Philosophy of Religion
A More Diverse Western Approach

Eric Steinhart

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Introduction

Most philosophy of religion textbooks written for American college students focus exclusively on the Christian God. But American college students are becoming more religiously diverse. And an increasingly large number of American college students now have no religious affiliation. Many have been raised in secular or atheistic families, or they identify as spiritual but not religious. So it is no longer appropriate, outside of exclusively Christian colleges, to teach a philosophy of religion course that treats Christianity as if it were the only religion. It is not.

This text focuses on religious issues that my students have found interesting over the last decade. My students are from the general New York City metropolitan area. Other regions of the United States will have different student populations with different religious interests. One book cannot cover all possible religious populations in the United States. But this book makes an effort to trace the historical progression of religious ideas from the ancient Greeks to the modern Americas. It can help to provide some readings for instructors who want to expand beyond Christian exclusivism.

Whenever I make extensive quotation of some author or source, I have made every effort to use texts that are in the public domain. Since those public domain texts are often written in older versions of English, especially when they are translations, I have edited those texts for modern American readability. I have tried to ensure that all citations in the text have entries in the bibliography. However, this text remains a draft. It has not been copy edited or proofread. It almost certainly contains errors. I grant permission for anybody to use this text for non-commercial educational use. Use it to study on your own. If you are an instructor, you may provide it as a free PDF to your students.

Along with this text, I have provided three other resources: (1) a detailed weekly reading schedule; (2) a list of handouts for use in class; and (3) a list of hyperlinks to websites, videos, and other internet resources. The list of hyperlinks is available either as a zipped HTML file or as a webpage on the website for this course. Many topics may be grouped in a single week. I select from these according to student interest.

We are in the midst of one of the greatest periods of religious change the West has ever seen. It deserves further philosophical exploration. I hope these materialis will help you and your students explore the new religious landscape!

The Olympic Gods and Goddesses

1. The Theogony

The ancient Greek poet Hesiod told the story of the origin of the Greek gods and goddesses. Hesiod lived in the 8th century BC. His story of the origin of the gods and goddesses is told in his book The Theogony. The story of how the gods and goddesses came to be is not really a creation story – there is no Creator. It is mysterious, and does not give any explanations or reasons for the existence of the gods and goddesses. It starts out with Chaos, who appears for no reason. We are told that "Chaos came to be," but not how or why. Then Hesiod gives a long family narrative – the later gods and goddesses are mostly born through what seems like ordinary sex. Eventually, the Olympic gods and goddesses come into existence. They are called "Olympic" because they are said to live on the top of Mount Olympus in Greece. These are the twelve major gods and goddesses of the Greek and Roman religion. These gods and goddesses have varying names (for instance, Heaven is also known as Uranos). Here is Hesiod:

> Verily at the first Chaos came to be, but next wide-bosomed Earth, the ever-sure foundations of all the deathless ones who hold the peaks of snowy Olympus, and dim Tartarus in the depth of the wide-pathed Earth, and Eros (Love), fairest among the deathless gods, who unnerves the limbs and overcomes the mind . . . From Chaos came forth Erebus and black Night; but of Night were born Aether and Day, whom she conceived from sex with Erebus. And Earth first gave birth to starry Heaven, equal to herself, to cover her on every side, and to be an ever-sure abiding-place for the blessed gods. . . . Through virgin birth she produced the deep sea with his raging swell, Pontus. But afterwards she had sex with Heaven and gave birth to deep-swirling Oceanus, Coeus and Crius and Hyperion and Iapetus, Theia and Rhea, Themis and Mnemosyne and gold-crowned Phoebe and lovely Tethys. After them was born Chronos the wily, youngest and most terrible of her children, and he hated his lusty sire. (Hesiod, 1914: 116-34)

Hesiod's story makes several interesting points for pagan philosophy of religion. The first is that nature begins in chaos. The second is that chaos somehow organizes itself into orderly structures like the earth. The third is that the gods appear in nature. They are not the creators of nature – they are *entirely natural things* that occur in the midst of other natural things. The Olympic gods are *not* supernatural.

2. Zeus is a Man in the Sky

After several generations of divine sex, Earth has a grandson, named Zeus (also known as Jupiter). Zeus is the son of the god Chronos (also known as Saturn). After many battles, Zeus emerges as the king of the gods and goddesses. Zeus is not a disembodied mind; Zeus has a body. Here is a description, from the Greek poet Homer, of the minor deity Thetis talking with Zeus: "Thetis was not unmindful of the charge her son had laid upon her, so she rose from under the sea and went through great heaven with

early morning to Olympus, where she found the mighty son of Chronos sitting all alone upon its topmost ridges. She sat herself down before him, and with her left hand seized his knees, while with her right she touched him under the chin" (Homer, 1898: *Iliad,* 1.498). Zeus is the all-powerful King of the gods and goddesses:

> Now when Morning, clad in her robe of saffron, had begun to suffuse light over the earth, Zeus called the gods in council on the topmost crest of serrated Olympus. Then he spoke and all the other gods listened. "Hear me," said he, "gods and goddesses, that I may speak as I wish. Let none of you neither goddess nor god try to cross me, but obey me every one of you that I may bring [the Trojan war] to an end. If I see anyone acting apart and helping either Trojans or Greeks, he shall be beaten inordinately before he comes back again to Olympus; or I will hurl him down into dark Tartarus far into the deepest pit under the earth, … as far beneath Hades as heaven is high above the earth, that you may learn how much the mightiest I am among you. Try me and find out for yourselves. Hang a golden chain from heaven, and lay hold of it all of you, gods and goddesses together – pull as you will, you will not drag Zeus the supreme counselor from heaven to earth; but were I to pull at it myself I should draw you up with earth and sea as well, then would I bind the chain about some pinnacle of Olympus and leave you all dangling in mid air. So far am I above all others either of gods or men." (Homer, 1898: *Iliad*, 8.1-21).

3. The Gods and Goddesses Make War

Although Zeus initially told the gods and goddesses not to get involved in the Trojan war, his ban doesn't last long. The gods and goddesses do get involved in the war, and so came to fight each other. One of the most powerful deities is Athena, the goddess of war and wisdom. Athena sided with the Greeks in the Trojan war. But Ares, the male god of war, sided with the Trojans. In an earlier battle, Athena wounded Ares. And now Athena and Ares are meeting on the battlefield again:

> Ares piercer-of-shields opened the battle. Sword in hand he sprang at once upon Athena and reviled her. "Why, vixen," said he, "have you again set the gods against each other with your pride? Have you forgotten how you took a spear and drove it into me to the hurt of my fair body? You shall now suffer for what you then did to me." As he spoke he struck her on the terrible tasseled aegis – the war-shirt so powerful that not even can Zeus' lightning pierce it. Here did murderous Ares strike her with his great spear.
>
> Now Athena stepped back and with her strong hand seized a stone that was lying on the plain - great and rugged and black - which men of old had set for the boundary of a field. With this she struck Ares on the neck, and brought him down. His fallen body covered more than two acres, and his hair was all soiled in the dust, while his armor rattled around him. But Athena laughed and leapt over him saying, "Idiot, why do you still match yourself against me? Have you not learned how much stronger I am than you?"

