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Transgressing the Intellectual Status Quo: How Transhumanism Seeks to Overcome More than Biological Limitations

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Transhumanists claim that their belief in building upon the humanistic values and scientific methodology of the Enlightenment mixes the core values of Humanism with views rooted in Materialism, Physicalism, and Functionalism (hereafter collectively referred to as techno-scientific Materialism)[1] in order to take control of human evolution and direct it toward becoming posthuman (More 7, Bostrom 2-3). However, the philosophical methods claimed by Transhumanists reflect a limited perspective on the philosophical influences contributing to Transhumanism, and in doing so also limit the ways in which Transhumanism attempts to go beyond the current conditions of human existence. By analyzing arguments in favor of two technological possibilities central to Transhumanism, namely mind uploading and cryonics, the techno-scientific Materialist elements of the arguments in favor of these future possibilities will fall away, exposing Transhumanism's roots in Phenomenology and German Idealism.

Transhumanism thus emerges as a movement that is indeed seeking to overcome the physical and cognitive limitations of human life as it claims, but also as one that draws upon, and attempts to overcome, a two-hundred-year-long philosophical debate regarding the nature of human existence—a debate that has existed as a part of the Humanist philosophical tradition since the Enlightenment. This analysis of Transhumanism's arguments and goals reveals a more fundamental influence from the noetic metaphysics of German Idealism and Phenomenology, which reveal themselves as the true grounds for Transhumanism's ontic techno-scientific Materialist claims. These two schools of thought are often understood as philosophical opposites, but in the case of Transhumanism they are synthesized, demonstrating an attempt to overcome this long-standing philosophical dichotomy of the Humanist tradition.

1. The Transhumanist Transition to a Future Posthumanity

Broadly speaking, the Transhumanist movement focuses on achieving, through incremental steps, the transcendence of the problems inherent in human existence, namely disease, aging, death, and so forth. Once these limitations on the quality and length of human life have been overcome, humans will exist as posthumans, beings who have willfully transcended the constraints of their biology through self-directed evolution. While Transhumanists ultimately desire for humans to transition into posthumans in the future, the term 'Posthumanism' is currently in use to refer to a number of concepts related to this Transhumanist goal. Posthumanism imagines and explores self-directed evolution, non-human personhood, artificial intelligence, artificial humans, cyborgs, and other such creations of

science fiction in popular media, cultural studies, philosophy, and cognitive science. In other words, Transhumanism refers to the real or hypothesized small steps forward in changing the conditions of human existence through biotechnology and self-directed evolution, while contemporary Posthumanism both philosophizes about, and depicts in popular fiction, the possible implications of Transhumanism's progress as if it has already been realized.

While it is generally considered nearly impossible by Transhumanists to provide a single definition that applies equally well to all of the movement's subgroups, there are a few essential qualities that link the various strands of Transhumanism together. The leading group of Transhumanism, Humanity+, defines itself as:

> The intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities. (Humanity+ FAQ)

In addition to these points, Transhumanism envisions itself as a movement built out of Enlightenment Humanism with a focus both on the intrinsic value of the individual and the right of that individual to enhance him or herself through science and technology, called morphological freedom (Humanity+ FAQ). Through these enhancements Transhumanists see themselves as forging the path toward the posthuman, which Max More defines as a being "exceeding the limitations that define the less desirable aspects of the 'human condition'" (4).

With the goal of overcoming the biological limitations of human existence including cognitive functioning, aging, and death, the bodily and cognitive enhancements sought by Transhumanists most often center on morphological changes in the form of biohacking, gene therapy, space exploration and colonization, cryonics, artificial general intelligence, and digital transmigration (mind uploading). While biohacking, the practice of do-it-yourself bodily enhancement modifications (e.g., implanting magnets under the skin), space exploration, gene therapy, and cryonics are, with varying degrees of effectiveness and controversy surrounding them, realities of the contemporary world, other technological enhancements to human existence, including artificial general intelligence and digital transmigration, currently remain fixed within the realms of science fiction and philosophy.

