

The Science of Becoming Omniphysical

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Replicate Longings

As replicates, we view survival in terms of our one and only body. The idea of mind moving from body to body to sustain our existence is new and unexpected, jolting our replicate perspectives. Perhaps the transition to omniphysical life would be less dislocating if the continuity of our body could somehow be maintained – if we could seamlessly become omniphysical with a body whose form and functions were indistinguishable from our current ones. In fact, this accomplishment will one day be possible; individuals will be able to move to a new body perceived as identical to their existing one. To be sure, this accomplishment will draw on materials and methods that differ from our current ones. And, of course, the mind of the individual will understand the whole process, fully aware that the perception of continuity is just that, one in which the actual physical changes that must occur are masked from sensory perception.

While such a transition might soothe our replicate sensibilities, it does nothing to change the information facts. For omniphysical individuals, the seat of identity, persistence, and command is omniphysical mind and not particular embodiments, however created and perceived. And, of course, the transition to omniphysicality will not be restricted to the person's current form; individuals will be able to move to different bodies with desired capabilities. Over time and as the kinds and powers of bodies are enhanced, the desire for the continuity of a replicate-like

body will be seen both as existentially strange and unproductive. The limitations of the human form and function will lead to the creation of alternative bodies able to access opportunities in this and other environments with appropriate capability, reach, and experiential possibility.

The Limitations of a Life Sciences Transition to Omniphysical Life

Like all living beings, we are physical entities able to process energy and materials to support our living island of autonomy. Existing in an energetic reality, our bodies are constantly acting and reacting to maintain the dynamic stability that sustains us. As intuited by scientist-philosophers millennia ago, the perception of constancy is a represented one in the information terms of our sensory capabilities. As we now fully appreciate, the energetic basis of life compels change; each of us is form and function under dynamic construction and destruction.

A life sciences-led transition to omniphysicality would apply our best science and engineering to renew, regenerate, and replace the embodiments that allow us to function as a living being. As part of this, the way would be open for upgrades, enhancing the types and manners of our performances. We would try to adjust and redo what nature has done with the goal of shielding the individual from bodily deterioration and death. We can partially foresee the kinds of innovations that might help sustain us in the face of material dissipation. We see advances in stem cell and related technologies, in artifacts supporting life functions, and in the use of genetic information stores to alter, regenerate, and produce new embodiments. We are clearly at the dawn of a life sciences revolution aimed at unraveling and manipulating the physical correlates of our living capabilities.

This approach has a lot of intuitive and emotive appeal. It seems to assure a kind of continuity of self that is anchored in an emerging omniphysical form capable of sustaining us. This even appears to be a holistic solution, providing a degree of continuity that doesn't seem to disrupt the key markers of our individuality – our ongoing physicality, our life capacities, and the ability to validate that selfhood through numerous means, including the descriptive ones of mind.

But there are fundamental problems with a life sciences transformation to omniphysicality. Consider that in the face of material dissipation, far-reaching and ultimately comprehensive bodily changes would have to be engineered and executed to effectively sustain existence. Throughout all these difficult alterations, how would the person maintain awareness of herself as the enduring person she is? There is only one way and that is through the persistence of mind. As we have seen, it is mind and mind alone that supports our awareness of ourselves as the person we are; it is mind that allows us to self-identify as the one having our experiences. The arduous life sciences path would, if successful, have to replace the brain and allied physical supports in a

way that sustains mind, allowing the individual to be aware that she continues to exist as the person she is.

To appreciate what this would entail, let's dig deeper into the life sciences approach. Body and brain came first, and then mind. The adaptations supporting mind's emergence took place on a hominid processor in development over vast stretches of time. The historically-constrained and marginal nature of evolutionary change assured that the physical means supporting human mind would be convoluted, complex, and often opaque. We remain basically clueless as to the specific mechanisms through which our brain-supported mind is enabled. This is true of the physical processor, the underlying descriptive infrastructures, and the interfaces among these. And while recent progress has been made in understanding the descriptive structures underlying our natural language, we cannot specify the sublanguages, including 'machine' level interfaces between symbol tokens and the biological processor. As for a grounded understanding of brain as a physical symbol processor supporting mind, we are largely in the dark. In theory, we might one day get to the bottom of all of this. But even if we did, we would face daunting scientific, engineering, and execution challenges in the move to omniphysicality.

A life sciences approach that sought to use the human brain as the basis for omniphysical mind would have to accomplish two main things. It would have to sustain the descriptive infrastructures and content of mind: the symbol-based structures, processing protocols, and meanings constituting mind. In addition, it would have to provide the ongoing brain-based means of physically representing, conserving, and processing all this descriptive information. I emphasize the need to do both since mind's descriptive infrastructures and their physical supports reside in two entirely different information fields.

To illustrate, consider that the day will come when a person's body and brain are failing and mind must be supported by some other physical means. To attempt this transition using the particular embodiments of brain as the method of mind's conservation is not only technically over the top but loses sight of the fact that descriptive information is independent of the information of its physical supports. Given that mind can be physically supported by any number of appropriate universal computing devices, why would we choose to use the most complicated, convoluted, jerry-rigged, and opaque computational device to enable mind? Of course, we won't.

Rather than focus on sustaining a particular processor, we will enable mind to move to a new one – a task that is tractable by the nature of mind as a descriptive entity able to be physically supported by universal computational devices. Specifically, and as we are about to see, we will report and convey mind's content to platforms of omniphysical mind. Those platforms are descriptive information infrastructures of mind's capabilities on which the individual's unique semantics of self are made operational as her omniphysical mind, all physically supportable by universal computing devices. These infrastructures supporting mind's capabilities and content

will not mimic the results of evolutionary search. We will opt for transparent and well-defined descriptive structures and protocols that enable the person's omniphysical mind in the natural language in which mind's awareness and self-awareness exist. The life sciences approach which is intractable in the extreme goes down the wrong path, focusing on sustaining the embodiments supporting mind rather than the descriptive entity of mind itself.

Despite the precedence of a mind-led transition to omniphysical life, the life sciences have important roles to play. Not only will these efforts extend and improve our current lives but results in this area may support the bodily devices of omniphysical individuals. There is no doubt that the road to omniphysical life will be greatly aided by taking maximum advantage of life's massive accumulation of semantics in both fields – as long as we understand that the transition to omniphysical life must be a mind-led one.

Moving From Body to Body as Omniphysical

In the future and for fully-enabled omniphysical individuals, the movement of mind from one body to another will occur instantaneously and seamlessly. But we are not there yet; the path to omniphysicality must start from where we find ourselves. The challenge is to create our mind supportable omniphysically even as much about our current mind's content and capability, as well as the means of its physical support, are not transparent to us, the unavoidable result of our evolutionary emergence.

A good way to begin to appreciate the challenges to becoming omniphysical is to think ahead to an individual who is already omniphysical and to understand what's involved in her mind moving from body to body. This will help introduce the key requirements to be met and the obstacles to be overcome.

From the viewpoint of the individual, she will have picked her new body based on the models available, as well as her selection of particular forms and functions, taking account of the environments and uses to which she expects to put the body. Once she and the new body are ready for the move, that body will be designated as the target destination, and she will activate the 'transfer' function with her existing body. In a flash, her mind will be up and running in her new body, able to direct its performances.

