PsychNology Journal, 2011
Volume 9, Number 3, 193 – 222

(Tele)Presence and Simulation: Questions of Epistemology, Religion, Morality, and Mortality

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ABSTRACT

This paper uses (tele)presence concepts to explore the philosophical and practical implications of the simulation argument: the notion that individuals may be trapped within manufactured realities. The purpose of such an exploration is twofold: First, to establish connections between (tele)presence, simulation and philosophy. Second, to re-evaluate some longstanding questions related to epistemology, religion, morality, and mortality in light of (tele)presence and simulation. In pursuit of this objective, six hypothetical simulation scenarios (descriptions of potential alternative constructions of simulated reality achieved through telepresence technology) are first described, and then investigated for their implications regarding the above topics. These scenarios are physical presence, intercept, avatar, android, infinite regression, and monism. The literature used to inform this investigation comes from both philosophy and (tele)presence. Ultimately, the following conclusions were reached. For epistemology: (1) Awareness of context through memory and prior knowledge, awareness of environmental anomalies/inconsistencies/glitches, skepticism, experimentation, and cross-validation of experience are essential to discovering the illusions of some simulations (i.e. extrinsic simulations). (2) The illusions of other simulations (i.e. intrinsic simulations) are impossible to discover. For religion and morality: (1) An "ultimate creator" (i.e. God) is unable to interact on the same ontological level as that which he/she/it has created. (2) Moral responsibility for the events occurring within a simulation is commensurate with the level of enhanced or diminished agency of the creator of the simulation. For mortality: The implications of (tele)presence and simulation technology to extend life indefinitely are unclear, though it seems that immortality has the potential to bring with it some vast human inequalities.

Keywords: *Telepresence; simulation; illusion; physical presence; intercept; avatar; android; infinite regression; monism; philosophy; epistemology; religion; morality; death.*

Paper Received 02/09/2011; received in revised form 20/12/2011; accepted 22/12/2011.

Cite as:

Jones, M. T., Lombard, M., & Jasak, J. (2011). (Tele)Presence and Simulation: Questions of Epistemology, Religion, Morality, and Mortality. *PsychNology Journal, 9*(3), 193 – 222. Retrieved [month] [day], [year], from www.psychnology.org.

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1. Introduction

Telepresence (the experience of "being there" in a technologically mediated environment) and presence (the experience of "being there" in a non-technologically mediated environment) both raise fundamental questions about the nature of existence. These questions have long been addressed in the branch of philosophy called ontology, which means the science, theory, or study of being.

Nearly everyone trusts that their experience of the world is legitimate, but as philosophers of existence have demonstrated, empirical experiences are fallible and prone to deception. Indeed one definition of presence, "the perceptual illusion of nonmediation" (Lombard and Ditton, 1997, Concept Explication), implies that experiences of telepresence are defined by their ability to take advantage of the deceivability of our perceptual system.

In this exploratory paper we consider a set of simulation scenarios – descriptions of potential alternative constructions of simulated reality achieved through telepresence technology–and the implications of these scenarios for epistemology, religion and morality, and our mortality.

Why consider different explanations for the nature of reality when we are limited to the experience of that reality, however fallacious it might be? First, it reminds us of the power and increasingly central role of telepresence phenomena – those that involve technology-mediated simulation and illusion – in many aspects of modern life and culture. Second, considering the nature of being and reality in new ways suggests important implications for what we choose to believe and how we choose to live in our (apparent) reality, and it helps us examine the weightiest questions of life: the nature of life, death, God, mortality, and the universe. To do this, we establish connections between (tele)presence and philosophy. Specifically, philosophy that concerns the idea of simulated reality (e.g. Barrow, 2007; Bostrom, 2003; Dainton, 2002; Hammarstrom, 2008; Weatherson, 2003).

In section two, we explain the relation between (tele)presence and simulation. Following this, simulation scenarios are described in section three, and taxonomies of simulation dimensions are constructed in the fourth section for the purpose of developing an adequate vocabulary and frame of reference. Finally, section five delves into the implications of simulation for epistemology, religion, morality, and mortality.

2. (Tele)Presence and The Simulation Argument

In the past, technologies such as the clock, the locomotive, and, more recently, the computer have served as metaphors for understanding the natural world and ourselves (Edge, 1974; Fraser, 1975; Lienhard, 2001; Marshall, 1977). With the increasingly common and vivid illusions provided by telepresence technologies from high definition television, 3D IMAX films, videogames, virtual worlds and virtual reality, perhaps it's not surprising that Bostram (2003) and others have advanced the "simulation argument," the much-discussed possibility that we are living in a computer simulation. Jenkins describes the argument as the possibility "that we are forms of artificial intelligence in an ancestor, (i.e. historical) simulation created by a future society." (Jenkins, 2006, p. 23). At the heart of this argument are three potentialities described by Bostrom: (1) "humankind will go extinct before reaching a posthuman level" (Bostrom, 2003, p. 8). Here, posthuman refers to the ability to accurately reproduce consciousness in a manufactured environment through telepresence technology. (2) "the fraction of posthuman civilizations that are interested in running ancestor-simulation is negligibly small" (Bostrom, 2003, p. 8). This is to say that for cultural reasons, perhaps related to legal regulation, our posthuman descendents will not create large numbers of ancestor-simulations. (3) We are currently living in a simulation (Bostrom, 2003). Bostrom supports this with the "bland principle of indifference." Simply, the bland principle of indifference states that if there are no distinguishing criteria to separate groups, than the credence assigned to a particular member belonging to a particular group should be equal to the proportion of the group. For example, if there existed an isolated community of 100 blind people who somehow had the knowledge that 90 of them had blonde hair, the credence any one person should assign to the proposition that they have blonde hair should be 90%. Applied to the simulation, the blonde-haired blind people translate to simulated humans since it is extremely likely that, lacking constraints and given the appropriate technology, an enormous number of ancestor simulations may be created by our descendants (Bostrom, 2003; Dainton, 2002).

Our purpose here is not to defend or critique the simulation argument itself, rather to use the debate over it to inform an investigation of simulation as it relates to (tele)presence and the above-mentioned philosophical questions: epistemology, religion, morality, mortality.

3. Simulation Scenarios

Just as there are many technologies and forms of telepresence, there are many ways in which our seemingly unmediated human experience could be "generated by and/or filtered through" (ISPR, 2000) technology. Six of these simulation scenarios are presented below. Informed by telepresence concepts and philosophical perspectives, they are also illustrated wherever possible with references to fictional portrayals of telepresence (see Lombard et al. n.d.). Note that this is not intended as a comprehensive list of all possible scenarios, rather as a foundation for a discussion of epistemology, religion/morality, mortality and design. Additionally, it is not being argued here that any of these scenarios are ontologically valid but that they engage philosophical questions about perception, reality, illusion, and telepresence.

