An Age of Too Much Possibility: Stiegler and the Modality of Technoscience

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Abstract

The French continental philosopher Bernard Stiegler has become a popular figure in 21st-century philosophy of technology discourse. In his three-volume book series *Technics and Time*, Stiegler defines technics more broadly than technology as the human's unique ability to externalize memory. While there have been a number of good introductions to his work, scholars have not yet addressed Stiegler's theory of possibility in the *Technics and Time* series in much detail.

The purpose of this article is to fill in this lacuna in the scholarship by providing a critical examination of Stiegler's modal theory in the "Technoscience and Reproduction" chapter of his work.

Keywords: Stiegler, possibility, Technoscience, technics, tertiary memory

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Introduction

With his three-volume *Technics and Time* series, the French theorist Bernard Stiegler (1952-2020) has become one of the most prominent continental philosophers of the 21st century, especially in terms of philosophy of technology discourse. His path to this prominence was a strange one. At the age of 26, Stiegler was incarcerated for armed robbery. He became passionate about philosophy during the five years he spent in prison. After his prison sentence, he studied under Jacques Derrida and completed his doctorate at the École des Hautes Études en Sciences Sociales. He then published his first major work in 1994 – *Technics and Time, 1: The Fault of Epimetheus* – under the French title *La technique et le temps, 1: La faute d'Épimethée* and from there became a prolific writer, publishing over 30 books, before committing suicide in 2020.

Because of the complexity and vision of the *Technics and Time* series, Stiegler scholars have produced a number of excellent introductions to his work. However, because his work is contemporary and is in places difficult to follow, there have not yet been a sufficient amount of advanced scholarly pieces that explore the arguments and consequences of his work. The aim of this article is to fill in one of the gaps in this advanced scholarship by examining Stiegler's conception of possibility in relation to his theory of tertiary memory and technoscience. The question of the role and character of possibility is one of the most pressing issues for Stiegler's project, since an exposition of his modal theory thereby helps to expose his underlying ontological commitments to the primacy of becoming as well as his ethical diagnosis of the contemporary age. This article focuses primarily on explicating and critically analyzing Stiegler's conception of possibility in terms of his developmental account of modality from what he calls the classic to the contemporary age.[2]

Arguments for possibility-primacy have led to some of the most important debates about non-formal modal theory today. Seminal figures from the continental tradition, such as Martin Heidegger (1889-1976) and Giorgio Agamben (1942-present), make use of Aristotle's claims about actuality-primacy in book *Theta* of the *Metaphysics*, but then argue that possibility is the primary modal category. Heidegger's thesis in *Being and Time* that "possibility stands higher than actuality" (Heidegger, 1962, p. 63) marks one of the startling reversals of modal priority, opening paths for phenomenological description of the primacy of possibility in experience. Agamben's "Potentiality and Law" chapter of *Homo Sacer* offers another example of possibility-primacy (Agamben, 1998). Agamben claims that there is a constitutive ambiguity at the core of Aristotle's arguments in book *Theta* about whether actuality or possibility is truly more primary, and that this ambiguity causes the political structure of the sovereign, who is both inside and outside of the law, and of the *homo sacer*, who is stripped of legal rights and exists as bare life.[3]

[2] Stiegler actually outlines three historical periods – the classic period, which he attributes to Aristotle; the modern period, which he attributes to Kant; and the contemporary period, which he calls the age of technoscience. But since his distinction between the classic and the modern does not bare much significance for my analysis, I will mostly focus on the distinctions between the classic and the contemporary, and only mention the modern briefly.

[3] For more in-depth analysis of these topics, see Brown (2017) and Brown (2013).

By explicating Stiegler's theory of possibility, I propose that his work also contributes to these discussions about the consequences of modal priority and belongs alongside Heidegger's and Agamben's as a revisionary work of modal theory. Stiegler articulates his theory of possibility through a collection of scattered insights that range across his three-volume *Technics and Time* series. But since his serious engagement with modality appears mostly in the "Technoscience and Reproduction" chapter of volume 3, I will explicate Stiegler's argument in this chapter and then anticipate some of the issues readers might have with his theory, such as whether the distinction between the classic and contemporary age is too superficial to be meaningful. I begin by outlining his description of the classic viewpoint, where we find the traditional and very persuasive argument that actuality always precedes the determinate possibilities of reality.[4] If we understand the argument for why actuality is more primary than its possibilities, and for why the contingencies of technics are only the accidents and not the property of being itself, we will be in a better position to analyze Stiegler's further claim that from the contemporary viewpoint, the reverse of this argument is now the case: possibility has become primary and actuality has become only one of possibility's many strands. This study will then focus on the main claims of the "Technoscience and Reproduction" chapter, that is, why the evolution of the organized inorganic,[5] and why the emergence of "technoscience" from the opposition of science and technics, has radically transformed the ontological structure of modality. Stiegler proposes that from the classic viewpoint of Aristotle, even from the modern viewpoint of Kant, one cannot effectively think the dynamism of technics from its current formations.

