

# Process Polytheism

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**ABSTRACT:** I develop a version of process theology inspired by Hartshorne. This development aims to reconcile Hartshorne both with recent science and with analytic metaphysics. It posits an endless series of ever greater cosmic epochs. Each cosmic epoch is a subcomputation in a divine organism. Each divine organism is like a phoenix. Just as new cosmic epochs are born from the ashes of old cosmic epochs, so new deities are born from the ashes of old deities. The result is a process polytheism.

## Introduction

I will develop a version of process theology inspired by Charles Hartshorne. But the version developed here will differ from his process theology in several ways. This version of process theology is a novel kind of polytheism. It posits many deities. However, unlike older polytheisms (such as Greek or Norse polytheisms), these deities do not inhabit our universe. On the contrary, there are many universes, and each deity produces its own universe. There are many deity-universe pairs. Each universe gets exactly one deity and each deity gets exactly one universe. Versions of this *process polytheism* have been discussed by John Leslie, Peter Forrest, and myself.<sup>1</sup>

## Processes and Four-Dimensionalism

This presentation of process polytheism begins with a discussion of processes. Hartshorne endorses the thesis that persisting things are processes, which are time-ordered sequences of distinct instantaneous stages.<sup>2</sup> His philosophy “like that of the Buddhists or of Whitehead . . . regards enduring individuals as somewhat abstractly conceived sequences of events”.<sup>3</sup> The events which compose a process are not identical. Things are not enduring substances which remain self-identical through time. Hartshorne rejects identity through time.<sup>4</sup> The relation between events is genidentity.<sup>5</sup>

Among contemporary theories of persistence, the one that comes closest to the theory in Hartshorne is known as *four-dimensionalism*.<sup>6</sup> According to this theory, there are three ordinary dimensions of space, and there is a fourth dimension of time. A persisting thing is a four-dimensional series of three-dimensional stages. While the persisting thing is temporally extended along the fourth dimension of time, its stages are merely spatially extended along the three dimensions of space. So the instantaneous stages of persisting things are like three-dimensional pages of a four-dimensional book. The stages in any

process are temporally ordered from earlier to later. While each stage is identical with itself, it is not identical with any earlier or any later stages.

The process theology developed here involves a specific kind of four-dimensionalism. It is known as *exdurantism*, also known as *stage-theory*, and also known as *temporal counterpart theory*. Suppose Mary is a middle-aged woman in 2016. Her life is a process containing many past stages and many future stages. All those stages exist in their own times on the temporal dimension. Of course, they do not exist at the same time. Her past stages are earlier than her future stages; her future stages are later than her past stages. To say that Mary *is* middle-aged means that Mary has a present counterpart (namely, herself) who is middle-aged. To say that Mary *was* born in 1960 means that Mary has a past counterpart who is born in 1960. Mary's past counterparts never pass out of existence; each just *exists* in its own time. To say that Mary *will* die in 2050 means that Mary has a future counterpart who dies in 2050. Mary's future counterparts never come into existence; each just *exists* in its own time.

### **The Sequence of Cosmic Phoenixes**

Process metaphysics contains an early multiverse theory.<sup>7</sup> For Whitehead, physical reality at the largest scale is a series of cosmic epochs. Hartshorne also acknowledges the division of the total physical process into distinct epochs.<sup>8</sup> Distinct cosmic epochs have their own beginnings and ends. Hence "the present quantitative system of the cosmos is doomed".<sup>9</sup> The end of our cosmic epoch will be the heat death of our universe.<sup>10</sup> These epochs have their own laws. Since these epochs are isolated, and have their own physical laws, it is reasonable to refer to them as universes. Hence physical reality at the largest scale consists of an ordered series of universes.

Every universe (every cosmic epoch) has an organic unity; it is a cosmic organism. Hence each universe resembles a living body.<sup>11</sup> The laws of physics are to each universe as a genotype is to an organism. So the laws of physics are the genetic program of the universe. But the laws of physics are not eternal. As an old universe changes into a new universe, the old laws change into new laws. The old cosmic genotype changes into a new cosmic genotype. Hence the cosmic genotypes evolve. After our cosmic epoch, there will be a new epoch with its own genotype, its own laws of physics.