3.1 The Physical Presence Scenario

The key feature of the physical presence scenario is that the physical body is placed inside a simulated world. The "Holodeck" portrayed on the science fiction television program Star Trek is a good example of a physical presence scenario. It posits that our physical bodies are immersed in a virtual environment that is so realistic it cannot be distinguished from the true physical environment (Science Brief, n.d., Bell, 2005; Cowing, 2002).

This scenario is also illustrated, on a less sophisticated level, by the experience of participants in "reality" TV shows such as Survivor and Big Brother, Live Action Role Playing (LARP) games, historical re-enactments, renaissance fares, costume dramas, and more. It has even been suggested that reality television may provide a legal precedent for historical simulations (Jenkins, 2006). Dramatic stage productions in which "method acting" is employed are a good example of this scenario because actors strive to enter the world of the drama through actually becoming a character rather than merely playing one. A final example is illustrated in the film The Truman Show (Feldman & Weir, 1998) where Truman (played by Jim Carrey) lives in a television studio manufactured to look like the real world.

3.2 The Intercept Scenario

The defining characteristic of the intercept scenario is more extreme than that of the physical presence scenario, because it describes a complete separation between the brain and the body. As in the First Meditation (Descartes, 2004/1641) and the film The

Matrix (Silver, Wachowski & Wachowski, 1999), this scenario presents the possibility that although we are in control of our own consciousness, our bodies and the material world that surrounds us are an artificial construction. The impetus for this idea is the philosophical position that experience is mediated entirely by the mind, and therefore, if the afferent channels to the brain were intercepted by a master computer, a comprehensive sensory illusion in the form of a programmed universe could effectively deceive a conscious being. “The supposition of The Matrix is that one could live an entire life made up of illusions caused by brain stimuli induced in a passive, immobile being for which sleep-like paralysis is a permanent state” (Korsmeyer, 2002, p. 42). In other words, only the brain itself lives in the ‘real’ world.

3.3 The Avatar Scenario

In brief, the primary characteristic of the avatar scenario is that consciousness is coextensive with (and therefore limited by that) of a remote being. This scenario is exemplified by the popular “life-simulating game” called The Sims (short for “simulations”) in which the players “create characters and control their lives -- everything from choosing a spouse and a career to what to eat for dinner and when to go to the bathroom” (Yi, 2004). Weatherson offers the most direct explanation of this scenario, writing “Let’s assume that as the sims become more and more complex, they will eventually acquire conscious states much like yours or mine” (Weatherson, 2003, p. 1). While we are most familiar with the role of the avatar player, in this scenario we take the role of the avatar character that is played. Like the characters in the game, our physical bodies are actually extremely realistic avatars being used by gamers who manipulate our every thought and action through a gaming interface that is completely imperceptible to us. Unlike in the previous scenarios, in which we retain our own consciousness and at least a degree of free will, the avatar is merely a shill for a separate sentient being; we have no consciousness without that of the player. Perhaps the most obvious example of this is the recent film Avatar (Landau & Cameron, 2009) in which main character Jake Sully and others inhabit manufactured alien bodies with their consciousnesses. The Japanese animated film Ghost in the Shell (Mizuo & Oshii, 1996) presents a similar situation in which a computer hacker by the name of Puppet Master is able to access and control the minds of both humans and cyborgs. In this scenario, what we know as dissociative personality disorder, as exemplified in the Showtime series, “The United States of Tara,” might be viewed as a number of consciousnesses sharing the same material body within a simulation.

3.4 The Android Scenario

The key feature of the android scenario is that brain and body are fully simulated. This scenario is different from the others because it presents a situation where the individual rather than the environment is simulated. As in the film Blade Runner (Deeley & Scott, 1982), this scenario presents the possibility that our consciousness itself is a technological construction that has been engineered. Despite our ability to think consciously and autonomously, the parameters of our thought, our level of intelligence, the depth of our emotional experiences, and all other aspects of our being are programmed into existence. In order to grasp this on theoretical grounds, one must first accept the notion of "substrate independence" – the idea that "mental states can supervene on any of a broad class of physical substrates" (Bostrom, 2003, p. 2). Therefore, given the appropriate functional capacities, this means that consciousness can emerge outside of an individual brain. This scenario strikes at the heart of foundational philosophical issues such as free will, consciousness, and identity.

3.5 The Infinite Regression Scenario

The infinite regression scenario is an amalgamation of all prior (3.1-3.4) simulation scenarios. This possibility is born out of the idea that human existence could be a compound of some or all of the other scenarios (as well as others). In the film The Thirteenth Floor (Emmerich & Rusnak, 1999), scientists create and temporarily inhabit the bodies and minds of simulated people in a virtual world that replicates Los Angeles in the 1930s. The reality of the people in this simulated world is as convincing as the holodeck or the Matrix. But eventually it is revealed that the scientists themselves are simulations created by an even more advanced society. Initially, it seems as if this "simulations within simulations" scenario has limitless potential since there is no end to the number of worlds that might be situated within other worlds. This, however, may not really be the case. Bruekner contests the idea that any stacked simulations are possible because "a Sim cannot really build a computer" and thus "cannot really create another human-like Sim mind that is instantiated in the programming of a real computer that he really builds" (Bruekner, 2008, p. 224). In a formal response to Brueckner, Bostrom rejects the idea that stacked simulations are impossible, but does stipulate that "All these Sims have a real physical instantiation in the computer located at the "basement-level" of reality (Bostrom, 2008, p. 3) and thus suggests that the number of

stacked simulations is constrained by the computational resources available at the foundation of reality.

Considering the possibilities and limitations of an infinite regression of simulated worlds harkens back to famous cosmological arguments such as Plato's demiurge, Aristotle's prime mover, Avicenna's agent cause, and St. Thomas Aquinas's God.

3.6 The Monism Scenario

The primary feature of the monism scenario is that one unified mind produces the illusion of a plurality of independent minds. The debate over Monism (the idea of a single underlying principle or reality) has a very long tradition, but a popular Western theory of Monism was first advanced by philosopher Bishop Berkeley (1685-1753). Berkeley's position is concisely summarized as follows: "All that exists is One Infinite Mind and our millions of finite ones – one continually transmitting ideas and the other continually receiving them" (Robinson & Mayblin, 2004, p.73). As a radical idealist, Berkeley suggested that only perception exists, and it is not dependent on a material world. Instead, we get our ideas of the "external world" from God. This position is also found in the work of Indian philosopher Adi Sankara, who in the 9th century popularized the concept of advaita, or, nondualism. "Behind diversity, there is unity. Behind individual souls, there is the Self, one with the Divine". If we take "the divine" out of the equation, we are left with a scenario that includes only a single consciousness which is responsible for everything. This view of reality holds that although humans have the illusion of autonomy, we are all a part of a sole consciousness that is in the process of interacting with itself through personae (ourselves) whom it has imagined into existence. The consciousness has repressed the memory of the act of imagining for the sake of manufacturing the illusion of free will, thus making interactions between personae realistic and interpersonal as opposed to artificial and intrapersonal (as would be the case when talking to oneself). Although this scenario is farfetched – particularly to scholars trained in the Western tradition - in some ways it requires fewer assumptions than the others. For one thing, it allows us to do away with with the troubled relationship between perception and reality because, in Berkeley's view, only perceptions exist (Hammarstrom, 2008).