What's going on 'under the hood?' Her descriptive system of mind with its integrated content and capabilities will have been conveyed to, physically supported by, and made operational in her chosen body. Her conserved physical field semantics, along with their corresponding descriptions, will also have been transferred in full fidelity, now available to be experienced by the new body's sensory capabilities and omniphysical mind's descriptive ones. Her mind will

have the ability to retain all of its contents and capabilities, including her awareness and self-awareness which will allow her to know that it is her mind in her new body. Already being an omniphysical individual, her information stores will be fully transparent to her. She will be able to validate her continuing seldom through internal routines, confirming interactions between mind and body, and by comparing her information stores to copies.

In this example, our assumption is that she elected to take all of her conserved information with her to the new body. But having full transparency into and control of her information stores, she could have chosen to not bring forward particular content, perhaps because it was no longer useful in her new body and environment. If desired, the information not taken forward into the new body can be stored in multiple forms, and available for subsequent use. Similarly, her information stores would likely have been updated with additional information useful in her new circumstances. Of course, these omissions or updates would have been elected and expected, and fully transparent to her.

Despite the formal flexibility in determining what information to take from body to body, certain of mind's content is essential to convey to and make operational in her new body. Most important is the information through which she sustains her descriptive selfdom as the unique autonomous persisting individual that she is with her history, experiences, aspirations, expectations, priorities, likes and dislikes, and on and on. As part of this, she will carry forward her values and principles that motivate and constrain her thoughts and actions, the ones she applies within the civilization that supports her. As we are coming to, the facts about what is and is not essential to sustain an individual's living persistence and command, as well as the ability to be successful as omniphysical, are decisively significant for our own move to omniphysical.

Her new body's sensory devices will provide the physical field representations to which body responds. As well, those will be translatable and accurately mapped into her mind's descriptive terms. Her mind will be physically supported so that her descriptive determinations can instruct her body.¹ The linkages between mind and body will allow her to extract information from the environment in both fields. As her mind thinks and her body acts going forward, her information stores will be updated and augmented as she continues to live and learn. When she decides to move to another body, her mind and other omniphysically-conserved content will be able to go with her.

The keys to her successful move were several. Her mind is per se descriptive, and her mind's entire integrated system of descriptive content and capabilities can be moved to another body. Her mind is fully self-aware; she is not only aware of herself as having her experiences, but all of

¹ Like our replicate bodies, many of omniphysical body's actions will not be mediated and instructed by mind such as internal actions as well as responses to certain stimuli. But mind will be able to intervene and instruct proper action when called for.

her information stores are transparent and conservable. Thus, she is not only able to self-identify but she has access to all of the information underwriting her two-field existence. As part of this, she can determine what content and capabilities to take with her as she moves from body to body.

Becoming Omniphysical – Introductory Overview

This section provides an overview of the major elements involved in becoming omniphysical. Subsequent sections expand upon and delve deeper into these issues.

As is the case for a fully-enabled omniphysical individual moving from body to body, the key to a human's successful transition to omniphysical is to conserve and make operational in a new body the essential content of mind that enables her persistence as the unique, autonomous individual that she is. And like our omniphysical individual, she will need to incorporate information related to her new body, environments, and the civilization that supports her success as omniphysical.

More specifically, the individual must report and conserve her essential content of mind which is then loaded onto a platform of mind's capabilities to be made operational as her mind supportable omniphysically in her newly-built body. In addition to providing the sensory, motor, and other capabilities allowing her physical autonomy, her body will provide the physical supports for the descriptive operations of mind, as well as her mind's ability to direct the performances of her body.²

In enabling a person's mind to be supported omniphysically, we are not trying to mimic the specific descriptive and physical infrastructures nature deployed in creating our brain-supported mind. This is not simply a matter of the lack of transparency; it is that we can ultimately do better.³ Mind can be physically supported by any number of appropriate universal computing devices whose performance potentials are greater than those of biological brain. In concert, we can improve upon the descriptive capabilities and infrastructures of brain-supported mind.

² Having been built from the ground up, the methods and materials used in these bodies will be transparent and will therefore be capable of duplication and modification. Of course, initial omniphysical bodies will not be as capable as our human bodies but that will change over time.

³ Unlike the minds of individuals who are already omniphysical, our biologically supported mind is not fully transparent. We are largely in the dark concerning the descriptive structures and capabilities underlying our mind's thinking. And while a large amount of the content of our mind can be surfaced and reported, much of its contents, particularly specific information relevant to its own and body's moment-to-moment operations are opaque to us. As for the interfaces and tokens of mind's brain-based physical supports, our understanding is limited.

Part of the transition strategy is to take advantage of the distinction between mind's contents and capabilities. Those differences allow us to bifurcate two crucial tasks: conserving the content of mind on the one hand and developing platforms of omniphysical mind's capabilities on the other – even as we recognize that content and capability must ultimately be fully integrated for mind to function successfully. Not only does this approach help make the transition to omniphysicality tractable, but there is a compelling reason for separating the two efforts in the initial stages. That's because it is possible to become omniphysical despite bodily death if adequate conservations are made while alive. Just as particular embodiments are not critical to omniphysical individuals, neither is the temporal continuity of the individual. While the human body must be continually metabolically active, the same is not true for omniphysical individuals or mind supportable omniphysically. Omniphysical mind is self-constituting in its semantics and need not be continually energetically supported. But once physically enabled, it comes alive as person's mind able to command the body in which it is housed. Thus, rather than waiting for the development of bodies and platforms of mind's capabilities on which conserved content is made operational, individuals can conserve now the content to be made operational when capable platforms are developed. Thus prepared, the person can secure their existential stake as omniphysical even if overtaken by bodily death before a full transition to omniphysical is possible.

Turning to the conservation of the content of mind, several facts are important. The first is that our natural language provides the representational terms in which we are aware and self-aware and in which we think descriptively. It is our natural language that each of us uses to describe the person we are, think descriptively, and communicate with ourselves and others. More generally, we know ourselves and our reality through the descriptions of which we are aware; our descriptive reality is a self-described one. Our natural language is the appropriate vehicle for our conservations.

Next, and crucially, we recognize that the content of mind is a semantic web. That starts with the fact that meanings arise within a linked system of definitions. But the richness of mind's content arises from the associations and relations among those meanings, reflecting the complexity of our thoughts and experiences. The importance of conserving mind's semantic web of content cannot be overstated. Not only is this the information by which the individual self-identifies with her unique mind, thoughts, life, environment, experiences, history and on and on, but it is this database that mind draws on in the exercise of its capabilities, whether to categorize and understand information, weigh alternatives and make decisions, communicate and instruct action, etc. Mind's linked system of meanings of which the person is aware is the foundation for the individual's selfhood as a persisting, autonomous, acting, living individual.

Now consider the kinds of mind's content that we want to conserve for a successful move to omniphysical. The first thing to realize is that for us humans, and unlike omniphysical

individuals, there are descriptions of which we are not, and cannot, be aware. Among those are the specific descriptions and subroutines deployed by mind in assisting and instructing moment-to-moment bodily actions. Take the example of fixing a cup of tea: filling the kettle, turning on the stove, reaching for and grasping a cup, placing a chosen tea bag in the cup, pouring boiled water from the kettle, adding sugar and cream. While many of body's performances are rote and the role of mind is reduced, for many activities mind is important in informing choices, avoiding errors, and correcting missteps. These descriptive routines are delimited in scope, deploy a small number of linked meanings, and are automatically or quickly executable. These descriptions are not generally available to our awareness, although mind can quickly marshal higher-level descriptions to instruct action as needed. Selection found performance was improved using descriptive modules rather than involving the potentially unlimited sets of meanings of our natural language. Just as nature found that survival is enhanced by making some purely physical activities inaccessible to our sensory capabilities, it found the same for mind, deploying descriptive meanings operating outside the purview of descriptive awareness.