It appears that each universe resembles an organism which is born, lives, and dies. After its death, a new universe is born. This cosmology resembles the old Stoic cosmology in which each universe ends in a fiery conflagration (*ekpyrosis*).<sup>12</sup> After its *ekpyrosis*, a new universe is born from the ashes of the old universe. The Stoics also thought of universes as living organisms. Since universes are organisms which die in flames and which then produce their successors, each universe resembles a cosmic *phoenix*, which is born, lives, bursts into flames, and is then reborn out of its own ashes.<sup>13</sup> Each phoenix has the power to create its successor.

### **Digital Intelligence**

Our universe is an organism; but organisms are animated by minds. Hartshorne believes our universe is animated by a cosmic mind, which he calls *God*. He says God is to the universe as a mind is to its body.<sup>14</sup> He accepts mind-body dualism.<sup>15</sup> His mind-body dualism is not defensible. Perhaps the only way to use Hartshorne's analogy is to invert it: *God is to the universe as a body is to its mind*. This inversion rejects mind-body dualism in favor of epiphenomenalism. According to this epiphenomenalism, minds are not distinct substances from their bodies; rather, they supervene on their bodies (mostly on their brains). The mind supervenes on the brain much like the image of a face supervenes on a pattern of colored pixels on a video screen. Or the mind supervenes on the brain like a gene supervenes on a sequence of DNA base-pairs.

One of the benefits of this inverted analogy is that it can be correlated with defensible contemporary ways of thinking about minds. One idea is that the mind is to the brain as software is to hardware. This is the *computational theory of mind*. On this theory, the brain is an organic computer. Although the brain does not have the same structure as an artificial digital computer, the functionality of the brain is equivalent to the functionality of an artificial digital computer. The way the brain works can be exactly simulated by any digital computer. So the brain runs a program or algorithm which transforms earlier digital patterns of neural activity into later digital patterns of neural activity. But these digital patterns encode thoughts; thoughts supervene on those patterns.

It seems likely that Hartshorne himself would object to this digital conception of the mind. He says our brains are at least "thinking machines".<sup>16</sup> But he also says that they are "also far more than thinking machines".<sup>17</sup> Unfortunately, he never clarifies the ways our brains exceed thinking machines. One of the greatest objections to Hartshorne's thought is its mystification of mentality. His concept of the mind is obscure. The computational theory of mind has at least the benefit of clarity. Moreover, it reconciles pantheism with contemporary science and philosophy. And it allows several other aspects of Hartshorne's cosmology to be scientifically recovered.

## **Computational Pantheism**

According to this inverted analogy, just as the mind supervenes on the body, so the universe supervenes on God. And, according to the computational theory of mind, the mind supervenes on the body as software supervenes on hardware. Thus the universe is to God as software is to hardware. This means that our universe is a software-process running on a divine hardware substrate. This divine hardware substrate is God. God is a cosmic computer and the physical universe is an informational pattern running on that computer. God generates the universe by computing it into existence. The idea that our physical universe is running on an underlying computer is supported by many contemporary arguments in philosophy and physics.<sup>18</sup> Hence this way of thinking about the God-universe relation is also supported by those arguments.

This way of thinking about the God-universe relation is pantheistic: the universe is a proper part of the divine computational activity. God has parts and is complex.<sup>19</sup> Some but not all of these parts compute the cosmos.<sup>20</sup> Thus God is a divine body which thinks because it computes. Part of its thinking is the universe. By treating the divine body as a

computer, and by treating the divine mind as a process which supervenes on the divine body, much of Hartshorne's philosophy can be recovered.

This computational pantheism dovetails nicely with Hartshorne's organic conception of the cosmos. He said that the laws of physics are to each universe as a genotype is to its organism. But genotypes are like programs. So the cosmic genotype is the program being run by the cosmic computer. This genetic analogy further supports the thesis that God is to the universe as a body is to its mind. After all, the genotype belongs to the body, and, by running its genotype, the body produces the mind. God is a living entity. And just as living things have the power to produce offspring, so God has the power to produce offspring. If each cosmic epoch is like a phoenix, then it has the power to create its successor. But that power is divine creative power.<sup>21</sup>

### **The Sequence of Divine Phases**

There is a sequence of cosmic epochs. Each cosmic epoch has an organic unity; it has its own genotype. Hence the stages in every cosmic epoch are very tightly bound together. Each epoch is like a distinctive software-process running on its own computational substrate. At some point in time, the cosmic epoch ends, the cosmic organism dies, the software process halts. When this happens it seems appropriate to say that the hardware substratum also ends in some significant sense. After all, when an organism dies, it does not continue. But this end need not be total.