To underscore some of the main ideas of Stiegler's *Technics* and *Time* series, I will define six terms from his work that are crucial to his developmental modal theory: "tertiary memory," "technics," "epiphylogenesis," the "organized inorganic," "technoscience," and "techno-science-fiction."

"Tertiary memory" is one of the three types of memory in Stiegler's work. The first type is "nervous memory." Nervous memory is limited to the individual organism, who comes to retain to a greater or lesser extent the life of being an individual. For example, I have first-hand memory of playing baseball every day after school when I was nine years old, and I might come to retain this memory as I grow older. Stiegler emphasizes that this type of first-hand memory dies when the individual dies. The second type of memory is the "genetic memory" of families and species. Through reproduction, organisms have the capacity to pass on species-traits and characteristics

[4] Stiegler often uses the terms "reality" and the "real" to describe the "actual." It would have been helpful if he were to have clarified what makes the "real" different from the "actual," or, if he thinks that they are synonymous, which he sometimes suggests, why he has chosen to use the term "real" more often than the more conventional term "actuality."

[5] Although his article "Introduction to Bernard Stiegler" is a good introduction for new readers, I disagree with Ben Roberts' interpretation of technics as accidental and non-evolutionary (2007). Roberts cites Stiegler's claims about the emptiness of human nature to justify this interpretation. But Stiegler often talks about the evolutionary developments of technics and the organized inorganic (1998), even if its origins and ultimate goals remain contingent. For other introductory guides to Stiegler's work, see Abbinnett (2018), Howells & Moore (2013), James (2010), and Crogan (2010).

from generation to generation. This is the memory of species-retention, but it is also the memory of species-evolution, since the inheritance of genetic transformations can over time alter the basic fabric of the organism. Then there is also the third type, "tertiary memory," which is quite special for Stiegler. What distinguishes the human from other organisms is the unique capacity to create marks in the exteriority of the environment and to transfer these marks through human history, culture, and innovation. According to Stiegler, humans enact this special capacity of tertiary memory in innumerable ways, for example, through the commemorative art of statues and paintings that memorialize a local community, or from the production of books and the maintaining of libraries that enable the preservation of memory from generation to generation. Tertiary memory has also taken on more contemporary expressions in the rapid transference of information through the processes of digital technologies.

Related to "tertiary memory" is the term "technics." Stiegler defines "technics" as any technique whereby the human is able to externalize and retain memory by use of the environment. The human is distinct from other animals only once consciousness develops a retentional, inheritable technics-memory, extending beyond both the genetic memory of the species and the individual "nervous" memory. These marks in the exteriority begin with ancient technics, such as the flint or the alphabet, but Stiegler argues that with the eventual development of tertiary memory, we come to inherit non-lived experience through "cinematic consciousness," and from this possibilities multiply and expand in a field of pure fabrication to the breaking point where possibility begins to overwhelm the actual. Stiegler's conception of technics is broader than we would normally attribute to the term "technology." Technics includes any kind of externalized, organized memory, from simple tasks like jotting down notes to the most advanced stages of AI.

"Epiphylogenesis" is Stiegler's term for the condition of exteriority that the inheritance and transference of tertiary memory requires. It refers to the process of transformation from the category of the lived organism to the exteriority of non-lived, inorganic materiality. In his initial volume, *Technics and Time, 1*, Stiegler proposes that there exists a third category between the Aristotelian categories of organized life and disorganized materiality, which he calls the "organized inorganic":

> The zootechnological relation of the human to matter is a particular case of the relation of the living to its milieu, the former passing through organized inert matter – the technical object. The singularity of the relation lies in the fact that the inert, although organized, matter *qua* the technical object itself evolves in its organization: it is therefore no longer merely inert matter, but neither is it living matter. *It is organized inorganic matter that transforms itself in time as living matter transforms itself in its interaction with the milieu* (Stiegler, 1998, p. 49).

