological singularity as a consequence of the condition of technology

Hui agrees that the big problem of our time is the possibility of a technological singularity.[11] But for him technological singularity means the "Omega Point"[12] or "final point of Noöspheric reflection"[13]: a point in time which forms the total unification of thinking and humanity. This unification, however, will not be achieved by the human subject or reason, but rather by the inhuman, organic system of technology, more specifically by a global, organic, system of technologies such as AGI. As such, technological singularity for Hui also amounts to what Bernard Stiegler calls "Absolute non-knowledge of systemic stupidity"[14]: the complete exteriorization of knowledge which will make processes of individuation in thought impossible. In Hui's terminology, one could call this the "contingency of recursion": the recursive process of human knowing has negated itself in a recursive process of inhuman knowing due to its complete exteriorization in an organic system of technology (Hui does

[10] Ibid.
[11] Yuk Hui, *¿Por qué es necesaria la tecnodiversidad?*, https://www.youtube.com/watch?v=Dni6UJDFUuw
[12] Hui, *Recursivity and Contingency*, 24.
[13] Ibid.
[14] Bernard Stiegler, *States of Shock: Stupidity and Knowledge in the Twenty-First Century* (Cambridge, Malden, 2015) 118-119.

not himself coin this phrase, yet it seems to me to be a necessary consequence of his characterization of Hegel's logic as recursively incorporating contingencies, since, after its full incorporation, Hegel's logic will negate itself in its opposite, or, 'fall prey to a bad infinite'[15]). Knowing or understanding as a recursive process becomes unknowable for us humans, because our cognitive functions will no longer be performed by humans themselves, but rather by our contemporary technological system. An example of this are the Netflix algorithms which recommend which movies we should watch. The algorithms choose the movies for us and, consequently, fulfill a cognitive function for us. Thus, Hui provides us with a physical conception of technological singularity. Technological singularity is then seen as the consequence of the current state of technology. We will now move to Heidegger and Sloterdijk to show that 1. Technology forms the condition of philosophy and, consequently, informs thinking, and that 2. the current state of technology, according to Hui, amounts to asking the question whether there can be life in a technological system. This will later enable us to understand that the current state of technology, and consequently the current condition of philosophy, is the becoming organic of technology according to Hui.

1.2.1. Heidegger

The question concerning life and system in technology first arose with Heidegger's question concerning the essence of technology. Already in 1954, Heidegger asked the *Question concerning technology*.[16] Here, he attempted to find the essence of modern technology. According to Heidegger, the essence of modern technology is that of 'enframing' (*Ge-stell*). Modern technology serves as a frame around the explication of Being. The way that the explication of Being appears to man is fully determined by technology. Consequently, all of Being appears to man as technological. Modern technology makes man see in every being the possibility to calculate and to command it. As such, beings are treated as standing-reserve *(Bestand).* Their meaning becomes purely functional; beings become objects to be exploited. An example is the hydraulic power plant on the Rhine River. At first, the river formed a great source of philosophical inspiration and beauty. It was something to be admired on its own account (Hölderlin). But with the building of the plant, Heidegger claims, the meaning of the river changes from beauty into an energy resource. Through the frame of modern technology, the river becomes only something to be exploited and used. Its meaning as beautiful becomes obfuscated by the technologically constituted meaning of the river as energy resource. Thus, technology as *Ge-stell* serves as a frame around the explication of Being and determines the way in which beings appear to us. As such, technology as *Ge-stell* makes the objects in nature appear as standing-reserve, as objects to be calculated. *Ge-stell* obfuscates man's thinking and makes us think in a technological manner as well.[17]

[15] Hui, *Recursivity and Contingency*, 71-72.

[16] Martin Heidegger, *The Question Concerning Technology* (New York, Harper collins publishers, 2013).

[17] Ibid.

1.2.2. Sloterdijk

Although Heidegger's question concerning technology already touched upon the theme of life and nature (since it sees the essence of technology as *Ge-stell* which turns every natural being into *Bestand*; a thing to be exploited), for him technology could only be exploitative and could only obfuscate our thinking. A free relation to technology (thinking un-technologically) was still possible, but only by defining a new, non-technological essence of humanity, rather than appealing to technology itself.[18] However, for Heidegger the question concerning technology was not yet concerned with the Anthropocene. This connection was first made by Sloterdijk[19] and it is in this connection that it becomes apparent that man can no longer think non-technologically. Paul Crutzen defined the Anthropocene as the age in which humans have become a geological factor on the planet.[20] The excessive use of global technologies has led to huge changes in the earth's biosphere and to environmental hazards such as air pollution, global warming and the decrease in biodiversity. For Sloterdijk, overcoming the Anthropocene requires us to admit that we can no longer go without technological thinking. We need technology in order to "create natures".[21] This is because, for Sloterdijk, the Anthropocene means that the exploitative goal of enframing has been completed. Being has been fully explicated in a technological manner. Man has completely hollowed out the earth and made everything an object of calculation. Even something so ungraspable as air has been made explicit.[22] Because of this hollowing out, nature has lost its own autarky. Nature on its own, without technologies, can no longer serve as *Umwelt* (background for man's *Da-sein*). The survival of the current biosphere has become dependent on man and his technology. As such, overcoming the Anthropocene means that man must assume responsibility for the habitability of the earth's biosphere. The survival of the current biosphere has become dependent on man and his technology. As such, assuming responsibility consists of, cooperatively, changing our current technologies from *allo*technologies (technologies which are contra-nature, other than nature) into *homeo*technologies (technologies based on natural principles).[23] Consequently, assuming this responsibility does not consist in a project of philosophy as a purely theoretical enterprise (philosophy as the enterprise of thinking and reading about the world, without actually engaging in it). Rather, assuming responsibility is also a technological enterprise. This is because philosophy, for Sloterdijk, is itself a spatial enterprise: "philosophy is its own place and time comprehend in thoughts".[24] Philosophy is an enquiry into the conditions of its own existence. Since, according to Sloterdijk, the current condition of philosophy is that of *allo*technologies, philosophizing means physically changing these technologies. To affirm life and nature in philosophical thinking, we need to change our technology into a life-affirming technology.