Once more the metaphor of the phoenix is apt: the sequence of cosmic organisms is analogous to a sequence of distinct phoenixes. As any phoenix burns up, its ashes form a cosmic egg. From this egg, the next phoenix is born. Of course, each next phoenix is not totally new, but inherits much of its nature from its predecessor. These cosmic phoenixes are all genetically linked, like parent and offspring. By analogy, as any cosmic epoch ends, it begets the next cosmic epoch. Each dying cosmic epoch computes a new genotype, which is the cosmic program for the next epoch. The stages in distinct epochs are bound together. However, since they are not bound by the same laws, they are not bound together as tightly as those in a single epoch.

Each stage in the life of each phoenix is a stage in the life of God. All the stages in the life of God are unified. But the unity of stages in each single cosmic epoch is greater than the unity of stages in distinct epochs. Hence the life of God is divided into segments or phases by the death of each previous phoenix and the birth of the next phoenix. These phoenixes are relatively isolated segments of the life of God. These phoenixes are divine lives within the greater divine Life. They might be referred to as gods or deities, but those terms have their own connotations. So, to avoid confusion, they will be referred to as *titans*. Each of these titans is born, lives, and dies. As it dies each previous titan gives birth to the next titan. This confirms Hartshorne's idea that there is "a kind of 'begetting' in the divine life".<sup>22</sup> Each new titan generates its own new universe, with its own laws and contents. On this view, God is a sequence of organically unified titans, and each titan is a sequence of stages. Each titan creates the next titan.<sup>23</sup>

### **The Progression of Divine Stages**

For process theologians, God is a process. Thus God is a time-ordered series of stages. For Hartshorne, God is perpetually self-surpassing. The later stages of God are divinely greater than the earlier stages. He says that “God cannot conceivably be surpassed or equaled by any other individual, but He can surpass himself, and thus His actual state is not the greatest possible state”.<sup>24</sup>

Hartshorne analyzes the greatness of any divine state in terms of aesthetic value. To be greater is to have more aesthetic value. There is an endless progression of ever greater degrees of such value: “Aesthetic value is the most concrete form of value. Everything can contribute to and increase it”.<sup>25</sup> But there is no maximum of this aesthetic value.<sup>26</sup> Hence there is no maximum of value: “The most concrete form of value has no upper limit; there can always be additional values”.<sup>27</sup> Hartshorne defines aesthetic value in ways that seem to include greater degrees of complexity. So his concept of value can be correlated with computational concepts of complexity.<sup>28</sup>

There is no maximum of divine perfection: “Take any conceivable number. A greater can be conceived. How do we know this is not true of ‘beings’?”.<sup>29</sup> Thus the divine life has at least the structure of the positive integers. As time goes on, the stages of divine life grow in value: “The only change [in God] must be in increase in whatever aspects of value are incapable of an absolute maximum, these being summed up in the idea of enjoying the beauty, the aesthetic harmony and richness, of creation”.<sup>30</sup> For Hartshorne, the later stages of God are greater than the earlier stages.

Hartshorne often says that God is the self-surpassing surpasser of all.<sup>31</sup> On the present interpretation, this means that God is a sequence of divine phases. Each phase is a titan. It is an organically unified segment of the divine life. But each titan subdivides into divine stages. Hence God can also be identified with the class of all the divine stages in all the titans. These stages satisfy at least these two axioms: there is some stage of God; every stage of God is surpassed by some greater stage of God. And God, as the class of all stages, surpasses every stage. Thus, for Hartshorne, God surpasses every stage like the class of all positive integers surpasses every positive integer.