The most interesting aspect of this scenario, however, is the fact that it has been tentatively predicted. Jenkins refers to this as the point when

> the world as we know it winks out of existence and we are transported to a collective consciousness in the form of a generalized artificial intelligence of

> which, as individualized AI's or as technologically enhanced humans, we would each constitute a part (Jenkins, 2006, p. 37).

In other words, if there comes a time in the future when wireless networking technology is incorporated into the human brain, humans will have effectively dissolved their consciousness as individuals into one collective consciousness. This possibility was popularly imagined in the Star Trek Borg, a cybernetically linked species. This is monism in the sense referred to here.

3.7 Other Scenarios

It's critical to stipulate that these simulation scenarios are not exhaustive. They only represent what seem to be the most common types of popular and philosophical conceptions of simulation. Other scenarios are welcome and may very well impact the conclusions that are arrived at.

4. Simulation Dimensions

Like current and evolving telepresence technologies, the simulation scenarios represent different constellations of possible characteristics. What are the key dimensions that distinguish these scenarios? Several theorists (Dainton, 2002; Fleet, 2007; Jansch, n.d.) have offered different simulation taxonomies, which are synthesized in Figure 1.

In Figure 1 below, a hierarchy is established through the specificity of categories. Starting at the top, "extrinsic" simulations are distinguished from "intrinsic" simulations based on the existence of a mind that is or is not external to the simulation. This is a crucial point because if no mind exists beyond the confines of the simulation, no larger reality can exist for the subject of the simulation. Following from this initial distinction, notice that all of the categories below "intrinsic simulation" are completely confined in the sense that it is impossible to imagine a world beyond the simulation from the perspective of the subject. Beneath the "extrinsic" simulation category, second and third degree simulations are distinguished based upon the physical presence of the subject. Notice that Dainton's "hard" simulations (Dainton, 2002) are consistent with the premises of Jansch's second degree simulation (Jansch, n.d.) because the existence of external neural hardware implies the existence of an external mind. Naturally, second degree simulations permit less drastic alternatives also (e.g. videogames). Below this, "partial" and "communal" simulations each fall under the aegis of second

and third degree “extrinsic” simulations. They are distinguished from “intrinsic” simulations because both have definitions which rely on a larger reality beyond the simulation. Finally, “individual” simulations are a potential in all cases and thus traverse all categories.

Beyond the simulation environments themselves, Dainton offers a description of some potential characteristics of the subjects immersed within them (Dainton, 2002, p. 17):

Active Simulants: “The subjects of [active] simulations are confined to virtual environments, but in all other respects they are free agents – or as free as any agent can be. Their actions are not dictated by the virtual-reality program, they flow from their own individual psychologies, even if these are machine-implemented.”

Passive Simulants: “A [passive] simulation, by contrast, is a completely pre-programmed course of experiences. The subjects of [passive] simulations may have the impression that they are autonomous individuals making free choices, but unlike their A-simulation counterparts, they are deluded: all their conscious decisions are determined in advance by the virtual reality program.”

Original Psychology: Psychology that is inherent to the individual, that developed based on his/her unique experiences.

Replacement Psychology: “A ‘replacement psychology’ is an artificially-generated system of beliefs, desires, memories, intentions, preferences, personality traits and so forth that supplants a subject’s own (‘original’) psychology.”

A significant problem with these taxonomies is that they describe the characteristics of simulation environments and not the environments themselves, which results in numerous logical inconsistencies. For example, in a “complete simulation,” a “passive simulant” is implied and, if every element is generated by artificial means, than who is actually experiencing the simulation? Also note that many of the conditions in these taxonomies are incompatible. Consider the fact that “communal simulations” imply external agents. Any entity existing exclusively in the simulation is a product of the technology that generated the simulation and thus cannot be communal in the sense described in Figure 1. Fleet created a series of tables which delineate many of the inconsistencies between characteristics (Fleet, 2007).

<table>
<tr><td colspan="2">Extrinsic Simulation (Fleet, 2007): “the simulated mind has some sort of external existence outside the simulation.”</td><td>Intrinsic simulation (Fleet, 2007): “the simulated mind is purely confined within the simulated environment and has no other existence.”</td></tr>
<tr><td>Third Degree Simulation (Jansch, n.d.): “a simulation where people undergoing the simulation are physically embedded in the simulation.”</td><td>Second Degree Simulation (Jansch, n.d.): “a simulation where the subject of the simulation is located outside the simulation, and is only 'virtually' immersed.”</td><td>First Degree Simulation (Jansch, n.d.): “a 'complete' simulation. There is no 'real' person controlling the simulated character. The character exists only in the simulation.”</td></tr>
<tr><td></td><td>Hard Simulation (Dainton, 2002): “[Hard] simulations result from directly tampering with the neural hardware ordinarily responsible for producing experience.”</td><td>Soft Simulation (Dainton, 2002): “[Soft] simulations are streams of consciousness generated by running programs (software) on computers (other than the brain if the brain is nothing but a computer).”</td></tr>
<tr><td colspan="2">Partial Simulation (Dainton, 2002): “In partial simulations, only some parts or aspects of experience are generated by artificial means” (i.e., mixed reality).</td><td>Complete Simulation (Dainton, 2002): “Every part and aspect of experience is being generated by artificial means.”</td></tr>
<tr><td colspan="2">Communal Simulation (Dainton, 2002): “a virtual environment shared by a number of different subjects, each possessing their own distinctive individual psychology.”</td><td></td></tr>
<tr><td colspan="3">Individual Simulation (Dainton, 2002): “An [Individual] simulation is restricted to a single subject. Of course, the subject of an [Individual] simulation may meet what they take to be other people in their virtual worlds, but these ‘others’ do not possess their own individual autonomous psychological systems.”</td></tr>
</table>

Figure 1. Simulation taxonomies of Fleet, Jansch and Dainton

To remedy some of this confusion, we offer a revised set of simulation dimensions in Table 1 (below) and classify the simulation scenarios presented above based on these dimensions. The column on the left categorizes each of the dimensions of the

prior taxonomies, while the row across the top anchors the dimensions in the specific context of a particular simulation scenario. This has the advantage of limiting logical inconsistencies because each dimension must adhere to the parameters of a specific simulation scenario.