While other living organisms follow the rules of their particular nature – the fish, for example, is expert at swimming in the water, the deer at running in the forest – the human has no particular nature *per se*, but is expert at imitating the nature of others, and ultimately at gaining access to a multiplicity of dormant natures, which at first exist only latently in the possibility of the material.[6]

[6] Stiegler was fond of making this claim about the emptiness and malleability of human nature through his interpretation of the myth of Prometheus and Epimetheus. In the story, Epimetheus was given the job of

One reason why the primacy between the actual and the possible has shifted is because, with the evolution of epiphylogenesis, the organized inorganic becomes animated and learns to reproduce itself, generating from self-movement and auto-reproduction further transformations of its materiality. The recent advancements of AI technologies offer an example of auto-reproduction in term of how AI learns to think, adjust, and recalibrate by tracking changes in the environment. The relationship between the human and the organized inorganic creates an exponential expansion in the variations of the possible, which eventually produces a threshold where actuality-primacy gives way to possibility-primacy. The dynamism of technics then overwhelms the actual, which becomes merely the means for the possible.

Stiegler defines "technoscience" as the "co-operation of technics and science" (Stiegler, 2011, p. 189). The classic age is dominated by science but not yet by technoscience. "Science" is, according to Stiegler, the study of knowledge that articulates the actual from the formal terms of necessity. From this initial classic viewpoint, science opposes contingency and the dynamics of technics. Science is the study of static being in its necessity, of essential organic forms, based on the modal primacy of actuality. Contingency is in this age only an accidental property, not a primary, necessary property, of being. However, we have now entered, in Stiegler's estimation, the age of technoscience, an age of instability where contingency is no longer a mere accident that exists below being-proper, but has now become, like necessary essences, part of the basic constitution of being. At the same time, this inclusion disrupts the identity of being's constitution to such an extent that its stability itself comes into question.

Besides the development and self-reproduction of the organized inorganic, the other major characteristic of modality in the contemporary age is "techno-science-fiction," a pure fabrication of possibilities that no longer maintain any direct reference to determinate actuality. Stiegler finds in the term "science fiction" an unusual modal logic: the position of unactualized possibility, of possibility that exists but has no reference to the actual because it was never among the various possibilities of actual experience. "Fiction" is the modal version of Stiegler's theory that we have gained access to the tertiary memories of "the never having been" (Stiegler, 2011, p. 204). What is significant about his claim that possibility has broken from reality, in other words, lost its referential dependency on actuality, is the underlying argument that in the contemporary age, technoscience has begun to manufacture an overabundance of possibilities that have no association with actuality. Because of this overabundance, we live in a world of modal crisis; invention and reproduction have thrown us into the "darkness of technoscientific possibles… One must attempt," Stiegler explains, "to orient oneself among the diversity of overabundant possibles searching (in the dark) for a *systematic exploration of darkness*" (Stiegler, 2011, p. 191). Our only option (to have a nature, to be human) is to develop a critique of this new type of modality, and thereby find an axis of orientation.

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assigning powers (speed, strength, claws, etc.) to each of the animals. Unfortunately, he miscalculated and accidentally over-distributed the powers to the other animals, so that there was nothing left for humans. On noticing this, Prometheus stole the gift of fire (technics) from the other gods and endowed humans with this (Stiegler, 1998).

There are problems with Stiegler's modal analysis, from his oversimplified reading of Aristotle[7] – some might even accuse Stiegler of committing the strawman fallacy – to his lack of precision about various modal definitions, such as what exactly he means when he claims that in technoscience "necessity" and "contingency" have become one unity. Nevertheless, Stiegler offers a provocative account of possibility-primacy in the continental tradition. Readers who do the work of deciphering and decoding his ideas are rewarded with a penetrating account of the contemporary age.

Aristotle and the Classic Age of Actuality-Primacy

Aristotle attributes technics (art) to contingency because he holds that bodies have natural integrity, and that when they become transformed in technics, they become something less than what they really are. Stiegler emphasizes throughout the "Technocience and reproduction" chapter that, for Aristotle, what is necessary *is being* and what is contingent is a mere accident of being. This is why Aristotle claims in the *Nicomachean Ethics* that "art loves chance, and chance loves art." Contingency is not "a region of being" but "a negative property affecting natural processes" (Stiegler, 2011, p. 189). Stiegler's definition of classic science aligns well with Aristotle's account: "Science describes nature as the stable soil of the real, or as the ideal identity of the real" (Stiegler, 2011, p. 203). Being contains essential, stable forms that cannot be otherwise. The ancient model establishes this stability by separating and excluding the contingencies of technics from being. These contingencies are the accidents of being, not being proper. They are what science must exclude to sustain being within the domain of necessity.