Of course, descriptive computations assisting bodily performances do not take place in a vacuum. Take the example of walking along a crowded sidewalk. Mind deploys routines not accessible to descriptive awareness to aid bodily performances: dodging people, stepping off curbs, etc. But it also deploys instructions fitting the purpose of the walk: stay straight on Main Street, turn right on Elm, two blocks to the ice cream shop. And, of course, mind may have deployed other meanings relevant to the walk: I dieted all week, met my weight goal, and now I'm rewarding myself. Mind's descriptive capabilities operate at different levels of meanings and drawing on different portions of its descriptive web.

These examples give insight into two important points. First, and relative to the conservation project, it is not essential to conserve our descriptions of which our mind is not aware. Many of these descriptive routines will be created, integrated, and automatically callable as part of the bodily performances of the newly created vehicles of life. They will be integrated with body at the factory. Other applications in which awareness is either not necessary or desired include linkages and translations between sublanguages, maps to environments, and linkages between physical field and descriptive representations. The second and companion point is that mind knows itself by the descriptions of which it is aware and thus our conservation efforts must be focused on those. We certainly want to conserve the information through which we self-identify with our unique history, biography, experiences, preferences, etc. We also want to conserve the semantics that we deploy in our mind's thinking, the ones that make us the person we are with our aspirations, values, principles, goals, belief sets, knowledge bases, etc.

In our conservation efforts, we will want to deploy techniques and technologies that help extract and conserve our essential semantics of self. We will conserve content from mind's existing information stores as well as information arising in the ongoing present. Given the enormous

amount of information to which we are exposed, we will deploy personal conservation devices (PCD) which will be, in the first instance, adaptations of today's smart devices. Responsive to the guidance of the individual, these will capture and record selected information from both information fields in real time. That information will be organized and stored to augment the individual's burgeoning web of descriptive content. Over time, and thanks to technologies assisting conservations in full fidelity, individuals will build omniphysical information stores whose scope and fidelity exceed that of brain-supported mind. And as information gathering and conservation devices improve, the individual will be able to direct information capabilities that build their omniphysical information stores in real time, as they live their lives.

Now consider that just like our omniphysical individual moving from body to body, we will have a different body than our replicate one and will be operating in environments that may be quite distinct from our accustomed ones. As replicates we might like beans with burgers, and mint chip ice cream better than vanilla. These facts are open to our awareness and reportable, but they may be irrelevant to life in our omniphysical body.⁴ Does this mean they should not be reported? Not at all. These descriptions speak to our self-identity. In addition, omniphysical mind may draw on these descriptions as fitting its needs and circumstances. It's not only bodies and environments that will be different as omniphysical. The nature of omniphysical civilization and the conventions, expectations, aspirations, goals, priorities, commitments, principles, behaviors, and more will be very different from those of our replicate civilization. An individual seeking to become omniphysical will want to set expectations for life as omniphysical, both to establish the foundations for her future success and to inform actions to be taken now as a replicate.

The success of omniphysical individuals and their civilization rests on two main things: the power of omniphysicality to beneficially alter the nature of life and reality; and the adoption of goodness as the ethical and operational principle of omniphysical individuals and their civilization. As for the first, the ability of mind to move from body to body enables omniphysical individuals to overcome bodily death while the adaptability of bodies and environments allows an end to material want.

But to make this potential real, something further is required. That is the commitment to goodness in the form of otherness: each individual acts to assure all others as omniphysical as the means to their own assurance. Do unto others as you would have them do unto you. It is not only the ethical appeal of goodness that is compelling; it is a requirement for life seeking persistence in the limits of its material reality. The form of social organization of low entropic cost, and the only one able sustain itself and its individuals over far horizon, is a cooperative one based on

⁴ Any of us can cite numerous ways in which the move to omniphysicality will alter our lives, and the ways those will impact the relevance of current mind's information stores: energy, mobility, communication, health and well-being, and many more.

goodness as otherness. Goodness has a specific actionable meaning: each person participates fully in the economy and civilization that keep every individual safe, secure, and sustained.

Given all this, what are the essential semantics to take forward as part of omniphysical mind? First is the semantic web of meanings of which mind is aware, the information through which the individual self-identifies and which may be deployed in the exercise of mind's capabilities. Second are the semantics 'loaded at the factory' fitting the new body operating in its environments. The third kind of semantics are the understandings and expectations of life as omniphysical, and the commitment to goodness as the central ethical and operational principle of omniphysical individuals and their civilization. The inclusion of forward-looking semantics as part of the conservation effort may seem strange, but it is not. Mind's priority is to enable the survival and other purposes of the individual. Mind's thinking must be attuned to the reality in which it will exist. That reality is one of omniphysical life, not replicate life.

Turning to the capabilities of mind, our scientific civilization will develop platforms of omniphysical mind. These are the descriptive infrastructures on which an individual's unique content of mind is made operational as her omniphysical mind. The platform is not only a suite of processing capabilities; it must be loaded with a common core of descriptive content including meanings in the terms of our natural language, mappings to reality, and understandings of essential physical relations.

The development of the platforms must be done in conjunction with the conservation project: the means of organizing, storing, and processing information must be compatible with the uses to which that information will be put, whether understanding, evaluating, deciding, communicating, etc. We will follow a developmental path in which the conserved content of the individual becomes integrated and operational on the platform of omniphysical mind. A person's brain-based mind must be intimately involved in the creation of her omniphysical mind. That starts with choosing and continually updating the semantics of self that are important to the individual and using these interactions to align the content of omniphysical and brain-supported information stores. And as omniphysical mind gains in capability, the individual will want to interact with her omniphysical mind, helping guide development while aligning the thinking of brain-supported and omniphysical mind. As part of this, the convergence will conform expectations to the transition and to life as omniphysical.

The integration of omniphysical mind in body will open the door to seminal omniphysical individuals. In the early stages, the capabilities of omniphysical mind and body will not be as powerful as our human ones. Thus, and starting out, omniphysical individuals will need to benefit from being in environments suited to their initial capabilities, and conducive to learning, growth, and increasing powers as omniphysical. These havens will not only allow individuals to

progress from seminal to full-enabled omniphysical individuals but will give rise to the civilization enabled by omniphysicality.

Content and Capabilities

It is our content that makes each of our minds unique. Each of us has our own beliefs, history, values, expertise, ways of thinking, and on and on. That content has been processed, selected, and conserved within the unique semantic web of descriptions constituting our one and only mind. Our mind's content is ours and ours alone.

In contradistinction to the contents of mind, the numerous capabilities of mind can be common to all minds. Currently, and as will be true as omniphysical, each of us can be aware and self-aware, self-identify, classify, evaluate, decide, report, and on and on. The capabilities of mind are not particular to the individual but are rules for processing symbols and their definitions: all of mind's capabilities are enabled by meanings which are algorithmic instructions for manipulating symbol tokens representing meanings. Not only can the capabilities of mind be common but, as we have seen, they are per se descriptive and can be physically represented and processed omniphysically.