### **The Regression of Divine Stages**

For Hartshorne, the later stages of God are greater than the earlier stages. If this is right, then the earlier stages of God are also *lesser* than the later stages. There is a regression of ever lesser stages of God. According to Hartshorne, this regression is infinite. He says that there is no beginning of time.<sup>32</sup> Thus time runs infinitely far back into the past.<sup>33</sup> As time runs back, so the cosmic epochs also run back. Since time also runs forwards without end, Hartshorne affirms that there is a two-way infinite series of cosmic epochs.<sup>34</sup> Consequently, the series of stages of God has at least the structure of the integers: it runs infinitely forwards in time like the positive integers and it runs infinitely backwards in time like the negative integers.

There are two ways in which the series of divine stages can involve an infinite regression. The first way associates every integer with some divine stage. Each stage has a degree of perfection proportional to the integer itself. Hence the zeroth stage has zero perfection and the negative stages have negative perfections. Perhaps an exactly

simple thing has zero perfection. But it seems absurd to say that any divine stage has negative perfection. Hence this first way of regressing fails.

The second way also associates every integer with some divine stage. But now the zeroth stage has exactly one unit of perfection. Every next stage has twice as much perfection and every previous stage has half the perfection. So, on the negative integers, perfections decrease like the fractions  $1/2$ ,  $1/4$ ,  $1/8$ , and so on. The objection to this fractional regress is that it makes little sense to talk about fractional degrees of perfection. For instance, if the divine stages are organic, then they have some complexities. But it makes little sense say that the complexity of an organism can be perpetually divided in half. At some point, dividing the perfection of an organism by half results in something which is not an organism. Organisms are not infinitely divisible. They are composed of discrete structures. Hence this second way of regressing fails.

The divine life is not infinitely regressive in the same way that the integers are infinitely regressive. On the contrary, the stages of the divine life must contain an order like the structure of the ordinal number line. The ordinal number line starts with the finite natural numbers (0, 1, 2, 3, and so on). But it then continues beyond the finite numbers into infinite numbers. The ordinal number line is infinitely long, and infinite ordinals do indeed have infinite regressions behind them. But those regressions bottom out in the initial number zero. For the sake of mathematical coherence, the stages of the divine life must be organized in a similar ordinal way.

Moving backwards into the divine past, the divine greatness ultimately decreases to an initial minimal value. This is the degree of perfection of some initial stage. This initial stage is correlated with the ordinal number zero. Just as earthly life begins with an initial self-replicator, so divine life begins with an initial self-surpasser. This initial stage is the necessary simple first cause. It is the minimal cosmic organism, the initial titan. It seems plausible to say that the perfection of any simple thing is zero.

## **To Infinity and Beyond**

Hartshorne is aware that, just as there is no greatest finite number, so there is no greatest infinite number.<sup>35</sup> Hartshorne is aware that mathematicians posit an endless sequence of ever greater infinities: “There are in standard mathematics many infinities unequal to one another, but no highest infinity”.<sup>36</sup> He is aware that the phrase “greatest possible number” does not refer to any number.<sup>37</sup> The ordinal number line progresses without any end. And he is aware that there is no maximally inclusive class; but then there is no greatest possible class. There is no “class of all classes”.<sup>38</sup>

Hartshorne now appears to argue like this: the concepts of greatest possible number and greatest possible class are paradoxical; since they are paradoxical, they are not instantiated; but the concept of a greatest possible value is analogous to those mathematical concepts; reasoning by analogy, the concept of greatest possible value is likewise paradoxical and not instantiated.<sup>39</sup> Hartshorne says “It is arguable that even an infinite richness may be open to increase”.<sup>40</sup>

These arguments suggest that the degrees of perfection are organized like the ordinal number line. The ordinal number line runs through all the finite ordinal numbers, and then it runs out into the infinite. Just so, the titans and their universes progress through

all the finite and infinite degrees of perfection. For every ordinal number, there exists some titan whose perfection is proportional to that ordinal. And that titan contains a universe whose perfection is proportional to that ordinal.