While Transhumanism focuses on the slow, evolutionary transition from humanity to a new, less limited version of ourselves, Posthumanism addresses the philosophical and cultural implications of Transhumanism's goal of achieving posthumanity. First used in this way in 1976 by Ihab Hassan, Posthumanism, along with its symbol Prometheus, is meant to mark the transgression of the dichotomous thinking that has characterized Western philosophy since the Enlightenment. In choosing Prometheus as the movement's symbol, Hassan has chosen a figure who is

both the thief of technology and knowledge in the form of fire from the gods and is simultaneously the benefactor of humanity's ability to direct and control itself and its environment. Hassan writes, "His [Prometheus'] mind is where Imagination and Science, Myth and Technology, Language and Number sometimes meet. Or to put it both prophetically and archetypally: Prometheus presages the marriage of Earth and Sky" (835).

Through uniting imagination and science, myth and technology, and even earth and sky, Hassan's description of Posthumanism figure-headed by Prometheus parallels the Transhumanists' focus on exceeding limitations by overcoming the dichotomies that have too often served only to falsely categorize humanity's understandings into opposing pairs. Published twenty years prior to Hassan's essay, Julian Huxley's "Transhumanism" depicts his vision for a better future for all of humanity. While his focus is more on the material aspects of daily life and he does not share Hassan's philosophical and metaphorical bent, Huxley believes that through uniting humanity's vision for a better life with modern technology and scientific progress, humans will achieve their goal and transcend their limitations (cf. Huxley 13-14).

Hassan continues by discussing Da Vinci's Vitruvian Man within the Posthumanist context—once a paradigmatic symbol of the Enlightenment, now re-imagined as a symbol of Posthumanism and, in the context of this analysis, perhaps the best image of the Transhumanist ideology:

> We need first to understand that the human form—including human desire and all its external representations—may be changing radically, and thus must be re-visioned. We need to understand that five hundred years of humanism may be coming to an end, as humanism transforms itself into something that we must helplessly call Posthumanism. The figure of Vitruvian Man, arms and legs defining the measure of things, so marvelously drawn by Leonardo, has broken through its enclosing circle and square, and spread across the cosmos. (843)

While Hassan's picture of the Vitruvian Man breaking free from his geometric containment reinforces the Transhumanists' focus on the Materialist aspects of their self-overcoming, Hassan unites this image immediately with his characterization of space exploration as "this expansion of human consciousness into the cosmos, this implication of mind into farthest matter" (ibid). Following this and previous imagery of uniting opposites, Hassan's conception of Posthumanism seeks to exist without the divide between philosophies focused on Materialist, ontic questions and those championing a more Idealist, noetic model of existence.[2]

It is here in this union of opposites that Transhumanism truly lives up to the "going beyond" that its prefix denotes. Huxley's notion of Transhumanism unites humanity's vision for a better life with science and technological progress, which is then echoed by Hassan in his vision of Prometheus's marriage of imagination and science. The difference between the two lies solely in the difference between Trans- and Posthumanism elaborated earlier: Huxley and Transhumanism focus on the

individual steps of achieving the goals of bettering human existence that have not yet been completed, while Hassan and Posthumanism philosophize about the end result and its implications as if they were already achieved. Further, both movements stress the union of the scientific and the imagined; however, Transhumanism's superficial focus on techno-scientific Materialism belies its actual marriage of Fichtean Idealism and Husserlian Phenomenology with contemporary science and technology. Through Transhumanism's pursuit of its expressed goals of bettering the material conditions of human existence, it achieves the unintended, but perhaps even more significant, result of moving beyond the noetic-ontic discourse of Humanism.

2. The Noetic and the Ontic: A Metaphysical and Materialist Conundrum

While the two sides of this debate stretch as far back as Plato and Aristotle, it is through the post-Kantian philosophical reactions to the Enlightenment that this philosophical dichotomy finds its modern manifestation. I have chosen the terms 'noetic' and 'ontic' to describe two sides of a long-standing discourse that have heretofore not been understood in precisely this way. Consequently, this stretches the definitions of both terms, but also avoids loaded terminology limited to particular philosophers or methods. With the term noetic, I intend to connote an evolution of philosophies concerned with the primarily metaphysical mental activities as the center of human experience. These include elements of epistemology, ontology, and metaphysics from German Idealism, particularly Fichte's *Wissenschaftslehre*, Husserl's Phenomenology, as well as several contemporary theories of Trans- and Posthumanism focusing on the mind as something other than just a functional product of the physical brain structure.