[18] Hubert Dreyfus, "Heidegger on gaining a free relation to technology" in *Heidegger reexamined: Art, Poetry and Technology* (New York, Routledge, 2002).
[19] Peter Sloterdijk, *Schuim: Sferen III* (Amsterdam, Boom, 2009).
[20] Paul J Crutzen, "The Anthropocene" in *Earth System Science in the Anthropocene* (2006).
[21] Peter Sloterdijk, *Not Saved. Essays after Heidegger* (Cambridge-Malden, Polity, 2017).
[22] Sloterdijk, *Schuim,* 64-87.
[23] Sloterdijk, *Not Saved. Essays after Heidegger,* 144-146.
[24] Peter Sloterdijk, *In the World Interior of Capital: Towards a Philosophical Theory of Globalization* (Cambridge-Malden, Polity, 2013), 3.

Thus, where for Heidegger technology as *Ge-stell* was merely exploitative of life and obfuscated man's thinking, for Sloterdijk, technology is needed to preserve life and nature in the Anthropocene. For Sloterdijk, we need technology to overcome the Anthropocene and philosophy must always adhere to a physical condition since it is itself a physical enterprise. As such, for Sloterdijk, any thinking is always determined by technology. This entails that philosophy always has a certain technological condition to which it should adhere. The condition of philosophy is the condition (the state of being) of technology. As such, the question concerning technology is transformed into a question concerning the relation *between* man and technology.

1.2.3. Yuk Hui

Yuk Hui takes up Sloterdijk's idea that philosophy is always determined by a condition and that we should first enquire into this condition in order to understand philosophy itself. He also takes up the question of humanity and technology. However, for Hui this question will turn into a question concerning life in the system. Can there be life in a system? This question springs forth from Hui's alternative characterization of the condition of philosophy. Sloterdijk stated that the condition of philosophy is that technology has the form of *allo*technologies which should be changed into *homeo*technologies. Technology is based on principles outside of nature and, instead, should be based on natural principles. According to Hui, however, this amounts to an "ontologization of technics", which denies the ontological differences and diversity of technological development.[25] Sloterdijk presupposes that there is only one kind of technological development or one mode of technicity in the world (namely, technological development based on Western thinking) while in reality there exist multiple modes of technicity which should all be taken into account.[26] These different modes of technicity are due to the fact that different cosmologies exist. There exist different cultures, each with different kinds of thinking. These different kinds of thinking give rise to different kinds of technological development and, as such, open up our view to multiple modes of technicity. This is what Hui means with his concept of "cosmotechnics".[27] Different cosmologies give rise to different technological developments and different modes of technicity. In China, for example, we find a holistic development of technology, based on a holistic cosmology, whereas the development of technology in the West is based on a fractured cosmology based on distinctions (man/wife, reason/nature, etc.).[28]

Instead of characterizing the condition of philosophy as *allo*technologies which should be changed in *homeo*technologies, Hui characterizes the condition of philosophy as the "becoming organic of technology".[29] Current technologies are becoming a globally evolving system, incorporating everything in its wake. Technology is in the process of appropriating an organic form: it favors the whole by continually relating its constituent parts to that whole. Facebook's machine learning algorithms incorporate their user's data in

[25] Yuk Hui and Pieter Lemmens, *Reframing the technosphere: Peter Sloterdijk and Bernard Stiegler's Anthropotechnological Diagnoses of the Anthropocene* in "Krisis, issue 2" (2017), 38.
[26] Ibid.
[27] Yuk Hui, *The Question Concerning Technology in China: An essay in Cosmotechnics* (Falmouth, Urbanomic, 2016).
[28] Ibid.
[29] Yuk Hui, *Philosophy after Automation,* in "Philosophy Today, volume 65, issue 2" (spring 2021), 223.

order to predict their purchasing behavior. With every click on the mouse, every term searched on Google, data is added to the algorithm, updating the profile of the user. The different data points serve as constituent parts user's profile and the algorithms adapt the profile to the new inputs. [30]

For Hui, this system of organic technology is also an inhuman system. It is part of the human, but establishes itself as something outside of it. It is "the negation of the human, what it is not and what it will never be, but the inhuman is inside it".[31] The systemic becoming of technology is part of the human, since, initially, technology served as the exteriorization of the functions of man's organs. For example, writing exteriorizes reason's function of memory. However, in the systemic (and organic) becoming of technology, technology has become a system that is alien to us. This technological system no longer exhibits a human episteme but has its own episteme. Think for example of 'black box AI': even its programmers do not fully understand how AI's algorithms work. As such, one could state that the becoming organic of technology entails physical technological singularity. The organic system will have its own inhuman episteme, leading to a superintelligence surpassing man's cognitive abilities and unifying the material world under its own episteme. Consequently, man as a transcendental subject will be unable to cognize the world. Because of this aim of unification of the world, this single system of technology also negates life for Hui, since life for Hui means a true pluralism or multiple cosmotechnics.[32] In order to diverge technological singularity, Hui states, we must think a plurality of cosmo-technics: techno-diversity. This, however, can only be done by fragmenting the organic system of technology.

One might ask how Hui's condition of philosophy as the becoming organic of technology is different from Sloterdijk's categorization of the condition of philosophy as *allo*technologies. Does Hui's categorization of technology as one global, living system not also lead to an ontologization of technics which ignores the plurality of modes of technicity in the world? No. This is because, for Hui, this system is due to the externalization of Western reason. The becoming organic of technology provides a "neo colonization"[33] of Western reason through its materialization in Cybernetics. But Hui precisely characterizes this condition, in order to combat it, that is: in order to envision a plurality of cosmotechnics and to once again open up the question of life.

