Art at play

Manifesting the Unknown in the all-calculable

Mathis Guerreiro

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Department Media Studies of the University of Amsterdam

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Supervisor: Dr. M.P. Michael Stevenson

Second reader: Dr. Toni Pape

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Heo "*Showmaker*" Su
Mid laner on League of Legends for Dplus KIA
(LoL Esports, 2022)

INTRODUCTION

A des millions d'hommes j'ouvre des espaces,
Où ils vivront non en sécurité, mais actifs et libres, […].
(Le Second Faust, acte V.)

In an interview granted at the occasion of the League of Legends World Championship 2022 (Riot Games, 2009), Heo "*Showmaker*" Su gives his opinion about one of his most promising rival Jeong "*Chovy*" Ji-hoon. Chovy has "no noticeable weaknesses" he claims. He is "like a robot" (LoL Esports, 2022). When wondering what makes a good athlete in sports, first answers may revolve around the ideas of physical condition, skill mastery, relentless dedication and dogged work. Although, some performances are considered so great that something more must be part of the explanation to make sense of them. This "something" may have many names: a genius, a 6th sense, an instinct, or even a gift granted by some transcendental force. One remembers the unique playstyle of the legendary chess prodigy Paul Morphy, author of the famous Morphy vs Anderssen 9th game which took place in 1858. Or Maradona's genius in football whose performance statistics have long been surpassed but whose talent remains unchallenged in spirits. Even among the best players of all time only a few deserve this type of non-rational label. Qualifying Morphy's or Maradona's performances as "robotic" would seem rather inappropriate in addition to being anachronistic. What, then, can lead a contemporary e-Sport player to establish an equivalence between outstanding e-sporting performances and the cold calculative power of a machine? Would the best League of Legends player hypothetically be a computer program, such as the ones developed by Deep Mind that already solved the games of Chess and Go, as well as the video game *StarCraft II* (Blizzard Entertainment, 2010)? The "absolute best setup recommended by the engine" has already become a quality standard used by modern chess game analysts (agadmator, 2023). As a matter of fact, the nature of the game of chess radically changed since Deep Blue, a computer program developed by IBM, won a match against the former world champion Garry Kasparov in 1997. "The engine" has become a reference standard and is now fully part of athletes' preparation process. Then, is it reasonable to advance that matching "the engine" constitutes the ultimate

sporting goal nowadays for games that can be rendered digitally? That it sets a level that players must strive to reach? Indeed, the importance of playstyles seems to lose ground against the necessary and immutable judgment dictated by the cold rationality of the engine's "best move". More generally, we are led to wonder whether this phenomenon applies to other spheres of human life too. The digital revolution is often claimed to be a major shift in humanity's history. It has reshaped the principles of space and time and is often regarded in a polarised way as either a remedy or a poison. Technology has developed fast and often out of people's reach, driven notably by the efforts of autonomous entities such as military organisations. The relation between humans and their technologies have been the subject of many interrogations and interpretations but remains obscure for contemporary cultures. Often regarded as a mere set of tools or as competitors whose destiny is to overthrow humanity's dominance. It can indeed be frightening when robots are believed to have "no weaknesses".

In the second volume of Technics and Time, Bernard Stiegler suggests that "industrial temporal objects constitute the determining element of the century" (2018, 594). He points out the massive production of temporal objects by the broadcast media industry that can be listened and watched by thousands of millions of consciousnesses simultaneously, leading to new forms of "collective consciousnesses and unconsciousnesses" (2018, 578). The media industry has evolved since and we have more recently seen the emergence of a new form namely, video games. The video games industry is now the biggest cultural industry in terms of market size. The user number of video games is estimated to reach to 3.1 billion individuals in 2027 (Clement, 2023). As a result, more than a third of humanity's consciousnesses can be said to be in relation to an "algorithmic logic". E-Sport takes a significative and increasing part in the global video game industry. In fact, e-Sport games' programs are designed to induce a consumer behaviour to their users. Whether taking a financial or an attentional form. In their various forms, video games capture an increasing part of humanity's attention. The prominent philosopher of technical objects Gilbert Simondon uses the concept of "technical mentality" to characterise the way human beings integrate technical objects in their understanding of the world, and how they appropriate and assimilate technologies in their everyday experiences (Simondon, 2006). These technologies integrate an internal logic that is the result of and influences the cognitive scheme (*schème cognitif*) of their users. He gives the example of the analogy between the fundamental operation of machines and the workings of logical thinking under Cartesian mechanism. Thus, "the 'long chains of reasons' carry out a 'transport of evidence' from the premises to the conclusion, just like a chain carries out a transfer of forces

from the anchoring point to the last link" (Simondon, 2006, 18). In other words, the logic of demonstration from which a conclusion follows from premisses is similar to the mechanical functioning of simple mechanical machines such as a pulley system. As a result, the widespread practice of video games as well as other products that integrate the same cognitive scheme requires to look closer into the technical mentality that pertains to our digital time.

This phenomenon that can be observable in the domain of sports and games is not isolated. It takes its root in a broader phenomenon of rationalisation and calculability that takes its roots in the history of European thought. The domination of the scientific method has reshaped both how humans conceive and experience their world, in part due to the tremendous technological development that it has enabled. Coming from the Greek *technē* (i.e., "craft" or "art") and *logos* (i.e., "word", "discourse" or "reason"), technology is a purely European concept that is, rooted into a precise cosmotechnic as Yuk Hui would claim (Hui, 2021b). As of now, technology is everywhere. Visible with the objects we use daily and the modified environment that surrounds us, partially visible with factories and logistical areas that in part constitute the infrastructure of our world, and invisible with all the computation whose operation do not function on the same spatio-temporal basis as human beings'. Technology can be considered the backbone of the world civilisation, the ground on which it rests. It is often considered the first of all evils or the solution to our imminent demise. One thing seems to reconcile both sides: it is that technology holds in its chest the future of humanity. It is clear that most people feel alien to the technology that surrounds them. Gilbert Simondon already highlighted the apparent conflict opposing technology and culture (Simondon, 1965). For him, people have separated the world of objects into two categories: one related to beauty, arts, and one related to functionality namely, technology. The former category is seen as promoting human values while the latter is considered as other than human, as alien to culture (Read, 2016, 104). Understanding technology as purely functional and instrumental that is, as a means to an end, seems to put shade on the broader reality of technology's ontology. Moreover, as Mark Hansen suggests, it is crucial to "reconceptualise the coupling of human and technics beyond the figure of the 'technical object'" (2012, 51). Following a similar path, Yuk Hui's work insists on reconceptualising the nature of modern technologies that is, after cybernetics. He notices that many interpretations of these suffer from a misconception that does not take into consideration the "organic shift" pertaining to modernity (Hui, 2023b).

The present work constitutes an exploration of the technical reality of our time. Chapter 1 traces it back to its Greek roots and through its evolution in modernity as fundamental object of reason, notably through mechanics and cybernetics. The consequences of the cybernetic method will then be outlined. The work of Gilbert Simondon on individuation will then be explored, offering crucial tools to characterise more precisely the genesis of beings, both living and technical. The notion of memory will prove central throughout these parts and will be the element to focus on in part 4 to understand the relation between consciousness, time, and technics. In Chapter 2, we will move away from reason and explore what Yuk Hui calls "the non-rational". For that, we will first try to understand why art can be understood as a means of "resistance against mechanical automation" (Hui, 2021a, 229). Part 6 echoes part 4 and comes back to memory. More precisely, to its non-rational counterpart. Part 7 constitutes an exploration of the relation between art and the non-rational. Chapter 3 takes the video game League of Legends as a case study and draws upon the previous two chapters to analyse it as a modern cybernetic being. Its first part broadly describes the medium. The next characterises it as a cybernetic being in the technico-organic sense. Part 10 continues this endeavour but focuses on its enclosing nature. Finally, part 11 aims to explore the possibility for the non-rational to manifest within such medium. Thus, this work essentially comes as a contribution to Yuk Hui's following question: can modern technology after cybernetics have the function of disclosure? (Hui, 2021a, 127).

CHAPTER 1

§ 1
From mechanics to cybernetics: reason and soul

The history of western philosophy contains instances of comparison between machines and organisms. Aristotle already drew a parallel between animal organs and war machines or "*organa*" (Canguilhem, 1992, 48) while Descartes is known to have put forward the idea that bodies are no less than machines. As Simondon shows in *Deux leçons sur l'animal et l'homme* (2020), the animal question in ancient Greece takes two aspects. One concerned with ethics with pre-Platonic and Platonic doctrines as well as with the Stoics, and one that focuses on the development of a naturalist theory of psychic functions in nature of which Aristotle was the main influence. For the latter, it is the soul that is the principle of all movements. He recognised the existence of a soul in plants, a *to treptikon* or a vegetative principle that is relative to functions of development and growth (Simondon, 2020, 41). This soul drives the plant towards a determined reproductive finality. In addition *to treptikon*, animals demonstrate *to aisthètikon* that is, the faculty to sense. From this faculty derives *aisthèsis*, the faculty of experiencing, of sensing, and *orexis* that is, desire (Simondon, 2020, 43-44). Desire here should be understood as a drive that sets in motion. Finally, humans are said to manifest the two aforementioned faculties as well as the logical faculty, or *to logistikon* and the faculty to choose freely among possibilities of action: *proairésis* (Simondon, 2020, 44-45). For the Stoics, the difference between humans and other animals rests in their freedom, their rationality and capacity for rational choice. Whereas animals act only by instinct. This distinction between instinct and reason grants humans a position that is "outside of nature" and which elevates them to the rank of "princes of nature" (Simondon, 2020, 53). Thus, the human order is different from that of nature because it possesses *logos* or reason. As a result, Greek antiquity gave birth to the idea of a difference between humans and nature based on the faculty of reason.

Ironically, a 2000 years' perspective on humanity development forces us to recognise that computing machines prove better and faster than humans at performing logical tasks. The "best move recommended by the engine" example illustrates that well. While reason used to be understood as the distinctive faculty pertaining to human beings, it appears that other sorts of

beings now outperform them namely, machines. On the other hand, the advantage of human players now seems to be taken from what may be called an "instinct" or a "feeling": faculties that were thought to be shared among all animals. In other words, the advantage of humans in the performance competition against machines seems now to lie in their animal nature, in *to aisthetikon* or in their faculty to sense. But this type of reasoning only ensues from a perspective that separates humans and technics as two distinct entities. A perspective that does not recognise the technical condition of humanity.

The idea of a distinction between beings based on their faculty to reason resonates with René Descartes' notion of mental substance or *res cogitans* that only humans and God possess. Beyond attributing humans the moral right to eat or kill animals, this mechanical understanding of the world based on a dualism makes humans "the master and proprietor of nature" that must "[deny] any natural finality or purpose; and [they] must consider the whole of nature, including all life forms other than [themselves], as solely a means to serve [their] purposes" (Canguilhem, 1992, 52). In mechanics, every movement of a machine is geometric and measurable. It is composed of interlinking parts that work together, each of which has a determinable degree of freedom of movement (Canguilhem, 1992, 46). To be set in motion, a mechanical machine requires an external source of energy such as human or animal power. Each part composing the machine work together according to an ideal schema of transfer without losses. Thus, mechanical machines imply the idea of a "prime mover" or an original cause to function according to a linear causal link and a posited finality. Additionally, the movement of mechanical machines is presumed to be reversible (Simondon, 2006, 17). This corresponds to a conception of time developed by Isaac Newton where motion is mechanistic and time-symmetric, therefore reversible (Hui, 2020, 55). Thus, the predominance of logos in Stoic philosophy as well as in mechanical philosophy with Descartes puts forward the ideas of the mastery and dominance of humans over non-humans and the prevalence of rationality over other faculties shared by other natural beings. As a result, mechanical philosophy has imposed the domination of reason over nature as a distinctive principle and a moral right attributed to humans and the prevalence of science.