On the ontic side, I include two variations that both reject metaphysical understandings of the mind: contemporary Trans- and Posthumanist thinkers working with various forms of techno-scientific Materialism, who look to ground their ideas in present or future science, and also a line of philosophical influence that rejects a distinction between the mind and the body beginning with Friedrich Hölderlin, progressing through the thought of Martin Heidegger, and reaching into the present-day thought of Katherine Hayles.

In the decades since Hassan's address, his vision of Promethean Posthumanism as unifying the noetic and ontic discourses has yet to be realized. However, this inability to attain the goal of posthumanity supports the arguments made by Transhumanism, which see attaining posthumanity as a far off goal to be worked toward slowly, not as the immediate next step now that "several centuries of humanism may be coming to an end" (843). Through Transhumanist technological integration with human biology since Hassan, the Transhumanist vision of poshumanity has structured itself around the dichotomy typified by Hans Moravec's dream of humans transmigrating into a disembodied immortality within a computer and Katherine Hayles' counter that human existence is fundamentally tied to human bodies, as well as to the physical and material world that supports it.

The Noetic Exploration of Substrate Independent Minds

The digital transmigration that is Moravec's vision of replacing the biological human body with a computer hard drive or physical robotic bodies as more stable and durable vessels for human existence offers what Max More sees as the goals of becoming posthuman:

> Becoming posthuman means exceeding the limitations that define the less desirable aspects of the 'human condition'. Posthuman beings would no longer suffer from disease, aging, and inevitable death [...]. They would have vastly greater physical capability and freedom of form – often referred to as 'morphological freedom'. (More 4)

In its most general sense, morphological freedom refers to a much broader spectrum than just the possibility, or right according to Anders Sandberg and others, to upload one's mind into a computer. Basing itself in a general right to freedom and right to one's own body, morphological freedom is the right to modify oneself according to one's own wishes (Sandberg 57). Aligning this with the Transhumanist goals of overcoming aging and death, as well as enhancing cognitive and physical abilities, brings into focus Moravec's vision of morphological freedom through digital transmigration. He describes two possibilities for this: First, a robotic surgeon would scan an individual's brain at the neuronal level recording the placement of, and connections between, all of the individual neurons. This scan would destroy the biological brain, but the patient's consciousness would be immediately reproduced within the computer where all of this information is stored. According to Moravec, the patient would experience neither pain nor discomfort during this digital transmigration. The second option is for the patient to connect his or her brain to a wearable computer that would record the patient's daily perceptions, thoughts, analysis, and memories. The record that this creates would eventually become like a mental clone and would exist immortally in the digital realm long after the patient's biological death (Moravec 110).

While Moravec was not the first to suggest the idea of uploading a mind into a computer, his work offers a scientific exploration—albeit written for a popular audience—of topics that had already been introduced to culture in works such as *TRON* (1982) and *Neuromancer* (1984). In the years since Moravec's *Mind Children* (1988), the topic has received much further attention in media, as well as by philosophers, neuroscientists, and cultural theorists. In his pursuit of substrate-independent minds, Randal A. Koene offers the conception of whole brain emulation, which explores an idea similar to Moravec's second hypothesis of creating a computer backup of one's mind that can continue existing after biological death. His terminology of whole brain emulation accepts the Functionalist position that sees the brain as a computer and 'mind' as analogous to the software that runs on the brain's "wetware" (Koene 147). Ralph C. Merkle takes up Moravec's first possibility of digital transmigration and imagines scanning and recording the

placement of every single atom of a brain, including how each atom formed molecules with other atoms, theorizing that it would then be possible to calculate how much storage space (in bits) it would require to replicate a brain. From the topic of information storage, he goes on to examine information processing power and concludes "roughly, uploading will need a computer with a memory of about 10^{18} bits [125 million gigabytes, or roughly 119 petabytes], able to do around 10^{16} [ten quadrillion] 'operations' a second. A computer of this capacity should fit comfortably into a cubic centimeter in the early twenty-first century" (Merkle 163).[3]