Thus, we saw that for Hui, technological singularity is a consequence of the condition of philosophy which is the becoming organic of technology. Technology has become a global, living system, which develops its own episteme independently from man. As such, this technological system threatens to surpass man's cognitive abilities and threatens the transcendental human subject with the inability to (re-)cognize the future technological world. In the next chapter, we will explain this more in depth and we will see that Hui wants to move beyond Hegel for a philosophy of technology, because Hui views Hegel's recursive logic as the logic of the organic system of technology and, thus, as the logic of

[30] Ibid.
[31] Hui, *Recursivity and Contingency,* 569.
[32] Geert Lovink, "Cybernetics for the 21st century: An interview with Philosopher Yuk Hui" in *e-flux Journal, Issue 102* (September 2019)
[33] Hui, *Recursivity and Contingency,* 505.

technological singularity. For now, we will put Hui on hold and we will explain Negarestani's formalization of technological singularity as a confusion of reason.

1.3 Technological singularity as a confusion of Reason

We saw that for Land technological singularity meant the deterritorialization of reason, the dis-integration of the transcendental structures of the human subject, by the imminent realization of AGI. It is this end of Reason's transcendental structures that Negarestani wishes to avoid.[34] This does not mean, however, that Negarestani aims for the preservation of human cognition as we know it. Preventing the end of reason's transcendental structures will require a different conception of reason, culminating in a different perception of the human. "To be human is the only way out of being human".[35] Negarestani will unbound human cognition from its material constraints by expanding the notion of Mind and, consequently, the notion of humanity such that it can include any sentient life-form which has the capability of self-reflection.[36] Like Land, Negarestani believes that technological progress is a process that cannot be stopped. Unlike Land, however, Negarestani does not believe that technological singularity is the end of technocapitalism's deterritorialization of reason and that we need to accept society's demise. And unlike Yuk Hui, Negarestani does not believe that technological singularity is the point of unification of Western reason upon the world by the technological system. Nor does he believe that it is the consequence of a physical condition. For Negarestani, technological singularity is not a physical end point of either reason or technology.[37]

Rather, technological singularity is the artefact of a confused social discourse. It is a confusion of reason. It is a consequence of man's inability to think critically about the notions of 'human' and 'AGI'. Hui and Land mistake AGI for what it really is. They see AGI as an endpoint of technology and reason because they only look at the meaning of AGI in its givenness; what AGI initially appears to be. And although the given notion of AGI is indeed on course towards technological singularity, this notion of AGI ultimately does not contain any truth for Negarestani. For, the given conception of AGI does not say anything about what AGI can become: "The concept of artificial general intelligence [should] not merely [be seen] as a technoscientific idea… [It is] not the champion of technology".[38] Instead, AGI can become the product of a thought that strives to maintain intelligibility in the world. The realization of AGI will itself be part of the task of self-consciousness; it will provide the concrete autonomy of thought by overcoming any pre-determined meaning, negating its givenness. The concept of AGI provides an outside view of ourselves which serves as a starting point of new reflection. It sheds new light on the meaning of humanity and on ethical questions. In the words of Ng, one could say that the logical concept of AGI opens up a new world; it forms a categorical framework through which we perceive the world. In this new world, thought is unbounded, freed from an exclusively human perspective, and *given* material constraints, such as a body or a brain (which is not to deny that thought will

[34] Reza Negarestani, *Intelligence and Spirit*.
[35] Ibid, 60.
[36] Ibid.
[37] Ibid, 459.
[38] Ibid.

be bounded by different material constraints). It is their misunderstanding of AGI, Negarestani states, which leads Hui and Land to see technological singularity as an actual problem, rather than as a confusion of reason.[39] Thus, seeing technological singularity as a confusion of reason instead as the consequence of a techno-physical phenomenon opens up new possibilities for the use of AGI.

Seeing technological singularity as confusion of reason, for Negarestani, is primarily a project of reflecting on the necessary conditions of possibility of Mind. When we critically reflect on the relevant notions at hand, both AGI and the human will, according to Negarestani, prove to be moments of *Geist* reflecting on its own conditions of possibility. In fact, Negarestani shows that the whole project of realizing AGI is nothing other than the examination into the necessary conditions of having a mind: "the program of artificial general intelligence … [is] the examination of the necessary conditions for having mind".[40]

But how does Hegel fit in here? Well, first of all, we should note that the project of reflecting on the conditions of possibility of Mind, for Negarestani, is still a political project. It is the project of a "de-colonization of western thought" or an "equality of all minds".[41] Notions such as human and AGI exist in reality as 'given notions'. They are notions containing a lot of unfounded, contingent presuppositions (for example that humans are rational beings and that machines have no emotions) which have been established in the course of history, yet which may not hold anymore. According to Negarestani, these given notions exist in reality as exploitative systems which obscure equality. Consequently, in order to affirm a free manner of thinking, these given notions must be challenged. Negarestani states, following Hegel, that this can only be done by a continuous labor of recognition. Man must recognize the contingent and exploitative features in these notions. Yet, such an enquiry also requires a recognition of the contingent exploitative features in the labor of recognition itself. Since for Hegel recognition is the motor of the individuation of Mind, inquiring into the labor of recognition, means inquiring into the necessary conditions of possibility of thinking (or Mind) itself.[42]

Thus, Negarestani uses Hegel, here, to show that the political project of an equality of all minds is first and foremost a project of breaking open the given totalities of history. Avoiding technological singularity is first of all a project of critical self-consciousness, which means re-crafting the history of intelligence in order to open up its future. In a truly Hegelian manner, this entails suspending our presuppositions of established concepts, admitting that we know nothing at the start of reflection, and working through their meaning, in order to find their necessary conditions. More specifically, Negarestani uses Hegel's concept of *Geist* as a functional, social model of Mind to break open the given concepts of human, reason and AGI. Yet he will reconceptualize *Geist* as the process of the self-artificialization of reason. This will be explained more in the third chapter. For now, it suffices to know that, for Negarestani, technological singularity is a confusion of reason and that adopting a Hegelian notion of Mind as *Geist* can help us to understand this, because,