The contemporary era has seen the emergence of new technologies that do not follow the same internal logic than mechanic machines. The linearity of the mechanist conception has given way to the recursivity of the cybernetic conception, notably enabled by computing machines (Hui, 2019). As Hui argues, mechanism is indeed based on a linear causality (i.e., A → B → C) while

cybernetics rests on a circular causality (i.e., A→ B → C → A') (Hui, 2020, 55). As he points out, algorithms can be based on a linear logic, but they become particularly powerful when they integrate a recursive logic into their functioning taking the form of loops (Hui, 2022). Here, recursivity refers to the capacity of coming back to itself in order to know and determine itself (Hui, 2019, 4). Computer programs' reflective movement move towards a pre-defined or auto-posited *telos* that is, an ultimate aim. This circular logic is inscribed into a larger cybernetic logic that mobilizes two crucial concepts: those of feedback and control.

First introduced by the American mathematician Norbert Wiener in 1948 with his book *Cybernetics: Or Control and Communication in the Animal and the Machine*, cybernetics comes from the Greek word κυβερνήτης meaning helmsman. It is defined by the author as the study of communications and their regulation in natural and artificial systems (1948). Cybernetics aims to analyse all beings as systems. From natural beings to society, so from the world of the living to the one of the non-living, it aims to offer a scientific methodology based on the definitions of information as the measurement of the degree of organisation and feedback as the principle of recursive causality that allows auto-regulation or control. In other words, cybernetics holds the promise of a "unified doctrine, or at least a unified conceptual scheme, for the representation of reality" (Jonas, 2001, 111). As the title of Wiener's book implies, this conceptual scheme aims to break the supposed opposition between living organisms and machines by understanding both as systems. For instance, the Kowloon Walled City of Hong Kong draws a rather clear analogy between a city and an organism, whose functions are organised to satisfy the needs of its population understood as a group of cells. Indeed, the field of urban ecology appears as one application of the cybernetic methodology to the knowledge of how cities function as systems and ultimately, how they could be managed in a preconceived manner (Alberti, 2018).

As Yuk Hui claims, cybernetics has rendered the mechanistic view of machines obsolete. Of course, mechanic machines still fill our everyday lives. But Hui argues that cybernetic machines belong to a different order and should be understood and critiqued as such. For him, cybernetics is part of a wider scientific paradigm known as organicism, which arose from the critique of mechanism as a basic ontological notion. In *Recursivity and Contingency,* he draws a parallel between the recursive model of the soul and the circular operation of cybernetic machines (Hui, 2019). The singularity of the soul comes from its capacity to depart from itself and meet contingencies that is, non-necessary objects and phenomena through perception. In this way, it

actualises its own reflection in traces taking the form of memories through a looping movement. These memories constitute what Bernard Stiegler calls “secondary retentions” that are built from norms of *frayage* or breaching. This *frayage* operates according to the image of the breaching of neurons in neuroscience, where the repeated connection of neurons via electric stimulations creates paths that will be favoured for future activity. Every new experience constitutes a *passage* whose content is partly inscribed in memory through norms of breaching, and partly forgotten.

The conception of the soul as recursive enables a synthesis between “being” and “becoming” that are otherwise strictly opposed. As Hui states, “being is preserved as a dynamic structure whose operation is open to the incoming of contingency: namely, becoming” (Hui, 2019, 5). The encounter with contingency “gives form”, it “informs”. The being is open to information which triggers the process of individuation when combined with the material and energic conditions (Simondon, 2017). Thus, according to Hui, it is the principle of recursivity that characterises being “in becoming”. The deterministic conception that pertains to mechanism due to its linear causality that implies a preconceived finality becomes undermined by the organismic conception founded on recursivity and contingency, where the end is to be found in “the whole” of the looping movement. As a result, a phenomenon of “becoming organic” can be identified in contemporary technologies. Which means that they increasingly include contingency in their functioning and are capable to flexibly adapt to it. This mechano-organicism or neo-mechanism is another name for cybernetics.

Thus, the logical faculty seems to be a faculty that distinguishes humanity from other living species. Notably through the elaboration of technics and tools, it has organised humans in societies and has played a crucial role in their survival. As its name suggests, technology necessarily involves this faculty, it is object of reason, it is its fruit. As Hui appears to show, it seems possible to distinguish two sorts of logic ruling machines, corresponding to two phases of European thought. One mechanical and one mechano-organical. Their main distinction being the type of causality governing their functioning: one linear and the other recursive. Linearity fixes the object in time, while recursivity allows it to fit and adapt to a system over time. In other words, cybernetic machines should therefore be understood in becoming, just like the soul feeding from external contingencies.

§ 2
The cybernetic blueprint

The development of cybernetic theory was regarded by Martin Heidegger as the ultimate form taken by the victory of method over science (Heidegger, 2013, 123). He draws upon Nietzsche's claim that the 19th century is characterised by the victory of the scientific method over the sciences and elaborates with his interpretation of this claim. For Heidegger, "the method is the anticipatory blueprint of the world, which delimits by means of exclusion the direction of any research into its being" (Heidegger, 2013, 122-123), and is characterised by "the thoroughgoing calculability of everything, susceptible to experimentation and controllable by it" (Heidegger, 2013, 123). The field of development of science, Heidegger claims, is contained within the blueprint of a method that finds its origin in Europe in the 17th century with notably Newton and Galileo. The cybernetic blueprint is therefore characterised by a regulation of all things by means of feedback and information. From it ensues the homogenous and universal calculability and controllability of the living and the non-living alike. Indeed, the indiscriminate processing of information abolishes the difference between automatic machines and living beings that both become calculable, anticipable, and therefore manipulable. In this way, "the world becomes always and everywhere subject to human dominance" (Heidegger, 2013, 123).

According to Heidegger, humans have become overwhelmed by their technics functioning in systems. Under cybernetic logic, "the place of humankind lies in the widest circuit of the feedback control system" (Heidegger, 2013, 123). Humans regulate their surroundings. They act on their environment by way of information and mediated by technologies. The division of labour and specialisation pertaining to the industrial era has created a distance between the various steps of conception, of maintenance and use of an object (Simondon, 1965). Leading to a necessary detachment between individuals and their technical environment, or an impoverishment of technical culture. The algorithms on which are based most commercially driven platforms today are often opaque and unknown to their users. They often function thanks to the data produced by them. This is the case of the search engine Google Search or the satellite navigation software Waze. Those two products can exist and function properly only with enough users that translate their behaviour into usable data. The same applies for the Chinese

application Douyin or Tiktok for its non-chinese version, which is primarily a profiling and categorising product. Powerful machine learning algorithms are used to characterise the profile of a user via the analysis of various data input such as type of content watched, time spent watching a video before switching to the next and metadata. In addition to being omnipresent in various aspects of life, computer programs have become essential for the working of the present world. From High Frequency Trading backed by powerful algorithms allowing to issue financial orders in microseconds to the development of smart environments, the human-technology relationship seems to have changed its nature. Indeed, human action appears to be coupled with computational agents whose activity goes sometimes beyond our control, and often even beyond our sensitive awareness. The processual rapidity of contemporary computers does not match humans' cognitive or perceptual capacity, resulting in what Mark Hansen calls the "operational blindness of human consciousness" (Hansen, 2012, 33). The sprawling infrastructure made of cables and transportation technologies is also globally invisible to the eye although it sustains and preserves the status quo of the life conditions of billions of people. In a short period of time since the industrial revolution in Europe, natural environment has radically changed by way of technological development. The very essence of technology, Heidegger claims, has radically changed.

Indeed, central to Heidegger's contribution to the "Question concerning technology" is the notion of *Gestell* or enframing. According to him, the essence of modern technology under cybernetic logic is not the same as what it used to be. For him, *technē* (i.e., "technics" and "art" for the Greeks) is a mode of revealing the world. It is a form of knowing. The Greek *technē* finds its essence in *poiesis,* from the Greek meaning "to make"). Heidegger calls it "bringing-forth" or *Hervorbringen*. It corresponds to the "unconcealment of being" as being is brought forth as a result of making. However, he claims that modern technics has changed essence after the epistemological and methodological rupture characterising modernity namely, cybernetics. It is now "enframing" or *Gestell* (Hui, 2021a, 77). The world has been framed as a "standing-reserve" as a result. Its components are seen as resources whose purpose is to serve ends. Modern technics still carries the possibility for unconcealment, although its mode of revealing is no longer bringing-forth or poiesis, but "challenging" or *Herausforderung* (Hui, 2021a, 83, 126).

An important part of Heidegger's work is concerned with the essence of truth. His project is to determine what the necessary conditions for the possibility of truth conforming or not to reality

are, and his answer is freedom. He understands freedom as the choice among the possibilities of a horizon, of a variety of available possibilities. This definition reminds us of *proairésis* or the faculty to choose granted by *to logistikon* according to Aristotle. But the two must however be distinguished since for Heidegger, the ground of freedom corresponds to the "openness" of things. To the open region of options that define them, that is, the unconcealed. Thus truth, for Heidegger, is unconcealment or disclosure. He rejects the idea that true thoughts or true statements are like snapshots of the world, like static photographs of a static world. For him, dynamicity is essential to reality. The world constantly changes. Truth, disclosure and unconcealment are therefore dynamic notions: they are in becoming. As a result, a theory of truth must be able to capture this movement. To capture something about the world disclosing itself. It must understand not how things are, but how they become. Heidegger's next interrogation aims at determining what the necessary conditions for the possibility of disclosure are (i.e., the unconcealment of being, becoming or Hervorbringen). To answer this question, he recognises that when an event appears to our consciousness, we make it our own by interpreting it. Humans interpret the world that consists in a series of unfoldings. Interpreting means integrating something into a network of meanings. To put it in relation with the already interpreted meanings lodged in memory. Language, for instance, supports a network of meanings shared by a community.

We therefore find a continuity from the Cartesian project of mastering the elements of nature to the universal control of it through the calculability of all things and their association to a purpose. It is in this sense that cybernetics as a method imposes a process of universalisation and planetarisation. This "becoming planet" ensuing from cybernetics marks the birth of a world civilisation based on technology that originated from European thinking. Coupled with the process of industrialisation and the quest for productivity gain, the cybernetic method has become supposedly inescapable to all regions. The "planet" or the "world" is therefore objectified as an ecological system. A system to be controlled and preserved. There is indeed nothing natural about ecology, as the term fundamentally implies a systematic conception of the earth (Hui, 2020, 57). In 1974, the famous media theorist Marshall McLuhan commented on the launch of Sputnik 1 by the Soviet Union in 1957 as the first time that "the natural world was completely enclosed in a man-made container" (McLuhan, 1974). He understood this event as the end of Nature and the birth of Ecology. The systematic conception of the things in the world therefore implies a possibility for regulation. This regulation, Heidegger claims, operates through information that is, through the mediated transmission of a message.

The cybernetic method is therefore a unified conceptual scheme that aims to represent reality as composed of systems. Within this frame, everything becomes calculable, controllable, and therefore, anticipable and influenceable. Life is caught within circuits of feedback control systems and things in the world seem to be captured statically, moving us away from accessing what Heidegger calls truth, or the open. The regulation that corresponds to the lever for action on the things composing the world appears to operate through information. Various definitions of this term have been proposed that are sometimes opposed. Wiener saw information as a probabilistic measurement of order and disorder (i.e., negentropy and entropy). In other words, for Wiener, the production of information opposes the tendency of increasing entropy. Gilbert Simondon, on the other hand, proposed a non-probabilistic theory of information that proves insightful to investigate the nature of cybernetic machines.

§ 3
Information, allagmatics and the principle of individuation

Information is indeed another key concept of cybernetic theory. Gilbert Simondon's definition is well captured in the following terms:

> "Being nor not being information doesn't depend only on the internal characters of a structure; information is not a thing, but operation of a thing arriving in a system and producing a transformation. Information cannot be defined outside this act of transformative incidence and of the operation of reception." (Simondon, 2012, 159).