The fact that the capabilities of mind can be common might seem strange given the fact that the results of exercising mind's capabilities vary substantially among individuals. But those differences arise from differences in the content being processed as well as the performance characteristics of underlying physical processors, and not from individuals having access to processing capabilities that are inaccessible to others.⁵ Looking ahead to life as omniphysical and given the nature of mind's capabilities as processing rules, the way is open for new or modified capabilities for processing information with their impacts on omniphysical mind's thinking. As well, individuals will opt for physical processors with different performance metrics, thus impacting mind's descriptive capabilities. But the fact remains that the capabilities of mind, unlike an individual's content of mind, can be common.

Next, and by the nature of symbolic representation, symbols are representational vehicles to which any specific descriptive content can be assigned. Given that mind's capabilities are rules for processing symbols and their definitions, the rules are applicable for any appropriately assigned content. Thus, we don't need a different platform for each person. And, of course, this does nothing to undermine the uniqueness of each person's mind. The content of an individual's mind is hers alone, constituted within its own network of meanings. Each mind is unique, an

⁵ This wording is to make way for the fact that some individuals may have learned procedures/algorithms that enhance their descriptive thinking. But these are not necessarily private to a particular person. As before, however, the results of applying such processing rules can vary depending on differences in content or physical processors.

aware and self-aware self with its own history, beliefs, aspirations, priorities, etc. Thus, the core of the individual conservation project is to report and conserve mind's content of which the person is aware. That content is then conveyed to and made operational on a platform of omniphysical mind, enabling the person's mind supportable omniphysically.

Platform of Omniphysical Mind.

A platform of omniphysical mind is a descriptive infrastructure of mind's capabilities and supporting content that enables the individual's mind supportable omniphysically. Mind's capabilities are descriptive, common, and can be used to process any content appropriately assignable to the symbol tokens being processed. Thus, a platform of capabilities can be supported by any appropriate universal computational device; the capabilities are applicable to any individual; and the content of any particular individual's mind can be processed by the relevant capabilities. We don't have to build a platform of capabilities for each individual. As well, the capabilities of descriptive awareness and self-awareness are straightforward, supporting the key achievement of self-identification through which the person knows herself as the person that she is.

In creating the platform of omniphysical mind, we will not only have to imbue it with capabilities but several kinds of descriptive content. We will report our descriptions in our natural language, the language in whose representational terms our mind's awareness and self-awareness exist. Each of our minds understands the meaning of the linguistic usages we apply. But omniphysical mind does not. It must be taught the meanings we deploy in daily usage.

To see this, consider how our minds became so amazingly adept at understanding meanings. At base, and like other creatures, we can understand our world because evolution created the means to represent reality in body's physical information terms. Mind could never have taken off unless there was a trove of physical field concepts available for assignment. Our ancestors knew a tremendous amount about the world before they learned to describe it. Starting from that base, the power of information assignment and symbolic representation freed information from its embodiments, giving rise to defined meanings, language, belief sets, abstract thought, science, and more. And, of course, our descriptions are tethered to reality through the ability of mind to map to and then adapt its descriptions in light of new information.

Being a new creation, the platform of omniphysical mind does not come ready-made with such an information foundation. It must be endowed with the system of meanings in which our conservations have their appropriate meanings, a large-scale but tractable undertaking. In endowing those semantics, we must carefully convey the relations and associations that give full meaning to our usages. Of course, the meanings that our mind deploys are tightly mapped to

physical reality; they denote as well as define. Thus, in imbuing the platform with meanings, those must include descriptions of the reality in which we and our omniphysical selves exist. On that foundation, omniphysical mind can represent and process content using the same meanings as brain-supported mind, the ones in which a person conserves her unique semantics of self.

This is only one of the challenges. The means underlying the capabilities of our brain-supported mind, as well as much of its content, are not transparent to us, either introspectively or according to our best scientific knowledge. We do not have a clear understanding of underlying descriptive infrastructures,⁶ the interfaces among symbol tokens and the physical processor, the processing algorithms brought to bear in its descriptive computations, and numerous other aspects of brain-supported mind's capabilities. And even though much of our mind's content is retrievable and reportable, the information brought to bear in much of mind's thinking is opaque to introspection.

Currently, we don't have to worry about these underlying infrastructures and capabilities supporting mind's operations – Mother Nature took care of that for us. But in becoming omniphysical, we will take a different approach, not only because of the opacities of brain-supported mind but because we will want to develop infrastructures ultimately capable of superior performances. We will build infrastructures supporting the integrated deployment of mind's capabilities, connecting the language of description to sublanguages to machine language to the physical processor. As fully-enabled omniphysical, both the processing and storage capabilities of omniphysical mind will be far more powerful than our current ones, giving wider leeway in the modes of processing and conservation.

The platform will enable omniphysical mind to be fully aware and self-aware. Not only will omniphysical mind be aware of its descriptive content and of itself as experiencing that content, but it will also be aware of the entire content of its information stores, including those meanings enabling its capabilities. Having been built from the ground up, and unlike our brain-supported mind, everything in omniphysical mind's information store will be transparently accessible to mind's awareness.⁷ Once the initial move to omniphysicality is made, mind's integrated system of content and capability will be able to be fully conveyed to alternative bodies.

⁶ For example, our brain-supported mind transforms incoming natural language descriptions into alternative 'languages' that best serve its conservation and processing purposes, given the limitations of its biological supports. For example, incoming descriptions are verbatim in the natural language of communication. But mind's conservations are in forms that are more usefully workable. When we call information to be communicated to others, mind translates from our languages of conservation to our common natural language of communication.

⁷ Awareness is the capability of computing the meaning of a symbol in mind's descriptive terms. Whether mind is processing content when understanding, categorizing, evaluating, deciding, reporting, or any other of its capabilities, it must be aware of the meanings of its symbols.

Conserving the Content of Mind - Preliminaries

The first and essential requirement to become omniphysical is to conserve the content of your mind that makes you the unique individual you are. By conserving this content, you can become omniphysical, even if not actualized until after biological death. The transition between two systems of life whose means of persistence reside in different information fields can pass through the shadow of replicate death. The death of biological body is not an insurmountable barrier to this leap of life, only a deeply felt perception in a system of life grounded in its physicality.

Our descriptive awareness and self-awareness exist in the representational terms of our natural language. It is in these information terms that we communicate, understand the world and ourselves, and in which we self-identify as the person we are with our history, values, aspirations, priorities, plans, and on and on. Each of us can make these descriptions even though we are unaware of the physical and descriptive infrastructures underlying them. A general way to state this critical fact is that we know ourselves and our reality through the descriptions of which we are aware. Of course, those descriptions must be enabled, that is, there must be capabilities and content supporting mind's descriptions of which it is aware. Nevertheless, the bottom line remains: mind's descriptive reality is a self-described one.