At this point the computational theory of the titans can help provide these ideas with some scientific precision. Computer scientists have defined endless ranks of infinite computers. These computers have infinite memories. They perform infinitely complex operations on infinitely rich informational patterns. And these endless ranks of infinite computers define endless ranks of infinite minds.<sup>41</sup> Those infinite minds can run infinite universes which contain infinitely complex physical bodies.<sup>42</sup>

### **The Endlessly Ramified Tree of Titans**

The series of titan-universe pairs suffers from two problems. The first problem is that the series of titan-universe pairs has an unattractive contingency: why does only this sequence exist, rather than some other series? It is certainly possible that there are others which are at least as divine. The second problem is that, since there is only one series of universes, they do not constitute mutual alternatives, and the class of these universes does not serve the needs of quantified modal logic or temporal logic. It does not yet provide an adequate account of the actualization of possibility.

The needs of the logic of possibility (modal logic) can be met by continuing the biological analogy. Just as ordinary organisms can make many offspring, so cosmic organisms can make many offspring. Every cosmic organism is a titan; but every titan is a phoenix. As any phoenix burns up, its ashes form many eggs. From each egg, a new phoenix is born. The offspring relation organizes the titans into a divine tree of life, which resembles the earthly tree of life. Following Hartshorne, each offspring titan surpasses its parent titan. Within any lineage of titans, the stages of the divine life are perpetually self-surpassing. Lesser titans evolve into greater titans. More precisely, for every titan, for every possible way it can be surpassed by a greater titan, it produces some offspring titan which surpasses it in that way. Since this principle incorporates possibility, the resulting class of titan-universe pairs can serve as an adequate domain of quantification for modal logic (e.g. for counterpart theory).

Perhaps Hartshorne would agree that the *relative side* of God can be analyzed into an endlessly ramified tree of titans, each of which is the unity of its own cosmic epoch (or universe). Nevertheless, he might further insist that the *absolute side* of God includes and transcends all the lives of these titanic deities. Perhaps this is consistent with his neo-trinitarianism, which permits there to be infinitely many Holy Spirits.<sup>43</sup> Thus the titans are analogous to these universe-bound spirits. Of course, this reference to Christian theology is not necessary. The absolute God is merely some pantheistic unity. It is the whole of which the titans are parts or it is the class of which they are members. But since this absolute God has little resemblance to any traditional God, it seems odd to keep the name. Since the endlessly ramified tree of titans defines all physical universes, and since the titans themselves are conceived of here in naturalistic terms (as divine organisms), it seems more accurate to refer to this tree as *nature*.

Some may say there is little difference between using the term “God” pantheistically (or panentheistically) and using the term “nature”. But Crosby wisely says that “God”

has so many anthropomorphic connotations that it cannot be used without unconscious misinterpretation.<sup>44</sup> Following Crosby, at least until the term “God” becomes purified of its anthropomorphic connotations, process polytheism prefers to use the term “nature” to refer to the tree of titans, and to say that *nature is the self-surpassing surpasser of all*. Since this absolute side of nature transcends the tree of titans, and exists in an eternal completeness, it can be thought of as nature natured (*natura naturata*).

## Conclusion

It is easy to use Hartshorne’s process theology to motivate a process polytheism involving many titanic deities and many universes. Each universe is associated with its own deity. According to this process polytheism, the divine life is not the continuous activity of any single divine individual; on the contrary, it is a vast ecological enterprise, the actualization of all the many divergent possibilities of divine life. And just as there does not exist any single organism which supports all the distinct organisms on earth, so also there does not exist any single deity which supports the distinct titanic deities. Process polytheism really is polytheistic, and not some kind of cryptic monotheism. Moreover, just as there are many species of earthly organisms, with their own natures, so there are many species of deities, with their own natures too.