[39] Ibid.
[40] Ibid, 6.
[41] Ibid, 408-409.
[42] Ibid.

by reflecting on its own necessary conditions of possibility, Mind as *Geist* breaks open the given notions of human and AGI.[43]

Thus, where for Hui technological singularity is the consequence of the condition of philosophy, which he characterizes as the physical constitution of technology as an organic system and which can only be avoided by fragmenting the physical system, for Negarestani technological singularity is a consequence of a confusion of reason. This confusion consists in the idea that AGI is the endpoint of technology: the final point of the deterritorialization of reason. Providing an alternative for technological singularity, by contrast, as Negarestani proposes, requires us to break open the given notions, which, in turn, means that first and foremost we reflect upon the necessary conditions of Mind.

[43] Ibid.

Chapter 2. Hui's critique on Hegel: Hegel's recursive logic as the logic of technological singularity

In the previous chapter, we saw that technological singularity for Hui is a consequence of the physical condition of technology. The condition of the becoming organic of technology leads to technological singularity because technology as an organic system develops its own episteme independently from man's cognitive apparatus. But why has this system of technology evolved out of Hegel's philosophy, according to Hui? Why should we move beyond Hegel in order to avoid technological singularity? In this chapter, we will see that for Hui, Hegel's philosophy leads to technological singularity because Hegel's recursive logic is the logic of the organic system of technology.

2.1. Hui's Argument: Hegel's logic as recursive logic

Hui's critique on Hegel's logic is that Hegel's logic provides us with a system which is closed and totalized. For Hui, A "closed" system is a system that does not allow exchange of information with its environment.[44] It just imposes its own movement on its environment without being able itself to be modified by its environment. A totalized system is a system that has its own rules of growth and its own rhythms of development.[45] As such, according to Hui, Hegel's system does not exchange information with its environment because it has all its rules for its growth (or 'reasons for its existence' or 'ground') within itself. Even fully contingent chance-like Nature turns out to have a reason in the system of Hegel. As such, there is no more externality which Reason is able to recognize in its structure, no more 'outside' that facilitates exchange of information. From the view of Absolute knowledge (all-encompassing knowledge) the outside has 'disappeared'. The system is closed and there is no more possibility for change or novelty because every possibility for indeterminacy has been made necessary.[46]

According to Hui, Hegel's system of reason is closed and totalized because it operates according to a logic of recursively incorporating contingencies (RIC) which requires the death of nature for its affirmation. For Hegel, logic is not formal logic: symbolical abstraction from real world phenomena. Rather, logic for Hegel is the movement or development of the Notion or reason. Logic is the life of reason, or, what being itself turns out to be in truth. The Notion explicates itself to itself. It develops by engaging with the environment in which it initially finds itself. In order to get to know itself, it must depart from itself, and come back to itself through the other; it must find its own rational structure in the other. This progress always happens by means of self-negation. The Notion gets to know itself by negating itself into what it, initially, is not and by consequently negating this negation. In the *Phenomenology of Spirit*, for example, self-consciousness (1) gains certainty of itself by negating itself as object. In the eyes of another self-consciousness (2), self-consciousness (1) becomes an object of reflection. It is only by negating this determination as object, by becoming aware of this determination by another self-consciousness, that self-consciousness (1) can determine itself. Consequently, the identity of self-consciousness (1) also contains the point of view of self-consciousness (2). Self-consciousness has negated itself. [47]

[44] Ibid, 220-221.
[45] Ibid, 52.
[46] Ibid, 254.
[47] Hegel, *Fenomenologie van de Geest* (Amsterdam, Boom, 2013).

For Hui, a logic of RIC means that unexpected, seemingly random, events are integrated into the structure of thinking, thereby changing or updating the structure itself. Here, recursivity is not mere mechanical looping, but "is characterized by the looping movement of returning to itself in order to determine itself, while every movement is open to contingency".[48] With every loop the movement changes. As such, recursion is different from mere mechanical looping (or iteration), because in mechanical looping the movement maintains the same. "Contingency", generally, refers to unexpected, random events. A thermostat, for example, heats up the room if the room is cold and cools down the room if the room is hot. It adapts action and movement to contingent natural events. For Hui, Hegel's logic is a logic of recursively incorporating contingencies, because "the Notion is a recursive process that arrives at itself as a comprehension of itself and the other as a whole".[49] The Notion, in trying to get to know itself in relation to its external conditions (its environment), integrates unexpected events into its own movement, thereby changing and updating its own movement in general. According to Hui, the affirmation of this logic requires the death of nature. The movement of recursion requires the necessitation and rationalization of nature. As a consequence, natural, sensed, unreflected contingencies are passed into reflected, logical contingencies, consequently exhibiting their rational character.[50] Thus, the Notion can only comprehend itself as the whole if it also encompasses nature. If it sees nature as part of its own development. Yet as such, nature's ground for existence will not lie in nature itself but will rather lie in the Notion. The meaning of nature, now, is such that nature is merely a necessary step for the Notion to be overcome in order to get Absolute knowledge of itself. As such, the Notion incorporates nature. It incorporates its environment. Now, reason has fully grounded itself within itself, it has all its reasons for existence in itself. It no longer has an outside and, consequently, can no longer exchange information with its outside. It has become a closed and totalized system.