The claims made by Moravec, Koene, and Merkle appear at first to negate the idea that consciousness is anything other than a phenomenon produced by the physical, structural, and relational arrangement of the physical brain.[4] In basing their arguments on the idea that the structural makeup of the brain supervenes on the ability to experience qualia, the claims made by Moravec, Koene, and Merkle are met with the strong and well-known resistance of Carl Hempel, John Searle, and David Chalmers. Highlighting one main problem with Physicalism generally, and applicable to the arguments of Moravec, Koene, and Merkle, is Hempel's dilemma concerning the line between physics, understood here as science broadly, and metaphysics. First, Hempel's dilemma states that metaphysics is either what current physics cannot explain or what future physics cannot explain (Hempel 195). Claiming the latter is not defensible because any predictions of future science are always mere speculation and claiming the former places consciousness firmly in the realm of metaphysics, as science has yet to produce a comprehensive description of its emergence, existence, or cessation.

Second, John Searle's Chinese room thought experiment demonstrates the difficulty in ascribing larger meanings to Behaviorist cause-effect relationships (Searle 417-18). Searle's experiment imagines a man learning to provide the correct Chinese characters in response to given characters with no knowledge of the language, but a book that shows the correct output next to a given input. From the outside, it may appear as though the man has learned Chinese, but the reality is that he is simply providing responses on the syntactic level with absolutely no understanding of the semantic meaning. Through this differentiation between levels of complexity within systems (here, the syntactic and the semantic), Searle ultimately demonstrates that it is not logically possible to claim that consciousness is rooted in the arrangement of a structure to elicit the correct output from a given input. That is to say that reproducing a brain within a computer does not simultaneously guarantee that the mind will also be reproduced.

Third, David Chalmers' conception of philosophical zombies, which are exact replicas of people but without consciousness, addresses a similar issue to the experiment by John Searle of ascribing consciousness to a being from a behaviorist position, and casts further doubt upon physicalist claims from a slightly different angle. Philosophical zombies are physically and functionally human, they exist as humans on the syntactic level, but are not conscious, i.e. they do not exist on the

semantic level. Chalmers is saying that a being may behave like a human, but that does not guarantee that it is conscious (Chalmers 94).[5]

While the refutations offered by Chalmers, Searle, and Hempel have worked to undermine the claims of the Transhumanists' techno-scientific Materialism, the common ground among all of these theorists is the acceptance of subjective conscious experience as the fundamental phenomenon they seek to understand. Even if one does not fully accept the refutations of techno-scientific Materialism, they still serve to return the discussion of mind to one of subjective conscious experience—something that Transhumanists presuppose anyway—which bases itself in the Phenomenology of Edmund Husserl.[6]

Husserl's Phenomenology focuses on the lived, directed experience of the conscious subject in the apprehension of physical and mental phenomena. Phenomenological existence occurs within the *Leib*, which refers to the conscious mind united with the physical body in perceiving phenomena through its perceptual organs. Husserl distinguishes the *Leib* from the *Körper*, the latter of which he sees as simply the material physical body, in his claim "*so sind rein wahrnehmungsmäßig Körper und Leib unterschieden; Leib, nämlich als der einzig wirklich wahrnehmungsmäßige Leib, mein Leib*" (Krisis 109). Husserl's focus regarding the *Leib* differs drastically from Heidegger's later conception of *Dasein*—an entity whose Being is fundamentally tied to the physical body and world in which it lives—in that consciousness' particular way of perceiving the *Lebenswelt*, the totality of possible perceivable phenomena, is defined by, rather than limited to, the perceptual organs of the *Leib* that consciousness has access to (*Krisis* 108). Because Husserl's Phenomenology conceives of consciousness as a performed action, rather than a product specific to (human) biology, his Phenomenology reveals itself as a forebear of multiple realizability for consciousness that Moravec describes in *Mind Children*, Koene conceives of in whole brain emulation, and Merkle hopes to achieve by mapping the brain's structure.

Not only does Husserlian Phenomenology describe the underlying ideas regarding consciousness held by these three Transhumanists, it also describes the methods they employ in making their techno-scientific Materialist claims. The Phenomenological method is one of describing as accurately as possible the perception of phenomena, which requires at its most basic level, the epoché, or bracketing of existing knowledge or assumptions, thereby allowing the individual to perceive the phenomena without interference (*Ideen I* sec. 32). The Phenomenological method proceeds with the detailed perception of phenomena, including those elements not immediately given—that is to say those which lie beyond horizons, Husserl's term for the hidden sides of physical phenomena inherent in perception from any one perspective.