In *L'individuation à la lumière des notions de forme et d'information* (ILFI), Simondon tackles the notion of individuation after Aristotle's theory of individuation namely, the hylomorphic scheme. This concept is taken from his philosophy of nature and characterises bodies as composed of form and matter. Simondon takes the example of the brick that, according to the hylomorphic scheme, is the result of clay (i.e., matter) put in a mould (i.e., form). His critic focuses on the fact that hylomorphism induces individuation (i.e., the making of a brick) based on already individuated elements (i.e., clay and mould). In the case of the making of a brick, matter is already prepared, and the form is already materialised. For Simondon, "form taking can only take place if matter and form are combined into a single system by an energetic condition of metastability" (Simondon, 2017, 61). Potential energy only exists in relation to the possible transformations within a defined system. As a result, Simondon defines the individual as being the result of three conditions coming together: energetic, material, and informational. The informational condition is what resolves the tension between the material condition and the energetic condition (Simondon, 2017, 79). Indeed, matter (e.g., clay) is what conveys the energy and form is what modulates the distribution of this same energy (i.e., by setting limits to the actualisation of the potential energy of the clay-mould system). Thus, it is the distribution of energy that is decisive in form-taking. And the mutual suitability of matter and form is relative to the possibility of existence and to the characteristics of this energetic system (Simondon, 2017, 46).

Simondon's principle of individuation can be applied both to technical objects as well as to the living. However, technical individuation stops when the object is individuated. When the brick leaves the mould, after its ontogenesis, it loses its individuating potential. The individuation of the living, on the other hand, is continuous. The individuating living individual is always "in becoming" between two individuations: it individuates itself by resolving tensions that appear in its relationship with its milieu. For Simondon, the individual can only be understood in relation to its environment and more precisely, to its milieu. The notion of milieu corresponds to a reality of the same order as the one of the individual (Simondon, 2017, 65). The environment here is not the whole of nature but the directly accessible environment that surrounds it. The individual, therefore, is the result of a relationship with its associated milieu. In other words, "the relationship, for the individual, has the value of being;" (Simondon, 2017, 62). The individual is in internal resonance within a milieu. It is the "theatre and agent of a relation; […] of an interactive communication" (Simondon, 2017, 62). The ontogenesis of the brick corresponds to its final constitution, whereas the living individual continues to individuate itself: "it is both individuating system and the partial result of individuation" (Simondon, 2017, 49). As a result, Simondon notes that the paradigm of individuation observable in technology is therefore different from the one observable in the living. The living displays an internal resonance through time, "created by the recurrence of the result going back to the principle and becoming a principle in its turn. […] The process of individuation of the living being is always an operation [...] in two dimensions, that of simultaneity, and that of succession, through ontogenesis supported by memory and instinct" (Simondon, 2017, 49). This passage underlines the recursive causality pertaining to organisms discussed before where the result of a causal chain becomes the beginning of another. It becomes "a principle in its turn". As underlined earlier, Yuk Hui shows that this principle can be found in mechano-organic technologies such as some types of algorithms. Simondon's last quote also puts forward an important element regarding the continual ontogenesis of living organisms: that it is supported by memory and instinct. Indeed, memory takes a crucial part in the process of individuation that we are going to explore in the next part.

The notion of transindividuality is also essential to comprehend Simondon's theory of individuation. It takes part in a re-examination of individuality as a relation of individuation. As Jason Read points out, this concept resonates in the work of various authors such as Gilles Deleuze and Bernard Stiegler. Though they drew upon this notion in different terms: the former focusing on a "general ontology of individuation, related primarily to biology and the physical

world" (Read, 2016, 103) and the latter using the concept of transindividuality for thinking the social and economic reality. What, then, is transindividuation? As previously explicated, individuation is a process. It is a phase of being that runs through nature, but also in psyche and society. In order to be a process, individuation must include a dimension of reality that pre-exists it. This other phase of being is what Simondon calls the pre-individual (Read, 2016, 109). It corresponds to a set of relations that exist in a metastable state and involving tensions. This metastable state carries possibilities that reveal themselves as a result of the resolution of tensions. In this sense, the pre-individual is a "reserve of becoming" (Combes, 2013, 4). It is the phase of being that precedes individuation. Simondon takes the example of the process of crystallisation to illustrate the relation between these two phases of physical being. Crystals are the result of the crystallisation of a supersaturated solution which is first a metastable system (i.e., a set of possibilities and relations) whose resolution is the process of crystallisation. Super-cooled water whose temperature is below zero degrees Celsius, but which remains liquid, is in a state of metastable equilibrium. The modification of a simple parameter such as its contact with an impurity will turn the solution into ice (Combes, 2013, 3). Though this resolution is always partial. Pre-individual and individuation are two phases of being that co-exist. The former is never exhausted, and the latter is continuous. There is always pre-individual potential and ontogenesis continues to operate.

Simondon's theory of individuation encompasses physical bodies, living and non-living, but also applies to the psyche. Psychic individuation corresponds to the development of character and habit of human beings and the pre-individual relations that constitute its base are sense and affect (Read, 2016, 110). Sensations are oriented towards the exterior world while affects correspond to the interior world. Sensation is the pre-individual phase of perception and affect is the pre-individual phase of emotion. Perceptions and emotions can be named, while affects and sensations are much less characterizable. The relation between sensations and affects is in tension which is coordinated by the process of transindividuation. This tension gives way to emotions and perceptions. As pre-individual bases, affect and emotions exceed emotions and perceptions while being their conditions (Read, 2016, 113). The transindividual is the collective domain that conditions the mediation between perceptions and emotions (Simondon, 2017, 252). As a result, "collectivity, shared meaning and structure of feeling, reconciles and reinforces the relation between feeling and perception" (Chabot, 2013, 98). Transindividuality constitutes collectivity: it is its condition. It is a relation of individuations, or the shared individuating ground on which beings grow. Thus, just like the pre-individual exceeds the

individual while being its condition, the transindividual exceeds the collective while being its condition. They are both the first phases of being of their individuated form. The transindividual is therefore the base for psychic individuation of the single organism, but also the common base for the collectivity (i.e., society). Culture, therefore, falls under the umbrella of transindividuality. Even though the latter exceeds its, as it corresponds to its pre-individual phase.

§ 4

Technology, memory and the exhaustion of contingent futures

One of the major features of life is its capacity to adapt. Organisms evolve, new species appear, and others go instinct when they are not capable of securing the necessary conditions for their survival. Species showcase different strategies to do so, and the modification of their environment by technical means is a phenomenon shared by many: from spiders spinning webs to human beings building wells. The extent to which human beings have acquired and developed techniques to modify their environment is nonetheless unique. As Bernard Stiegler puts it: "the artefact is the mainspring of hominization, its condition and its fate" (2018, 37). For Stiegler, technology is the condition of humanity which simply could not have appeared without it. Supporting this point, studies have shown that the mastery of fire – through techniques and tools – played a role in our ancestors' brain development as a result of a change in nutrition involving cooked meat (Milton, 2003). This development is supposed to have had an influence in the acquisition of cognitive capacities enabling better survival skills. Thus, technics (i.e., as a manner of achieving an outcome) and technologies are means for humans to secure their survival as a species. Technologies have also been theorised by André Leroi-Gourhan as enabling the "liberation of bodily organs" and the "exteriorisation of memory" (Leroi-Gourhan 2022a; Leroi-Gourhan, 2022b).

Memory and technology seem indeed inseparable. Bernard Stiegler argues that technics and technology are nothing other than exteriorised memory. However, a distinction must be drawn between two types of memories based on the ancient Greek thought. In Plato, there is a difference between *hypomnesis* – recollection through the technical exteriorisation of memory – and *anamnesis* – the act of "pure" remembering. One telling example of *hypomnemata* is the book. Indeed, its technical form is generally composed of pages, ink and covers, that, put together, are the embodiment of the memory of how to create a book. The object can be dissected: it contains and displays its own history according to a linear logic. Its content, that is, the knowledge that it contains also holds a form of hypomnesis. More than that, it is composed of *grammé* or discrete marks, that enables to historicise memory in epochs that Stiegler, after Derrida, calls *grammatisation* (Stiegler, 2010). It is crucial to realise the extent

of what technics encompasses: from artifacts to ways of performing a certain action, to the basis of our most ancient mode of communication: namely oral language and later, writing. This realisation is what allows Bernard Stiegler and Yuk Hui to emphasise that technics is prior to philosophy itself, to thinking itself (Lovink & Hui, 2019). In the first part of *Le geste et la parole* titled "technics and language" (2022a), André Leroi-Gourhan shows that the settlement of populations is concomitant with an increase of the development and use of tools, which itself comes with the development of language. In this sense, he argues that technics and society are the same object. According to him, the alphabet is an effective tool for memorisation but also a tool "in which the symbol thought of undergoes the same notation in speech and gesture" (Leroi-Gourhan, 2022a, 350). This unification of the expressive process, he adds, results in an "impoverishment of irrational means of expression" (Leroi-Gourhan, 2022a, 351). It is not yet clear what Leroi-Gourhan meant by "irrational means of expression". But it is easier to conceive how this technical unification delimits a frame within which expression must fit. It may even precede thought itself as Stiegler and Hui would say. A thought that is fundamentally social. This frame must remain relatively stable for the shared network of meanings to maintain itself, although like language, it evolves through time.

These exteriorisations of memory are the manifestation of humanity's history. We can conceive them as building blocks that allow the evolution of humanity's technology. Indeed, the wheel must come first in order to participate in the achievement of a sustained food provision aimed at facilitating survival. Once a group of humans have secured basic needs, they can develop technologies that serve other purposes. This logic of vertical technological evolution also stands in a purely technical perspective. The external combustion engine that Simondon would call abstract must come before the internal combustion engine that requires an industrial ensemble for its production. In fact, technology follows a "necessary" evolution from an abstract mode to a concrete mode as Simondon explicitly showed (Simondon, 2012). Though, it is important to point out the distinction that Leroi-Gourhan made between technical "facts" and "tendencies" (Leroi-Gourhan, 1945). Technical tendencies are necessary (e.g., the wheel) while facts are contingent (e.g., spokes). According to him, the start of technological evolution is characterised by the emergence of technical tendencies whose universality stems from their optimal natural efficiency. Later, cultural influence drives the realisation of contingent technical facts which tend to increasingly diversify. In that sense, exteriorised memory as technology and technics tells us about our past, our present, but they are also the basis for our future. This assessment is

also the result of Bernard Stiegler's reflection of the phenomenology of time-consciousness first introduced by Edmond Husserl.

The experience of time, according to Husserl, is characterised by the interplay of retentions and protentions. Retentions correspond to the capacity of remembering while protentions correspond to the capacity of anticipation. He denotes two of each: primary retention is the "now" that is "already past" and secondary retention is a memory or recollection. On the other hand, primary protention corresponds to the anticipation of what is coming "now", right after the present that is already past. Secondary protention is the capacity of anticipating what is coming based on the memory of the temporal object in question, say, a piece of music. Thus, primary retention and protention appertain to the present object while secondary ones appertain to the past object. Husserl distinguishes clearly between primary and secondary, present and past, and therefore, between perception and imagination. In other words, he concludes that what is perceived cannot be imagined (Ars Industrialis, 2017). Stiegler draws upon this reflection and adds a third type of retention and protention. Tertiary retentions correspond to artificial memories: the source of hypomnesis. They invoke primary and secondary retentions and protentions with an exactitude of the experienced object, therefore called "orthothetic" objects (Stiegler, 2017, 61). He also comes to disagree with Husserl and asserts that protentions are produced by retentions. In fact, they form a transductive relation: perception requires imagination in order to be, and imagination always proceeds from perception. Retentions and protentions thus constitute a recursive circuit that includes artificial memories in its functioning. In this sense, technicity is the support of both memory and anticipation and is thus an integral part of the retention-protention circuit of consciousness. For this reason, Hui claims that the soul is also a *tekhnesis* (Hui, 2019, 201). Indeed, the contingencies met by the recursive soul are increasingly the result of a "making", of technē, as a result of the modified environment. In addition, current algorithms have the capacity to filter and promote content to be shown to platform users. They are therefore capable of influencing the retentional field of their users and by way of consequence, their field of imagination too. The increasing production, analysis and use of data by means of digital technologies provides a more concrete instance of tertiary protention, which corresponds to the determination of an event. While Stiegler does not expand much on it, Hui argues that current algorithms have a great power of pre-emption of people's behaviour, thoughts, and choices (Hui, 2019, 210-215). The interplay of Big Data, artificial neural networks and statistics can allow to predict with accuracy certain events and enable to act in consequence. In this way, behaviours and choices can be influenced by events that have

not occurred yet. In this way, contingent futures become necessary once they are integrated into a loop of calculable predictability.