> She then turned her two piercing eyes elsewhere; and while Athena looked away, Zeus's daughter Aphrodite took Ares by the hand and pulled him off the battlefield, groaning all the time, for it was only with great difficulty that he had regained consciousness. When Queen Hera saw Aphrodite, she said to Athena, "Look, daughter of aegis-bearing Zeus, unweariable, that vixen Aphrodite is again taking Ares through the crowd out of the battle; go after her at once." Thus Hera spoke. Athena ran towards Aphrodite with great determination, and attacked her, striking her on her breast with her strong hand so that Aphrodite fell fainting to the ground, and there both Aphrodite and Ares lay stretched at full length. Then Athena mocked their weakness. (Homer, 1898: *Iliad,* 21.392-426)

One lesson of the *Iliad* is that the gods and goddesses are not moral ideals. They are not paragons of the prosocial virtues of sympathy, empathy, altruism, and loving-kindness. They are bloodthirsty, vicious, and violent. They are profound and disruptive powers at work in human history. Another lesson is that the female goddesses are not gentle earth-mothers. Athena, especially, is a violent terror-goddess.

Socrates: The Design Argument

1. Religiously Interesting Arguments

Socrates was a citizen of ancient Athens, a city-state in ancient Greece. He lived from about 470 BCE to 399 BCE. Many people say that Socrates was the founder of *Western philosophy*. Western philosophy is the type of philosophy that starts in ancient Greece, spreads into Medieval Europe, and then spreads out into much of the rest of the world, including the Americas. Western philosophy is usually contrasted with *Eastern philosophy*. Eastern philosophy begins in ancient India and China, and then spreads out into Asia. Here we will focus on Western philosophy. Since we are focusing on Western philosophy, we are also focusing on Western philosophy of religion. It is fair to say that the Western philosophy of religion begins with a conversation between Socrates and Aristodemos. Aristodemos was also a citizen of ancient Athens. He did not participate in the local religion, which involved the worship of the Olympic deities. These deities included gods like Zeus and Apollo, and goddesses like Hera and Athena. But Aristodemos did not make sacrifices to the deities, nor did he pray to them, nor did he consult religious oracles to try to get information about the future.

Socrates thought that Aristodemos should participate in the local religion. He thought that Aristodemos was dishonoring the deities by refusing to perform the conventional religious practices. He thought Aristodemos should not dishonor them, because they deserved to be honored. But Socrates did not simply command Aristodemos to honor the deities. Socrates gave Aristodemos *reasons why* he should honor the deities. He gave an *argument* which he thought might persuade Aristodemos. Arguments are not fights, shouting matches, or loud debates. An argument is a series of logically connected statements. It starts with some premises, it moves through a series of logical steps, and it ends with some conclusion. The study of arguments is central to philosophy. And the *philosophy of religion* is the study of religiously interesting arguments. Probably the

first religiously interesting argument in the West is the argument that Socrates gave to Aristodemos. Socrates argues for the existence of some divine power, and he also argues that Aristodemos ought to honor it through religious practices.

2. From Useful Organs to Divine Minds

Socrates begins by asking Aristodemos whether he admires any humans for their skills in making things. Aristodemos admires Homer for making poems, Polycleitus for making sculptures, and Zeuxis for making paintings. All these artists require wisdom to make their creations. When we see a sculpture or painting of an animal, we infer the existence of a skillful person who intelligently designed the sculpture or painting. The person deserves to be admired for their skill. This sets the stage for an analogy: just as images of animals are intelligently designed by skillful humans, so the animals themselves are intelligently designed by skillful deities. These deities deserve to be admired for their skills. Since the Socratic argument makes such heavy use of the concept of design, it is a called a *design argument*. It goes like this:

> Socrates. Which would you consider the more worthy of admiration, a maker of senseless images devoid of motion or one who could make living creatures endowed with understanding and activity?
>
> Aristodemos. Decidedly the latter, provided his living creatures owed their birth to design and were not the offspring of some chance.
>
> Soc. But now if you had two sorts of things, the one of which presents no clue as to what its purpose might be, and the other is obviously for some useful purpose--which would you judge to be the result of chance, which of design?
>
> Ar. Clearly that which is produced for some useful end is the work of design.
>
> Soc. Does it not strike you then that he who made humans from the beginning did for some useful end furnish us with [the useful organs of the human body, as well as those of other animal bodies]. I ask you, when you see living bodies constructed with such show of foresight can you doubt whether they are products of chance or intelligence?
>
> Ar. To be sure not! Viewed in this light they would seem to be the handiwork of some wise artificer, full of love for all things living.
>
> Soc. What shall we say of this passion implanted in man to beget offspring, this passion in the mother to rear her babe, and in the creature itself, once born, this deep desire of life and fear of death?
>
> Ar. No doubt these do look like the contrivances of some one deliberately planning the existence of living creatures. . . . Really, Socrates, I don't despise the deities. I just think them too great to need me to honor them.
>
> Soc. The greater the power that offers to serve you, the more honor it demands of you. (Xenophon, 1897: 1.4.2-7)

The argument ends with Socrates giving Aristodemos a reason why he ought to do his religious duties: he ought to offer sacrifices and prayers to the deities. But is this a good argument? Has Socrates given good reasons? To evaluate this argument, we need to break it down into precise steps. These steps include premises and conclusions. The

premises are the assumptions of the argument. The are marked with "P". The conclusions are marked with "C". The argument goes like this:

(P1) There are two kinds of things: things which have no apparent purpose and things which have useful purposes.
(P2) If something has no apparent purpose, then it was produced by chance; but if something has a useful purpose, then it was intelligently designed for that purpose by a wise mind.
(P3) The organs of human and animal bodies have useful purposes.
(C4) Therefore: our bodies and those of the other animals were intelligently designed by a wise mind ("a wise artificer, full of love for all living things").
(P5) A maker of intelligent living creatures is greater than any human maker.
(C6) So the wise mind which made animals and humans is greater than any human.
(P7) But a mind greater than any human is a divine mind. It is a deity.
(P8) The deities served us by giving us useful organs.
(P9) Powers that serve us deserve our honor; greater powers deserve greater honor.
(C10) Therefore, we ought to honor the deities through religious practices.