Husserl's Phenomenology provides a much more accurate description of the possible processes for digital transmigration that Moravec, Koene, and Merkle imagined. The act of scanning the brain's structure at the atomic level, mapping

the location of identity of each atom and each atomic bond with the ultimate goal of recreating consciousness within a computer demonstrates first that the Transhumanists are employing the epoché by bracketing off the existing limitations of today's scientific equipment and its ability to map such a complex organ as the brain at the necessary level of detail. Second, the process of analyzing the structural placement and identity of each of the brain's atoms is itself a futuristic and very detailed Phenomenological perception as performed by a scientist through the enhanced perceptual ability offered by the scanning equipment. The brain is experienced at its most basic and detailed level by the scanner's operator through the perceptual prosthesis of the scanning equipment, and through this Phenomenological perception and ultimate replication, argue the Transhumanists, consciousness will not only be fully understood, but will be freed from its biological substrate and able to exist immortally within a computer.

Moravec's second and less drastic option for uploading one's mind involves the individual wearing a kind of portable computer that

> [...] is programmed with the universals of human mentality, your genetic makeup, and whatever details of your life are conveniently available. It carries a program that makes it an excellent mimic. You carry this computer with you through the prime of your life; it diligently listens and watches; perhaps it monitors your brain and learns to anticipate your every move and response. (Moravec 110)

This wearable computer does not require an independent epoché as it is envisioned to function in tandem with one's perceptual faculties and being interfaced with the brain would provide it with the epochetic information it would need. This option is perhaps the most faithful to Husserl's Phenomenology as it seeks to replicate the individual's consciousness by Phenomenologically studying and recording the subject's own Phenomenological journey through life.

Moravec's wearable computer[7] reinforces the idea that consciousness is fundamentally an action and builds upon this understanding to conceive of a mechanically reproduced version of this action that will eventually be indistinguishable from, and ultimately a new substrate for, the original. This Functionalist take on consciousness—defining consciousness and mental states by what they do rather than through arguments of identity or behaviorism—serves as one of the defining philosophical positions for many Transhumanists, especially those interested in substrate independent minds and multiple realizability (More 7). Despite the contemporary popularity of the movement, Functionalism is not an understanding of the mind that is limited to the twentieth and twenty-first centuries; as Ralf Meerbote and others have pointed out, Immanuel Kant held a Functionalist conception of the mind in the late 1700s. While this association of Kant's view of the mind with present-day Functionalism supports Bostrom's understanding of Transhumanism as a movement heavily rooted in Enlightenment thinking, the

consideration of additional elements of Kant's philosophy in conjunction with his Functionalism will further strengthen the connections between Transhumanism and the post-Kantian reactions in the wake of the Enlightenment.

While the structure of Kant's philosophy of mind is appealing to Transhumanists, the element of the *Ding an sich*, or noumenon, is at once crucial to Kant's Transcendental Idealism and also rejected outright in Transhumanism. Kant theorized that *phenomena*, which are how things are perceived by the senses, and *noumena*, which are how things truly exist and are not perceivable by the senses, exist simultaneously (Kant 310). The core belief supporting the Transhumanist goals of mind uploading and cryonics is the notion that everything, in this case everything about the existence and action of consciousness, can be known and understood, regardless of whether that knowledge comes through Physicalist representations of the mind or by some other means. Kant's conception of a fundamentally unknowable structure of reality stands counter to the Transhumanist position, since a noumenal element of existence to the mind would negate its ability to be completely known and ultimately replicated independent of a biological substrate. Any attempt at replicating the phenomenal mind, therefore, would miss the crucial noumenal existence of this mind and in doing so, not ever be a true and complete replica.