Table 1. Revised simulation taxonomy and classification of simulation scenarios

	Physical Presence	**Intercept**	**Avatar (Player's Character)**	**Android**	**Infinite Regression**	**Monism**
Extrinsic or Intrinsic?	Extrinsic	Extrinsic	Intrinsic	Intrinsic	Extrinsic	Intrinsic
Nature of Embodiment?	Body with natural interaction	Body with unnatural interaction	Digital body	Mechanical body	Multiple Possibilities	No body
Partial or Complete?	Partial	Partial	Complete	Complete	Multiple Possibilities	Complete
Individual or communal?	Multiple Possibilities	Multiple Possibilities	Multiple Possibilities	Multiple Possibilities	Multiple Possibilities	Individual
Active or Passive Simulant?	Active	Active	Passive	Active	Multiple Possibilities	Passive
Original or Replacement Psychology?	Original	Original	Replacement	Original	Multiple Possibilities	Replacement

Note that in the revised taxonomy in Table 1, the definitions of the dimensions follow those of Dainton (2002), Fleet (2007) and Jansch (n.d.), but that in some cases an additional perspective, leading to different classifications, is possible. While "gamers" are "playing" inanimate objects or animate entities in the Avatar or Infinite Regression scenarios, those scenarios would appear quite different from such players' vantage points.

5. Implications of Simulation Scenarios

The six scenarios above, and the key dimensions that distinguish them, present us with a series of intriguing implications regarding epistemology, religion and morality, life and death.

5.1 Epistemology

If we were living in one of the simulation scenarios, how could we know? Because simulations attempt to substitute one reality for another by means of tricking the

senses, the question of how knowledge is validated comes into play. The epistemological questions in Plato's age-old cave allegory, in which prisoners can see only shadows of objects rather than the actual forms of the objects, find new relevance in modern simulation scenarios (Irwin, 2002).

Epistemology in this context can be explored through the contingencies presented by each of the simulation scenarios. Let us assume that individuals in each of the scenarios experience the world with a sense of empirical certainty, just as we trust our experience of the world as legitimate. Therefore it is most productive to explore the limits of that knowledge by considering exactly where they cause the scenario to break down. In other words, the question becomes "what would the individual present in each of the scenarios have to know in order to reveal the illusion of the scenario and find the exit?" Using a popular metaphor from The Matrix (Silver, Wachowski & Wachowski, 1999), how does an individual who is present in the hypothetical scenario arrive at a point where they are confronted with the choice between "red" and "blue" pills? Further, what are the particular qualities of the metaphorical "red pill" in each scenario that permit a perspective beyond the confines of the construct of the scenario?

5.1.1 Uncovering the illusion. In the illusions contemplated in the scenarios, prior knowledge and memory would be the primary means of uncovering the truth. With the limited Physical Presence experiences available today such as CAVEs, LARPs, Renaissance Faires, Star Trek Conventions, etc., it is easy to recognize the illusion and the challenge is more in maintaining the simulation ("suspending disbelief" in it) than uncovering the illusion. Organizers and performers even adopt strategies to enhance the simulation. For example, Renaissance Faires take place in wooded settings to minimize anachronisms such as buildings and cars, and their performers often call attention to out-of-place technologies used by visitors, remarking about the strangeness or magical qualities of modern objects. However, even if these strategies were to present a seamless illusion, the visitor would still be unlikely to be fooled because of the "extrinsic" nature of the simulation and the "original psychology" (Dainton, 2002) of the visitor. This is to say that the visitor has a keen awareness of the world beyond the simulation and a coherent sense of how the simulation fits into that larger world.

In the technologically complex Physical Presence scenarios of science fiction such as the Star Trek holodeck or the television set of the movie The Truman Show (Feldman & Weir, 1998), the simulation environment is indistinguishable from the real

one. Due to this extreme fidelity, revealing the simulation for what it is generally cannot occur independently of the memory of being in the "real" world. In other words, the only reason one would recognize such environments as simulations is the memory of having been in the "real" world and the observation that the currently experienced world (the simulation) is not the same in some (even subtle or trivial) way.

According to Barrow, glitches in the laws of nature are the hallmark of a simulation. In his observation, the comparatively simple simulations constructed by the entertainment industry serve as an apt metaphor:

> When the Disney company makes a film that features the reflection of light from the surface of a lake, it does not use the laws of quantum electrodynamics and optics to compute the light scattering. That would require a stupendous amount of computing power and detail. Instead, the simulation of the light scattering is replaced by plausible rules of thumb that are much briefer than the real thing but give a realistic looking result – as long as no one looks too closely (Barrow, 2007).

Extrapolating this to the full-scale ancestor simulations of Bostrom's argument, we might suggest that either ignorance of underlying physical constants or a desire to ration computational resources may be responsible for the occasional anomalies of our world. Regardless of the reasons, we should perhaps see the physics of our universe the same way we see the operating system on our computer: an imperfect buttress to an illusion which must be maintained through software patches. Thus Barrow concludes that "the flaws of Nature are as important as the laws of Nature for our understanding of true reality (Barrow, 2007)."

Memory of a different, unsimulated reality is less likely in the other scenarios, which are classified in Table 1 as complete. In the case of the Avatar and Infinite Regression scenarios, our memories are only of experiences from within the simulation; only access to the extrinsic memories of an invading consciousness would allow us to perceive the truth (perhaps the common feeling of dèjà vu results from aspects of our simulated environment that are similar to aspects of the environment that was previously experienced by our replacement consciousness before its entry into the simulation).

In the Monism scenario, memory of the fact that there is only a single consciousness interacting with itself through personae that are imagined into existence is repressed. For its individual manifestations to be released from their illusion the single universal consciousness must bring the knowledge of the ultimate and complete

oneness of all things out of repression; it must remember its own singularity. Note that this cannot be realized empirically. Because the entire premise of the "sole consciousness" is based on the idea of a universe that doesn't exist physically, the realization must come from an act of remembering within the sole consciousness itself (i.e. one of its manifestations) and not from a gap or seam in the environment or perceptual "break in presence" (Slater & Steed, 2000). Such a gap or seam would, of course, not be recognized as such anyway because there would be no "gapless" or "seamless" model to compare it to.