Turning to the conservation of the content of mind, a person will want to conserve the content that makes her the unique person she is. This may seem like a daunting task; there is certainly a lot of information. And what might have once been known may be now forgotten, given the biochemical means supporting our memories. It is these and other limitations that lead us to rely on all sorts of external helps from notes to texts to internet information stores and search engines that help retrieve or reconstruct information.⁸

In approaching the conservation project, several overarching facts are crucial. One is the recognition that the content of mind is a semantic web. This is true in two respects. At a fundamental level, descriptive content arises from the linkages among symbols and their definitions. A symbol's descriptive meaning is what it means in terms of other symbols to which it is linked. Second, and on the foundation of these meanings, there is the semantic web of associations and relations that the individual constructs. These can be of any kind – associating an event with particular places or people, relating an experience to ones that were similar or different, and on and on in a potentially open-ended web of semantic ties. The upshot for the conservation project is that the individual will want to conserve the semantic web of meanings to

⁸The performance capabilities of our current mind are also limited. That's why we turn to artifacts for help with all sorts of computations. But omniphysical mind will have far greater conservation and processing capabilities, including the ability to conserve unlimited content indefinitely.

reflect the linkages, relations, and associations which make the content of mind so full and meaningful – and hers alone.

The second overarching fact is that descriptions become the aware content of a person's mind by being understood, situated, and conserved within the person's semantic web. We are aware of a symbol's meaning in terms of other meanings of which we are aware. For example, imagine that a person decides to conserve large amounts of information directly from the internet without mind processing that content within her semantic web, such as directly recording web-based information on a physical storage device. There's nothing wrong with this but this conserved information is not content of mind's information store. That requires processing within the meanings of her semantic web and conservation as part of it. As another example, consider a person who remembers reading a particular book but has forgotten much of the content. Clearly, the person's mind can call into awareness the memory of having read the book. The person could decide to directly conserve the entire book in an omniphysical information store – and would have the memory of ordering up that conservation. But having been lost to mind's memory stores, the forgotten content is not part of those stores on which mind can operate unless it is read, mediated, and conserved within the individual's web of semantic meanings.

The third overarching fact is that it is mind's awareness and self-awareness that give rise to the subjective 'I' who knows itself as the one having its descriptive experiences. Furthermore, mind's ability to accurately map its descriptions to physical reality allows it to describe the world, including its body with its various physical capabilities and feels. Body is aware in its sensory information terms but lacks the ability to represent to itself descriptively that it is the one having those sensory experiences. It is mind that enables us to describe the person we are as both mind and body. These facts set the foundation for the conservation project in which one key objective is to conserve the web of meanings through which the individual knows herself as the person she is.

What Are the Crucial Conservations?

Without a doubt, we want to conserve the content of mind through which the individual describes herself and her reality. Just like now when we awake each morning, I want to know it's me. These conservations will include biography in its multi-faceted and intertwined aspects, including the myriad experiences, events, interactions, and individuals that have made our lives what they were and are.

We also want to conserve the thoughts that were part of, and often generated, those experiences.⁹ It is mind's thinking that helps reveal the nature of our descriptive selfdom – how we see the world, what is of value, what are our likes and dislikes, and how we see things as funny, upsetting, sad, weird, and on and on. It is these semantics that reveal what is unique about our mind, how we understand, evaluate, and decide as we navigate the world. Of course, mind is a system constantly in motion as the world and its information stores change. But past is prologue, not only a reflection of what we were but the foundation on which each of our minds emerged into the descriptive self that it is.

We will also want to conserve sensory information of events and experiences of importance to us that can be conserved omniphysically such as via digital pictures, video recordings, etc. These sensory conservations will be tagged with descriptions that allow the person's omniphysical mind to situate and understand the meaning of these sensory conservations in its descriptive terms. To be clear, in conserving sensory information, we are not conserving current brain's representations of that sensory information. That is not only an intractable task, but those representations are highly processed and fail to fully conserve the sensory information which was part of the person's experience. Conserved videos, pictures, etc. will become sensory inputs to be processed by the person's new omniphysical body in its sensory information terms. This is akin to what we do now when we look through our videos or picture albums but, of course, with our current body. As omniphysical, body will process this conserved sensory information with omniphysical mind filling in descriptions that supply the appropriate meanings.

The semantic web of meanings of which we are aware not only sets the basis for self-identification but is instrumental for the exercise of mind's various capabilities. For example, when new data comes in, our mind categorizes and classifies that information based on its links to other meanings. As another example, when mind considers communicating, it weighs the nature of the information as well as that of the recipient. And when mind evaluates and decides among alternatives, it draws on priorities and preferences conserved in its semantic web. This is evident in the way we make the big decisions: buying a house or a car; which school to attend; what career to follow, what employment to seek. In these cases, mind explicitly considers the alternatives and implications. Thus, we want to report as thoroughly as we can, both to aid in self-identification and to build an information store that may be drawn upon omniphysical mind's thinking. As we will see, these conservations can be greatly aided by techniques and

⁹ As we have seen, much of the descriptive capability mind brings to bear in assisting and directing its bodily performances is opaque to mind's introspection. This lack of transparency doesn't undermine the move to omniphysical since appropriate descriptions enabling omniphysical mind's command of body will be loaded as the individual moves to new bodies and environments. Here, we are focused on mind's thinking about its thinking. And as we have seen, our mind knows itself and the reality in which it exists through the descriptions of which it is aware: our descriptive reality is a self-aware and self-described one. Thus, the descriptions through which mind knows its own thinking is accessible to it and can be reported and conserved.

technologies that induce full reporting while organizing reported content in a coherent semantic web.

But the content of which we are aware isn't all there is to mind's information stores. For example, much of the descriptive semantics that mind deploys in its second-to-second computations assisting body's operations are opaque to mind's awareness. In most circumstances, that's a good thing operationally; mind doesn't want to reflectively consider each of its determinations for mundane and well-defined tasks, even as we appreciate that if things get off track, mind can intervene, applying its awareness and decision capabilities to deal with circumstances in need of its direction.¹⁰ Mind knows what it is doing in managing and deploying its content and capabilities. While much automaticity is appropriately built in, it is mind's ability to deploy its descriptions of which it is aware that underwrites its autonomy. Mind can understand its own and body's needs and how those are achieved, monitor and adjust its determinations, manage its interventions, and take actions in line with changed circumstances.

In becoming omniphysical, you will expect to awaken in a world that is different in important ways from your current one. For starters, you will not have the same body as you previously had. Your omniphysical body 1.0 will be quite different from your human one – and different from the more capable ones to follow. A major implication is that the replicate body-based facts that inform mind's determinations will be a thing of the past. In the new body, the energy needs, sources, and many other factors will be very different from replicate life. As well, the environment in which you will live as omniphysical may be quite different, requiring expectations, plans, and actions fitting that environment. To be effective in the new circumstances, omniphysical mind will need an information foundation fitting that new reality. As discussed, omniphysical mind will need to be loaded with information allowing it to successfully command the new body, as well as to have accurate mappings of the new environment. On this foundation, omniphysical mind and body will interact with the environment to extract information, learn, and build appropriate information stores. Like our brain-supported mind, omniphysical mind will learn what works and doesn't work and adjust its descriptive meanings and deployments accordingly.

Of course, mind and its determinations take place within its coherent conceptions of the person she is and wants to be. Mind is guided by higher-level descriptions that frame and constrain actions – the values, principles, and priorities that it embraces. Realizing that we are becoming omniphysical, we will want to make explicit the ethics, norms, and principles that will guide us. These conservations are crucial to serve prescriptive and proscriptive functions for life as

¹⁰ Despite lack of transparency of many of our 'operational semantics,' mind can use higher-level descriptions to bring into awareness it's understandings and intents for what's going on. If needed or desired, and to greater and lesser degrees, mind can describe the information taken account of, the constraints in play, and the rationales for its interventions and determinations, etc.

omniphysical. It is within the confines of these higher-level descriptions that mind will adapt to specific circumstances, managing and deploying its content and capabilities in service to the person we are and aspire to be.