Organized, ensouled, living bodies have natural integrity. For example, dogs are excellent if they are both good at doing things that dogs do (e.g., running, hunting, etc.), but also simply at being what dogs are. Dogness, as first order actuality, precedes in definition the various possibilities of what a dog might become. Aristotle calls this ideality "the mean" between the extremes of excess and deficiency. In contrast, a dog who loses a leg is less than the ideality of a dog. This is also why a puppy, not yet an adult, is really the possibility of being a dog and not yet its complete actuality.

In Aristotle's analysis, the nature of being human is much more complicated than the nature of being a dog. The human is the animal with *logos* (rationality, giving an account). The nature, or *phusis*, of the dog is simpler in the sense that dogs naturally act as dogs, but the human must give an account of nature as the natural act of being human, which causes a more difficult pathway towards finding the mean of humanness. Whereas other animals automatically do what they naturally do – the bird for example simply builds the nest for her young – the nature of being human is more complicated because humans must rationalize to be what they are. This rationality is, at the same time, their nature.

But while the fusion of *phusis* and *logos* complicates the notion of human nature, much in the way that Stiegler's story of Prometheus and Epimetheus exposes the human as empty form, Aristotle nevertheless claims that the human has a necessary nature. In fact, much of his life work (from *the Nicomachean Ethics* to *On the Soul* and *the Politics*) is devoted to the goal of exploring the intricacies and puzzles of how the human might come to flourish at being human. At the most

[7] For textual readings of Aristotle's modal account in *the Metaphysics* that are closer to the actual text, see Anagnostopoulos (2011) and Witt (2003).

basic level, to be a human is to measure oneself against the ideal form of the human body. Humans have arms and legs and a whole anatomy of organs. Part of what it would take to flourish at being a human consists in remaining healthy and in letting the body naturally grow towards its end. But humans are also better or worse at being human in respect to habit, education, sociality, and morality. When we are young, we form good or bad habits. If we are well educated, we might come to gain a propensity towards being human. From this propensity, our nature becomes more automatic and the complexities of *phusis* as *logos* become simpler, just as playing the flute becomes more natural the more we make a habit of this. To illustrate this, in the *Nicomachean Ethics* (book 7, section 1), Aristotle distinguishes between the various dispositions of ethical character by using the criteria of whether we have formed good habits. A person with a good disposition of character both intellectualizes in a theoretical way about how to act well but also practices this. On the other hand, someone tempted by the extremities of contingency and vice has a lesser disposition of character, even if this person ultimately makes the decision to act well. This shows that, for Aristotle, a person who flourishes at being human has made a habit of the necessity of this form of being. It is thus important to recognize that although being human is more difficult than being a dog or a bird, Aristotle nevertheless works from the same premise, that *to flourish* is *to be*.

To think of being and ideality from these terms is to presuppose that actuality is primary and possibility is secondary. The classic argument from the primacy of actuality is persuasive for a number of reasons. The most effective reason Aristotle gives comes from his argument in book *Theta* of *the Metaphysics* that substance is complete actuality, and that the main function of possibility is to reach its end in substance, which is first order actuality, in other words, being proper. This argument is persuasive because it is based upon the insights of observing nature directly. The plant literally grows from its possibilities in the seed. It becomes itself by satisfying the conditions for the possibility of its actualization. If the seed fails at becoming a plant, this is its failure to realize its possibilities. The various contingencies that appear when one does not realize one's end are not in themselves further possibilities but are only the shadows of incomplete being.

Aristotle's various ontological and practical reasons for why actuality is more primary each attempt to establish the concrete actuality of the human as more primary than all the possible re-formations of this reality. Possibilities that deviate severely from the mean of being human exist only in the shadow of being, as the deviant possibilities of a human who has fallen into disorder. When the living organism dies, the soul leaves the body, and then the organized form becomes the mute disorganization of materiality. These extreme possibilities are not the possibilities *of being* but are only the contingencies that underlie being when being becomes fragile or veers off course.