One thing to notice about this argument is that none of the premises are religious. They do not depend on any religious revelations, or on any sacred books, or on things said by religious authorities like priests and prophets. They are statements based on observation, or on what seems to be common sense to Socrates and Aristodemos. The argument is religiously interesting because of its conclusion, not because of its premises. Another thing to notice about this argument is that the identity of the deity is not clear. We know only that it is a "wise artificer, full of love for all things living." Since the Greek myths say that Prometheus created humans, perhaps it is Prometheus. Socrates really isn't very clear about the identify of the Designer. But Socrates is *not* trying to argue for the existence of the Abrahamic God. The Abrahamic God is worshipped in the Abrahamic religions, namely, Judaism, Christianity, and Islam. Socrates is not aware of the Judaic God, and Christianity and Islam do not yet exist. The Socratic Designer is a pagan god of some kind. But what is this god? And what, exactly, is a god?

3. Divine Superhuman Agents

Since this argument is very ancient, it is also very primitive. Socrates does not know much about biology. It is easy to raise both scientific and religious objections to this argument. The argument fails to prove its conclusion. But suppose we leave those objections for later, and focus instead on the output of the argument. If the argument were correct, what would it tell us? It would tell us that there exists some maker which designed animal bodies. From this we can infer three things. (1) Since it designed living bodies, it is *intelligent*. But anything which has intelligence is a *mind*. Since we do not have enough intelligence to design living bodies, its intelligence is vastly greater than any human intelligence. It is a *superhuman* mind. (2) Since it actually made living bodies, it has some *power*. This power is also superhuman. But a mind which exercises power is an *agent*. Gravity exercises power, but it is not intelligent; it is not an agent. (4) Since

this agent is "full of love for all living things", it is *benevolent*. Love is a positive kind of moral concern. So this agent is morally concerned with living things.

The argument entails the existence of *an agent that has superhuman intelligence, superhuman power, and moral concern* for living things like humans. And that is a good definition of a *deity*. Note that this definition does not require the moral concern to be positive. It might be negative: many religious stories say that deities get angry with people, or hate people, or punish people. And some superhuman agents are said to be evil. Religions talk about evil gods, devils, and demons. Since many religions involve deities, arguments about deities are religiously interesting. Many of the arguments in the philosophy of religion are arguments either for or against the existence of deities. But any argument for or against the existence of some thing depends on having a clear idea of that thing. It depends on a clear definition of the thing. So much of the work in the philosophy of religion involves trying to clearly define the objects of religious interest. And much of that work involves trying to define deities. So far we have two categories of deities: the Socratic Designer, and the Olympic gods and goddesses. The Socratic Designer might be one of the Olympic deities, but we can't say for sure. Our theology so far contains the type deity, which divides into the Socratic Designer and the Olympic deities. Figure 1 shows our theological taxonomy at this point.

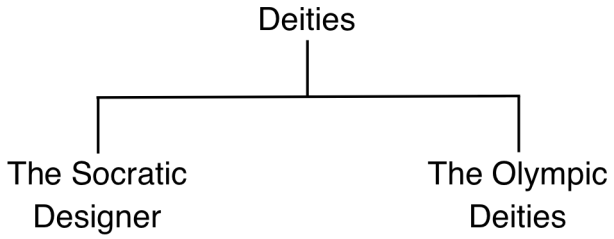


Figure 1. An early theological taxonomy.

4. Some Precisely Defined Deities

According to our definition (from the previous section), a deity is a superhuman agent. So what kinds of things satisfy this definition? The Olympic deities (the deities of ancient Greek and Roman paganism) satisfy the definition. They have superhuman power, superhuman intelligence, and they are morally concerned with us. The old Greek stories about the gods and goddesses say that they punish and reward humans; they help us and they harm us. Are there any other things that satisfy this definition? And, to be specific, are there any things besides the Olympic deities that would satisfy the Socratic argument for the existence of a designer of living things? After all, Socrates was not very precise about the nature of the designer. Besides the deities of ancient religions, are there any other things that might be superhuman designers of earthly life?

Some modern people say that the superhuman designers of earthly life are actually aliens from other planets. We know that our galaxy is filled with alien planets. We do not know whether any of them harbor life, much less intelligent life. But life on other planets is certainly possible, even likely. And people have long speculated that there could be aliens who are vastly more intelligent than humans. Some religious groups

claim that life on earth has been designed by super-intelligent and super-powerful aliens. The *Raelians* are a new religious movement which believes that life on earth was intelligently designed by divine aliens. The aliens are not supernatural – they are natural living things which used advanced technology to start and guide life on earth. Their goal is to produce more rational life in the universe. They want humanity to mature into a peaceful society. If we do mature, then they will return to earth and welcome us into their galactic civilization. The idea that the designer-god is some aliens is precise. It may be a false idea, but at least it is well-defined. Aliens are well-structured things. If they exist, these aliens are deities. They are superhuman agents who designed living things. The Socratic design argument might just entail these aliens.

Some modern people argue that the superhuman designers of earthly life are actually intelligent computers. We already know that humans are outsmarted in chess and other activities by computers. Many technologists argue that artificial intelligence will soon be vastly superior to human intelligence. Computers are the only things we know of that are likely to be smarter than humans. So perhaps the designer-god is some kind of digital super-intelligence, a divine computing machine. Some technologists, and some *transhumanists*, believe that we are living in a simulated reality, like a video game running on some ultra-powerful computer. So perhaps this computer ran some algorithm which designed animal bodies (including our bodies). The idea that the designer-god is an ultra-powerful computer is also precise. Of course, if some divine computer exists, it is not like our ordinary computers. It is self-powered, self-programmed, and entirely self-contained. Once more, this may be a false idea, but it is at least well-defined. Computers are well-structured things. If it exists, this computer is a deity. Again, as far as the Socratic design argument goes, it could just be an argument for this computer.

Maybe it doesn't seem right to say that aliens and computers are divine, or to say that aliens and computers could be deities. Should we try to rule out godlike computers and godlike aliens? How could we deny that those things are actually gods? Maybe we could say that deities are agents which are both superhuman and *supernatural*. Computers and aliens aren't supernatural; so they get rule out. But the concept of the supernatural is not well-defined. Are the Greek gods and goddesses supernatural? They have bodies that look much like human bodies. They are male or female. They eat and drink. They have sex, get married, and make babies. Zeus, the king of the deities, is the son of the god Chronos and the goddess Rhea. Most of them live on top of Mount Olympus. The Olympic deities came to exist within the natural order of things, as understood by the ancient Greeks. They were produced by natural processes, such as sexual generation. So it seems like they are natural rather than supernatural.