Drawing upon Simondon, Stiegler argues that human individuation is triple: it is simultaneously psychic, collective and technical. The technical milieu is the result of the modification of the environment by humans through technical activities (Simondon, 1965). It is also what links the psychic and the collective together: it is the medium of transindividual relations corresponding to the reciprocal relation between psychic (interior) and collective (exterior) individuations (Combes, 2013, 25). Therefore, the "hypomnesic milieu" is an integral part of the process of human individuation. Through perception for instance, which can be characterised as a "product of this relation between subject and world" (Read, 2016, 110). In other words, it constitutes a transductive individuation: where transduction refers to any transfer of information through a material medium. Some digital objects on the internet are part of a common memory for people from all around the world. Viral videos, memes and images share a place in the consciousness of many. As a result, they take part in people's network of meanings and constitute the ground for their ongoing individuation.

In his work, Stiegler also warns about the danger of "not living in the present" since the present often takes the form of representation. It is constituted of objects such as images from the past. They are taken out of their space and time of origin: Jean-Francois Lyotard talks about the birth of a "hegemonic teleculture" to refer to a culture whose objects are removed from their original spatiality and temporality (Lyotard, 2018, 50). Although, current metadata root digital objects in time. They are not made accessible easily to all, but such types of objects can be historicised perfectly into a linear timeline. They literally create history as they capture events that can be retroactively put together like the weaving of a web. As a result, secondary retentions become the basis for primary retentions. There seems to be a phenomenon of a relative influence of people's consciousness through images and moving images. Although, this influence does not necessarily come from external agents such as companies taking the form of advertising. It also comes the traces individuals leave themselves and for themselves. Digital technologies have made particularly easy the retention of memory via technological means, or hypomnemata as Stiegler would put it. Taking the form of writing a note on a smartphone or recording a video in the street, we capture traces daily that are not lodged solely in our mental memory anymore, but in our technologically supported one. The orthothetic nature of such memories (i.e., that are characterised by a perfect aesthetic exactitude of the object, both in terms of rhythm and

percepted images) results in their impossibility to be totally forgotten. They do not leave space for forgetting since they are always accessible. Relying on our own faculty of remembering, what Plato, Stiegler, Lyotard and Hui may call “anamnesis”, has been relegated to a second order faculty, which has been betrayed by its finite nature. It has been overtaken by its technological substitute. One might even ask whether non-inscribed memories still have purpose. If they still have a role or an influence in the soul’s ongoing individuation of the first and massive screen generation. New communication technologies do distort space and time. The past becomes always accessible: Apple’s latest product, the Apple Vision Pro, enables to take eye perspective videos that can be replayed in a virtual environment. When the product will spread over the planet just like the smartphone has done in the last 15 years, many humans lives will be enabled to immersively relive past moments, the way we currently look at our photo gallery. And distance is not an obstacle to communication anymore. Not answering to never ending digital stimulations of all sorts has become a choice, that is made reprehensible by the current normalised digital behaviour. We must be in a state of constant availability for any potentialities. Someone’s present is the past of somebody else, a past that is always available in the present in the form of a digital object (e.g., a picture, a video, a blogpost).

CHAPTER 2

§ 5
Art against the machine

The previous parts of the present work have exposed the various challenges that the current human-technology relationship poses today. The mechanist conception of technology that follows a linear causality does not seem up to date with the new cybernetic beings that compose the present world. As Heidegger puts it, “the relations of the human being with the world, and along with these, the entire social existence of humanity, are enclosed within the domain of the absolute sovereignty of cybernetic science” (Heidegger, 2013, 125). This misconception prevents culture to correctly apprehend those new technologies and generates fear. The Cartesian wish for the domination of humans over nature has found its realisation in the domination of the scientific method through cybernetics. The primacy given to the calculable has ordered nature and humans alike, holding them in a recursive loop of control.

Human behaviour and natural phenomena have become more predictable. They have been rendered as mere probability among anticipable outcomes. Cybernetic machines can be defined as being able to integrate contingency into their functioning. They can anticipate contingency. In this way, accidents are expected and integrated into the evolution of the system. As Hui argues, “failure and errors are accepted not only as a necessity for technological progress, but also have become immanent to its operation and maintenance” (Hui, 2015, 131-132). Those systems can learn from such accidents or contingencies and “feed” from them. For instance, every “mistake” made by a program designed to master chess based on reinforcement learning will be integrated into its memory.

Additionally, the increasing automation of processes gradually remove humans from their modulating role. A role that is played by the artisan in a workshop constituting an associated milieu, but which is no longer relevant in industrial and post-industrial societies. The massive spread of technologies allowing to capture images and moving images has considerably increased the volume of our hypomnesic milieu. The past is increasingly merged with the

present, gradually locking human consciousness into a loop of *déjà-vu*. The constant perception of tertiary retentions leads to an atrophy of imagination and poses a pressing question of originality. More, the current technological condition implies a decisive pre-emptive power that reaches all spheres of human society: from daily behaviours to the production of subjectivities through recommended content, and even to key political elections as the Cambridge Analytica affair illustrates. Again, we find Heidegger's thought being actualised when he claims that "the future studied by futurology is nothing but extended present. Humanity remains enclosed in the circle of possibilities calculated by and for it" (Heidegger, 2013, 125). Indeed, the cybernetic method anchors humans into a looping relationship with their world. Finally, what has been theorised by Heidegger as a shift of the essence of technology from poiesis to Gestell implies larger questions relating to the access to truth. The concealment of being after cybernetics seems to lead humanity to an impasse involving the end of European philosophy, taken over by the universalisation of cybernetic thinking (Hui, 2021a, 58).

Yuk Hui's work aims to explore ways to overcome enframing as the destiny of European thinking. This overcoming, he claims, involves a transformation of modern technology as well as thinking (Hui, 2021a, 59). Indeed, Hui's concept of cosmotechnics as the unification of the moral order and the cosmic order through technical activities (Hui, 2021b) implies that from a particular mode of thinking ensues a particular cosmotechnics. This new conceptualisation of technology not as unique and universal, as if given as necessary by some transcendental force, but as contingent to a defined cosmology, is a far-reaching claim. Indeed, it implies a techno diversity in potential. There is, therefore, an incompatibility between European and non-European thinking that is inherent to the fact that they pertain to different cosmologies and would thus produce different "technologies". It is important to point out that the term "technology" comes from Ancient Greece and that its translation is simply impossible in non-European languages such as Chinese (Hui, 2021a). It is the same for fundamental European concepts such as tragedy. Greek tragedy implies a dilemma, an opposition that cannot be solved. As Yuk Hui points out in *Art and Cosmotechnics* (2021a), tragedy does not exist in China. Instead, the opposition that can be found between opposing terms such as "tall" and "small" (大 "da" and 小 "xiao" in Chinese) are not a strict opposition. Instead, they complement each other. There is continuity in opposition or "oppositional continuity" that Hui characterizes as recursive (Hui, 2021a, 154-156). An example of this continuity among opposing concepts is the *Shanshui* art form developed in China. Shan (山) signifying mountain and shui (水) meaning

water are two opposing elements. One is solid and the other is fluid. Together they form a harmonious oppositional continuity that characterises a form of landscape painting using ink and a brush. Shanshui painting does not try to represent the exactitude of the perceived object. Instead, the forms are evasive and the elements merge. Thus, Hui argues that from different cosmologies emerge different forms of art and of thinking. Cosmologies correspond to the manifestation of local "worldviews" and are "embedded and embodied in the invention, development and use of technologies" (Hui, 2021a; Hui and Kuan Wood, 2022). The universalisation of cybernetic thinking and cybernetic objects that originated in a European cosmology therefore seems to take a dominating aspect.

The path that Heidegger took in his endeavour to reflect on the necessary conditions of the possibility of truth led him to poetry (Heidegger, 2013). More generally, to the notion of art whose various forms, he claims, are all expressive of poetry. Heidegger goes back to the source of the current universalised conception of technology to find a way out of the impasse imposed by the enframing, the modern essence of technology. He goes back to the original roots of technology for the Greeks namely, technē and logos. Technē signify both making craft (i.e., technics) and art. Through the making of craft or of artworks, being is brought forth. The methodological and epistemological rupture of modernity underlined by Heidegger separated technics from art. Since modern technology's essence is enframing, Heidegger suggests that art may be the only domain in which one can continue thinking of the unconcealment of being. Although, the form taken by art in industrial societies may suffer the same fate as modern technology. He asks whether art after cybernetics can escape the loop of information production that is, being reduced to mere information within the feedback control circle of industrial society (Heidegger, 2013, 126). This question will be tackled at a later stage. First, it is important to focus on how the unconcealment of being relates to art.

Being, Heidegger claims, is necessarily unknown. Taking a "picture" of being by characterising it would only capture it as static and therefore deny its fundamental dynamic nature. Again, for Heidegger, dynamicity is essential to understanding reality, to access truth which is always in movement. As a result, being is unknown and therefore belongs to what Yuk Hui calls the domain of the non-rational (Hui, 2021a, 121-123). The non-rational does not pertain to the rational-irrational dualism. It goes beyond it by not pertaining to the same realm. The non-rational cannot be demonstrated or calculated: it only manifests itself. What science calls truth is the result of a valid demonstration which is a rational method. Demonstration follows a linear

causality where the conclusion follows from premisses. The truth that Heidegger seeks to characterise belongs to a different order. As Yuk Hui explains, this truth may be found in "the beautiful", "the sublime", or even "God". Capturing these in rational terms is an impossible challenge. The feeling given by the sight of a beautiful sunset cannot be fully captured with words. Trying to explain it through the combination of certain conditions appears insufficient. The location and the colour of the sun, a pounding heartbeat resulting from a previous hike, the clouds merging with the mountains, all of those conditions are there but are not sufficient to explain the feeling of the beautiful resulting from it. A machine learning algorithm would not be able to take "the beautiful" as its telos because it simply cannot be the conclusion of defined premisses accessed through calculation.

The non-rational as a category therefore appears interesting to reflect on the boundaries of the realm of technology by defining what it cannot seem to encompass. Heidegger arrived at the conclusion that language was not sufficient to settle the question of the necessary conditions for the possibility of truth (i.e., disclosure, the unconcealment of being or becoming). This is why he started focusing on poetry. For him, poetry can express this non-rational truth. As Hui states: "in poetry, the non-rational can be brought out through the unconventional and even contradictory use of language. The play of words opens new spaces in which the Unknown (*Unbekannte*) can manifest" (Hui, 2021a, 123). In poetry, the Unknown therefore seems to use language as a vehicle of expression. Language here is not strictly used to convey meaning but to "open new spaces in which the Unknown can manifest". As a result, Yuk Hui argues that Heidegger's attempt to integrate the unknown into poetry can be understood as a "process of rationalising the unknown, which [he] calls the epistemology of the unknown" (Hui & Schwabsky, 2023). There is a fundamental contradiction inherent to the idea of an "epistemology of the unknown". Indeed, epistemology firstly deals with knowledge while the unknown, by definition, cannot be rationally transcribed. In order to illustrate the notions of the unknown, of truth, and more broadly of the non-rational, it appears fruitful to go back to the notion of memory. It has previously been argued that memory can be inscribed technologically, enabling recollection or hypomnesis. Although hypomnesis only constitutes one aspect of memory that pertains to the rational domain. Anamnesis, on the other hand, seems to pertain to the non-rational field.