2.2. Hegel's recursive logic as the logic of technological singularity

But why does this matter for technological singularity? Who cares if there is a totalizing, closed system which negates nature? Well, for Hui this forms a problem because in order to diverge technological singularity, we should be able to think a plurality of cosmo-technics. We should think of new epistemologies that can reshape technics in order to change our technologies and avoid technological singularity. Yet, for Hui, this is not possible on the basis of Hegel. Hegel's logic as "RIC" has been materialized in cybernetics (by Gotthard Günther for example) giving an absolute form to Hegel's closed, totalized system of reason[51]: "paraphrasing Hegel, maybe one can say that this machinic organicism (Cybernetics) characterizes the new form of the absolute spirit of our epoch".[52]

Cybernetics is the project of trying to repeat the traits of self-reflecting, living systems in machines. It does this by making nature/machine couplings. Just like an organism, the thermostat adapts to its environment. The technology and environment enter into a unified whole. As such, in Cybernetics, the Hegelian dualisms have been fully overcome, Hui states. The Notion has sublated nature by materializing itself in Cybernetics. Hegel's system of reason thus presents itself as a closed, totalized system of reason which

[48] Ibid, 26.
[49] Ibid, 50.
[50] Ibid, §19, 207-221.
[51] Ibid, 216-217.
[52] Ibid.

was based on a recursive logic requiring the incorporation of the outside. But because this logic has been materialized in Cybernetics, Hui states that technology itself has become a closed, totalized system based on a recursive logic requiring the incorporation of the outside. It has become a fully self-determining system, which does not exchange information with its environment, but only incorporates it.[53]

This self-determining system of technology does not need man, either for its development or for its episteme. As such, the recursive process of reason or knowing is itself becoming contingent for man. The episteme of the organic system of technology develops on its own accord, independently from man, according to principles which will soon succeed man's rational grasp. This is especially apparent in today's technologies of AI and Machine learning. Machine learning algorithms are algorithms which, after their implementation, can instruct themselves until their halting state is reached. They update their own structure by incorporating contingent data and thus exhibit a logic of RIC.[54] Since these technologies also heavily shape our current society and surroundings, the whole world will soon be ungraspable for the human subject. In the words of Land, man will no longer be able to synthesize the world with his transcendental structures, since the world will develop on its own as an autonomous technological system, surpassing man's cognitive abilities. In other words, by becoming organic, today's technology will lead to a technological singularity for according to Hui if it is seen in terms of a material continuation of Hegel's totalizing logic.

As a consequence, according to Hui, Hegel's logic can be said to be the logic of technological singularity. Hegel's logic necessitates the becoming contingent of recursion, towards Absolute non-knowing, because it negates itself into a closed, totalized self-determining system of reason which will surpass the cognitive abilities of the human. Hegel's logic gave rise to a system which is 'all too-human' because it is a system of human reason which has freed itself from its human constraints, by positing itself as an inhuman system based on technological constraints. Hegel's humanistic logic has negated itself into an inhuman system of technology.[55]

Thus, Hui implies that there is no role for Hegel in a contemporary philosophy of technology besides contextualizing the problem of technological singularity. Although Hui uses Hegel to work out the concepts of contingency and recursivity, he only does this in order to define the problem of today's technology. Let me be clear, I really empathize with Hui's project and with his characterization of German philosophers in terms of recursion and contingency, precisely because it enables us to talk about these philosophers through a contemporary frame. Yet, Hui reads Hegel as a philosopher who negates all life, differences and being-in-itself in order to get to Absolute truth. He reads in Hegel's logic a humanism and a closed, totalized system of reason which dominates nature. [56] Although it is hard to deny that Hegel, historically interpreted (as, for instance, in the work of Deleuze and Heidegger), has indeed with reason been portrayed as such a philosopher, it is definitely

[53] Ibid, §19.
[54] Matteo Pasquinelli, *How a Machine Learns and Fails – A Grammar of Error for Artificial Intelligence* in "Spheres: journal for digital cultures" (volume #5: Spectres of AI, 2019).
[55] Hui, *Recursivity and Contingency,* chapter 5.
[56] Hui, *Recursivity and Contingency,* 215.

not the only view one can have of Hegel. In fact, I believe that Hui's view of Hegel is one-sided, exactly because he does not engage with other possible characterizations of Hegel.

Recently, multiple philosophers have indicated the openness, indeterminacy and life-affirming quality of Hegel's system. Karen Ng, for example, has shown that Hegel's logical concept of Life is actually constitutive of his logic and, thus, of his entire system. She states that, for Hegel, Life opens up a space of reasons which serves as a categorical framework through which man sees the world. This is because the first determination of logic is the original judgment of life. Everything which is alive will distinguish itself from another thing, because this is the only way a thing can have self-causation.[57] One might see in this example the epitome of Hui's critique of Hegel's organic logic. Namely, that by adopting life as a logical notion, the logic incorporates life in its own structure, thereby negating it as truth *in itself*. Meaning that Hegel's logic still leads to a closed, totalized system, since it enforces its own structure upon nature.

Yet, as shown by Gerard Gentry, Ng's naturalistic account of Hegel entails a "de-prioritizing of the *Logic*" in Hegel's system.[58] In this account of Hegel, in other words, logic is itself *also* subjected to change by nature, rather than merely imposing its structure on nature. As such, Ng sees Hegel's logic as a continually opening, life-affirming logic. This opening view of Hegel is not an exceptional view. Interpretations of Hegel by Jean-Luc Nancy and Slavoj Žižek also express this. Jean-Luc Nancy, for example, states that Hegel's restless movement of reflection entails a post-structuralist logic of sense which completely hollows out and destroys any universal systematicity.[59] This means that Hegel's continual movement of reflection entails an intuitive logic which opposes the imposition of structure upon the world. Hegel does not advocate one universal system and truth which negates other views. Instead, he gives a view of system and truth which must always be revised and is itself changed by these other views.

In a similar vein, Žižek talks about a "transcendental pain" in Hegel's thought, the idea that Hegelian truth itself is "non-all, cracking and inconsistent".[60] Meaning that Hegelian truth is never universal, but that it is always subject to change. The fact that Hui does not engage with any of these views shows his one-sided interpretation of Hegel; Hui just assumes that his own view of Hegel is the correct one. There may, however, be alternative interpretations which show how Hegel might be of use to avoid the idea of technological singularity, precisely because his system also provides openness and indeterminacy, even if in a reading which Hegel himself would not have envisioned.