Plato: The Form of the Good

1. The One over the Many

We see and touch physical things. Physical things are *concrete* – they exist in time and space, and their actions cause effects in other physical things. But Plato argued that not all things are physical; that is, not all things are concrete. He argued that there are also *abstract* objects. These are usually called *forms*. He gave many arguments for the

forms, but we will only consider one here. It is his *One Over Many Argument*. Plato stated it in his book *The Republic* (in sections 596a-b). We can summarize it like this:

(1) Socrates is human; and Glaucon is human.
(2) Since Socrates and Glaucon are both human, they share some one thing in common, namely, their humanity or humanness.
(3) But humanity is not Socrates; for if it were, then Socrates would be identical with Glaucon. Likewise humanity is not Glaucon, for if it were, then Glaucon would be identical with Socrates. Therefore, humanity is neither Socrates nor Glaucon.
(4) Consequently, the humanity they share in common is some distinct thing. Thus humanity is a form which is distinct from all concrete particular humans. All concrete humans participate in this form. Since it is distinct from concrete humans, it cannot be concrete; it has a different kind of existence: it is abstract.
(5) But this reasoning can be generalized: Whenever we apply the same name F to many things, we do so because those many things all share F-ness in common. This F-ness is distinct from all the Fs. It is their abstract form.

Plato introduces the Form of the Good in a story known as the Parable of the Sun (*Republic,* 507b-509c). He presents this story as a conversation between Socrates and Glaucon. We don't know whether this story really comes from Socrates or from Plato. But even if it does not come from Socrates, it is close to Socrates. The Parable of the Sun is about concrete things and their abstract patterns. Socrates refers back to the One Over Many Argument. Since there are many beautiful things, there must be the form of the beautiful (beauty-itself); since there are many good things, there must be the form of the good. Socrates (or Plato) presents the reasoning like this:

> Socrates: Remember our old discussion, when we said that there are many different beautiful things, and there are many good things. For almost any kind of thing you can think of, there are many examples of that kind.
>
> Glaucon: I remember.
>
> Socrates: And we said that over and above the many beautiful things there is the form or pattern of the beautiful; over and above the many good things there is the form or pattern of the good. Whenever there are many things that resemble one another in some way, we say that there is one pattern over and above them. It is a one-over-many. The many, as we say, are seen but not known, while the patterns are known but not seen. (*Republic*, 507b)

2. The Good is the Source of Existence

Plato used the sun as a symbol for the source of all physical existence. The light and heat from the sun sustain all life on earth. So, in that sense, the sun is the source of all the energy that powers life. More generally, the sun is the source of all the existence in the concrete world. Now Plato says the Good is like the sun: just as the sun is the source of all that exists in the concrete world, so the Good is the source of all that exists in both the concrete and abstract worlds. Just as the sun shines out light, so the Good shines out

existence. By radiating existence out into the void, the Good brings all other things into being. It is the *ultimate source* of existence. Plato says:

> Socrates: Wouldn't you agree that the sun is the cause of all generation, nourishing, and perishing in the visible world? Consider how plants depend on the sun, and animals on plants, and thus how everything in our world ultimately depends on the sun for its energy and thus for its reality.
>
> Glaucon: It's true; all life on earth depends on the sun; and even the earth itself would not exist if the sun hadn't brought it into being.
>
> Socrates: In like manner the good may be said to be not only the cause of knowledge in all things that are able to have knowledge; and it is the cause of the existence of all the patterns in the abstract world, just as the sun is the cause of the existence of all things on earth. But the pattern of the good cannot be identified with existence. It is so glorious that it exceeds existence in power. For the cause of existence is beyond existence. (*Republic*, 509b)

3. The Good is not a Deity

The Form of the Good differs from any deity. Deities are intelligent agents, but the Form of the Good is not an intelligent agent. As intelligent agents, deities are usually thought of as persons or at least as personal. They are like human persons. But the Form of the Good is not like any person of any kind. It is utterly impersonal. Deities are concrete, in the sense that they are at least causes. And they typically exist in space and time in some way. But the Form of the Good is above and beyond all causality, beyond all space and time. The Form of the Good is an abstract object – it is pure abstract goodness. Deities exist; they are things among things, beings among beings. But Plato says the Form of the Good is beyond existence. It does not exist; it super-exists. Of course, this is very unclear. Nevertheless, the Form of the Good is not a being among beings. Although it is still not clear what it means to say that something is supernatural, it seems reasonable to say that the Form of the Good is supernatural. If nature is the totality of existing things, then the Form of the Good exists before nature (it produced nature) and it is superior to nature. It is above and beyond nature, and therefore supernatural.

Although the Form of the Good is not a deity, it does seem to be divine. After all, since the gods and goddesses are existing things, the Form of the Good caused them to exist. It is superior even to the gods and goddesses. To account for the Form of the Good, we can divide the *divine* into *sources* and *deities*. Sources are not deities. The Form of the Good is the first example of a source. Western religions will appeal to many other sources. They will all trace their origins back to the Form of the Good. Figure 2 shows the result of adding the Form of the Good to our theological taxonomy.

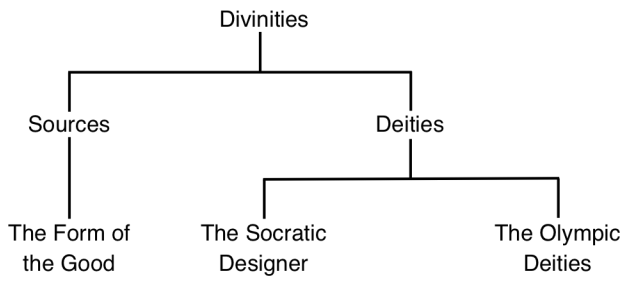


Figure 2. Sources and deities.

Plato: The Demiurge

1. The Argument from Change

A *cosmological argument* reasons from some facts about dependency to the existence of some independent being. Since effects depend on their causes, causality is one type of dependency. So one type of cosmological argument reasons from some facts about causality to the existence of something which does not depend on any earlier cause. This causally independent thing is some first cause. The first cause is a *starting cause* – it causes the entire universe to come into existence. Probably the first cosmological argument is given by Plato. Of course, Plato was neither Jewish nor Christian; he was an ancient Greek pagan. He gives his argument for a starting cause in his book the *Timaeus*, which was written in about 360 before the birth of Christ. Here it is:

> We must ask: What is that which always is and has no becoming; and what is that which is always becoming and never is? That which is apprehended by intelligence and reason is always in the same state; but that which is conceived by opinion with the help of unreasoning perception is always in a process of becoming and perishing, and never really is. Now everything that becomes or is created must be created by some cause, for without a cause nothing can be created. . . . So what about the universe? Was it always in existence and without beginning? Or did it come into existence, starting from some beginning? It has come into existence, since it is visible and tangible and has materiality, and therefore it is perceivable; and all perceivable things are apprehended by opinion and sense and are in a process of creation and created. Now that which is created must be created by a cause. (Plato, 1871: *Timaeus:* 27d-28d)

Plato's argument can be summarized like this:

(P1) Anything which can be perceived is in a process of becoming.
(P2) If anything is in a process of becoming, then it has some cause.
(P3) Our universe is perceivable.
(C4) Therefore, our universe is in a process of becoming.
(C5) Therefore, our universe has some cause.