Technoscience and the Contemporary Age of Possibility-Primacy

Ontological questions about natural order drawn from debates surrounding "Body Integrity Identity Disorder (BIID)" offer provocative resources to think through Stiegler's distinction between classic and contemporary modality. Physicians describe BIID as a psychological condition causing a patient to believe that a perfectly healthy limb needs to be amputated. In a 2009 study "Body Integrity Identity Disorder (BIID) – Is the Amputation of Healthy Limbs Ethically Justified?," Sabine Mueller outlines the parameters of the debate as an issue pertaining primarily to applied ethics:

> People suffering from body integrity identity disorder report that a particular limb does not belong to them, and that they feel "over complete" and want to have the alien limb amputated. In 1997 Robert Smith, a surgeon in Scotland, fulfilled one of his patient's deepest desires: he amputated the lower part of the man's healthy left leg. Smith performed a similar operation on a German retiree two years later, as the British daily news source The Independent reported in 2000. Both patients had told Smith that one of their legs was superfluous and that its mere presence had caused them enduring emotional pain. When Smith planned the third amputation of a healthy leg in 1999, the hospital trust's new chief executive announced a ban on further amputations after a report of the hospital's ethics committee (Mueller, 2009, p. 36).

Mueller outlines the debate as the issue of whether the surgeon should be allowed to amputate the patient's limb. Is the patient's right to autonomy more important than the surgeon's responsibility to act under the principle of beneficence? Would it be of greater good to the patient to amputate the healthy limb, or would it be better to attempt to cure the patient of the psychological condition that has caused the disorder? Where does policy stand on this issue? Should the hospital's ethics committee systematically ban all cases of BIID, or should there be some form of case-by-case evaluation? These sorts of questions that Mueller's study invokes are all of the domain of ethics. But I think that underlying the ethical debate is a deeper ontological debate. The name itself – body integrity identity disorder – makes an assumption about one of the most fundamental ontological questions about nature. Should we assume that our bodies (that bodies in general) have natural integrity?

In the sub-chapter "From Possible to Real: Performativity of Techno-Science-Fiction," Stiegler claims that in this contemporary age the roles of actuality and possibility have become reversed. In the past, actuality had been the primary reference for possibility. As long as the possible remained composed under the laws of actuality, then all things had a natural place, living organisms had natural integrity, the world remained relatively stable and orderly, and possibilities did not stray from the domain of necessary being into the wilderness of free contingencies. But with the advancements of tertiary memory, epiphylogenesis, and the organized inorganic, Stiegler claims that our common sense assumptions about the stability of reality can no longer dictate the order of things. While one might see this lack of control as *dis*order, placelessness, and the unraveling of body integrity, one of Stiegler's main insights is that the possibilities of *dis*order lead to *re*-organization, placelessness leads to a multiplicity of re-place-ability, and the dissolving of natural integrity leads to a resurgence of transgenetic reproducibility. The question becomes, not what is the natural order of reality and how do we describe it from the terms of necessity? The question becomes, rather, how can we gain orientation in a world that has broken the threshold between the actual and the possible?

By viewing Stiegler's theory of inheritance as a theory of possibility-primacy, both in the sense of the inheritable consciousness that I myself have never lived, and in the sense of the inheritable exteriority of the organized inorganic, we establish the conditions for the reversal of the actual and the possible. But there remains a significant problem: what form must thought take to conceive of possibility as the primary category? Aristotle's argument from actuality primacy is, after all, quite persuasive. It remains to be seen whether thought can think possibility itself, without establishing possibility in reference to actuality. Anticipating this problem, Stiegler claims that from the Aristotelian viewpoint, we cannot even approach the thought of technics from its contemporary state of dynamism. The contemporary viewpoint requires a new conception of

modality, not one of contingency as opposed to necessity and excluded from being, but one that recognizes contingency and necessity from a transductive relationship of non-opposition and non-exclusion.

To think this new type of modality requires a conception of the non-oppositional structure of technoscience, wherein necessity and contingency become an inclusive unity. Rethinking the terms of "opposition" is, for Stiegler, the main point-of-departure from the classic to the modern, and from the modern to the contemporary viewpoint. The reason Aristotle cannot think the dynamics of technics is because his theory of body integrity depends upon the opposition of necessity and contingency. Necessity is the proper domain of being and all contingencies are excluded from it. If science were not fundamentally opposed to technics, then the contingencies that technics produce would extend the forms of being beyond the comprehension of being. Then the seed would not only have its possible end in the complete reality of the plant but would find a boundless multiplicity of possibilities in what Aristotle calls the deficiencies and excesses of incomplete reality. This is precisely what Stiegler claims is now happening: being has become incompatible with itself; change and instability have become the guiding principle of reality: "Beginning in the nineteenth century, as stability became increasingly uncertain and change the rule, it began to appear to be possible that technology, emerging from the technics associated with science, might prove to be *incompatible with being*" (Stiegler, 2011, p. 203).