These considerations tell us the kinds of conservations we will want to make in becoming omniphysical. We will conserve the semantic web of descriptions of which we are aware, the ones by which we self-identify, and which are deployed in our thinking. But we also want our conservations to be forward-looking, anticipating the reality of omniphysical life. When you awaken as omniphysical, you will want to self-identify both as the person you have been as well as the one you anticipate being, the one with your new body in a new environment with its challenges and potential. You will want to understand the central role of goodness in omniphysical civilization, embracing the rights and responsibilities of citizenship, and the economy, structures, and systems that underlie your freedom.

Conserving the Existing Content of Mind

As the first step to omniphysical life, we need to report and conserve the content of mind of which we can be aware. We want to capture, as far as is possible, the robust web of meanings that we use to self-identify and which are deployed in our thinking. In conserving the existing content of mind, the effort will be aided by applications whose templates, prompts, and means of storing information assist full reporting while capturing the relations and associations comprising the person's semantic web of mind. As an example, consider a person reporting their education and related experiences using an approach based on the semantic units of type, instance, and attribute. There are several types of schools including elementary, junior high, high school, undergraduate, etc. each to be filled with specific instances according to the facts of the individual. For each applicable type, the individual will report their particular instances. A reported instance such as a particular high school can be associated with attributes such as courses, teachers, sports, activities, etc. Each reported attribute is itself the basis for a type of that attribute and carries the potential for novel types (good teachers, math teachers, etc.) that can be filled with instances capable of generating further attributes, and on and on as long as the individual has content to fill. Exploiting the semantic relations among types, instances, and attributes provides an orderly way for an individual to fill content reflecting her particular semantics as well as the relations among them while being strongly generative of thorough reporting. In all of this, we not only want to recall and conserve past objects and events but the thinking and evaluations that were part of them. This 'normative content' is crucial to our thinking, reflecting important judgments about how we see the world and our own lives, adding important dimensions to our descriptions of our life and ourselves. More generally, we will want to report the ethics and principles that guide us, and what is important and has value.

A crucial benefit of such structured approaches is to support the orderly storage of content in ways that conserve the individual's reported web of semantic relations. For example, and in reference to the above reporting method, the application would create a node for each reported type. The node for a particular type would contain all reported instances of that type, the types of which it is a part, and the subtypes which are part of its type. In turn, each reported instance within a type leads to the creation of a node which includes the types of which that instance is a part as well as attributes of the instance. Each reported attribute leads to the creation of a node which includes instances with that attribute, types with that attribute, and types and subtypes of that attribute. The approach is indefinitely expandable as it must be, can support any number of semantic relations among nodes, and can be easily adapted and revised in the face of incoming data. Individuals build a semantic web of reported content accessible to self-reflection, and callable in mind's thinking.

Efforts at reporting, organizing, and storing content can be aided by interactions with others as well as access to public information stores to help trigger and fill out content. For example, we might deploy 'content packages' of events that were or continue to be of interest to us. The individual would be able to navigate through, select content, attach descriptions of their own, and then conserve desired content. We want to report the descriptions through which we know ourselves and our world, conserving the numerous elements of our unique semantic web. This conservation of memory stores will take discipline and effort. And, of course, we are not frozen in time. Mind is an open and dynamic system, continually taking in inputs, processing those, and adapting its information stores. Given the enormous amounts of information that flood our minds at each moment, the thoughts and actions generated, and the need to retain important content, we will need help.

The Personal Conservation Device (PCD)

The personal conservation device is essential to enable a person's move to omniphysical life. It supports the conservation of an individual's information of life, both from the past as well as the ongoing present. It is this information that will be integrated into and made operational on platforms of omniphysical mind to enable the individual's omniphysical mind.

In its initial deployments, the PCD will be an adaptation of today's smart devices. It will be able to conserve descriptive and physical field content that can be conserved omniphysically – sights, sounds, descriptions of events. It will add organizing identifiers such as time, place, persons, event, etc. Various information sources such as email, text, and other communication applications will be available as information inputs for possible conservation. It will have real-time access to public information stores, allowing conservations to be augmented selectively.

Quickly, it will be wearable and capable of control through any number of means: voice, gesture, and others performed by our body.

The ability of the PCD to capture enormous amounts of information will lead individuals to set parameters for managing their conservations. The plethora of information will also allow machine learning techniques to help filter, select, and organize information for conservation, all within guidance set by the individual. In all of this, we must never forget that content is not the content of mind unless it has been processed and mediated by mind. If the individual conserves their stated descriptions, the necessary mediation has already taken place. But for other information inputs, mind must be aware of and conserve the fact that it has decided to conserve that information. And as previously discussed, the individual may wish to load additional content not experienced by or currently in their memory stores. If the PCD is used in this manner, the additional information will be descriptively tagged to indicate its volitionally included but non-experienced character, available for processing by the person's omniphysical mind and body.

As we saw in conserving the existing content of mind, we want to report and organize incoming content so that it accurately reflects the associations and relations comprising semantic web of mind. The same goes for real-time information from the PCD. The PCD will support applications through which the individual selects and manages the conservation of content from both information fields. The individual will select and integrate descriptive content into her omniphysical information store; conserve physical field information tagged with appropriate descriptions and identifiers; and meld publicly-source data with personal conservations. In all of this, and as technology permits, she will draw on machine/artificial intelligence techniques to identify, parse, and appropriately organize information flowing to the information store.

Of course, the individual will interact with and manage the content of their omniphysical information store. Information flowing into the store will be fully accessible to the individual to organize, edit, and retrieve for use, among other things. It is impossible to overstate the importance of these interactions. We are seeking to create an omniphysical information store mirroring the conservable content of mind. The ongoing interaction of biologically-supported mind with this information store is the most powerful means of assuring that we conserve what we desire – and that the contents of the omniphysical store and biologically-supported mind's stores are aligned.

As the individual's omniphysical information store grows in content, the individual will also be developing an information resource for her day-to-day living. Given the limitations of our biological processor and the enormous growth of information content, we humans are becoming less knowledgeable in relation to the information being generated in our dynamic information-driven civilization. The reason for this is not a limitation of mind which is fully expansible in its

content, but a limitation of our primate brain. While this problem can't be fully overcome until mind is supportable omniphysically, we can benefit from having a private, non-atrophying information store. And although this information must be called and mediated by brain-supported mind, we will benefit from the ability to access conserved information fashioned to our priorities, interests, and ways of thinking.

From Conservation to Omniphysical Mind

The goal of the transition is to enable the individual to become omniphysical, capable of moving to and commanding a new body, and then another and another. In terms of conserving the content of mind, there are two key elements to a successful transition. The first is to conserve the semantic web of meanings of which the individual's mind is aware. This information allows the individual to self-identify as persisting while providing a semantic foundation for omniphysical mind in exercising its capabilities to understand, classify, evaluate, decide, communicate, etc. The second kinds of conservations are those forward-looking ones that will help the individual to be successful as omniphysical. As part of those, we will load information useful in making the move to omniphysical, including those for the operation and command of the new body, as well as mappings to the environment in which the person will be alive. But we will also want to think and act appropriately as omniphysical, and not as a replicate.