The premises in this argument are P1 through P3. These premises are justified by observation; they are based on evidence. P1 is obviously true. P2 states that if anything is in a process of becoming, then it has some cause. Look at all the things around you. Each one of those things is becoming; and each of them had a cause. So you can justify P2 by an inductive argument. P3 is also obviously true. None of these premises needs to be taken on faith. None of them comes from some prophetic revelation.

Plato now makes two claims about the cause of our universe: it is intelligent, and it is good. But Plato offers no reasons for those claims. The cause of our universe could be an impersonal reason or power. For Plato, the cause of our universe is the *Demiurge*. The word "demiurge" just means craftsperson or maker. The inspiration behind the Platonic introduction of the Demiurge is not clear. Traditional ancient Greek religion does not have a creator. This Demiurge is not the Abrahamic God. It is not the God of Judaism, Christianity, or Islam. Plato is almost certainly not aware of Judaism, and Christianity and Islam do not yet exist. Plato was giving an argument for a creative god within the pagan context of Greek religion. So it would be wrong to refer to the Demiurge as God. The Platonic Demiurge is not God. And, as will become clear, the Demiurge doesn't entirely create the universe. The Demiurge doesn't create either the form of the universe or the stuff out of which it is made. The Demiurge really is like a carpenter who uses some wood and a blueprint to build a house.

2. The Ultimate Sufficient Reason

Since the Demiurge is an intelligent agent, it is motivated by reasons. It is not motivated by random chance or by some necessary urge. The Demiurge has a reason for making the universe. Since there is no earlier reason, this reason is ultimate. But this reason is also sufficient. To say that it is sufficient means that it is enough to motivate the Demiurge to create. So it is the ultimate sufficient reason. The ultimate sufficient reason for the creation of the universe is that the Demiurge is good. Plato says:

> Let me tell you why the Demiurge made this world of change. He was good, and the good is completely free from jealousy. And having no jealousy, he desired that all things should be as like himself as they could be. This is the ultimate motive for the creation of the world: the Demiurge desired that all things should be good and nothing bad, so far as this was attainable. But when the Demiurge first looked at the visible part of reality, he found it not at rest, but it was a chaos moving in an irregular and disorderly fashion. And since order is in every way better than disorder, the Demiurge organized the chaos. (*Timaeus*, 29d-30a)

3. The Pattern of the Universe

Human craftsmen use patterns, plans, or blueprints to make their creations. Since Plato is thinking of the Demiurge as a craftsman, the Demiurge must use something as a pattern for his creation. Fortunately, there does exist some pattern which the Demiurge can use. This Pattern exists independently of the Demiurge. It is not an idea in his mind

or something which he made. The Platonic Demiurge is *not* a designer. It is *not* the architect of the universe. It finds the blueprint it uses to make the universe; it does *not* use its intelligence to make that blueprint. Likewise the Demiurge does not create the Pattern. The Pattern. So the Demiurge is not the creator of all things. There are other eternal things besides the Demiurge. Plato argues that the pattern is eternal and logical:

> What pattern did the Demiurge have in view when he made the world – an eternal intelligible pattern or a changing visible pattern? If the universe is beautiful and the Demiurge is good, then he must have looked to an eternal intelligible pattern; otherwise, to some changing visible pattern. Every one will see that he must have looked to the eternal; for the universe is the most beautiful of creations and the Demiurge is the best of causes. And having been created in this way, the universe has been made in the likeness of that which is apprehended by reason and mind and is unchangeable. So the universe is a physical copy of an eternal rational pattern. (*Timaeus*, 28e-29b)

There are many possible patterns for the universe. The Demiurge could have used the pattern of a dog to make the universe. But dogs cannot exist without air and water and food; they cannot exist without the earth. So perhaps the Demiurge could have used the pattern of the whole earth. But the earth cannot exist without the sun. So the Demiurge needs to use a pattern that contains at least the earth and sun. The Demiurge must use a pattern which is complete, rather than one which is incomplete. If the Demiurge uses a pattern which is incomplete, the universe will not be able to exist as a single whole thing. It will not function properly. The pattern is complete. Plato says:

> What Eternal Pattern did the Demiurge use to make the world? It would be bad to say it is some incomplete and therefore imperfect pattern; for nothing can be beautiful which is like any incomplete thing; consequently, the Eternal Pattern is that complete pattern, which contains the patterns of all species of animals and all individual animals. For the Eternal Pattern of the universe contains in itself all intelligible beings, just as this world comprehends us and all other visible creatures. For the Demiurge, intending to make this world like the most beautiful and most perfect of intelligible beings, produced one visible animal containing within itself all other animals. So the Demiurge used as his model the pattern of the Perfect Organism, which contains every type of life. (*Timaeus*, 30c-30e)

4. The Material Elements

The Demiurge has a blueprint (the Eternal Pattern). But the universe is material; it is made out of some stuff. So the Demiurge also needs some stuff. Fortunately, Plato says there exists some stuff which the Demiurge can use. This stuff is matter. For the Greeks, there were four material elements: fire, air, water, and earth. This stuff was not made by the Demiurge. The Demiurge makes the universe, but the Demiurge does not make either the Eternal Pattern or the stuff. So there are three primordial things: the Pattern; the Stuff; and the Demiurge. This is very different from the Genesis story, in which God produces everything without any matter. Plato says:

> Now that which is created is of necessity corporeal, and also visible and tangible. And nothing is visible where there is no fire, or tangible which has no solidity, and nothing is solid without earth. So the Demiurge made the body of the universe to consist of fire and earth. But two things cannot be rightly put together without a third; there must be some bond of union between them. . . . Thus the Demiurge placed water and air between fire and earth. And thus he bound and put together a visible and tangible universe. And for these reasons, and out of such elements which are in number four, the body of the universe was created, and it was harmonized by proportion, and therefore has the spirit of friendship; and having been reconciled to itself, it cannot be destroyed by the hand of any power except the Demiurge. . . . The creation used up all the four elements; for the Demiurge compounded the world out of all the fire and all the water and all the air and all the earth, leaving no part of any of them nor any power of them outside. His intention was, in the first place, that the created animal (the universe) should be as far as possible a perfect whole and of perfect parts. (*Timaeus* 31b-33a)

5. The Universe is Self-Sufficient

Since Eternal Pattern is complete, the universe will not be missing any parts which it needs to function. Plato thinks that the universe is alive. He says that the universe is a complete living animal. It is a self-sufficient organism. The universe has a shape of its own. Since a sphere is a complete shape, it has the shape of a sphere. Figure 3 shows the world after the Demiurge shapes the universe. Plato describes it like this:

> The Demiurge gave to the universe the shape which was best. Since the cosmic animal (the universe) contains all other animals, the shape of the cosmic animal must be a shape that contains all shapes. Thus the Demiurge made the world in the form of a globe, round as from a lathe, having its extremes in every direction equidistant from the centre, the most perfect and the most like itself of all shapes; for he considered that the like is infinitely more beautiful than the unlike. This he finished off, making the outer surface of the universe smooth all around. He did this because the cosmic animal had no need of eyes when there was nothing remaining outside of it to be seen; nor of ears when there was nothing to be heard; and there was no surrounding atmosphere to be breathed; nor would there have been any use of organs by the help of which the cosmic animal might receive its food or get rid of what it had already digested, since there was nothing which went from him or came into it: for there was nothing beside it.
>
> By design, the cosmic animal was created like this: its own waste provides its food, and it is a closed system. For the Demiurge conceived that a being which was self-sufficient would be far more excellent than one which lacked anything; and, as the cosmic animal had no need to take anything or defend itself against any one, the Demiurge did not think it necessary to bestow upon the cosmic animal any hands. The movement suited to its spherical form was assigned to it. So the universe, being a sphere, revolves around its own center in a circular

motion. But the universe does not move in any other way, not left or right, forwards or backwards, up or down. And as this circular movement required no feet, the universe was created without legs and without feet.

Such was the whole plan of the Demiurge for the divine cosmic animal he was about to create, to whom for this reason he gave a body, smooth and even, having a surface in every direction equidistant from the centre, a body entire and perfect, and formed out of perfect bodies. And in the centre the Demiurge put the soul of the cosmic animal, the soul of the world, which he diffused throughout the body, making it also to be the exterior environment of it. Having these purposes in view he created the world. (*Timaeus*, 33b-34b)

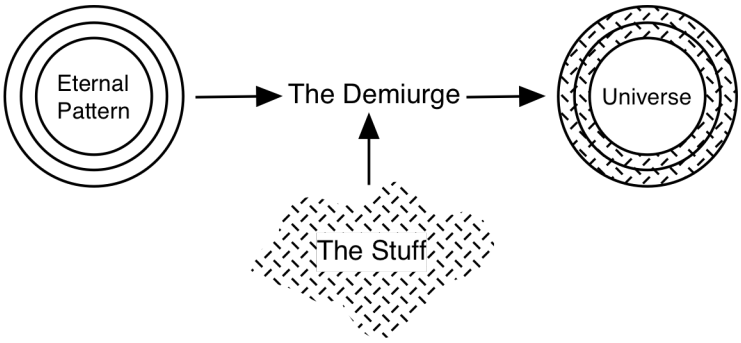


Figure 3. After the creation of the universe.

6. The Creation of the Gods and Other Animals

As the ancient Greeks watched the moon and sun travel through the sky, they concluded that the moon and sun orbit the earth (of course, they were wrong, but it will take a long time to figure that out). So the ancient Greeks, including Plato, thought the earth was at the center of the universe. They believed in a geocentric (earth-centered) universe. They knew of five planets: Mercury, Venus, Mars, Jupiter, and Saturn. Those planets are visible from earth and can be seen to move across the sky. So Plato says the universe is a sphere with the earth at its center, orbited by the moon, sun, and five planets. The stars and planets are the first things that the Demiurge makes:

The sun and moon and five other stars, which are called the planets, were made by the Demiurge in order to distinguish and preserve the numbers of time. Through these we count the days and months and years. When he had made these stars, he placed them in the orbits internal to the universe. The earth is in the center. First, there was the moon in the orbit nearest the earth, and next the sun, in the second orbit above the earth; then came Venus and then Mars. Then Jupiter and Saturn, and the edge of the universe contains the fixed stars. (*Timaeus*, 38c-38e)

After making the earth and the heavenly bodies, the Demiurge starts to populate the universe with living things. As it turns out, the stars and planets are gods, and the earth is also a god. Plato precisely defines the bodies of the gods: they are the stars and planets.

You can see these divine bodies when you look up into the sky at night. Or, since the planet earth is a goddess, you make contact with the divine body of Gaia, Mother Earth, when you walk on our planet. So the Demiurge has made the other gods of Greek religion:

> There are four main types of living things. One of them is the heavenly species of the gods; another, the species of birds whose way is in the air; the third, the watery species; and the fourth, the species of things that walk on land. The Demiurge made most of the gods out of fire, so they would be the brightest of all things and fairest to behold. And the Demiurge set them in circular motion around the earth, so that they resemble the shape of the universe (which is also a living god). The fixed stars were created, to be divine and eternal animals, always revolving in the same way; and the other stars which move (that is, the planets) are the gods we know. But the earth is also a god. The earth, which is our nurse, clinging around the pole which is extended through the universe, he made to be the caretaker of night and day. So the earth is the first and eldest of gods that are in the interior of the universe. (*Timaeus*, 40a-40c)

The Earth is the Greek goddess Gaia, which the Greek poet Hesiod said was one of the oldest gods. Her husband was the god Uranus, also known as Heaven. So Plato now tries to bring his creation story into line with the creation story in Hesiod. Plato has Earth and Heaven mate and produce the other gods:

> To know or tell the origin of the other divinities is beyond us, and we must accept the traditions of the men of old time who affirm themselves to be the offspring of the gods – that is what they say – and they must surely have known their own ancestors. . . Although they give no probable or certain proofs, still, as they declare that they are speaking of what took place in their own family, we must conform to custom and believe them. In this manner, then, according to them, the genealogy of these gods is to be received and set forth. Earth and Heaven are the parents of Oceanus and Tethys, and from these sprang Phorcys and Saturn and Rhea, and all that generation; and from Saturn and Rhea sprang Zeus and Hera, and all those who are said to be their brethren, and others who were the children of these. (*Timaeus*, 40d-41a)

7. The Closed World

Most of the ancient Greeks had a *geocentric cosmology*. They pictured the universe as a sphere with the earth at its center. The Demiurge is at the outermost edge, which is the highest heaven above the earth. It is shown in Figure 4.

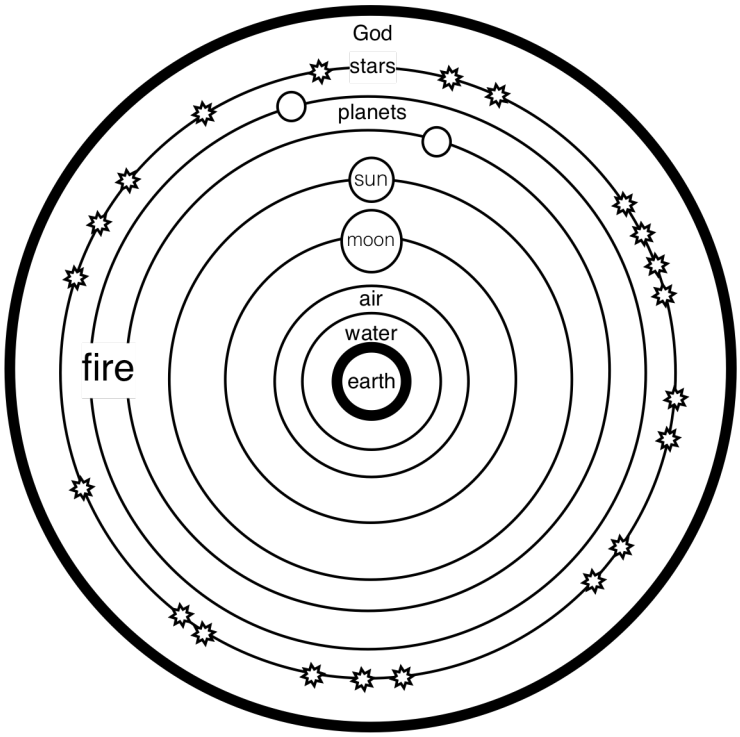


Figure 4. The universe is enclosed in a sphere.