Kant's successor in Transcendental Idealism is J.G. Fichte, who, in the attempt to ground the possibility for all experience and knowledge within the self-posited conscious mind of the subject, abandons the dualistic conception of reality that Kant had proposed. Fichte's self-conscious subject, the *Ich*, serves as the basis for existence by means of three principles. First, the logical law of identity (*ich bin ich,* or A=A as it is most often rendered in English) grounds the subject's consciousness through its own self-reflective, self-positing existence. The second principle establishes the existence of the phenomenal world through that which is not the self-positing subject (*ich bin nicht das Nicht-Ich*, A≠not-A), and the third principle reconciles the existence of the two through mutual striving and limiting against one another (Fichte 6-26). By structuring the nature of reality thus—grounding the possibility for all knowledge and science, not to mention the existence of the external world itself, within the subject's own active, self-positing mind—Fichte removes the noumenon from transcendental Idealism and thereby lays the groundwork for Husserl's Phenomenological version of this tradition by granting validity to subjective perception as being able to encompass the totality of any phenomenon at hand, including the mind itself. Moreover, as the self-positing consciousness of the *Ich* is fundamentally an activity—its continual consciousness of itself and the phenomenal world, along with their mutual striving and limiting, as outlined in the third principle—it can be seen as both an heir to what Meerbrote calls the "goal-directed cognitive psychology" (161) of Kant's Functionalism and the forebear of the analogy of the mind as a running computer program that Koene and others have put forward.

The Transhumanist goal of morphological freedom, of which digital transmigration stands as a hugely popular and hotly debated topic within Transhumanist and Posthumanist circles, is often explored by neuroscientists and philosophers from various standpoints within techno-scientific Materialism. This positioning lines up with the expressed claims of Transhumanism's philosophy by Max More, as well as with the history of Transhumanist philosophy that Nick Bostrom outlined. However, when examined more closely, digital transmigration and the physicalist arguments made in support of it, reveal themselves indeed as the product, in part, of the empirical science of the Enlightenment as Bostrom and More argue, but also crucially, as the evolutionary successor to the post-Enlightenment noetic metaphysics of J.G. Fichte and Edmund Husserl.

As a synthesis of both Enlightenment science and the noetic philosophies that succeeded it, the Transhumanist conception of digital transmigration seeks to overcome the divide between the Materialist and Idealist philosophies that have existed before and since Hassan's attempt to unite them in his conception of Posthumanism. Hassan's Prometheus, however, is envisioned as an equitable union of opposing views. After the objections made by Hempel and others undermine the Physicalist positioning of the Transhumanists, the arguments in favor of mind uploading rest on assumed positions inherited from Phenomenology and German Idealism, and even make use of Phenomenological methodology in the creation of their arguments. Thus, the Transhumanist conception of digital transmigration represents an effort to unite the noetic and ontic philosophies that have competed for dominance since the Enlightenment. Recalling the unification between the imagination and science by both Huxley and Hassan, the Transhumanist conception of digital transmigration is, at its most basic level, the noetic and metaphysical imagining of future scientific possibilities to achieve equally imagined goals.

The Ontic Arguments around Cryonics

The second major technological possibility for extending human life explored by Transhumanism is cryonics. By preserving patients' bodies in liquid nitrogen, a process called vitrification, cryonicists hope to reanimate these individuals once medicine is able to reverse the causes of their deaths, ultimately allowing them to continue their lives at a later time (Cryonics Institute About). Belief that cryonics can succeed in extending human life is based on two basic premises:[8] First, cryonics appears to assume either that the mind is not separable from the body, which focuses on ontic arguments of the biological mind-body union and thereby rejects the noetic model that digital transmigration bases itself on, or that the mind is produced by the physical components of the brain, similar to the Functionalist analogy of the brain and mind as computer and software, which recalls the arguments of Koene and others. However, as I have already shown how the latter supposition quickly falls into noetic metaphysics, I will focus on the former as a primary premise for cryonics. Second, cryonicists reject the idea that clinical or

legal death constitutes the ultimate finitude of life, referring to these cases instead as 'deanimation'. Through the examples of patients resuscitated through CPR, or through the use of surgical suspended animation by physicians to induce a controlled hypothermia in trauma patients and thereby gain significant extra time to heal them, cryonics builds upon these instances to conceive of the possibility that humans could be vitrified and later resuscitated and healed of their maladies with no ill effects.