Nevertheless, to say that the great tree of titans actualizes all the possibilities of divine life suggests that there exists some life which has those possibilities. However, since that life is not the continuous activity of any single divine individual, it must be an energy which flows from earlier divine individuals to later divine individuals. It flows from every titan to its offspring. This energy drives every titan to surpass itself. It is the power of self-surpassing. This energy resembles the Stoic *pneuma*, which drives a cyclical process of cosmic creation and destruction. Or perhaps it resembles the Hindu Brahman or the Aztec *teotl*.<sup>45</sup> However, as the power which brings all biological and thus all psychological entities into being, this energy has neither any biological nor psychological attributes. It is genderless, mindless, uncaring, and utterly impersonal. It has no feeling, no consciousness, no desire, no purpose. This ultimate creative power can be thought of as nature naturing (*natura naturans*).<sup>46</sup>

Process polytheism posits many titanic deities and many kinds or species of titanic deity. The deities are not made in the image of any single species. They are not made in the image of humanity. Process polytheism helps to overcome the anthropomorphic conception of the divine. When the deities are thought of more biologically, they become more highly naturalized. They cease to be above and beyond the world of life. Since the titanic deities evolve, process polytheism values evolution; it declares that evolution is divine; evolution is holy. Since process polytheism posits many diverse species of deity, it likewise declares that biological diversity is divine; biological diversity is holy. The earthly tree of life mirrors the divine tree of life.

If theology deals with our ultimate concerns, then a more biological conception of the divine can help to integrate life itself into the structure our ultimate concern, and may thereby help humanity to see itself as unified with earthly life. Theology tells us what we ought to ultimately be concerned about. It defines our highest values. Process polytheism affirms that evolution and ecological diversity are among our highest values.



We ought to care for those most deeply in our lives on earth. We ought to act to ensure that the self-surpassing of earthly life is as rich as possible. We ought to act to ensure that the self-surpassing of earthly life sustains itself for as long as possible.

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<sup>1</sup>Multiverse polytheism posits many universes with at least one god at each. It has been discussed by John Leslie, *Infinite Minds: A Philosophical Cosmology* (New York: Oxford, 2001). It has also been discussed by Peter Forrest, *Developmental Theism: From Pure Will to Unbounded Love* (New York: Oxford University Press, 2007). It has been extensively developed by Eric Steinhart in “On the plurality of gods,” *Religious Studies* 49.3 (2013): 289-312. And in Eric Steinhart, *Your Digital Afterlives: Computational Theories of Life after Death* (New York: Palgrave Macmillan, 2014).

<sup>2</sup>Charles Hartshorne says persisting things are processes. He analyzes these as time-ordered sequences of stages. See his *The Logic of Perfection and Other Essays in Neoclassical Metaphysics* (LaSalle, IL: Open Court Publishing, 1962), 41-2, 66, 119-22, 218-21. And see his *Omnipotence and Other Theological Mistakes* (Albany, NY: State University of New York Press, 1984), 104-6.

<sup>3</sup>For the rejection of identity through time, see Charles Hartshorne, *Anselm’s Discovery: A Re-Examination of the Ontological Argument for God’s Existence* (LaSalle, IL: Open Court Publishing, 1965), 51.

<sup>4</sup>Hartshorne rejects identity through time. See his *The Logic of Perfection*, 119-22.

<sup>5</sup>Hartshorne, *Anselm’s Discovery*, 50-1.

<sup>6</sup>The theory of four-dimensionalism in contemporary analytic philosophy is closest to Hartshorne’s theory of persistence. Four-dimensionalism is discussed by Katherine Hawley in *How Things Persist* (New York: Oxford University Press, 2001). It is discussed by Ted Sider in *Four-Dimensionalism: An Ontology of Persistence and Time* (New York: Oxford University Press, 2001).

<sup>7</sup>Leemon McHenry uses contemporary cosmology to develop the early multiverse theory found in Whitehead. See McHenry’s “The multiverse conjecture: Whitehead’s cosmic epochs and contemporary cosmology,” *Process Studies* 40.1 (2011): 5-25.

<sup>8</sup>For cosmic epochs, see Hartshorne, *Omnipotence*, 92-4. More recently, Donald Crosby affirms Hartshorne’s idea that physical reality is a series of cosmic epochs. See Crosby, *A Religion of Nature* (Albany, NY: SUNY Press, 2002), 35-44.

<sup>9</sup>Hartshorne, *The Logic of Perfection*, 215.

<sup>10</sup>Hartshorne also develops his theory of cosmic epochs in his *Man’s Vision of God* (Chicago: Willett, Clark, & Co., 1941). For heat death, see 201.