8. Modernizing the Demiurge

It's hard to reconcile the Platonic theology with modern science. But one way to try to do this comes from computer science. The idea is that the Demiurge is analogous to a computer. The Eternal Pattern is the program that the Demiurge runs. The Eternal Pattern contains the physical laws of our universe. When the Demiurge runs the Eternal Pattern as its program, it generates the universe. It generates the universe much like a computer generates a video game. On this interpretation of the *Timaeus*, our universe is a software process generated by some cosmic computer. The idea that our universe is a software process is sometimes referred to as the Simulation Hypothesis. However, this is a bit inaccurate, since our universe isn't simulating anything. Our universe is procedurally generated, somewhat like the video game *No Man's Sky*.

This interpretation of Plato's *Timaeus* isn't complete. One component is missing. Our computers run on some kind of energy, such as electricity. So where does this energy fit into the Platonic picture? The energy can replace the material stuff. If the Demiurge is a cosmic computer, then it doesn't need any material stuff. It just needs energy. But what is the source of this energy? Plato says the Form of the Good is like the sun. The sun is a source of energy. So the source of energy for the demiurgic computer is the Good. If you want to be a bit silly about it, you can say that the Demiurge is solar powered. Figure 5 illustrates this computational interpretation.

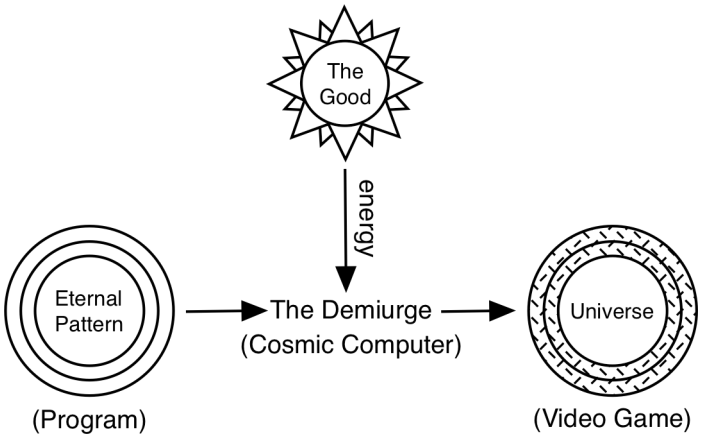


Figure 5. A computational interpretation of the *Timaeus*.

Plato: The First Cause

1. The Regress Argument

Plato seems to offer a Regress Argument to a first cause. His argument anticipates the Second Way in Aquinas (Summa, xx). The Platonic text is not entirely clear, and requires some interpretation. The Platonic argument seems to go like this: (1) either there is an endless regression of earlier things moving later things or else there is some regression to some first mover; (2) if there is an endless regression, there is no first mover; (3) if there is no first mover, then there is no motion at all; (4) but there is motion; (5) therefore, there must be some first mover; (6) the first mover is not moved by any earlier thing, it must be moved by itself; (7) so, the first mover is a self-mover. Here is the text from Plato:

> Athenian: I mean this: when one thing changes another, and that another, of such will there be any primary changing element? How can a thing which is moved by another ever be the beginning of change? Impossible. But when the self-moved changes other, and that again other, and thus thousands upon tens of thousands of bodies are set in motion, must not the beginning of all this motion be the change of the self-moving principle?
>
> Clinias: Very true, and I quite agree.
>
> Athenian: Or, to put the question in another way, making answer to ourselves:-If, as most of these philosophers have the audacity to affirm, all things were at rest in one mass, which of the above-mentioned principles of motion would first spring up among them?
>
> Clinias: Clearly the self-moving; for there could be no change in them arising out of any external cause; the change must first take place in themselves.
>
> Athenian: Then we must say that self-motion being the origin of all motions, and the first which arises among things at rest as well as among things in motion,

is the eldest and mightiest principle of change, and that which is changed by another and yet moves other is second. (Plato, 1871: *Laws*, 894e-895b).

2. The Souls of Heavenly Bodies are Gods

Plato now argues that if anything is self-moving, then it is alive; and if anything is alive, then it has a soul. Thus "the soul is the first origin and moving power of all that is, or has become, or will be" and the soul is "the source of change and motion in all things" (*Laws*, 896b). So the soul is the original self-mover (*Laws*, 895c-896c). The soul is likewise the source of all distinctions of value. We must necessarily "admit that the soul is the cause of good and evil, vulgar and honorable, just and unjust, and of all other opposites, if we suppose her to be the cause of all things" (*Laws*, 896d). Since order is a value, the soul is the source of all order, including the order we see in the motions of the heavenly bodies like the sun, the moon, and the planets (Laws, 896e). Plato goes on to argue that the sun has a soul and that the soul of the sun is a god:

> Athenian: Every one sees the body of the sun, but no one sees his soul, nor the soul of any other body living or dead; and yet there is great reason to believe that this soul of the world, unperceived by any of our senses, is circumfused around all the heavenly bodies, and is perceived by mind. . . . If the soul carries round the sun, we shall not be far wrong in supposing there are three ways to do this.
>
> Clinias: What are they?
>
> Athenian: Either the soul which moves the sun through the sky resides within the circular and visible body of the sun like our souls reside in our bodies; or the soul provides itself with an external body of fire or air and externally moves the body of the sun by some physical force; or thirdly, the soul of the sun has no body at all but guides the sun by some non-physical and wonderful power. . . . So the soul of the sun is therefore better than the sun. And the soul of the sun either acts in the sun like our souls in our bodies, or carries the sun in a chariot, or moves the sun in some other way. But no matter how it moves the sun, every person should declare that the soul of the sun is a god.
>
> Clinias: Yes, by every person who has any sense.
>
> Athenian: And the stars and the moon also have either one soul which governs them all or they each have their own souls. And those souls either reside inside of them as our souls reside in our bodies, or they dwell among those heavenly bodies in some other way. But those souls order the motions of all the things in the heavens. And they are excellent in every way, and they are gods. (*Laws*, 898a-899d).