The process begins by the individual's brain-supported mind understanding the nature and possibilities of omniphysical life. As already indicated, omniphysicality fundamentally alters the nature of reality to end death and material want. Making that potential real rests on the ethical and operating principle of goodness: each individual acts to assure all others as the means to their own assurance. Of course, goodness has long been an aspirational guiding light. Even in our replicate reality, many individuals are good, selfless, giving, and act for the benefit of others. The problem is that we are fighting the fundamental nature of our replicate system of life in which scarcity, harm, fear, and evil are pervasive, and death is inevitable.

Omniphysicality changes those basic facts. It allows us to be prosperous, secure, and sustained enough to be good. But none of those can be achieved unless we are, in fact, good. For individuals seeking persistence in the limits of their material reality, the only form of civilization supporting this accomplishment is one based on cooperation, the form of social organization of low entropic cost, and the only one able to be sustained over far horizon. The possibilities enabled by omniphysicality can only be realized on a foundation of cooperation and goodness.

Thus, among the essential semantics to be learned, conserved, and taken forward into omniphysical mind are an understanding of life as omniphysical and the commitment to goodness as the ethical and operational principle of the civilization. So informed, we will be able

to set expectations for the transition to and life as omniphysical, guide actions to be taken now as a replicate, and to establish the information foundations for success as omniphysical as an individual and as a citizen. As we are coming to, the environment of our emergence as omniphysical will need to be different from our current one, fitted to the capabilities of seminal omniphysical individuals while supporting the progression to fully-enabled omniphysical.

These conservations will be made operational on a platform of omniphysical mind's capabilities. And as it must, the platform of omniphysical mind will be integrated with body able to act in the initial environment. Thus, the integration of content and capability enabling omniphysical mind will be part of a coordinated development effort in which the semantics by which seminal omniphysical individuals operate are fitted to the body and environment under development.

These platforms of capabilities will be developed in conjunction with the conservation project. The individual's conservations are pointed toward conserving her persisting selfdom while setting the semantic foundations for life as omniphysical. Rather than forming omniphysical mind's thinking around replicate norms, omniphysical mind will generate outcomes that, given the presented circumstances, take the perspective of the individual as omniphysical. In creating omniphysical mind, we want to sustain the unique individual, while setting the information foundation to think and act as omniphysical.

The individual's developing omniphysical mind will be transparent to her brain-supported one. Ongoing conservations will be guided by brain-supported mind, manifest in the kinds of information selected for conservation as the individual prepares for the transition to omniphysical. And on an ongoing basis, the PCD will allow the individual to interact with her omniphysical data store and organize and edit conserved information in both fields. The individual will also track the determinations of her developing omniphysical mind, monitoring outcomes for their conformance with the determinations of brain-supported mind in the face of similar circumstances. Those interactions will not only support improvements in conservations but will allow feedback and interactions with developers to improve the performance of emerging omniphysical mind.¹¹

As well, and particularly as omniphysical mind gains in operational content and capability, ongoing communication will allow brain-supported mind and omniphysical mind to align their information stores. Not only will this allow expectations of the person as human and as omniphysical to conform, but this knowledge can inform thoughts and actions as a replicate, guiding the kinds of behaviors consistent with the move to and success as omniphysical.

¹¹ Developers will need this feedback to improve the platform in numerous regards: the organization and operation of information stores, processing protocols, decision metrics, etc.

As discussed, fully-enabled omniphysical individuals will move seamlessly to alternative physical supports. Having been built from the ground up, content and capabilities will be fully transparent, assuring the continuance of the individual's omniphysical mind in the new body. In moving our biologically-supported mind to omniphysical supports, we are intent on doing the same thing – but facing the challenges of making the transfer when much about mind and brain are not transparent to us. Given these opacities, we have to work harder. We focus our conservations on the content of which mind is aware, expectations of life as omniphysical, and a commitment to goodness as the governing ethical and operating principle of the new civilization. As part of this, we develop platforms of omniphysical mind's capabilities integrated into and directing newly-built bodies, working toward the advent of seminal omniphysical individuals.

Seminal Omniphysical

Now let's think ahead to the hugely significant step of a person's omniphysical mind becoming operational in a newly-built body. To help appreciate what it might be like to be seminal, consider why we humans are such capable creatures, why seminal omniphysical individuals will not be so empowered, and what we will have to do over time to make up ground.

Our current bodies are amazing. Not only do they keep us alive, but they allow us to be acutely aware of our environment and ourselves, performing an astounding range of actions from the mundane to the masterful. Omniphysical body 1.0 will not be nearly so capable. And it's not just that motor, sensory, and other devices might be less capable. It's that our current bodies contain massive amounts of information allowing them to successfully deal with an enormous number of situations – with and without the mediation of mind. For its normal tasks, our information-laden bodies know what they are doing and do it. While omniphysical body 1.0 will support an individual's autonomous existence, it will take time to build bodies whose capabilities and information stores and adaptabilities rival our current ones.¹²

Our omniphysical mind 1.0 also will be less informationally capable than our current mind. To help understand this, consider some of the sources of mind's power.¹³ First, our mind has

¹² And even if omniphysical mind 1.0 were informationally powerful, omniphysical body 1.0's relative insufficiencies couldn't be overcome by more mediation by mind. Even our current powerful minds would muck up bodily performances given the need for automaticity in many actions.

¹³ At every instant, mind processes incoming and stored information, drawing on its capabilities and content to understand, decide, formulate plans, etc. Without the ability to draw on its vast information resources, it would be incapable of thinking, and of instructing its body to act appropriately. Understanding takes place within semantic webs of meaning, allowing mind to comprehend inputs, situations, and environments all while calibrating opportunities and constraints. When deciding what to do, priorities and preferences come into play, influencing the understood situation and actions. The exercise of autonomy requires the self to draw on an expansive trove of factual and evaluative content spanning past, present, and projected future.

amazingly robust and accurate mappings of reality; our descriptions are finely tuned to the environments in which we live. Our mind understands the world, how things go together, the contexts in which events arise, and the numerous chains of cause and effect underlying our orderly reality. Second, mind's selfdom is well-developed. Our mind is a powerful self who is aware of itself, its goals and purposes, and can draw on enormous information stores that guide its determinations. Mind understands the world, what it needs and wants in various circumstances, and what is the best available course. Third, our mind is a powerful learner. Our two-field existence allows mind to extract semantics from the world, using interactions between mind and body to test and revise its descriptions. And, of course, mind not only learns from actions in the physical world but also takes in and processes all manner of descriptive information. Our ability to understand and learn is directly related to the power of mind's semantic base. When new information comes along, we understand it within complex sets of meanings, and can assess, evaluate, and assimilate that information, deciding whether and how to adjust our information stores. Without that powerful semantic base, we would lack the ability to understand a situation, what it means for our purposes, and what we can usefully learn from the experience. Thus, as seminal omniphysical, we will be commanding a body with less capability, will not have as robust and fine-tuned mappings to the environment, and will have less accumulated semantics about how to act in the world.

Awakening as seminal omniphysical, the individual will self-identify as the person she is. She will have conserved her information of life, as well as ethical principles, rules of behavior, and guidance for action fitting her emergence as omniphysical, both as an individual and as a citizen. Broadly speaking, each individual will have the mental abilities allowing her to make decisions consistent with survival and her other purposes; learn and manage the content of her information stores; and instruct her body. Vehicles of life will be able to sense and act appropriately in the world, code sensory data into mind's descriptive terms, and be instructed by mind.