Intrinsic simulations raise the interesting question of whether or not it is even necessarily possible to recognize the fact that one is in a simulation to begin with. The "bland principle of indifference," as described by Bostrom in his original 2003 article would seem to allow for the potential that one may be in a simulation and never be able to recognize it. Weatherson takes issue with this, arguing that both external and internal evidence may be used to distinguish reality from simulation. Taking an externalist approach, he writes "just as seeing a dagger and hallucinating a dagger provide different evidence, so does seeing a dagger and sim-seeing a sim-dagger" (Weatherson, 2003, p. 7). This is meant to imply that the objective properties of a simulation will differ fundamentally from the objective properties of the real world. On the internalist side, he claims that the experience of perception will differ between human and simulated human because we have fundamentally different perceptual organs (e.g. eyes vs. "sim-eyes"). The trouble with this argument is the fact that we are all bound to our own perceptions and cannot test their accuracy against a standard measure. As Hammarstrom observes:

> appearances don't give away the ultimate reality of things, for the underlying structure of the world, whether it is a physical world or a computer simulated world, cannot be known on the basis of perceptual appearances. Our knowledge that we have eyes gives us no strong reason to conclude that we have real eyes rather than sim-eyes. (Hammarstrom, 2008, p. 27)

Hammarstrom does not stop here, however. He goes on to take a semantic externalist perspective and argue that it may be possible for someone in an intrinsic (or complete) simulation to realize the true nature of their condition through language. More specifically, the argument goes that if a simulation were to be created and left alone to develop its own language, there would be an inadequate linguistic frame of reference for conceptualizing the notion of being trapped in a simulation. If, on the other hand, the language of the creator(s) was foisted upon the simulated beings, the

potential for uncovering the truth is possible. The reasons for this are complex, but can be summarized through reference to the well-known Sapir-Whorf hypothesis (Sapir, 1912/1956; Whorf, 1956) in which language determines the nature and limits of a language community's reality.

In the Android scenario the challenge is not uncovering a repressed or otherwise unavailable memory of a different, real, external world, but the discovery by an artificial human of its true nature. In the most sophisticated versions of this scenario, this realization is likely to come to us only by being told about it. In the film Blade Runner (Deeley & Scott, 1982), a replicant (Rachael) must be convinced of her status by being told about memories she thought were secret but instead were 'implanted.'

In some of the scenarios, notably Physical Presence, Intercept, and Infinite Regression, skepticism and experimentation are potentially useful approaches to uncovering the truth from within the simulation. The skeptic looks for inconsistencies between the real world and Physical Presence simulation (e.g., the holodeck) that will reveal gaps or seams in the environment and cause a perceptual "break in presence" (Slater & Steed, 2000), as when the character in the The Truman Show (Feldman & Weir, 1998) reaches the 'edge' of the simulated world. In the Intercept scenario, discovery of the world outside the simulation from within it begins with skepticism that does not accept for granted the façade of the surrounding world no matter how accurate it appears.

But skepticism alone does not lead to a solution. Experimentation within the simulation must follow, as when in the film The Matrix (Silver, Wachowski & Wachowski, 1999) Neo is able to manipulate physics within the Matrix and confirm his suspicions about the falsity of that world. Because the physical laws of the Matrix are not actually physical, but are rather a computer program (a simulation), they can be combated with the imaginative impulses of the individual connected to that machine. As Gracia and Sanford observe, "A mind can respond to an electrical stimulus to the brain by creating an image, but a mind can also affect the body by independently creating the image" (Gracia & Sanford, 2002, p. 62). In concrete terms, the very same nerves that are intercepted by the hardware of the machine have the capacity to affect the behavior of the machine's software. The same logic applies to an environment created for us by a computer – cautiously exploring and 'crashing' it leads computer users to recognize how it works and the ability to manipulate and change it more effectively.

Among the most critical components of successful experimentation from within a simulation is the ability to cross-validate experiences with other individuals located

inside the simulation. Dainton's distinction between "individual" and "communal" simulations (described above) is crucial to this. He suggests that those located within individual simulations have experiences that are quite similar to hallucinations, while those in communal simulations are able to obtain an objective sense of the simulation through discussing their experiences.

5.1.2 Consequences of escape. Through whatever means, uncovering and escaping from a simulation one has been living in would seem to be a worthy goal. But there also might be dangerous consequences. In the Intercept scenario, depending upon the way that messages to the cognitive system have been intercepted, one may or may not be able to step outside of the hardware of the simulation. If the brain stem has been severed or other serious damage has been done to the body in order to be connected to the hardware of the simulation, it is not possible (nor even desirable) to exit the simulation since the vessel for existence in the world outside is disabled. In the case of the "brain in the vat" scenario of Descartes' First Meditation (Descartes, 2004/1641), it is impossible to escape since a brain devoid of sense organs cannot empirically experience the world to which it has escaped. On the other hand, if the brain stem has merely been tapped but is otherwise uncompromised, it is possible to take a great step backwards outside the boundaries of the simulation. Using one's true physical body, escape from the technology is theoretically possible and the machine itself can be empirically apprehended with one's physical senses. Of course one would then be in the "real" world, which may or may not be pleasant (it certainly isn't in The Matrix).

The consequences of ending any of the simulations classified as intrinsic in Table 1 are likely dire, since by definition there is no external world to escape to. For example, just as the avatars we use in today's games and other virtual environments can't escape from their simulated world and exist in ours, having no consciousness of their own, we may not be able to escape our simulated world and exist in the external reality.

The consequences of revealing the simulation in the Android scenario are particularly interesting and help us revisit fundamental epistemological questions. The discovery of the true nature of one's origins, whether being told one has a different specific parent, was adopted, or was the result of artificial insemination or other techniques of modern science, can be unsettling; discovering that you are a machine would likely be considerably more unsettling. Since the android itself is artificial, the

consciousness that results from it is, perhaps, the ultimate example of an intrinsic simulation (Fleet, 2007) – one which has no existence beyond the simulation. But gaining knowledge of its own falseness is not a step toward escaping that falseness, just a realization that the falseness is all it will ever be capable of knowing. Analyzing The Matrix (Silver, Wachowski & Wachowski, 1999) from a Buddhist perspective, Brannigan points out a subtle distinction that has strong relevance here: Morpheus refers to the Matrix as a "prison for the mind" and not "a prison of the mind" (Brannigan, 2002). In the former case there is hope for escape since an externally constructed prison might be escaped from, but in the latter case, which applies to the Android scenario, there is no hope for escape since it is the mind itself which is the trap and one isn't even capable of thought or action outside of the illusion.

Of course, the situation that the android finds itself in reflects the potentially frightening truth about the relevance of our own supposedly authentic humanity. If the only thing distinguishing an android from a human being is a synthetic versus a "natural" origin, what cause does the authentic human have to believe that his/her epistemological capacity is superior? If the performance of the mind is the same, what reason is there to think that our own experience is somehow more genuine?

The central question that this scenario raises goes to the heart of empirical epistemology and the nature of being human: How do we know whether what we experience is the product of a quality that is native to the external stimulus or if it is a product of our own unique perceptual system? Does consciousness define the human condition? If so, an artificially intelligent android like the replicants in Blade Runner (Deeley & Scott, 1982) should have human status. However, strongly dualistic and religious arguments that require the existence of a soul or essence outside of the physical body may call the humanity of an android into question.