In the next chapter, we will show that Hegel's philosophy can also be seen as a solution to the problem of technological singularity, and we will establish technological singularity in Negarestanian fashion as a confusion of reason. This will be done by drawing on Negarestani's account of Mind as a social and functional *Geist*. We will see that, in reflecting on its own conditions of possibility, this Mind breaks open the given totalities of

[57] Ng, *Hegel's Concept of Life*.
[58] Gerard Gentry, *Review Hegel's Concept of Life* (NDPR, 2020), 6.
[59] Jean-Luc Nancy, *The Restlessness of the Negative* (Minneapolis, University of Minnesota Press, 2012).
[60] Slavoj Žižek, "Hegel versus Heidegger" in *e-flux journal* (Issue #32, 2012), 3.

history, which means showing that ‘human’ and ‘AGI’ in fact consist within the same logical structure, rather than being radically distinct. Indeed, as we will see, AGI uses the same mode of operation as the human subject, namely the operation of self-reflection. As such, AGI cannot replace man’s cognitive powers and technological singularity will turn out to be a confusion of reason rather than a physical problem. The solution of technological singularity, then, requires a critical investigation into Mind itself.

Chapter 3. Hegel's *Geist* as solution to technological singularity

In his book *Intelligence and Spirit,* Reza Negarestani aims to offer a new philosophy of intelligence, one that affirms the life of Reason as a process of self-artificialization, presents thoughts as artifacts and establishes man as the predecessor of AGI. Both man and AGI are phases of *Geist*; moments of the self-artificialization of Reason; artifacts of the Concept. It turns out that 'human' is nothing more than a logical form which other sentient beings can also inhibit; the form of sapience or self-reflexivity. "Human sapience is the only project of exit".[61] As such, the aim of this philosophy of intelligence is a political one. Negarestani aims for an "equality of all minds" or the aversion of technological singularity, by taking on a notion of humanity which also encompasses self-reflexive machines. This section will claim that adopting a (contemporary) Hegelian, functional, social notion of Mind (or *Geist* as the process of reason's self-artificialization) will help in avoiding technological singularity. This is because this notion of Mind reduces both man and AGI to the logical function of self-relation, thereby establishing both man and AGI as phases of *Geist*, which makes AGI nothing more than the continuation of man in the process of rationalization. It becomes impossible for AGI to replace man, to go beyond man's cognitive abilities, because man and system, in fact, share the same cognitive aim. It should be noted that Negarestani, in his reading of Hegel, does not aim to be authentically faithful Hegel's philosophy. Rather than focusing on historical correctness, Negarestani adopts a 'Dionysian approach', meaning that he reads Hegel's philosophy through the lens of contemporary issues.[62]

3.1. *Geist*: reason's ongoing self-artificialization

For Negarestani, mind is a functional, deprivatized, multi-agent form of reason. "Mind is only what it does; and that what it does is first and foremost realized by the sociality of agents, which itself is primarily and ontologically constituted by the semantic space of a public language. What mind does is to structure the universe to which it belongs…".[63] Mind is functional because it is only what it does. It continually reflects on itself, its surroundings and its relation to its surroundings. In fact, the whole definition of mind is merely that of the act of self-reflection (or self-relation). Mind reflects on its own conditions of possibility. It continually reflects on its situation, where it is, where it came from, where it is going. Mind as self-relating ability/function is deprivatized because it is constituted by a sociality of agents. Mind is not an individual mind residing in the brain, dependent on its biological constitution. Nor is it a god-like substance which does not depend on any material substrata. Instead, Mind is dependent on the existence of rational agents who, in their communication, exhibit the mental function of self-relation/self-reflection. It is only in the communication between these existing rational agents that mind can reflect on itself. In the "giving and asking for reasons" between agents, Mind relates itself to the agents who exhibit its rational structure in language and, consequently, Mind becomes aware of its own structure as rational. I can only understand why someone broke my bike, I can only relate to him, if I understand his reasons for doing so. But in understanding him, in the process of giving and asking for reasons, I become aware that we both exhibit a rational structure by

[61] Negarestani, *Intelligence and Spirit,* 61.
[62] Ibid, 2.
[63] Ibid, 1.

which we can understand each other. This awareness is in fact an awareness of Mind upon itself, of Mind realizing, through the communication of its agents, that it exists in reality. The precise function of mind is structuration: conceptualization, rendering intelligible, making objective.[64] Mind conceptualizes the world, renders intelligibilities (things which can be made intelligible) intelligible, it re-cognizes experience as meaningful. It applies the reasons, garnered from the communicative exchange of its agents, to the world of experience, thereby making experience unified and reasonable. In understanding why someone broke my bike, my broken bike becomes more than a sheer contingent, random event. Instead, my broken bike has now gotten a reason. My bike is broken, because, in fact, I stole it from him in the first place. The seemingly contingent events are related to each other by Mind's reasons.

Mind is thus not some static, fixed entity (as classical humanism would have it), nor is it pan psychic (as dogmatic naturalists would claim). Rather, it is itself a function of continually reflecting on its own conditions of possibility, being constituted by its social community on the one hand, and constituting its social community on the other. For Negarestani, this process is clearly Hegelian: "Indeed, Hegel was the first to describe the community of rational agents as a social model of mind, and to do so in terms of its function".[65] From now on, we will use *Geist* and Mind as interchangeable notions.