<sup>11</sup>For Hartshorne’s discussion of his theory that the universe is a cosmic organism, see *Man’s Vision of God*, 180-2, 200-1, 262-3.

<sup>12</sup>See Michael Lapidge, “Stoic Cosmology”, in John Rist (editor), *The Stoics* (Berkeley, CA: University of California Press, 1978), 161-87.

<sup>13</sup>For universes created by birds, see Hume, *Dialogues Concerning Natural Religion* (New York: Penguin, 1990), 87.

<sup>14</sup>Hartshorne, *Man’s Vision of God*, 176; *Omnipotence*, 59.

<sup>15</sup>Hartshorne, *Man’s Vision of God*, 175, 185-93.

<sup>16</sup>For brains as thinking machines, see Hartshorne, *Omnipotence*, 92.

<sup>17</sup>For brains as exceeding thinking machines, see Hartshorne, *Omnipotence*, 92.

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- <sup>18</sup>The thesis that our universe is running on a computer is discussed by Steinhart in his *Your Digital Afterlives*, chapter 5.
- <sup>19</sup>Hartshorne, *Anselm's Discovery*, 28.
- <sup>20</sup>Steinhart, "On the Plurality of Gods".
- <sup>21</sup>Hartshorne, *Man's Vision of God*, 230-2.
- <sup>22</sup>Hartshorne, *The Logic of Perfection*, 122.
- <sup>23</sup>Charles Hartshorne, *The Divine Relativity: A Social Conception of God* (New Haven, CT: Yale University Press, 1948). For divine creativity, see 30.
- <sup>24</sup>Hartshorne, *The Logic of Perfection*, 35.
- <sup>25</sup>Hartshorne, *Omnipotence*, 10.
- <sup>26</sup>Hartshorne, *Omnipotence*, 10, 31.
- <sup>27</sup>Hartshorne, *Omnipotence*, 10.
- <sup>28</sup>Value is complexity. Many computer scientists and mathematicians analyze complexity in terms of an abstract quality known as *logical depth*. Steinhart argues that intrinsic value is logical depth in his *Your Digital Afterlives*, secs. 72-4.
- <sup>29</sup>Hartshorne, *Anselm's Discovery*, 27.
- <sup>30</sup>Hartshorne, *Omnipotence*, 110.
- <sup>31</sup>Hartshorne, *The Divine Relativity*, 20; *Anselm's Discovery*, 28-32, 135-6.
- <sup>32</sup>Hartshorne, *Man's Vision of God*, 233-4; *Omnipotence*, 75.
- <sup>33</sup>Hartshorne, *The Logic of Perfection*, 123; *Anselm's Discovery*, 129, 188.
- <sup>34</sup>Hartshorne, *Man's Vision of God*, 230-2)
- <sup>35</sup>Hartshorne correctly rejects the idea of a greatest infinite number. See his *A Natural Theology for Our Time* (La Salle, IL: Open Court, 1967), 19-20.
- <sup>36</sup>Hartshorne, *Omnipotence*, 7.
- <sup>37</sup>Hartshorne, *Natural Theology*, 19-20; *Omnipotence*, 7.
- <sup>38</sup>Hartshorne, *Omnipotence*, 3-4.
- <sup>39</sup>Hartshorne, *Natural Theology*, 19-20; *Omnipotence*, 3-4.
- <sup>40</sup>Hartshorne, *Omnipotence*, 7.
- <sup>41</sup>For infinite computers and infinite minds, see Eric Steinhart, "Supermachines and superminds," *Minds and Machines* 13 (2003): 155-86.
- <sup>42</sup>Steinhart, *Your Digital Afterlives*, chapters 8 and 9.
- <sup>43</sup>Hartshorne, *The Logic of Perfection*, 122.
- <sup>44</sup>Crosby argues that the term "God" is so "hopelessly anthropomorphic" that it must be rejected. See his *A Religion of Nature*, 9.
- <sup>45</sup>James Maffie discusses Aztec *teotl* in chapter 2 of his *Aztec Philosophy: Understanding a World in Motion* (Boulder, CO: University Press of Colorado).
- <sup>46</sup>Crosby, in his *A Religion of Nature*, provides an extensive discussion of nature naturing as an ultimate creative and destructive power.