Is each of us merely the product of the physical structure of his or her brain? If so, would a perfect reproduction of that brain result in a perfect reproduction of our own consciousness? The notion of a "replacement psychology" (Dainton, 2002) would seem to contradict this argument if psychology is capable of being imposed from one type of entity to another. What we have here is the notion of the "ghost in the shell," in which our consciousness is something separate from our bodies which merely inhabits and animates our physical existence. We're not likely to be able to answer these epistemological questions, but the metaphor of simulation can help us address them more thoughtfully.

5.2 Religion and morality

Exploring the hypothetical dilemma of whether or not we are living in a simulation inevitably leads to questions concerning who created the simulation and why. These questions are relevant to longstanding religious and philosophical debates concerning the existence and nature of God. In addition, our beliefs about the real or simulated nature of our world have implications regarding what constitutes moral and immoral behavior, including whether or not morality and conscience even apply in a virtual world.

Beginning with religion, there are two primary ways to conceive of a creator's existence in the simulated world. The first account, modeled on Cartesian dualism, imagines the creator to be the outside force who created the simulation. In this conception, the creator is the ultimate "mind" which has orchestrated the physical and material conditions of the simulated world and only he/she/it is capable of manipulating the laws of the world (Murray & Rea, 2008; Rowe, 2006). The second account derives from existential phenomenology on the one hand, and the Indian philosophical tradition on the other. Here, it is argued that the individual world is a powerful genetic agent in the construction of the world (Murray & Rea, 2008; Rowe, 2006).

Ethics is the science of morality and ethicists analyze the rules and principles that govern human action. Decisions determining the interaction as or with the creator and choices governing intersubjective responsibility are important moral considerations in simulated environments.

5.2.1 God and God-like creators. The simulation scenarios suggest an important distinction between God as the ultimate creator and other powerful but not ultimate creators. A central plot element in The Matrix is the investigation of who designed and built the Matrix program that trapped most of humanity in an Intercept simulation. Near the conclusion of The Matrix: Reloaded (Silver, Wachowski & Wachowski, 2003), we encounter "The Architect," who claims to have created the Matrix but at the same time reveals that Neo is an anomaly resulting from his own programming deficiencies. To conceive of God as struggling with a mathematical problem evokes some age old theological questions such as, "Can God create a rock so heavy that even he cannot lift it?" The same principle applies: "Can God create an equation so complex that he cannot solve it?"

We can say generally that the concept of God as a hardware/software engineer is inherently flawed. If God must struggle against problems of logic and physical laws in

order to manufacture a universe, shouldn't we examine those broader forces which constrain him? Isn't something that constrains God a more appropriate candidate for the title? It would seem that the existence of any technological apparatus would be evidence of such a constraint since the manipulation of physical material to build a simulation would indicate adherence to some other set of physical laws that demand the arrangement of materials in particular ways in order to achieve a desired effect.

On the other hand, simulation technology may allow an ordinary person to exercise God-like powers:

> In some ways, the posthumans running a simulation are like gods in relation to the people inhabiting the simulation: the posthumans created the world we see; they are of superior intelligence; they are 'omnipotent' in the sense that they can interfere in the workings of our world even in ways that violate its physical laws; and they are 'omniscient' in the sense that they can monitor everything that happens. (Bostrom, 2003, p. 10)

Barrow (2007) echoes this, noting that "once conscious observers are allowed to intervene in the universe … we end up with a scenario in which the gods reappear in unlimited numbers in the guise of the simulators (Barrow, 2007)."

The same logic applies to most of the other types of simulations, with creators and controllers of simulations being God-like but not the ultimate creator. For example, the player of any of the variety of videogames titled "The Sims" exercises a God-like control over the lives of his characters. The game's official website even states that "An entire world of Sims awaits your quirky command. It's your neighborhood, they're your Sims, and whether they prosper or perish is completely up to you!" (The Sims: About the Sims n.d.). Despite this, of course, players are not Gods.

If simulations are nested within simulations as in the Infinite Regression scenario, the creators of the bracketed simulations are certainly not God-like in the absolute sense since everything they create exists within the parameters afforded by the larger simulation about which they are unaware. Their creativity is akin to the creativity involved in playing a videogame and is limited by the designed rules of the game. Only the Monism scenario proposes a separate and absolute God who creates the sole consciousness in which we exist.

On the other hand, the entities that create and control these simulations have varying degrees of God-like power. Even if the engineer or player lacks the omnipotence of God, he/she certainly has control over the experience of individuals within the simulation. Players using Avatars and the invading consciousnesses in the

Infinite Regression simulations have absolute control, while creators of Physical Presence, Intercept, and Android simulations set the parameters of experience.

Further regarding God-like creators, Bassham observes multiple similarities between Neo in the Matrix films and Jesus, and, indeed, both are portrayed as saviors who are not fully bound by the physical laws of the worlds in which they dwell (Bassham, 2002). This line of reasoning acknowledges the potential for our own God-like qualities. For example, a particularly savvy gamer in one of the Infinite Regression simulations might be able to reprogram the game (although doing this would require an awareness of the simulated nature of existence) and forge a connection with the external world. Approaching this from a Kantian perspective, Lawler writes that "[i]n projecting the world of our own experience, we attribute to it an independent reality and thereby alienate our own freedom" (Lawler, 2002, p. 139). Like the savvy gamer who disalienates his freedom by reprogramming the game that is his life, we might also exercise a profound genetic agency if we were to become aware of the power we had in constructing our own experiences.

As suggested by the Android scenario, continued development of genetic engineering and nanotechnology will challenge our understanding of the act of creation, and, perhaps by extension, our understanding of "God." The power to shape and manipulate chromosomes and atoms effectively grants humanity the power to reproduce ourselves much in the same way that "replicants" are reproduced in the fictional film Blade Runner (Deeley & Scott, 1982), making us seemingly God-like. Perhaps, though, such an achievement is meaningless since we already have this power. After all, isn't our very existence here and now a testament to the fact that we have always been physically equipped with the organs necessary to reproduce? Is there a distinction to be made between the creativity of sexual reproduction and the creativity that emerges in a laboratory? It could be argued that our brains, no less than our bodies, were gifted to us by a "creator" and, thus, the products that they produce, including androids, are no more the labor of our own efforts than the formation of an infant in sexual reproduction. On the other hand, if we doubt anyone or anything is responsible for our creation, these scientific tools gain new meaning in their capacity to facilitate our will. If matter in the physical world is understood as random and disorganized chaos, then our orderly and structured "will" can be imposed upon it through technology.