In this continual reflection on its own conditions of possibility, *Geist* constitutes its own history. In reflecting on its conditions of possibility, *Geist* progresses. It remembers the conditions of possibility which it previously believed itself to have and retroactively determines that, in truth, those conditions were never actually necessary for its realization. In the *Phenomenology*, for example, consciousness first experiences itself to be conscious and experiences that is has a body. Accordingly, it could see its body as necessary to its consciousness. But later in the *Phenomenology*, when consciousness turns into self-consciousness through its encounter with another self-consciousness, it turns out that the body was in fact never necessary for its constitution. Instead, the other self-consciousness turns out to be constitutive. It is only in the awareness of another's awareness of oneself, in the reflection of one self through the 'eyes' of the other, that self-consciousness can arise. [66] Yet, this previously held belief is not something to be discarded. Rather, it is this belief which turns out to be false that determines what self-consciousness is. *Geist's* previously held beliefs remain preserved and elevated (sublated) in the new truth. In this way *Geist* constitutes its own history. *Geist* is an ongoing process of reflection and self-relation which recursively updates itself and continually realizes its own ends and purpose. But why, then, is functional, social *Geist* a process of reason's self-artificialization?

> Artificiality is the reality of mind. Mind has never had and will never have a given nature. It becomes mind by positing itself as the artefact of its own concept.[67]

[64] Ibid, 10.
[65] Ibid, 1.
[66] Hegel, *Fenomenologie van de Geest*.
[67] Ibid, 50.

Negarestani states that the process of artificialization is constructive adaptation to different purposes and realizabilities (modes of realizing).[68] Making something artificial means that a new meaning (or conception) of a thing is created by changing its purpose and its modes of realization. For example, to take Heidegger's example of the Rhine River, at first the river is for man an object of aesthetic experience. It is a beauty to behold and the mode of realization of this purpose, or its expression, is poetry. But when the river becomes artificialized, when mills are placed upon it to harness its energy, its purpose and mode of realization of this purpose change. The river's purpose becomes the purpose of "to be exploited" and its mode of realization becomes one of mechanical mills (although for Heidegger, technology necessarily has this exploitative character, note that for Negarestani this is not necessarily the case. Good instrumentalities can exist if they are constructed according to the reasons of the Concept; if their construction is guided by Reason).[69]

Something, then, is self-artificialization if it adapts itself to different purposes and realizabilities. In our previous example, the artificialization was man-made. It was imposed by man on nature. But if we think of man, nature and technology as one large community of rational agents, what in fact happened in the previous example is that the "Rhine River ecosystem" itself adapted its purposes and realizabilities. Its adaptation did not happen from the outside, but from the ecosystem itself. Just like an ecosystem, *Geist* adapts itself to different purposes and different modes of realization. In reflecting on its own conditions of possibility (on its rational agents and social community), *Geist* thinks about itself. *Geist* becomes itself the object of its own thought. As such, *Geist's* function to structure is applied to itself. In thinking about itself, *Geist* structures itself and thereby creates itself. And by relating to itself, it makes itself intelligible to itself. As such, *Geist* externalizes its Concept in reality. It adjusts social reality to coincide with the Concept it has of itself. In other words, it re-configures social reality such that it coincides with its own purposes and ends. Through the function of self-relation, *Geist* literally creates itself in reality. It relates itself to its social environment; it reflects on where it is, where it came from and where it is going. As such, it creates its own history. It reorganizes itself in the form of a constructive story. Thus, *Geist* is a self-artificializing process because it externalizes itself in reality, by taking itself as its own object and applying its own productive function to itself, thereby objectifying its own purposes and ends. For Negarestani, this is an ongoing process of realization. It never stops. [70] Again, this process is clearly Hegelian. *Geist* externalizes itself in reality as truth.

Thus, we saw that *Geist* is a process of self-artificialization because it applies its function of structuration to itself, taking itself as object, thereby externalizing itself in social reality in the form of adapting social reality to its own ends and purposes. As such, *Geist* (re-)creates social reality and history. Yet, at the same time, we stated earlier that *Geist* also is always already constituted by its social community and the rational agents inhibiting it. How does this coincide? Well, this is because, in fact, what *Geist* (as process of reason's self-artificialization) does, in reflecting on its own conditions of possibility, is breaking open the given totalities of history. In reflecting on its own conditions of possibility, Mind reflects on what is necessary for itself and (re-)constructs the world according to these necessary

[68] Ibid, 447.
[69] Ibid, 458.
[70] Ibid, 31.

conditions. Yet, in order for Mind to change its social reality, it must first become aware of the given social reality in which it finds itself; the reality which constitutes it at the start of reflection. "Critical reflection on the conditions of possibility of having mind entails both understanding what these conditions are prima facie, and the construction (i.e., revision or modification) of such conditions by suspending the immediate appearance of them as allegedly necessary and universal".[71]

In other words, in order for Mind to artificialize itself in the world, to realize its ends and purposes, it must first become aware of the given totalities of its history and reflect on their necessary and contingent conditions. It is this reflecting on the given totalities, the suspending of their immediate appearance, which breaks open the given totalities of history. Through reflection, their true character becomes apparent. We may now see why human and AGI are not radically distinct from each other. We will see that Hegel's notion of *Geist* can help us providing an alternative to technological singularity, because it breaks open the notions of human and AGI, showing that they are, in fact, both phases of *Geist*, both artefacts of Reason which Reason needs in order to know itself, because they are both mere logical forms of self-relation.

3.2. Phases of *Geist*: Human as AGI

We saw that technological singularity was the idea that man will be replaced by a posthuman AGI because this AGI surpasses the cognitive capabilities of man. Technological singularity is the end of the Kantian transcendental subject because after this realization of AGI, who will shape our world, man will no longer be able to understand/synthesize the world. Negarestani shows, however, that this idea presupposes very distinct notions of human and AGI. We see the human as a rational animal, distinct from the animal order and the world of machines because of its reasonable capability. In so far as man has a body, man is perceived as a natural animal, yet in so far as he is reasonable, he is seen as more than an animal. The human is reasonable, animals and machines are not.