§ 6
Anamnesis and the non-rational

Part four tackled the notion of memory and its relation to technology. The latter allows recollection or hypomnesis, which appears to be opposed to anamnesis. In *Phaedrus*, Plato makes a distinction between recollection (i.e., hypomnesis) on one hand which is caused by "external signs" and memory (i.e., anamnesis) on the other, considered as "pure" and resorting to "internal resources" (Postman, 1993). Recollection or hypomnesis therefore requires an object of "storage" as a support of memory. A human brain can serve this purpose but generally less precisely than technological supports. Technologically mediated memory can resist time and is only limited by the capacity of the medium it rests on. A given book can only contain a certain number of words and a computer hard drive is limited to a defined storage capacity. Also, an object stored on technological memory is orthothetic: it is rendered identically no matter its support. In those cases, forgetting equals damaging the support of memory. The distinction between hypomnesis and anamnesis proposed by Plato deserves elaboration. There is indeed a quality factor of factual memories where technology seems to outperform human brains. Both supports can allow to recite a poem with the same qualitative result. But the human brain risks to face a limit when challenged to recite ten thousand poems while a contemporary computer does not. Those objects of memory, what is remembered like a sentence or a picture, can be characterised as rational. Focusing on the source of such memories – coming from external signs or resorting from internal resources – leads to a comparison and therefore, a competition between technics and nature. Relying on memory supports has since a long time been criticised as jeopardising human memory capacity (Postman, 1993). Similar critics can still be witnessed today with the introduction of machine learning algorithms to the public such as LLMs, creating a fear of replacement of human by machines and shaking the current social and economic equilibrium. But this type of thinking overlooks the original prosthetic aspect of technology. Machines do display better results in storing the type of memory described above namely, rational memory. However, they are not capable to feel. As a matter of fact, the type of memories that a psychedelic experience is said to trigger seems to be different from the type of rational memories identified above.

When Aidan Lyon talks about the rememberance of long-lost memories as a simple form of psychedelic experience, he does not seem to refer to mere recollection (i.e., hypomnesis) by means of technological medium (Lyon, 2023, 15). The recent revival of research on psychedelics tempts media theorists to characterise psychedelic substances and practices as media. Our exploration so far leads us to suggest a refinement of this characterisation. Indeed, perceptions resulting from a psychedelic experience should be understood as finding their roots in the past, according to the retention-protention cycle explicated above, and the transductive relation between perception and imagination associated to it. As a result, psychedelic experiences are always about memory: they always tell us about our past, in the present. However, psychedelically induced "rememberance" can be distinguished from technically induced "recollection". Psychedelic activity or substance and technology can therefore be conceptualised both as media, but of different nature. One may suggest that while technology is a medium that only allows hypomnesis, psychedelia is one that allows anamnesis. Thus, it appears important to characterise the type of memories that a psychedelic experience may trigger. In the introduction of *Psychedelic Experience: Revealing the Mind* (2023), Lyon shows prudence in asserting that psychedelics bring about experiences that involve the recollection of long-lost memories. According to him, more controlled and well-designed studies are still necessary to demonstrate the *genuine* nature of such memories, even though the evidence is "very suggestive and positive" that is does so. They could, after all, be "merely fantasies that are constructed on the fly and confabulated as memories" (Lyon, 2023, 16). Here, Lyon does not seem to allow memories to be other than rational. They are either "genuine", they did happen, or "confabulated". To this memory game, a powerful hard drive easily surpasses the human brain as the Alpha Zero chess engine exemplifies well. There is, however, another form of memory that does not appear to pertain to the same domain.

In a chapter titled *Logos et tekhnè, ou la télégraphie*, Jean-François Lyotard distinguishes three sorts of memory-effects of technological inscription that coincide with three sorts of temporal synthesis. Breaching corresponding to habit, scanning to remembering and passing to anamnesis. He defines remembering as follows:

> "The synthesis of remembering implies not only the retention of the past in the present as present, but the synthesis of the past as such and its reactualization as past in the present (of consciousness). Remembering implies the identification of what is remembered, and its classification in a calendar and a cartography" (Lyotard, 2018, 57).

Lyotard's *remembering* corresponds to a genuine memory above: a memory that did happen and that is capturable, which is possible to exteriorise, to spatialise and temporalise, that is objectifiable. Remembering, Yuk Hui comments, "always searches for a narrative with an origin, or a beginning" (Hui, 2015b, 185).

On the other hand, psychedelic experiences can trigger a "unitary" insight to the subject: the belief that "all is one" (Jussi Jylkkä, 2021). Evidence shows a disappearance of the ego, or "ego-death" as Timothy Leary coined it (Leary, 2017). Psychedelic insights can be felt as true and a unitary, even a feeling of merging can occur between the subject, "I", and the outside, "the world" (Schultes, Hofmann and Christian, 2006). Distortion of time and space have also been reported (Johnson, Richard and Griffiths, 2008). Either felt as infinite or non-existent, the feeling of a linear time is altered. The phenomenology of unitary psychedelic experience seems to coincide with the recursive and dynamic conception of being, which suggests a principle of immanence, while mechanism presupposes a linear causality and transcendence (Hui, 2019, 8). Indeed, the feeling of "truth" in a psychedelic experience is immanent: its cause is to be found in the whole, in movement.

Proust's madeleine gives a good illustration of the notion of anamnesis. In *Swann's way*, the narrator "mechanically" raises to his lips a piece of madeleine and says:

> "An exquisite pleasure had invaded my senses, but individual, detached, with no suggestion of its origin. […] this new sensation having had on me the effect which love has of filling me with a precious essence; or rather this essence was not in me, it was myself." (Proust, 2016, 43)

The experience portrayed in this passage seems indeed to be of psychedelic nature. His gesture leading to it is "mechanic" at first. His perception of eating is habitual, automatic, driven by norms of breaching. That is, habits that have been solidified through repetition and experience. Then, the taste of the madeleine fills him with this "essence" of which he cannot find the cause. Instead, the memory that is triggered is "himself". When the feeling slowly dissipates, he repeats the same activity, the same technique, in hope to revive it. But in vain: "the potion is losing its magic". He adds: "it is plain that the object of my quest, the truth, lies not in the cup but in myself" (Proust, 2016, 43). The memory or the part of his consciousness – of himself –

is not attainable technically, it seems to escape reason. The piece of madeleine only *appears* as being the cause of his experience. But repeating the gesture does not lead to the same result, the object is non-deterministic of psychedelic experience. Also, someone else eating a piece of madeleine will not necessarily feel the same experience. Instead, the cause of this experience is to be found in the whole of the narrator's being. It makes sense to him and to nobody else because of the singular nature of his process of individuation.

This analysis of the psychedelic experience allows to characterise anamnesis. This type of memory seems to appertain to the domain of the non-rational: it cannot be exteriorised rationally. They cannot be recorded nor expressed verbally. In other words, they do not pertain to the realm of reason. They might, however, be experienced artistically through poetry or painting for instance. In *Swann's way* again, the narrator decides to examine his own mind to discover the "truth":

> "But how? What an abyss of uncertainty whenever the mind feels that some part of it has strayed beyond its own borders; when it, the seeker, is at once the dark region through which it must go seeking, where all its equipment will avail it nothing.
> *Seek? More than that: create.*" (italics added by the author) (Proust, 2016, 43).

The narrator invites us to create instead of seeking in order to reach what he calls "the truth". Creating here hints at the original essence of technē namely, poiesis.

Jean-Francois Lyotard, on the other hand, had a different conception of anamnesis. In the Inhuman (2018), he first relates it to a memory-effect of technological inscription that he calls "passing". The meaning of passing, he claims, must be understood in the psychoanalytic sense given by Freud, *Durcharbeiten,* meaning "working-through". It corresponds to a psychoanalytic method aiming to overcome a resistance located in childhood and inaccessible through memory. The event cannot be remembered and must therefore be "worked-through" to solve the problem. This "working-through" corresponds to the "passing" associated to anamnesis for Lyotard (Hui, 2015a, 185; Lyotard, 2018, 59-60). However, he elaborates on Freud's account and complicates it. First, he notes that breaching (i.e., *frayage*) and scanning (i.e., *balayage*) also involve "work" and demand energy. But passing (i.e., *passage*) requires more since it does not have rules or a method. It is a "technique without rules" (Lyotard, 2018, 60). Whereas breaching follows norms directed towards to preservation of energy: when an

action becomes automatic, habitual, it requires less energy that the first time one performs it. Scanning or remembering, through the technique of language for instance, enables to associate symbols to concepts. Using the infinity symbol (∞) requires less energy than attempting to express it without words or signs. Passing, on the other hand, does not have rules according to Lyotard.

In his endeavour to characterise anamnesis, he gives the example of the "clear mirror" taken from the *Shōbōgenzō*. The "clear mirror" "breaks into smithereens" when facing a simple mirror (Lyotard, 2018, 60). It cannot retain its trace but constantly breaks. This breaking has no beginning nor end, but "only constant breaking" (Hui, 2015a, 188). This "breaking presence" is "never inscribed nor memorable. It does not appear. It is not forgotten inscription, it doesn't have its place and time on the support of inscriptions, in the reflecting mirror. It remains unknown to the breachings and scannings" (Lyotard, 2018, 60-61). The idea of a clear mirror as anamnesis is challenging to conceive and has troubled Stiegler and Hui for decades (Hui, 2021a, 286). Yuk Hui has developed various analyses of this idea of the clear mirror, attempting to clarify and build upon Lyotard's idea. He summarises what he thinks Lyotard meant with the following question: "Can logos facilitate an anamnesis that is not inscribed by it? In other words, can logos – and, here, techno-logos – instead of determining the anamnesis, rather allow it to arrive in a non-deterministic way?" (Hui, 2015, 189). Later, Hui reformulates his question and asks whether technology can "produce a rupture through the negation of itself" (Hui, 2017). In other words, while modern technology is about retaining traces or memories and thus closes off (Gestell) and totalizes, may it allow bringing forth, or access to "the open" or the "unknown"? Essentially, can the domain of the calculable include incalculability that is not mere relative contingency destined to be integrated in the operation of a technological system?

In other words, is it possible to reconciliate modern technology, that which enframes, with anamnesis, that which opens? Is there a place for art after cybernetics? Can the non-rational be embedded in the epistemology and operation of machines? Can technology allow Stiegler's primary and secondary retentions to arrive in a non-deterministic way and thus enable to escape the pervasive retentional loop of modernity? Those questions are formulated differently but are essentially similar.

§ 7
Art and the Unknown

Contrary to modern technology, art seems to be a domain in which the non-rational can manifest. This was Heidegger's claim based on his work on poetry. Poetry makes use of words to hint at a passage towards "the open" or "the Unknown". Just like the frame of a painting contains a possibility for the new, a new sensibility. For Hui, art "open[s] that which science conceals" in a world dominated by the scientific method (Hui, 2021a, 211). Thus, art seems to express this non-rational truth. What is usually understood as deserving the name of art, he claims, is a work that displays great mastery of technical skill or negation. Skill mastery is based on a continuity of past experience, both accumulated by the artist herself and by the generations before her and transmitted through teaching. Negation, on the other hand, corresponds to a discontinuity which "demands a conceptual and paradigmatic break, not only in terms of skill, but also in terms of sensibility" (Hui, 2021a, 131). What, then, is this sensibility that demands a rupture and is therefore a field of new opening, and how can it emerge?

Hui's analysis of modern and conceptual art leads him to the conclusion that this rupture results from a resistance to the medium. Resisting the medium means going beyond the limits of the medium, going beyond the frame of the painting. In this way, the artist "augments our senses so that a new reality can be revealed to us" (Hui, 2023). He refers to the Greeks' notion of *energeia* (i.e., which is at work) to characterise art. It is "always at work": it constantly opens what is closed by the medium itself. Being "at work" implies a movement that Hui characterises as recursive. In his words, "recursivity is established through the work of art, constituting a self-knowing toward an end, while this end remains mysterious, as in mystagogy, a purposiveness without purpose" (Hui, 2019, 208). This conception underlines the non-linear nature of the work of art whose purposiveness is "without purpose". It is directed towards an end that escapes calculability. Based on this perspective, what is sometimes called "art" produced by generative machine learning algorithm is wrongly done so. Because such programs are given a purpose that is reached through calculation. Conventional use of the medium imposes limits to the work, and art's goal is to go beyond those limits. To summarise his conception of art, he draws upon Paul Klee's understanding of art namely, that it is what makes the invisible visible. He actualises

it by claiming that “art is what makes the invisible sensible” (Hui, 2021, 133; Hui, 2023). “Making the invisible sensible” entails that the artist opens a process of transindividuation. Sense is, according to Simondon, the pre-individual phase of perceptions that constitute the base for trans (or collective) individuation. The Simondian concept allows Stiegler to define the artist in new terms. Instead of being a subjectivity, a role in society, or a producer of aesthetically pleasing work, the artist is “responsible for creating a circuit that allows a transindividuation between the ‘I’ and the ‘we’ through the sensible exteriorized in the form of an artwork” (Stiegler, 2015, 154). In other words, the artist understood in those terms is a facilitator of individuation. This transindividuality enabled by the sensible of a work of art is also the base for meaning making. As Hui puts it, “‘to be sensible’ means that what is transmitted carries meaning for the receiver, the operation of a system in which they participate” (Hui & Mey, 2022, 75). It is based on this shared meaning that collectivity and culture can be built. Therefore, art seems to open new sensibilities by way of “rupture”, which allows a process of transindividuation. But sensibility remains to be characterised more clearly. The work of Gilles Deleuze provides insightful bases to tackle this notion.