A final issue regarding the nature of God in the context of the various simulation scenarios concerns what form he/she/it might take within the simulation. Using the

Christian account of creation as an analogy, we could say “God” is the “active/original” being and we are simulants he created in a simulation environment of his design. God (the Father) entered the simulation using an avatar when he/she/it spoke to Moses as a burning bush and Satan “played” a snake as an avatar in the Garden of Eden. Extending the analogy, did Jesus enter the simulated world as himself somehow or did he just create an avatar to inhabit, or invade the consciousness of an existing simulant, for his trip through the mortal world? In the Bhagavad Gita, the God Krishna appears to warrior Arjuna in the form of a chariot driver.

The argument that God must inhabit an Avatar to interact in the world of his/her/its creations has been described by Kitirai, who uses computer science to attempt to understand the relationship between creators and created. Beginning with the question of whether or not a creator can enter the universe he/she/its created, Kitirai deduces that to communicate with their creations, creators require an intermediary. Noting the objection that an all-powerful being should be able to take any form, Kitirai suggests that even the power of God has limits to the extent that “God cannot be not God” (Katirai, 2004, p.24). Thus the conclusion is arrived at that God requires an intermediary (i.e., an avatar) to communicate with humanity. The basic premise of the argument also finds expression in Hammarstrom’s question “How can a mental state, on one level of reality, be about or represent something on a different level of reality” (Hammarstrom 2008, 39)? Brueckner also points out this inconsistency with respect to virtual machines, noting that

> a Sim cannot really build a computer – he merely seems to build one within his simulation – it follows that he cannot really create another human-like Sim mind that is instantiated in the programming of a real computer that he really builds. The Sims cannot really create other Sims (Brueckner, 2008, p. 224).

Bostrom takes issue with this critique, noting that if we have already accepted the notion of substrate-independence than we must accept the possibility of consciousness running on virtual machines as easily as we accept consciousness running on real machines. However, this qualification does not address compatibility between levels of consciousness which is our current concern.

Another obstacle to the compatibility between creator and created is the issue of consciousness itself. As Hammarstrom (2008) correctly points out, “consciousness is, unfortunately, not observable” (Hammarstrom, 2008, p. 44). How would a creator ever know if his/her/its creation became conscious if he/she/it cannot examine a subjectivity other than his/her/its own? The creator is always left to question the authenticity of

his/her/its creation's interaction. A "God" can never know that his/her/it's creations are conscious or have free will.

The point is that a God or Ultimate Creator (i.e., the first creator) is unable to interact on the same ontological level as that which it has created. An Ultimate Creator will always exist on a broader plane that its creations can never experience because they are trapped in the intrinsic, first order simulation designed by the Creator. Furthermore, an Ultimate Creator must be self-generating (i.e. will itself into existence), so we cannot interact with anything but a pure will since the Ultimate Creator could have no essential physical manifestation to be bound by.

As above, the questions regarding the existence and nature of God are timeless, but the concepts of simulation and telepresence can help us think them through in new ways.

5.2.2 Power, free will and moral responsibility. The degree of power and control of a simulation creator is inversely proportionate to that of those who live in the simulation. For example, in the Avatar scenario, an occupied entity has no power to make or execute decisions or be anything more than a simple pawn living out a destiny crafted by the interaction between programmer and player. Although characters in games such as The Sims or Second Life are certainly less complex than "authentic" humans, they present an apt metaphor for demonstrating that the belief in an omnipotent divinity precludes the possibility of free will in the absolute sense. Imagine that you have created a simulated human being in a game. You have determined their "personalities, skills, and appearance" (The Sims: About the Sims n.d.) as well as the activities they pursue and the situations they encounter. Dainton would say they are "passive" simulants with "replacement" psychologies. Are you and you alone not responsible for the fate that befalls the simulated characters you have created? Even without having programmed the game, your awareness of its parameters and knowledge of possibilities and potential outcomes grants absolute power over your creations. Of course, to be both player and programmer earns you even more responsibility for the fate of your simulations. Note that we might mistakenly believe we're in control just as the characters in the videogame are apparently unaware of any influence that the gamer exerts over their lives but that doesn't change the reality. The implication of these scenarios for morality is drastic: If we are not our own masters, then we are logically not responsible for the apparent moral choices that we make.

Thus, moral responsibility for the events occurring within a simulation is commensurate with the level of enhanced or diminished agency of the creator of the simulation.

In an initial approach to the subject of moral responsibility, Bostrom notes that "the posthumans running a simulation are like gods in relation to the people inhabiting the simulation" (Bostrom, 2003, p. 10). He goes on to draw a parallel between the omnipotence of God and the ability to interfere with the basic laws of the simulated universe, as well as omniscience and the ability to observe everything in the simulation. He concludes his line of moral inquiry by suggesting the potential for a "naturalistic theogony" in which a hierarchy of power exists based on proximity to the basement-level of reality. Consistent with the argument from the previous paragraph, this suggests that ultimate responsibility lies with the original simulator.

Not all simulation theorists place the burden of responsibility on the original simulator (i.e., God). Dainton, for example, sees simulation as a potential solution to the "Problem of Evil" (Dainton, 2002, p. 14) that faces those who believe in an all-powerful yet benevolent God. Most are familiar with the theodician dilemma - given a benevolent and omnipotent God, why do evil and suffering persist? To this, Dainton responds that

> perhaps the unpleasantness to be found in [a virtual universe] is due to the free choices made by some future (not very moral) human – the person who set up the parameters of the virtual world you inhabit – hence God is not directly responsible for the unpleasantness in question (Dainton, 2002, p. 15).

This argument is unsatisfying for one major reason: It does not acknowledge that the primary universe constructed by God must contain the affordances necessary for evil and suffering to begin with.

Continuing forward from this point, the morality of creating simulations to begin with should be called into question. Dainton goes on to argue this on two fronts. First is the "objection from lesser value" which states that, since a simulation has less inherent value because of its status as a mere reproduction, it is wrong to impose such an inferior status on a conscious being. Second is the "deception objection" which points out the ethical dilemma in manufacturing simulations that are deceived into believing they are real (a necessary component of historical simulations in Bostrom's original argument). On the other hand, Jenkins predicts the legality and acceptance of simulations in the future, explaining how it might be possible to establish proper ethical accommodations for generating simulations based on established principles like informed consent, withdrawal, legal status, and protected populations (Jenkins, 2006).