As a method of enhancing and extending human life, cryonics appears on the surface to be an idea faithful to the thought of Katherine Hayles, Martin Heidegger, and Friedrich Hölderlin in that it seeks to keep the mind and body unified. Hölderlin, Heidegger, and Hayles serve as the ontic philosophical responses to Fichte, Husserl and Moravec respectively.[9] Hölderlin published a short, but impassioned, reaction to Fichte's *Wissenschaftslehre* entitled "Über *Urtheil und Seyn*" (1795) in which he cites Being, and not the thinking subject's mind, as the grounds of existence. At this more fundamental level, claims Hölderlin, subject and object are unified and it is only through the *Ur-theilung*[10] that the difference between them is born (226-227). Heidegger draws heavily upon the works of Friedrich Hölderlin and his notions of Being and the unified subject-object relationship to formulate his concepts of Dasein and Being-in-the-world, which are explained in *Sein und Zeit,* dedicated to his former professor, Edmund Husserl. Hayles picks up and furthers Heidegger's line of reasoning in discussing Moravec's mind uploading as "her nightmare" (5).

While the noetic thought of Fichte, Husserl and Moravec forms the groundwork for substrate independent minds, Hölderlin, Heidegger and Hayles insist that the body is not a prosthesis for the mind, rather the two constitute equally important and mutually dependent sides of human existence (Hayles 3). In the thinking of cryonicists, by preserving the physical body, one may also preserve the ability of the brain to produce the mind, thereby extending human existence *as biological humans* and at the same time remaining faithful to the Transhumanist goal of overcoming humanity's biological limitations and the Functionalist philosophy claimed by many Transhumanists. However, despite the surface level overlap with Hölderlin's work, Heidegger's fundamental ontology,[11] and Hayles' application of it to Posthumanism, the seemingly ontic thinking of cryonics ultimately follows the path already laid out by digital transmigration and thereby reduces into noetic arguments.

The ontic link to cryonics begins to break down with the inclusion of neuropreservation, the practice of vitrifying only the individual's head or brain rather than the whole body. After reanimation, the patient's body may be replaced with a robotic one, regenerated, or cloned (Alcor Neuropreservation FAQ). While this possibility maintains that the mind is the product of the physical, biological brain, removing the rest of the body commits Hölderlin's *Ur-theilung* against the unified conception of Being (226-227)*,* destroys Heidegger's Dasein and

Being-in-the-world (Heidegger 27), and additionally views the body as a prosthesis that can be replaced, which directly counters Hayles' view (Hayles 5).

While neuropreservation marks a step away from Heidegger and Hayles' thinking, the link between Hölderlin, Heidegger, and Hayles and cryonic preservation is fully severed by considering Heidegger's notion of death. For Heidegger, true authentic Being for Dasein exists in the anxiety produced in considering and accepting one's own death (294). Similarly, Katherine Hayles contrasts her dream for the posthuman with the 'nightmare' of mind uploading as envisioned by Hans Moravec:

> If my nightmare is a culture inhabited by posthumans who regard their bodies as fashion accessories rather than the ground of being, my dream is a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival. (5)

Thus cryonic preservation, as a primarily Transhumanist goal, distances itself from the ontic, Materialist side of Posthumanism. As such, the Posthumanism Hayles is advocating represents only one half of the perpetually dichotomous discourse that has erupted again since Hassan's essay and existed previously between Fichte and Hölderlin, as well as between Husserl and Heidegger.

The goal of cryonics, to preserve and reanimate brains or whole bodies immediately after death, or prior to death as Zoltan Istvan desires (Istvan Cryothenasia), can be viewed as offering a different kind of take on substrate independent minds, in the broadest possible understanding of the concept. Because consciousness has only been experienced in living minds, to redefine death as a pause in conscious existence rather than its finitude, presents the possibility that consciousness could exist within formerly 'dead,' or deanimated, brains. While this raises numerous questions about the definitions and beginnings of both death and life, the hypothesis is built on the foundational idea that there is something fundamental about the mind that is not a direct and sole product of the atomic and relational structure of the brain's physiology. Cryonics, then, falls victim to the same objections by Hempel, Searle, and Chalmers that digital transmigration did. Indeed, in discussing the possibilities of cryonic preservation and reanimation Ray Kurzweil and Eric Drexler, both champions of the cryonics cause, find themselves struggling to escape a version of Chalmers' philosophical zombies argument as they discuss the prospects of preserving long term memory in cryonics patients (208-209).