At the same time, cognitive researchers still often perceive this reason as a static entity, for example an unchanging Bayesian predictive model which serves as an information processing system.[72] As such, man's essence (reason) is perceived as a static, unchangeable thing. This static essence will be amplified in the realization of AGI. It will be human reason, but better. At the same time, we do not see AGI as something human, rather we see it as radically Other than humanity: a cold, bodiless machine which will subsume (or recursively incorporate) us. According to Negarestani, these are all unjust presuppositions. Cognitive researchers and AI researchers do not actually enquire into the structural constraints of intelligence. In order to create AGI in such a way that it can coincide with an 'equality of all minds' (construct it as a good instrumentality), we must break open these given pictures or totalities. We must critically reflect on them and on our situation, enquire into their necessary conditions for existence. If we do this, Negarestani claims, it will become apparent that human and AGI are not so different. AGI is not the radically Other. Instead,

[71] Ibid, 41.
[72] Ibid, Appendix.

both the typically human and the AGI type of reason are just moments of the self-artificialization of reason as such. Both present similar operations of self-reflection.

Negarestani uses Hegel's concept of mind in order to reduce 'rational agents' to the logic of self-relation, the act of self-reflexivity (sapience). Negarestani unbinds the human from a pre-determined, fixed essence and material constraints. The human mind and intelligence are not dependent on material substrata or an a priori determination of reason. As such, the physical condition of technology is not constitutive of Reason (as Hui would have it). Instead, intelligence always concretely negates itself by modeling itself in reality. In relating itself to its social space, intelligence changes itself as well. As such, by means of this reduction, Negarestani open up the way to include machines in our conception of Mind, intelligence and, consequently, humanity. Thus, in order to prevent technological singularity, we should not first of all change our technologies. Rather, we should first of all break open our given conceptions of reality.

One might argue that this solution is a purely abstract form of conceptualization which does not solve anything in reality. Yet, I believe this is not the case. As shown, Negarestani's project is a political project aiming for an equality of all minds (not very different from Hui's aim). Negarestani does not deny that this equality also requires physical transformation. Nor does he deny that Mind requires material constraints. Yet, what he does deny is that we can pre-reflectively assume what these transformations ought to be and what these constraints are. Instead, these transformations, Negarestani believes, should be guided by an adequate conception of reason so that we do not engage in mindless consuming qua constructing.

Thus, in this chapter we saw that Negarestani uses Hegel's notion of *Geist* in order to show that technological singularity is a confusion of reason. Mind as *Geist* is determined by the process of self-reflection which brings about transformation in the world by first reflecting upon the given notions. Rather than being a totalizing system of reason, this reflection opens up new possibilities which enable rational transformations. When man and AGI are both seen as phases of *Geist*, the realization of AGI opens, on the one hand, a new conception of reason which exceeds both the given, presupposed view of the human as exclusively rational animal and the presupposed view of machines lifeless machines, and on the other, opens the possibility to realize AGI without descending into technological singularity.

Conclusion

Can Hegel still be of use for a philosophy of technology? We saw that Yuk Hui wants to move beyond Hegel's philosophy for a philosophy of technology because Hegel's logic leads to an organic system of technology which is closed and totalized and, consequently, negates life. Contemporary technology is a global, living system which can fully determine itself and does not exchange information with its environment, because it incorporates this environment. This condition of technology leads to technological singularity; the closed, totalized, organic system of technology develops its own episteme independent of humanity, as such making the recursive process of knowing unknowable for humanity. For Hui, Hegel's logic can be seen as the logic of this technological singularity, because this organic system of technology operates according to a Hegelian logic of RIC. This is a logic which requires the incorporation for its environment to progress. Through cyber-Hegelians such as Gotthard Gunther, this logic has been materialized in the project of Cybernetics. Cybernetics has given rise to current technologies like AI and Machine Learning. These technologies, in turn, provide a prime example of technology as an organic system capable to adapt itself. Thus, for Hui, a contemporary philosophy of technology should move beyond Hegel, because Hegel's system is based on a logic which incorporates everything in its wake, leaving nothing behind, which in turn will give rise to Absolute non-knowing or technological singularity. Hegel's logic has given rise to future AGI's own episteme, leading to man's future inability to cognize the world.

One can raise questions, however, about Hui's interpretation of Hegel. Hui clearly reads Hegel's system as a closed, totalized system which negates life, thereby contributing to the domination of nature by reason. Yet, different views on Hegel and on the continued relevance of his philosophy are also possible and Hui completely ignores these views. We saw that recently Karen Ng has shown that Hegel's concept of life is constitutive of his logic and his entire system. The category of life opens up a space of reasons; it opens up a new world. Ng sees Hegel's system as a continually opening system. We saw furthermore that this view is not controversial, since a similar view is seen in the Hegel-interpretations of Jean-Luc Nancy and Slavoj Zizek.

This leads us to ask whether Hui was right in claiming that we should move beyond Hegel in a contemporary philosophy of technology. Or whether Hui is right in seeing Hegel's logic as the logic of technological singularity. The last chapter, aimed to open up the possibility of using Hegel's philosophy for a contemporary philosophy of technology. By drawing on Negarestani's account of Mind as the process of self-artificialization of *Geist*, we tried to show that Hegel's philosophy can be used in such a way as to understand how technological singularity might be avoided. In adopting a Hegelian notion of Mind, it becomes apparent that technological singularity is not the consequence of a physical condition, but that it rather is a confusion of reason. By reflecting on its own conditions of possibility, Mind as *Geist* shows that human reason and AGI are both moments of the same process of reason: *Geist's* operation of self-reflection. As such, Negarestani's reading of Hegel's *Geist* as a process of self-artificialization breaks open the given notions of human and AGI as radically other. Consequently, Negarestani's reading of Hegel sheds doubt on the idea of a replacement of man by AGI due to cognitive surpassing, thereby providing an alternative to the problem of technological singularity.

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