Another ethical issue to consider is how we should live our lives given the possibility we are trapped in a simulation. In his article titled "How to Live in a Simulation," Hanson suggests that, given the conditions of a simulation, we should be in an ongoing quest to hold the attention of the simulation designers by having a rich existence, participating in important events, and being famous and entertaining. He also notes that we should be less empathetic since those around us are only part of a computer program (Hanson, 2001). Holding more strictly to Bostrom's argument, Jenkins acknowledges the possibility that "long range planning beyond 2050 would be futile" (Jenkins, 2006, p. 37) given that the world may persist only as an ongoing replay of history. Most pragmatic, however, is Dainton's prescription that until we have certain evidence that we live in a simulation "it seems best to continue much as we would otherwise do" (Dainton, 2002, p. 16). Unlike the extreme responses of Hanson or Jenkins, Dainton points out that even if we were living in a simulation there would be no reason to doubt our observations and predictions any more than we would if we could be certain of our unsimulated status. For him, the critical point lies in the difference between an individual and communal simulation. Whereas an individual simulation bears close resemblance to a hallucination because subjectivity is its exclusive tool for apprehending the world, a communal simulation permits intersubjective observation through the cross-validation of experience which is inherent to human communication (simulated or otherwise) and which serves as the basis for scientific investigation.

5.2.3 The morality of revealing the simulation. If we are living within some type of simulation, even a most pleasant one, is it moral to reveal the truth? In general the answer would seem to be yes. Griswold poses the issue this way: "Does true happiness depend on some knowledge of reality, or if we feel ourselves to be happy may we rightly declare ourselves to be happy in fact?" (Griswold, 2002, p. 130). Presuming that it is moral to cause happiness rather than suffering it is important to make the correct choice. In Platonic fashion, Griswold concludes that happiness is contingent upon a "right understanding of reality – the reality about oneself and about what is truly the case in the world" (Griswold 2002, 135) because false understanding is temporary and will ultimately be revealed. Maintaining this approach becomes more difficult when the simulation is idyllic[1] and/or the reality is horrific (as in The Matrix films).

[1] Sanes (n.d.) notes the many warnings in Star Trek regarding the addictive and corruptive power of illusions.

A particularly sharp challenge is presented in the Monism simulation scenario because the entities within the simulation have the false belief that they are a distinct and separate entity in possession of an independent mind interacting in an exterior environment when in fact they are all figments of the imagination of a single consciousness. Is the destruction of the simulation an immoral act because it obliterates the illusion of separateness that lent the feeling of consciousness to the multitudes, or is it a moral act because it uncovers the truth about how things really are? Extreme cases such as these, while obviously hypothetical, help us untangle conflicting moral principles.

5.3. Death and mortality

Is telepresence technology an avenue of escape from mortality, and, if so, should it be developed in that direction? If, as in some of the scenarios described above, physical bodies have reduced or completely negated importance, could we hypothetically extend our lifespan indefinitely within the context of a simulation or through the development of cyborg technology (Kurzweil & Grossman 2004)?

Some of the simulation scenarios portray death as a limited threat. In the Avatar, Android and Intercept scenarios, the physical body plays either a fleeting or very limited role in existence.

For the “invading consciousness” of an Avatar, the body is a temporary corporeal vessel that can be replaced. Therefore, the Avatar simulation scenario is quite consistent with the common belief in reincarnation.

In the Android scenario, the body takes on the quality of a machine that is completely serviceable, with technology that can restore tissue and cells to a healthy condition.

If our experience is intercepted and replaced via technology, our body plays only a limited role and exists only to support the functioning of the brain. In that scenario, life could be extended and fatal accidents or incidents resulting from bodily trauma could be prevented. In the Matrix films, however, actual death persists within the simulation. Morpheus notes that death in the Matrix is true death because “[t]he mind makes [the experience of death] real.” This does not need to be the case, though, since Neo dies in the Matrix and comes back to life, based on his understanding that the experiences of the simulation are not authentic.

For the Monism scenario death is only an illusion because it presents a set of circumstances in which non-existence is impossible. If we are all part of the same single consciousness, we cannot truly die unless that consciousness dies, and since it

has no physical manifestation it has no reason and, perhaps, no way to die. Although within the simulation, death seems real enough because bodies become inanimate and decay, the consciousness which inhabits them merely passes into the common reservoir to be manifested elsewhere.

In light of these possibilities, what would it mean for humanity if some were permitted to live unnaturally long lives aided by telepresence simulation technology? There are those, such as Kurzweil and Grossman (2004), who see this as an implicit good, but there is also the potential for tyranny. For example, would the indefinite extension of life become a basic human right or would it be reserved only for those who are deemed valuable by the standards of their culture? Furthermore, wouldn't the ability to live a healthy life of indefinite length give a tremendous advantage to those born earlier? How would a relatively young person (even if they will eventually have their own conscious life extended) be able to negotiate or compete with a posthuman entity that may have tens of thousands of years of acquired wisdom and knowledge behind it? Thus, in each of the simulation scenarios, we find potentially comforting or disturbing interpretations of immortality.

6. Conclusions

Like the clock, locomotive and computer in the past, today's quickly advancing telepresence technologies provide a powerful metaphor for the nature of our world and ourselves. The metaphor and its variations are seen in scholarly considerations of the "simulation argument," which holds that we may exist within a computer generated simulation, along with many intriguing portrayals in popular culture (especially science fiction).

From this investigation, we can draw some tentative conclusions about epistemology, religion, and morality in simulated worlds. First of all, when considering the epistemological question of how the illusion of a simulation is sustained, we must ask ourselves the opposite: "what would the individual present in each of the scenarios have to know in order to reveal the illusion of the scenario and find an exit?" Considering this question for each simulation scenario reveals two things (1) Awareness of context through memory and prior knowledge, awareness of environmental anomalies/inconsistencies/glitches, skepticism, experimentation, and cross-validation of experience are essential to discovering the illusions of extrinsic simulations. (2) The illusions of intrinsic simulations are impossible to discover.

Secondly, when considering the religious and moral significance of simulations it must be understood that (1) An "ultimate creator" (i.e. God) is unable to interact on the same ontological level as that which he/she/it has created. (2) Moral responsibility for the events occurring within a simulation is commensurate with the level of enhanced or diminished agency of the creator of the simulation. Conclusions concerning the morality of creating or revealing simulations and the use of (tele)presence and simulation technology to extend life indefinitely are less clear, though it seems that immortality has the potential to bring with it some vast inequalities.

Finally, it is easy for presence scholars and practitioners to get involved in the details of creating and understanding telepresence experiences, but it is important and valuable to take a step back to acknowledge the power of the metaphor of current and future telepresence simulation technologies and apply them to our beliefs about the mysteries of our world and ourselves. The benefits include new ways to think about timeless questions regarding the nature of being, religion and morality, and death and mortality. On a personal level, the implications of the various versions of the simulation metaphor are likely to (1) have the positive effect of making us think about the broader context of our existence, (2) to not just accept our experience for what it seems to be, (3) not to "attribute to [our experience] an independent reality and thereby alienate our own freedom" as Lawler put it, but to work harder to exercise our own "God-like" power to improve our world and lives.

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