Stiegler also discusses a transitional modern viewpoint as a revision of the relation of opposition between science and technics. Rather than excluding the contingencies of technics from being proper, the modern viewpoint, which Stiegler attributes to Kant, subsumes technics within the domain of science. Technics becomes infused in a subordinate way within the fabric of reality. Technics becomes the application of science. Still a measure of necessity, science becomes more dynamic and inclusive. It describes multiple causal series, which are still of necessity but have come to contain contingencies as part of its process. The modern viewpoint "pursues multiple causal series whose diversity even contains an element of contingency and thus a possible field for human activity" (Stiegler, 2011, p. 189). When the human splices and grafts the genetic reproduction of the seed, one can still attempt to see these contingencies of technics as an application of science. Science must have already anticipated from its multiple causal series all the possibilities that technics could project upon materiality.

Although the modern viewpoint departs from the classic in the sense that technics becomes an application of science and contingency becomes one aspect of necessity, Stiegler maintains that even from the modern viewpoint, science and technics are fundamentally opposed to one another. Although technics appears as an application of science rather than as an abnormality that must be excluded from being proper, science still opposes technics in the sense that it attempts to anticipate all various possibilities of itself. In this respect, both the classic and the modern viewpoints share a common ontology: whether contingencies are excluded from or included within the property of being, actuality is nevertheless the primary category, and possibility is merely a means to this end.

From within the classic and modern viewpoints, technology and science stand in stark opposition; however, from within the contemporary viewpoint, technology and science grow into a unity, which Stiegler defines as technoscience, a non-oppositional relationship where technics comes to dictate the constantly evolving parameters of scientific innovation. The common ontology that both the classic and modern viewpoints share is one from which science *describes* being in its stability. Botanists describe the universal stability behind the dynamics of the plant as

it grows out of the seed. Even in a theory of species-evolution and selection, scientists describe the rules behind these large shifts of nature. It is from this common ontology that technoscience departs. When technics and science come together, this produces a scientific method that no longer describes being, but rather creates it. Stiegler claims that technoscience is no longer the science of being. It is the science *of becoming*: "as science has become technoscience it *describes* the real less and less and is instead what increasingly radically *destabilizes* it. Technical science no longer depicts what *is* (the "law" of life): it *creates* new reality; it is a science of becoming" (Stiegler, 2011, p. 191).

Stiegler also claims that technoscience is "the collusion between technics and science" (Stiegler, 2011, p. 187). Borrowing from his French contemporary Gilbert Simondon (1924-1989), Stiegler defines this "collusion" or "co-positing" as a relation of transduction. Stiegler re-defines "transduction" rather ambiguously as a relationship where otherwise contrary categories are held together "constitutively in tandem with [each] other" (Stiegler, 2011, p. 174).[8] While the principle of non-contradiction exposes the *impossibility* of unifying two opposite terms, transduction exposes the *possibility* of forming as one unity two terms which cannot otherwise go together. The law of non-contradiction states that something cannot be both itself and the opposite of itself in the same manner, but the principle of transduction nevertheless expresses the co-positing of opposites from one disposition. By undermining non-contradiction, transduction becomes the organizational structure of possibility-primacy. As long as the actual is the primary category, possibility is always fractured by the disjunction of whether or not it will become actual. The law of non-contradiction marginalizes the full emergence of possibility. Actuality is always only the possible that does not contradict itself with the possibilities that are not of the actual, and which cannot become actual because their actualization would cause a contradiction. But if we think from the relation of transduction, then possible oppositions that stand in no relation to actuality can come into existence. What had been excluded from reality because it could not also occur becomes included as the more primary foundation from which actuality is only one derivative possibility.