In Difference and Repetition, Deleuze dedicates a chapter to what he calls “the image of thought” (2001). He questions the beginning of philosophy or the “trunk” of philosophical thought. According to him, the history of Western philosophy starts with several subjective and implicit presuppositions serving as fundamental premises that are often based on “common sense” or “good sense”. They are what he calls “images of thought”. Thought is thus caught in a cycle of repetition, of recognition where the new is not essentially different. Difference, he claims, “calls forth forces in thought which are not the forces of recognition, today or tomorrow, but the powers of a completely other model, from an unrecognised and unrecognisable terra incognita” (Deleuze, 2001, 136). How does this difference come forth? For Deleuze, it is the result of an “encounter”. The object of encounter is not an object of recognition, but can “only be sensed” (2001, 139). The object of recognition can be seen, touched, remembered, imagined, or conceived. Thus, he distinguishes between sensibility pertaining to recognition whose object can be attained by sensitive faculties, and sensibility pertaining to this object of encounter. He adds: “[the object of encounter] is not a quality but a sign. It is not a sensible being but a being of the sensible. It is not the given but that by which the given is given. It is therefore in a certain sense the imperceptible” (Deleuze, 2001, 140). In other words, the object of encounter is “pure sensibility”, a sensibility that does not yet pertain to the domain of recognition. It is an object that has not yet been transcribed, either in technics or memory. It is imperceptible from the point

of view of recognition, that is, from an empirical exercise of the senses. This encounter is argued to constitute true difference as opposed to mere repetition. It is the true beginning of thought.

A parallel can be drawn between this object of encounter and the "clear mirror" in Lyotard's work. The latter's image cannot be reflected in a simple mirror, leading it to "break into smithereens". Similarly, when the difference is first encountered, it does not have a support of reason to be inscribed on. No words to describe it, no image to link it to. In this way, it seems to belong to what Hui calls the non-rational: it is "outside logos". However, it becomes part of it when it becomes an object of recognition. In this sense, memory is always recognition. And what has been characterised as "sensibility" in the domain of art seems to come closer to Deleuze's idea of the encounter. Therefore, it is possible to reformulate the question of the present inquiry as the following: can modern technology allow what Deleuze calls the encounter and if so, how? Later, Deleuze adds that "what forces sensation [in an encounter] and that which can only be sensed are one and the same thing" and continues with claiming that "it is the contingency of the encounter which guarantees the necessity of that which it forces to be thought" (Deleuze, 2001, 144-145). The phenomenon of encounter is therefore said to require a contingency of experience. It requires opening one's soul to the contingencies of the world in order to move it. Here, Deleuze seems to confirm what follows from the analysis that constitute the previous parts of this work. He explains that the object of encounter can only be found in contingency. It is not determined and cannot be. Determination pertains to the recognised object, to the object transcribed into technics, technology, or tertiary retention as Stiegler would put it.

The above analysis points out that art can be understood as a call for the Unknown. It is a place for non-rational truth to be expressed by going beyond its medium. Poetry exceeds language and painting exceeds the canvas, though they require technical support. Art also allows new sensibility and thus, a process of transindividuation that is the basis of the collective. Finally, the notion of sensibility has been refined to refer to what Deleuze calls the "encounter", and not as mere empirical sensibility pertaining to the domain of recognition. This analysis allows to refine the question of the present inquiry and leads to ask whether a modern technological being can allow to sensibilise. This is what the following case study will attempt to tackle.

CHAPTER 3

§ 8
Welcome to the Summoner's Rift

This chapter takes the video game League of Legends as a framework of case study. First, a description and analysis of the game will be conducted to characterise its gameplay and the human-machine relationship that it entails. Then, it will be shown that the game can be understood as corresponding to the cybernetic logic defined in the first part. An analysis of the gameplay in relation to memory will then be performed. Finally, a reflection on the presence of the unknown as embedded within the gameplay will be proposed based on the analysis of the concept of the "clutch move".

League of Legends, also known as "League" or "LoL", is a Multiplayer Online Battle Arena (MOBA) developed by Riot Games in 2009. It is based on a "free-to-play" business model meaning that the game is accessible to anyone having access to a satisfactory bandwidth and complete hardware setup. As a result, League counts around 150 million monthly players worldwide. It is one of the most played, famous, and lucrative game of all time. It can be characterised as belonging to the category of e-Sport. E-Sport is a relatively new term that refers to a category of video games that involve live competition. Its definition has been the subject of many debates in the academic literature. It is generally understood as competitive gaming, as computer mediated sports, interactive spectatorship and mass entertainment (Reitman, Anderson-Coto et al., 2019, 9-10). A trait that e-Sport games share with a large portion of their older media counterparts is their inherent objective or telos namely, to determine a loser and a winner. Agents compete under the same conditions for victory.

As a game, League of Legends is determined by a set of rules. In its official and competitive form, two teams of five players compete on a unique virtual space or map called the Summoner's Rift (Figure 1). Each game starts with a preliminary phase where players ban and select "champions" in turn, from a pool of 163 possibilities in total. Each champion has a specific set of abilities generally referred to as "spells". Except a few exceptions, each champion has four abilities. No ability is shared by two different champions, and each of them has a specific sound and visual. The objective of each team is to destroy the enemy base called the

"nexus". In order to reach that goal, players must take advantage of their virtual environment to gather resources taking the form of golds. The only purpose of this currency is to buy "items" in order to constitute a "build" (i.e., a set of items) that will improve the characteristics of players' avatar (called stats) and ultimately favour their chances to defeat the enemy team. The map is symmetrical and contains three "lanes" and two "jungles" separated by two "rivers". At 1:05 minute after the start of the game, AI controlled characters called "minions" spawn from each nexus and move into each lane until they face an opponent to attack. Jungles also host AI controlled characters (i.e., jungle camps) and each river hosts powerful entities that grant advantageous stats to the team that defeats them. Each side of the map counts eleven towers, three on each lane and two protecting the nexus. The map is covered in a fog (i.e., the fog of war) that prevents players from getting visual information. The only ways to dissipate that fog are either to head towards it or to place an item granting vision in a delimited area. There are various ways for players to accumulate golds. Among them are dealing the fatal blow to AI controlled characters, destroying vision items and towers, or killing enemy champions. The game cannot be paused except in competitive championships and for specific reasons. It ends when a team agrees to surrender through a vote or when a nexus is destroyed. Each game lasts from approximately 20 to 40 minutes and follows three phases: the early, mid, and late game. There are traditionally five specific roles assigned to the five players composing a team. Players are not obliged to take on these roles but doing so is generally considered as favouring chances of victory. Two types of rules can therefore be pointed out. Hard rules on one hand are dictated by the software's code. They encompass the virtual space, the design of each champion and their statistics (i.e., movement speed, maximum health, etc.), spawning timers, etc. The digital medium makes these rules hardly coded into the game meaning that they strictly cannot be bypassed. They delimit the range of possibilities granted to the players.

In 1958, Roger Caillois proposed six characteristics that all games share. According to him, they are free or not obligatory, separate or occupying their own time and space, their result is uncertain, they are unproductive, they are governed by a specific set of rules and finally, they are fictitious (Caillois, 1958, 23). Moreover, he identifies four combinable play forms: games can include competition (*Agon*), chance (*Alea*), mimesis or role playing (*Mimicry*) and vertigo (*Illinx*) (Caillois, 1958, 27). Following Caillois' framework, League of Legends can be understood as an agonistic game that is, involving competition. Similarly to chess that can be considered as a purely agonistic game. It involves competition and players must elaborate strategies in order to win. As Wu points out, the game also highly relies on players' capacity to

execute quick and precise inputs (Wu, 2023, 245). There is also a small but present part of chance involved. It notably takes the form of Random Number Generator or RNG included in some of the game mechanics. For instance, auto-attacks (i.e., a type of attack performed by every character when the player right clicks on an enemy target) have a defined probability of critically strike, inflicting additional damage to the target. Players must learn how to adapt to this part of chance that is inherent to game. However, League cannot be characterised as a game of chance like roulette or even poker, which heavily rely on Alea through the shuffling of cards or the spinning of the board. Probabilistic chance is rather a small parameter in League. The game also contains a part of mimicry or role playing. Indeed, it is necessary to embody a champion to play the game. Each champion is personified with its own aesthetic characteristics: both visual and audio. Sengün et al. have shown that players' vocality, valence and toxicity vary depending on the characteristics of the champion they play, arguing in favour of a form of Proteus effect (Sengün et al., 2022) pertaining to League of Legends. Players become an "illusory character" for the duration of the game and "act in consequence" (Caillois, 1958, 39). Also, "the subject plays at believing or making believe that she is something other than herself" (Caillois, 1958, 39). As a matter of fact, players most frequently refer to each other using the chat tool by the name of the champion they employ and not by their username. The player's IRL (i.e., In Real Life) subjectivity scarcely finds space for expression in game.

Although mimicry constrains the player to a more or less defined role for it to remain a game, the type of constraint characterised in the performance of a League match remains different. Indeed, League players' actions are necessarily limited to the abilities of their champion. Each champion comes with a set of affordances taking the form of abilities and statistics (Davis and Chouinard, 2016). Indeed, each champion requests, demands, encourages, discourages, refuses, and allows certain actions. For instance, champions with a "dash" in their spell kit allowing them to go through walls will have the possibility to adopt a riskier playstyle knowing that they may escape danger faster than other champions. Players are not obliged to do so but they are encouraged to if they want to use the capacities of their champion to their maximum and increase their chances of victory. Just like it is recommended to position a ladder in a stable manner if one wants to reach a high object safely. In this sense, champions may be understood as tools to be handled to reach a goal.

Ilinx or vertigo can also be found in League. One of its instances may happen during "fights". In their quest of resource gathering, players must trigger scenarios of play in which they will

attempt “killing” their opponents or preventing them from being an obstacle to their victory. The audio-visual complexity resulting from such fights coupled with the stakes that come with every decision may trigger a sense of trance to the player. This vertigo is often put forward as a reason for players to continue engaging with the game. League of Legends therefore seems to involve all four of Caillois’ play forms. This framework therefore appears insufficient to characterise League in more details. In fact, characterising it as a game may even obscure its real nature that I would like to propose analysing as a mechano-organic, or a cybernetic being.

§ 9
The cybernetic being

In order to characterise League more precisely, it is important to take perspective and attempt characterising first its media form namely, video game. The distinction between "old" and "new" media in terms of images can be illustrated by the shift from photography to film and finally, video games. From static to moving images, the newest form of new media seems to appertain to the realm of digital images involving action (Galloway, 2010, 2). It appears that more recent forms of new media such as certain video games seem to include new sensory characteristics. Although this claim does not account for all forms of video games, as multiple scholars showed that they could take many various forms and requiring different sorts of actions from players (Aarseth, 2004; Fizek, 2022).

The player or "the operator" plays the code of the game (Galloway, 2010, 91). In the case of video games, "playing" is an algorithmic practice where operators are in direct conversation with the machine. The machine here can be understood as the combination of hardware – the computer or console, the screen, the controller or mouse and keyboard – and software – the program constituting the video game. Hardware and software can be understood as "technical elements" (i.e., technical components) that form a "technical individual" when combined (i.e., that integrates its milieu into its functioning, becoming its associated milieu) following Bernhard Rieder's reading of Simondon applied to contemporary digital machines (Rieder, 2020, 66). Both software and hardware are themselves composed of constitutive elements. A piece of code or a particular programming library are elements of the software, while the software is itself an element of the hardware-software coupling. What is called "the computer" must include a specific hardware and software. Indeed, the software gives the hardware a function, a way to perform, without which hardware would remain a technical element without purpose. The software gives a purpose to the hardware, it drives its calculative power in a defined direction. On the other hand, the hardware is the condition for the software to operate.