While the physical brain matter may be preserved through cryonics, that is not the point of their attempt; rather, cryonicists are attempting to coax the phenomenal cognitive experience described by Husserl once more out of previously dead tissue.[12] Due to the two sides of Hempel's dilemma to which the

techno-scientific Materialist arguments in favor of cryonics are also subject, arguments about preserving the body and thereby also consciousness either try to incorporate future scientific explanations, which cause their scientific arguments to dissolve into noetic, metaphysical philosophies on the model of mind uploading, or they acknowledge as metaphysics what science cannot yet explain and find themselves using ontic methodologies to argue for what ultimately becomes a metaphysical and noetic view of consciousness, and thus pursue what is in the end a noetic goal.

3. Conclusion

The Transhumanist mission of achieving posthumanity most often centers exclusively on physical and cognitive enhancements to the human experience; however, to view Transhumanism thus is to exclude the historical and philosophical traditions that led up to them, which together play a vital role in the formation of Transhumanism's true philosophical arguments and goals. By understanding Trans- and Posthumanism as conceptualized by Julian Huxley and Ihab Hassan, as unifications of imagination and science, Transhumanism's most important transgression of boundaries comes into focus: the synthesis of the primary opposing philosophical traditions within the contemporary Trans- and Posthumanist movements, and indeed within the legacy of Enlightenment Humanism.

While Hassan's Posthumanism looks to the figure of Prometheus as a symbol of the two sides finally united in equilibrium, the philosophical inquiries made by Transhumanists demonstrate a strong, but as of yet unacknowledged, foundation in the post-Kantian noetic philosophies of German Idealism and Phenomenology. Despite the ontic façade of the Transhumanist inquiries, these noetic metaphysical foundations demonstrate that the noetic has incorporated the ontic into itself within Transhumanism. Although the goal of an equal unification of the two sides in Posthumanism is still out of reach, Transhumanism demonstrates an attempt to overcome humanity's material biological limitations as much as it is implicitly attempting to overcome the limitations imposed by the post-Enlightenment philosophical tradition that helped to produce Transhumanism itself.

Notes

[1] By techno-scientific Materialism, I intend to describe arguments within Materialism, Functionalism, and Physicalism under one larger umbrella term. While the three philosophies have distinct beliefs, they are used by Transhumanists in similar ways and for the purposes of this work, they each appear as compositional elements of a larger techno-scientific Materialist trend.
[2] A more detailed exploration of this interpretation of Hassan, and Posthumanism generally, will be published in my forthcoming dissertation.
[3] Merkle's estimations have proven somewhat optimistic.

4 Although they do not explicitly say so, I am granting Moravec, Koene, and Merkle that, when they refer to the physical structure of the brain, their intention is to include any necessary electro-chemical elements produced elsewhere in the body that have an effect on the brain.

5 The strongest argument against Physicalist claims is Hempel's because it uses Physicalism's own definitions against it. Chalmers' philosophical zombies, while an interesting thought experiment, is the weakest of the three objections here, but was included due to its prominence in the philosophy of mind.

6 The Phenomenology of embodiment is often ascribed to Maurice Merleau-Ponty as Husserl's contributions to the subject were published posthumously and after the publication of Merleau-Ponty's works.

7 A step in the direction of Moravec's conceived wearable computer is the narrative camera, a small clip-on camera that takes pictures automatically at thirty second intervals and uploads the photos to a cloud server. This also brings to mind further wearable technology such as the augmented reality glasses by Google, Sony, and others, as well as smartwatches.

8 Naturally, cryonics also bases itself on Moore's Law, but this is true generally of Transhumanism and does not say anything distinctive about cryonics.

9 Heidegger draws heavily upon the works of Friedrich Hölderlin, who originally served as the ontic reaction against the noetic arguments made by J.G. Fichte in his *Wissenschaftslehre*.

10 Hölderlin's clever turn of phrase plays on the German "*Urteilung*" 'judgment', and "*Ur-teilung*" 'original separation'.

11 An excellent reading of Transhumanist themes through Heidegger's thinking is "Enframing the Flesh: Heidegger, Transhumanism, and the Body as 'Standing Reserve'" by Jesse I. Bailey available here: http://jetpress.org/v24/bailey.htm.

12 The *Frankenstein* parallels with cryonics are so prevalent that Brian Wowk wrote a paper hoping to clear up any misunderstandings about cryonics' purpose in 1988. It is currently available on the website of Max More's cryonics company, Alcor Life Extension Foundation: http://www.alcor.org/Library/html/deathofdeath.html.

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