It is along these lines that Stiegler writes about possibility-primacy as being when it is in contradiction with the law of being. "[The] possibility of being is in contradiction with the *law* of being. It is a non-being within being, a nothingness; an illusory power of negation that always results in impotence" (Stiegler, 2011, p. 203). A modality of possibility-primacy is one where actions take place paradoxically beyond the rules of actuality. Possibilities exist that are not only for the sake of their realization in actual experience. Through transductive relations, technoscience leads to a redistribution of the laws of physics, wherein matter functions within the rules, not of organic "natural" biology, but of the organized inorganic. The necessary laws of science that had dictated how the plant grows from the seed become the laws of transgenetic reproduction of pure materiality, but even these laws are ungovernable and cannot be established with necessity.

By thinking the relationship of transduction, we have begun to think of possibility as the primary category. Finding the formations from which thought can think possibility-primacy is an ethical task for Stiegler. "Possibility seems greater and greater to the self," Kierkegaard writes in *Sickness unto Death*. "More and more it becomes possible because nothing becomes actual. Eventually everything seems possible, but this is exactly the point at which the abyss swallows up the self" (Kierkegaard, 1980, p. 36). Kierkegaard's statement is emblematic of

[8] In genetics, "transduction" describes the microscopic transference of foreign DNA through a viral agent.

Stiegler's diagnosis of the contemporary age as one of modal malaise. Stiegler argues that because of the developments of the Industrial Revolution and the uniquely human process of externalizing memory, we are now faced with the ethical task of how to subsist in an age of overwhelming possibility. One of the main reasons why we are disoriented by too much possibility is because we still tend to operate from a disposition of actuality-primacy. We still tend to think of actuality first and then submit possibility to its rules. We become disoriented when we attempt to situate possibilities that have no relation to actuality as if they could be placed within the logic of actual experience and complete actuality. But if we recognize that actuality can no longer play the role of orienting the possible, but has rather become what Stiegler calls "a launching pad for access to new possibilities" (Stiegler, 2011, p. 204), this recognition alone begins to establish an effective amount of distance from the malaise of too much possibility, and gives us the means to critique the structure of the "metaphysical framing of the possible" (Stiegler, 2011, pp. 204-205). The malaise that Stiegler diagnoses is brought about not only by the exponential developments of technics but also by our own intransigence in adjusting to the modal primacy of possibility. As we learn to think about the modal dimensions of possibility-primacy adequately, we also thereby learn to live in the contemporary age.

Concluding Critical Discussions

Stiegler's originality comes from his recognition of the fundamental relationship between technics, tertiary memory, and possibility. His claim that as technics develops and evolves, there is an increasing shift in power and eventually possibility becomes the primary category – is provocative and leads to significant consequences for the future of modal analysis. Nevertheless, as penetrating and visionary as his work is, his writing lacks precision, definitions are hard to come by, and his use of argumentation to support his ideas is less than clear. Readers are left with a vision of modal reality that is both profoundly suggestive but also problematically vague in its expression. As a means of underscoring the profundity and perplexity of his work, I will briefly discuss four critical questions about Stiegler's theory. While surveying potential questions and responses, I will sometimes defend Stiegler and will sometimes pass judgement:

1. Haven't philosophers of modernity (especially Hegel) already presented plausible arguments for freedom over essence? What is the additional value of Stiegler's "contemporary age," where the dynamism of becoming seemingly undermines the classic characterization that being has a fixed set of immovable essences?

Some readers may object that Stiegler is merely recycling the modal dimensions of past philosophical innovations and that it would be fairer to the history of philosophy if we trace these ideas back to 19th-century figures like Hegel, Kierkegaard, and Nietzsche. But we can also defend Stiegler by presenting his modal account of the contemporary age as a "post-modern" account of an age accelerated by technics. Generous readers will acknowledge that Stiegler's analysis of the modal nature of technics offers a breakthrough in non-formal modal theories, especially in his ethical warnings of the malaise that comes from overwhelming possibilities and in his conception of the possibility-dimensions of the organized inorganic and techno-science-fiction. Certainly, he is heavily influenced by the 19th- and 20th- century philosophies of becoming, but his preoccupation with the modality of tertiary memory is innovative in its own way and should be seen as a novel contribution to modal theories.