As seminal omniphysical, there will be much ground to make up. For omniphysical mind, we will need to adapt information stores that are appropriate to the body, mental capabilities, and environments as seminal. And while we will have loaded information fitting our new body and environment, at the level of day-to-day living, particularly in a dynamic environment with novelty, we will need to acquire and learn to apply the information allowing us to understand and evaluate situations, comprehend the alternatives and impacts, and take appropriate actions. There are two ways to do this: one is to load information into omniphysical mind's information stores, the other is to learn. Both are essential to facilitate life as seminal, and as part of the progressions to fully-enabled omniphysical.

As for loading content, and as part of upgrading omniphysical mind and body 1.0, we will improve mappings of events and environments; upgrade processing algorithms and organizational structures, add bodily functionality and the information by which mind directs its

body. As seminal, omniphysical mind will have discretionary access to a broad array of external information resources to be loaded and integrated with existing stores. Even so, the world is incredibly complex and to function at anything like the level of human performance requires an enormous amount of information.

As for learning, seminal omniphysical individuals will be able to extra semantics from the environment, with mind adjusting its information stores in light of what works. But as we have just acknowledged, seminal omniphysical individuals will not have the robust information foundation supporting learning that is anywhere near the level of human capability. Over time, however, we will eventually develop the means of surpassing our current capabilities and knowledge bases.

The upshot is clear. We must start simple and build – like what our ancestors did over time and each of us did growing up. The workable approach is to exploit the power of learning on the foundation of the physical and mental capabilities as seminal omniphysical. Given the limitations, these individuals will need an environment in which content and capabilities can be exercised successfully, and on which learning and loading can hasten the progression from seminal to more capable individuals. From the beginning and ongoing, seminal omniphysical individuals must exist and learn in appropriate settings. It's back to school to learn and grow. Being self-aware and having carried forward our semantics of self, each of us will understand our situation as seminal and the plan going forward. That is to advance the informational and other powers of mind and body, fitting for environments and aspirations of increasing reach and complexity.

Havens and Becoming Fully-Enabled Omniphysical

Haven are entities and locations in which individuals begin their omniphysical life as seminal, initiating the path from seminal to fully-enabled omniphysical. In the first instance, the Haven provides the safe and distributed repositories of individuals' information of life and emerging omniphysical minds. As individuals make the move the seminal, Havens provide the environment in which omniphysical individuals can learn, gain in capability, and increase their powers. Havens have another crucial role to play. As discussed, the power of omniphysicality supports, and requires, a cooperative civilization in which everyone can be made safe, secure, and sustained as omniphysical. Havens provide the beginning of that civilization, initiating the economic, security, governance, and other systems of omniphysical civilization. Over time as the numbers and capabilities of omniphysical individuals increase, the new civilization takes shape and grows.

From the beginning of life as seminal, and no matter what the initial vehicle of life or the starting environment, each individual will be fully aware of the person she has been and continues to be, including her expectations of her journey to fully-enabled. Each omniphysical person will be able to extract and generate semantics from the environment, adapt and grow information stores, develop priorities and preferences, and learn how to act successfully in the world. There will be much to learn: how to make best use of the new body; how to adapt to the norms of a reality moving toward omniphysical life; and how to do what any person does – live life seeking happiness and fulfillment.

In the seminal environment, individuals will have access to and control information ranging from what they may have selected for conservation to information made available by other seminal individuals to publicly available information stores. Like today, individuals will choose information that they find helpful, enjoyable, and educational – fitting their abilities to understand and benefit from the information. Within the limitations of their capabilities and environments, seminal omniphysical individuals will create activities to enhance their lives and community: artistic, athletic, intellectual, and questing endeavors. The performances, practices, and rules will fit their bodily and mental capabilities just as our current activities do. Back to school again and improving as we go. As the individual learns and adapts, she will develop norms and constraints guiding actions, deploy decision modules for particular problems and situations, and build an information store to guide future action. Whether originating in physical or descriptive terms, incoming information will be understood for its potential impacts in relation to the person's goals, and her mind will yield choices that are best for her.

In the early stages, omniphysical bodies will be subject to normal performance and reliability problems. Even so, the individual will never be at risk since each individual's omniphysical mind will be conserved and made safe and secure in alternative venues – as is the case for all individuals. In addition to learning, advances in platforms, loading capabilities, and vehicles of life will make seminal individuals smarter and more capable – building the means to be successful in more complex environments. And, of course, one size doesn't fit all. Just like for our own growth and learning, there will be thresholds on the way to increasingly demanding environments as omniphysical individuals gain in power.

As sensory devices are added to base capabilities, the number, type, and information potential of sensory experiences will increase. Like us, omniphysical bodies will see colors, hear sounds, and have bodily sensations because vehicles of life will be built with appropriate representational devices.¹⁴ Given the ability of individuals to command their physicality, omniphysical

¹⁴ In thinking about physical field awareness, we must resist the human tendency to conflate the information of the two fields. Our brain-supported mind automatically describes events of the physical field. But in no way does mind have the physical experience: body does - and only in the information terms that its sensory devices allow. A creature existing only in the information terms of the physical field has sensory experiences but cannot represent to itself descriptively that it is the one having those experiences. That takes mind.

individuals will not be stuck with a particular suite of sensory capabilities as we are but will ultimately be able to sense and feel the world as allowed by physical cause and effect. Equipped with a growing repertoire of sensory and action devices, the opportunities and experiences available to autonomous omniphysical individuals will grow.

Over time, bodies will become ever more complex constructions of physical form and function designed for various purposes and experiences. Each vehicle of life will be able to process sensory information and take appropriate actions and to think and act in its physical information terms. Like our current bodies, vehicles will be built so that many physical performances will be outside the purview of mind's awareness and instruction while others will be mediated by mind. Those allocations of control will vary depending on the body, the environment, and the purposes to be served. Currently, accelerating efforts in robotics and artificial intelligence are producing capable vehicles for sensing and acting in the world, the aboriginal vehicles of omniphysical life.¹⁵

Concluding Comments

The information facts tell us that by successfully conserving our semantics of self we might gain our existential stake as omniphysical. The good news is that personal efforts and current technologies allow us to begin these conservations. But getting to omniphysical life will also require major collective efforts to perfect conservation methods, and to develop platforms and vehicles of life through which individuals can become omniphysical.

For now, there is no leap of life to fully-enabled omniphysical. But there is a path to omniphysical mind, then alive as seminal omniphysical, and ultimately fully-enabled omniphysical. Once possible, the individual will determine when to come alive as omniphysical. Some may choose to wait until highly capable vehicles are developed. But others will want to make their leap as quickly as possible, alive as seminal and part of building the new reality of life.

The facts of the transition to help illuminate what is lost, what can be preserved, and what is now newly possible in life. Our material reality dictates that each particular body must die. But the ability of mind to move from body to body opens the way to a new system of life in which individuals persist by commanding their materiality.

¹⁵ The fields of robotics, artificial intelligence, autonomous vehicles are currently directed toward industrial, consumer, social, and military uses. Now with the opportunity of omniphysical life, the way is open for the development of integrated omniphysical mind and body. As the portal to omniphysical life presents itself, we find that we have been busily preparing the means to pass through it.