Additionally, video games require, to varying extents, actions from operators (i.e., players). This inclusion of actions from an external agent in the performance of the object is in fact the

main distinctive characteristic of video games compared to photography and film. Video games must include action from players. As a result, it appears possible to conceptualise operators as part of the machine or as technical elements too. Even video games that "play by themselves" or what Fizek calls "ambient play" (Fizek, 2022, 31) must require some kind of input from an external agent. As Galloway argues, it is crucial to look at how "action exist in gameplay, with special attention to its many variations and intensities" (Galloway, 2010, 3) in order to understand a specific game. In other words, it is important to make sense of the relationship uniting the operator and the machine and to describe its nature in order to characterise the media object.

Thus, it seems possible to conceive the human-machine relationship in the case of video game play as a conversation between the operator and the machine, all of which can be interpreted as a combination of technical elements involving hardware, software, and operator. This conversation is a recursive dialogue between the algorithm, the core of the video game composed of rules, a game world and gameplay (Aarseth, 2004), and the operators via intermediaries taking the form of a mouse, a keyboard, or a controller. In this sense, video games have been characterised as an "action based medium" to stress that its materiality "moves and restructures itself" as a result of the interaction with the operator (Galloway, 2010, 3). Players are being displayed information on the screen in the form of digital images that are themselves the result of algorithmic, mathematical calculations running inside the hardware composing the machine. In reaction to it, they input information back to the machine using peripheral devices.

The triple relationship between software, hardware and operator therefore constitutes what we may call a cybernetic being in the context of video-game-play. This conception entails that all of the elements must work together in a recursive manner to constitute the cybernetic being. There is indeed a "circularity of action [existing] between the parts of a dynamic system" and therefore, presence of feedback mechanism (Ashby, 1956, 31). Playing League of Legends involves a particularly significant volume of information being received by operators as input and triggering a reaction in the form of output. What makes League of Legends singular (but not unique) is the number and variety of information that must be processed. Every action triggers a sound and a visual: from casting a spell to accessing the shop. This high number of sounds and visuals create confusion for non-initiated spectators and only great players are able to interpret and make use of the "noise" present in the system to achieve their goal. Video games

have been analysed as what Aarseth calls “cybertexts” (1999; Harvey, 2009) and thus differentiates from other “texts” such as a piece of literature. “Texts” are linear, meaning that they are meant to be experienced in a linear manner. While “cybertexts” involve an active participation of the user in determining how the piece unfolds. Additionally, players’ performance is “extranoematic”: “it is outside the boundaries of human thought” (Harvey, 2009). Every action within the game is indeed a “teleaction”, an action *at a distance*. In this sense, League can be characterised as a site for a different kind of body-technology relation.

Regarding outputs, players perform in reaction thousands of mouse clicks per game to move their character, to attack enemies or to hit objects, in short: to evolve in the game world. Players’ physical and visual senses are overstimulated during the entire span of the match. Every single second is filled with multiple sensory inputs and outputs, leading to a particularly intense dialogue between the operator, the software, and the hardware. During the game, the relationship with the chosen champion corresponds to what Aarseth described in his analysis of playing Lara Croft: “When I play, I don’t even see her body, but see through it and past it” (2004, 48). Players can evidently see their champion’s movements as they are controlling it. But the volume and intensity of input-output cycles seem to create moments of symbiosis between the two entities. Interacting with other types of digital media does not seem comparable in terms of intensity of the human-machine relationship.

Moreover, the nature of the game also continually evolves. Every year since its creation in 2009 corresponds to a season that is itself composed of different “patches” (i.e., updates). Seasons can be understood as versions of the game in which some of its components may change. From the advantages attributed by securing objectives to the gallery of purchasable items, each version differs to bring novelty and corrections to the game. Patches are published more regularly and bring smaller changes, such as a different spell scaling damage for a given champion or bug corrections. New champions are also regularly made available. These modifications are driven by two main factors: partial design decisions made by game developers and the activity of the community of players. While using the medium, players experience thousands of gameplay scenarios. They experiment new builds (i.e., set of items) and face new bugs. Certain champions or strategies suddenly become “OP” (i.e., overpowered) and start spreading across servers, generally leading to further modifications in the next update. As a matter of fact, Hui argues that cosmologies are “always embedded and embodied” in the use of technologies (Hui and Kuan Wood, 2002a; Hui, 2021b). Communities of players from different

servers often display different manners of playing, different builds and different strategies. For instance, the Chinese and Korean servers demonstrate a far higher level than any others.

League of Legends is not the only video game displaying this evolutive characteristic. Nonetheless, the frequency and the nature of this evolution (i.e., being the result of the use of a large community) may certainly serve as an example of a political model for digital structures. Back to our point, the evolutive model of League of Legends encourages us to characterise it in becoming. The very structure of the game evolves according to the use made of it. And not according to pure technical efficiency requirements like technical objects. The game does not follow a linear evolution from an abstract mode to a concrete mode like a television, but instead develops in part according to the contingencies that its configurations meet. Operators are the drivers of such configurations in their engagement with the medium.

§ 10
The cybernetic enclosure

The software of the video game makes the actions performed within it calculable. Actions are rendered into data that can be read, analysed, and used for analysis. In this way, the Summoner's Rift appears as the ultimate *voyeur* space. The eyes of the algorithm can see every single move performed and word written in the chat. Like few other existing spaces, human actions and thoughts are instantly translated into data. Maymin proposes "a new way to capture more useful data" of the game by tracking "every champion's location multiple times every seconds, […] every ability cast and attack made, all damages caused and avoided, vision, health, mana and cooldowns" (2021, 11). Using a "combination of computer vision, dynamic client hooks, machine learning, visualization, logistic regression, large-scale cloud computing, and fast and frugal trees", he is able to "track continuously, invisibly, and live" (2021, 11). His research made on "millions of ranked LoL games" gives the opportunity to "calibrate an in-game win probability model, develop enhanced definitions for standard metrics, introduce dozens more advanced metrics, automate player improvement analysis, and apply a new player-evaluation framework on the basic and advanced stats" (Maymin, 2021, 11). All of this was done outside of Riot Games' walls, the company that develops the game, and therefore without having full access to the entire pool of data that may be potentially harvested.

Various models such as the one developed by Maymin try to predict the outcome of games and winning factors. Similarly, Yang et al. (2014) developed a model to identify combat patterns that are "predictive of success" and Lee and Ramler (2017) wanted to identify and evaluate non-meta strategies in LoL. Being ruled by mathematic formulas and software code, League of Legends is a small-scale illustration of the world dominated by the cybernetic blueprint that Heidegger describes. Players are fully immerged into the recursive cybernetic system based on feedbacks and allowing control. The in-game actions of hundreds of million players parsed in different servers can be analysed by the developer of the game and others equipped with the right tools such as Maymin's team. Inside the Summoner's Rift players are free to move and

act, but only within the frame of what its hard rules allow. The ultimate objective of the game also frames their actions and choices. Similarly to chess, even though not as determinant, a "best move recommended by the engine" could be defined, taking the form of the best strategy to adopt in a specific situation for instance. Being a multiplayer game with limited written communication and no verbal communication in the case of non-professional performances, players must rely on other faculties to collectively make the right choices and win the game. The game provides live communication signals called "pings" that limit communication to specific meanings such as warning about imminent danger, calling to retreat, etc. Although, these signals are often diverted from their original meaning which often renders communication even more cryptic.

The loop that is inherent to the game also involves other players during the game. In the case of League, 9 other beings (i.e., the individual resulting from the combination of the three elements: hardware, software, and operator) are at play simultaneously and each of their actions are transcribed into visual and audio information to others. Each action performed may be acknowledged or not by the collectivity but are necessarily potentially so. Indeed, players get this information if their camera's point of view (i.e., the image displayed on their screen) is set on the location of action. The behaviour or gameplay of the best players show that they continually move their camera's point of view to gather the maximum information (League of Legends Clips, 2021). Indeed, a game of League of Legends is continuously in movement, actualising contingencies into secondary and ultimately, tertiary retention. Digital images never stop to go by until the player is removed from the virtual milieu. As a result, the more information players gather, the best decisions in terms of gameplay they may take to achieve their goal. The production and reception of information is performed by all the players at the same time, in synchronicity, impacting the same system which is the game unfolding. In this way, it is a good example of the type of relation linking humans in the digital era.

Indeed, in Technical mentality (2006), Simondon describes how information contributes to the creation of objects in different eras. In her workshop, the artisan is both the source of energy and of information in the making of the object. In the industrial domain, the source of information and the source of energy are separated: information coming from humans and energy from nature. Additionally, the "entry of information" is fragmented. It comes from multiple humans as different places and at different times. The inventor becomes mere inventor

and the person in charge of maintenance only maintains. While those roles where all assumed by the artisan in the previous phase, the industrial era is characterised by a splitting of information. In the information network era, however, distance remains but time is shrunk. During a game of League of Legends, all players participate simultaneously in the making of the object that is the match. The "match" here refers to the object produced as moving images when the game end. It becomes objectified because it can be downloaded by players and replayed. Matches as objects are primary retentions turned into secondary retention and made exteriorised memory that is, tertiary retention.

League of Legends' gameplay can be analysed as partly linear. The early game usually displays similar scenarios. Players will buy a particular set of starting items based on the opponent they will face on their respective lanes and "junglers" will follow a determined path to clear their jungle camps. They will upgrade their spells in a determined way considered the most efficient by data analyses and by the collectivity. Each champion is generally known to afford certain "combos" that is, a combination of spells cast in a determined order. Those combos are techniques taken in the mechanical sense of the term namely, linear. Certain strategies are also automatic for high ranked players. For instance, winning a team fight in late game offers only a limited number of options: the winning team will either take advantage of the absence of their adversaries to secure a valuable objective or simply target the nexus to end the game. These strategies are learned by experience. Two types of experience can be distinguished here. On one hand, there is the mechanical repetition of certain gestures that ultimately constitutes "norms of breaching" or *frayage.* The automatic nature of those phases of gameplay come from the relative absence of real contingencies. The possibility of new scenarios unfolding is particularly limited. On the other, there are experiences that correspond to memory, rememberance or *balayage*. These memories were created by players' personal experience, or the past experience of others exteriorised in video objects. Indeed, video platforms such as YouTube and Twitch contain a significant amount of e-Sport related content including League of Legends matches, analyses, and "montages". This type of content is particularly easy to produce due to their inherently exteriorisable nature. These memories are secondary retentions made tertiary in the form of video content. League of Legends' gameplay therefore involves two types of memory inscription namely, breaching and scanning, corresponding respectively

to habit and rememberance. The next part will focus on an investigation of the third type of memory inscription: passing, corresponding to anamnesis.

§ 11

“Look at the cleanse! Look at the moves! Faker, what was that?”

The fundamental question that this concluding part aims to raise concerns the possibility for the non-rational to be embedded in the epistemology and operation of modern machines. The previous parts have attempted to propose a redefinition of League of Legends as not merely a game, but as a complex being composed of various elements in relation. First, its very structure evolves according to how players use it. Its rules and components continuously change and add up, which enables to distinguish the nature of the medium from others. This evolution is fundamentally recursive: it follows a recursive causality (i.e., A → B → C → A’) that is analogous to the conception of the soul put forward by Hui, and to the structure of mechano-organic beings that integrate contingencies taken from outside the system into their functioning.

Additionally, each match can be analysed as a tele-production of distributed authorship. The temporality of the resulting object proves relatively singular since it is first built in dynamicity, in becoming, and then becomes a memory object taking the form of moving images. This object is orthothetic, it can be rewound and played infinitely. Its motion can be said to be mechanistic and time-symmetric, therefore reversible, following a Newtonian time. Moreover, its ongoing production coincides with the contingencies of immediate experience. On the other hand, while a match is unfolding, time appears as organic, creative and irreversible, corresponding to a Bergsonian time that coincides with the unfolding of human consciousness and experience (Hui, 2020, 55). Its events are contingent and become necessary as the step towards the completion of the match, towards its reach towards its end: victory or loss. Contingency here is therefore inessential yet necessary. The game requires a total focus of the senses on the events unfolding and a continuous production and reaction to information. Like many online video games, it cannot be paused and a second of distraction may cost players crucial resources for victory. In this sense, the game seems to require a sort of “flow state” or a state of deep mental focus (Csikszentmihalyi, 1991) that shields the operator from outside events by requisitioning their entire attention.