2. Is Stiegler's division between the classic, modern, and contemporary ages an oversimplification of the modal history?

Some readers may feel that Stiegler's three-age distinction is problematic and overly general. For these readers, it is not altogether clear why modality is developmental, why it solidifies into three separate ages, and what causes the shift from one age to another. Stiegler's characterization of the identity of each age may also come across as vague and lacking in detail, to such an extent that, while these readers may feel that they understand the basic characteristics of each age, the plausibility of each remains indeterminate. While I agree that Stiegler's distinction between the three ages is less than clear, generous readers will nevertheless notice that it is the evolution of technics that causes the parallel reorganizations of modal reality to occur. As technics develops, human experience accelerates and greater concentrations of the organized inorganic occur. Eventually, this speeding up of life leads to the reversal of possibility over actuality, where the initial referential role that actuality played in the classic age erodes and unbounded possibility stuns human consciousness. Stiegler's simplistic readings of Aristotle and Kant are certainly frustrating and in places misleading for the historical scholarship of these figures. And his inattention to the technical details of each age – his lack of explanation about where the thresholds between each age lie and what it is exactly that causes the transitions between the ages – makes his theory less than convincing for uninitiated readers. Readers are left to piece together the fragmented and disassociated steps of Stiegler's argument and must do critical work to synthesize the interconnections between technics, modality, and the dynamism, acceleration, and static points of tertiary memory. But for readers who are willing to do this work, there is a coherent argument to be had.

3. Are Stiegler's claims about techno-science-fiction hyperbolic?

Some readers may take issue with Stiegler's thesis about "science fiction" as the pure fabrication of possibilities that have no relation to actuality. One of the most controversial aspects of possibility-primacy is Stiegler's idea that tertiary memory opens an individual's consciousness to the quasi-materiality of "cinematic consciousness," where the I becomes a stream of possible projections. The actual self is then only a lifting-off point for the boundless possibilities of cinematic consciousness, which both precede the actual and create permutations for it. Tertiary memory contains as one of its consequences the ability to transfer and inherit the possibilities of others and of no one as if these possibilities were my own. For example, as I read Charles Dickens' novel *Great Expectations*, I look with Pip's eyes at his parents' grave and learn how to name myself. According to Stiegler's thesis, I literally take up the possibilities that are transferable from the memories bound up with the technics of the book that I have never lived through. I take these memories in as if they were my own, and these non-experienced memories either contribute to or even primarily determine what it means to be a contemporary self.

Critics who feel that Stiegler's techno-science-fiction thesis is hyperbolic have two issues. First, they feel that although techno-science-fiction might indeed help to constitute what it means to be a contemporary self, the thesis is too general and too incredible to be plausible. Obviously, one's own personal experiences remain major factors in one's life, and while technics' mediation of consciousness through the constant projection of "screen-time" mixes together with these lived experiences, we are not anywhere near the point where we would confuse lived experience with non-lived possibilities, or where the self would become saturated with "fiction." The question of whether Stiegler's claims about techno-science-fiction are hyperbolic depends,

therefore, on how strong Stiegler's thesis about fiction really is. If he only means that non-lived experience has an influence on the constitution of contemporary consciousness, then this milder version would make his theory more credible.

Second, some readers may also feel that Stiegler has muddled the distinction between techno-science-fiction and the organized inorganic. Readers who are persuaded by Stiegler's work on the organized inorganic may worry that he has hastily inserted conclusions about techno-science-fiction along with his more relatable theory of technics in nature. For these readers, it is plausible enough to claim that in the contemporary age actuality plays a more distant role and is no longer the main reference of possible outcomes. The possibility of the reproduction of genetically modified organic forms overwhelms the actual with the possible, yet in a way that is coherent. But, for these readers, it is problematic to claim that there are purely fictional possibilities that have no reference to any actuality whatsoever, and that the age is, moreover, defined by a non-referential "cinematic consciousness" of performance fabrication. To these readers, I would suggest that by simply disentangling Stiegler's claims about fiction from his claims about the organized inorganic, we will have made progress in highlighting the modal insights that are consistent in his work.

4. When Stiegler claims that our contemporary age is defined by the "malaise" of overabundant possibilities, does he mean in a pessimistic way that possibility-primacy results in impotence? Or is he in some respect optimistic about the future of technics?

Stiegler's position about whether technics has a positive or negative effect is complicated. Technoscience presents us with a modal version of the pharmacon. We have become able to access pure possibility and to create reality as we want it, but this access is undecidably both cure and poison. As we become able to perform reality through the invention of fabricated possibilities, we suffer from the malaise of overabundance, and cannot find orientation in the darkness. Stiegler suggests, however, that if we set up a "new critique of modality," one that recognizes the primacy of possibility, no longer from the terms of actuality, but from the terms *qua* possibility, we will have initiated an ethical strategy to help orient us and reduce our collective malaise in an age of too much possibility.

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