Understood as a system that must reach its telos, the events happening in the game can be analysed as information in the Simondian sense. That is, as operations of a thing arriving in a

system and producing a transformation (Simondon, 2012, 159). This information shapes the unfolding of the object that can be interpreted as an "idiotext". An idiotext is a memory that is also a process of individuation. It is written at the same time as it is read and the writing coincides with the reading and vice versa (Stiegler, 2018). In this sense, the game as a medium is an idiotext that spirals through becoming. Matches and the structure of the game follow the same dynamic movement, although the evolution of the structure follows from the completion of singular matches that must come to an end. Following Simondon's theory of individuation, a match can be viewed as a system that involves tensions that must be resolved to reach a metastable state. Like a supersaturated solution that will result in the appearance of individuated crystals. The structure of the game always carries more pre-individual potential, more "reserve of becoming" (Combes, 2013, 4). Indeed, thousands of new matches are started each minute. The individual match however, like a technical object that is removed from its mould, stops individuating when it reaches its completion.

Moreover, the individuation of the idiotext that is the match is done through the incoming of contingency that is, of unnecessary and unpredictable events. To illustrate this point, it proves useful to take the example of a 1vs.1 confrontation between two enemy champions. In order to take an advantage in resources and create a gap, players can engage in a number of strategies. One of them consists in "killing" their opponent who will not be able to play for a defined period of time. In a situation where the matchup is even (i.e., when both players have the mathematical possibility to "kill" their opponent), the outcome of the confrontation will depend on the predictability of the opponent's actions. The player that is able to predict their opponent's behaviour and act in consequence, resulting in what players call an "outplay". This phenomenon is also witnessable in larger confrontations involving more players, making the resolution simply more complex. It is therefore this unequal prediction that allows to resolve the fight.

In larger fights called "team fights", the resolution of the confrontation requires a synchronicity within teams. The same fight involving the same champions at play may take a great number of forms. Players must anticipate their opponents' actions as well as their teammates' and proactively react to them for the event to unfold in their advantage. In other words, they must interpret or make sense of other players' actions: they must integrate them into a common network of meanings. Non-initiated people cannot make sense of what is happening in a League of Legends match. Even high ranked players sometimes must watch and rewatch a play to make sense of it. The way professional teams manage to execute certain team fights truly belong to

the exceptional. Not only in terms of skill mastery, but mostly in terms of the transindividuality at play. This transindividuality is the base for a form of tele-collectivity that share a sensibility. As Yuk Hui points out, "to be sensible means that what is transmitted carries meaning for the receiver" (2022c, 75). In fact, it carries meaning for the operators that interpret it and also informs the system that is the match.

Unpredicted scenarios, contingencies, may correspond to what Deleuze calls "pure sensibility". It is a sensibility that does not yet pertain to the domain of recognition, it has not yet been transcribed: it is imperceptible. They are "true differences" that emerge at the same time as they are inscribed. In this way, this sensibility leading to the "object of encounter" does come from a contingency of experience. It is not determined as it unfolds, although it seems to ultimately serve an end which is the telos of the system. These types of scenarios that the game makes possible therefore seem to be necessary contingencies. They are necessary in the sense that they take part in a system in tension directed towards a telos that requires them in order to solve itself, while being undetermined contingencies.

Due to its inherent structure based on the accumulation of resources that diminish the range of available "counterplays", League of Legends carries a "snowballing" mechanism. The largest the gap in resources, the more powerful a team mathematically gets and the easier it becomes for it to enlarge this gap and making the outcome of the game increasingly determined. Nonetheless, it still remains hypothetically possible for a team to "come back" through the execution of "clutch" performances (see LoL Esports, 2017). Such performances are particularly rare and require even more unpredictability to be successful. In most scenarios, potential unpredictabilities are compensated by the mathematical advantage leading teams have acquired, they benefit from additional leeway to close the match. The clutch performance can therefore be understood as a remedy to the determination of a match. It is what normally should not be, what should not happen. It is, in this sense, accidental.

Playing League of Legends therefore seems to involve various sorts of activities. Some actions are performed automatically or out of habit like buying the same set of items, clearing jungle camps following the most efficient path or using spells in a defined order to clear a wave of minions. Others are performed according to a strategy defined in advance, like choosing to secure an objective after winning a team fight. A final sort of activity remains that do not pertain to the previous ones. It does not seem to be based on memory but on something else. It cannot

be anticipated but only happens in the dynamicity of the moment. This type of activity only happens in a relational context with other elements composing the game. It must follow a rhythm that is set by the joint activity of multiple actors. As a matter of fact, a match of League takes place in a technically induced space time. It unfolds according to a particular rhythm, set by the technical elements that constitute it and that compose its structure. Technics impose a rhythm that adds to the one set by natural elements. In the first volume of Technics and Time, Stiegler puts forward the idea that technicity is to be constituted in terms of technological phenomenology, that is, in how humans experience it. As a result, technicity implies a particular experience to it, notably in terms of temporality (Stiegler, 2018).

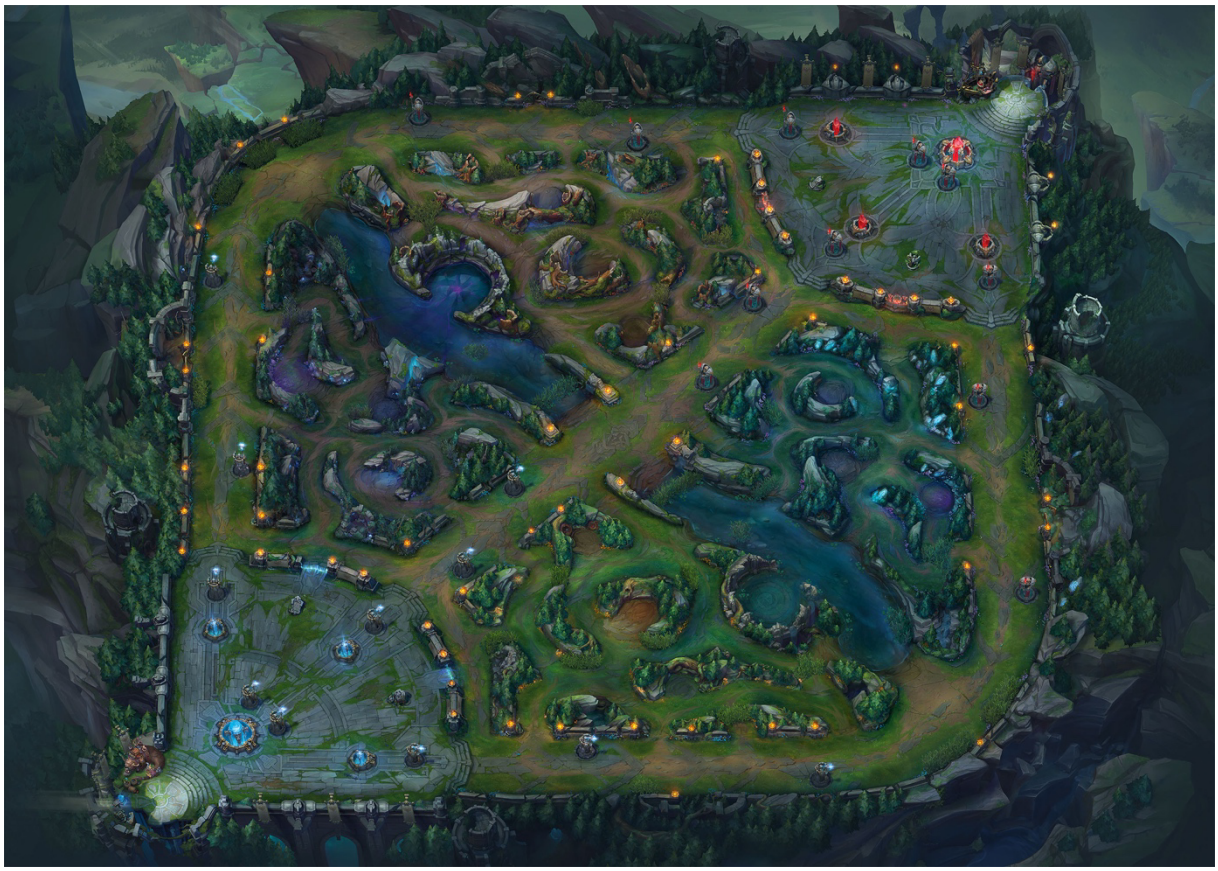
Following Yuk Hui's analysis of Heidegger's thought on poetry in Rhythm and Technics, rhythm should be understood here as precisely relations in movement (2017, 62). It is "what holds the human in relation" (2017, 64). Poetry, Heidegger claims, "goes always and increasingly towards what lies ahead", towards the unknown (Beaufret, 1988, 247-248 in Hui, 2017, 61). It comes before thinking which, according to Heidegger, corresponds to rememberance. Poetry is first, it is "what conditions thinking since it is already ahead of it, hence the ground of all actions" (Hui, 2017, 64). This understanding of poetry resonates with what Deleuze calls the "object of encounter" that is the result of contingency and that has never been inscribed technically nor in memory before its manifestation. When actions must be performed in milliseconds in the context of certain team fights, there seem to be no thinking but only rhythm. The newness and the rapidity of the scenario unfolding does not leave room for reflection, unlike strategies. This rhythm (i.e., relations in movement), Hui argues, is the theatre of emergence of the non-rational (2021a, 125). There is what we might call a "resonance" happening between the immediate actions of five players in relation. They do not use language to convey meaning. Instead, their actions carry the meanings necessary for this resonance. Communication is simply performed through another technique and therefore frees itself from language. As a result, to the following question asked by Heidegger: "will the impending destruction of language through linguistics and informatics undermine not only the precedence of poetry, but also the very possibility of it?" (Heidegger in Hui, 2017, 78), this work's suggestion is that the possibility of a passing towards the Unknown as embedded in the operation of modern machines is present.

CONCLUSION

The impasse that the question concerning modern technology constitutes for humanity, as chapter 1 attempts to demonstrate, is problematic. For the universalisation that it entails under the cybernetic logic first, where all things composing the world become calculable and controllable. Also, for the enframing essence of technology that has become omnipresent and that reduces everything to standing reserve. The world submitted to calculations increasingly confines billions of consciousnesses to looping circuits that threaten to exhaust possibilities for undetermined futures. The past rules and the future is reduced to mere choice instead of being welcomed with open arms. The perspective of chaos announced by the principle of increasing entropy divides lamenters and preachers of idols. But is modern technology really condemned to the fate we attribute it? This is, I believe, the question that Yuk Hui asks. By opening a path towards techno-diversity, he invites us to reflect on the possibility to overcome modernity's destiny.

Chapter 2 attempts to pull the thread of the "third way" that constitutes the domain of the non-rational to not *think*, but *create* a different future. The non-industrial artistic production appears as a potential domain for the manifestation of the Unknown that resists mechanical automation. It is said to hint at a passing, carrying the hope of trading memory for a clear mirror. The analysis of a contemporary digital medium, League of Legends, has attempted to offer various lines of thought to conceive more clearly the mechano-organic or cybernetic nature of certain technologies of our time. This investigation may first serve as a reinterpretation of a type of technology, not in a simply instrumental manner, but as a being in relation. Despite its radically calculative and controllable nature, it has been shown that the structure of the technology is fundamentally evolutive according to the use its operators make of it. Matches understood as systems seem to be open to the incoming of contingency that participate in their resolution. They also seem to involve a transindividuality, a condition for collectivity, and an original vehicle of meaning through a particular sensibility. This rhythm or resonance that teams can display in scenarios of teamfights for instance, may be interpreted as a gate towards the manifestation of the Unknown.

Figure 1: The Summoner’s Rift



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