The Epicureans

1. Atoms and Worlds

Plato said there was only one world (that is, one universe). However, Plato's conception of the universe was very different from our modern conception. He thought that the earth was in the center of the universe (so the universe is geocentric). And he thought that the universe was a closed sphere, with the stars on the outermost surface of the sphere. This was the common conception of the universe among the ancient Greeks. But to say it was common does not imply that everybody agreed with it.

Epicurus was an ancient Greek philosopher who was born just after Plato died. He was the founder of the school of philosophy known as the Epicureans. The Epicureans were materialists. They believed only in the existence of space and atoms. The atoms swirled together to make big structures (which they called "worlds"). Epicurus argued for an infinity of worlds. The infinity of worlds comes from the infinity of atoms:

> the worlds also are infinite, whether they resemble this one of ours or whether they are different from it. For, since the atoms are infinite in number, they necessarily move about at immense distances; for besides, this infinite multitude of atoms, of which reality is formed, or by which it is produced, could not be entirely absorbed by one single world, nor even by any finite number of worlds, whether we suppose them like this world of ours, or different from it. There is, therefore, no fact inconsistent with an infinity of worlds. (1901: 440)

It seems like all the Epicurean worlds exist in the same space and time. So there are several ways to think about these worlds. The first way is that the Epicurean worlds are just what we would call solar systems. Thus every star was the center of its own world. The second way is that Epicurean worlds are what we call galaxies. Of course, Epicurus did not know about galaxies, but they do seem to correspond well to his concept of a world. The third way is to say that the Epicurean worlds are what cosmologists today call Hubble volumes. A Hubble volume is a region of space that is isolated from other regions because of the expansion of space after the Big Bang.

2. The Epicurean Deities

The Epicureans said they believed in gods and goddesses. They were inspired by the poetic stories about the Olympic deities. Those stories said that the gods and goddesses have bodies; so the Epicureans take this literally – the gods and goddesses are made of atoms. Epicurus gives an argument from the universality of religious belief to the existence of the gods. It is presented in Cicero's *On the Nature of the Gods* (Book I, 43-5). It goes like this: (1) All over the world, people believe that gods exist. (2) But if people everywhere believe something, then what they believe is true. (3) Therefore, the gods exist. Granted that the gods exist, Epicurus now gives an argument that the gods have material bodies. It is presented in Cicero's *On the Nature of the Gods* (Book I, 67-9). It goes like this: (1) The gods exist. (2) All existing things are composed of atoms.

They are material things which have shapes and exist in space. (3) Therefore, the gods are composed of atoms. The gods are material things; they have material bodies existing in space. But the gods are superior to humans (they are immortal, and live perfect lives). Since the gods are superior animals, their bodies are superior bodies.

Epicurus gives two arguments which reason from the excellence of the gods to the thesis that the gods look like human animals. These arguments are presented in Cicero's *On the Nature of the Gods* (Book I, 46-9). The first argument goes through beauty: (1) The gods are living creatures. (2) All living creatures have some bodily shape. (3) The gods have the best nature. (4) But the best nature has the most beautiful bodily shape. (5) The most beautiful bodily shape is the human shape. (6) Therefore, the gods have the human shape. They look like human animals. The second argument goes through virtue and reason: (1) The gods are the most blessed of all creatures. (2) If something is blessed, then it has virtue; so the gods have virtue. (3) If something has virtue, then it has reason; so the gods have reason. (4) But observation of living things on earth shows that reason can only exist in bodies with human shapes. (5) Therefore, the gods have human shapes. They look like both male and female human animals.

Since our bodies decay and die, it might be thought that those of the gods will also decay and die. But the gods are immortal, forever young, and always healthy. They never get sick, age, decay, or die. To explain this, the Epicureans thought that the bodies of the gods were of higher quality than human bodies. The gods and the goddesses live in outer space. They occupy themselves with their own divine company. They live eternally blissful lives, and are not concerned with human animals on a tiny planet.

3. The Epicurean Challenge

The ancient Greek poets, and the ancient Epicurean philosophers, have fairly clear ideas about the kinds of things that are gods and goddesses: they are material bodies inhabiting space and time. They have shapes and parts. They have organs and thus physiological structures. The Olympic deities have bodies that can be cut; they have veins through which a blood-like substance called *ichor* flows; they eat a food-like stuff called *ambrosia* and drink a wine-like liquid called *nectar*. After Athena causes Ares to be wounded in their first battle, Zeus summons a divine doctor to cure him. The doctor uses a special medical ointment. These deities really do have genders, complete with sex organs. They have sex. Goddesses get pregnant and give birth just like earthly mammals. All this may well be false mythology, but at least it is comprehensible. The deities are well-structured organisms. Epicurean theology has clarity. The *Epicurean Challenge* demands that you define your deities with precision.

A *theology* is a theory of divine agents (let's just say deities). A theology *meets* the Epicurean Challenge if it defines its deities as well-structured objects open to rational thought. Many theologies do try to meet the Epicurean Challenge. One way to meet it says the deities have humanoid bodies with humanoid organs. They have eyes, heads, hands. Theologians can study divine anatomy, nutrition, and medicine. A second way generalizes from bodies: since human bodies are really just machines, the gods are really just super-machines. As such they might not look anything like humans. They might look like aliens from other planets; they might have bodies that look like stars. They might be more abstract machines. A third way to meet the Challenge gets into basic

physics: the body of God might be space itself, or it might be some kind of force field, or some holographic information-pattern, or the entire universe. On any way of meeting the Epicurean Challenge, the deities are *structured*. So gods are studied by the sciences of structure. These are the formal sciences of mathematics, information theory, complexity theory, and computer science. The gods are entirely open to rational study.

If a theology fails to meet the Epicurean Challenge, then its deities lack structure. Since they lack structure, they are mysterious. But this mysteriousness opens the theology to challenge. An atheist may jump in and argue that the mysteriousness means that the deities are just *fictions*. If you can't clearly define what you're talking about, then you aren't talking about anything. So when people talk about unstructured deities, they use words that they do not really understand. Deities are *spirits*, but nobody knows what a spirit is, or where spirits live, or how they interact with physical reality. Spirits can't be studied scientifically or conceptualized mathematically. The atheist will argue that this is because there really aren't any spirits. Spirits are fictions made only of words. Some religious people don't worry about fictions. They say that fictions can play significant social roles. Religion is just live-action role-playing. It's make-believe, but with serious effects, because it's shared or communal make-believe.

Stoicism: The Cosmic Administrator

1. Zeus as King of the Gods

The idea of a king of the gods is ancient. The Greek-Roman pagans thought that Zeus was the king of the gods. As king of the gods, Zeus was also the king of all humans; he was the ruler of all things below him on the Great Chain. Cicero writes:

> we cannot better commence our investigations than by invoking him whom, with one voice, both learned and unlearned [people] praise as the universal king of all gods and men. . . . [There is] believed to exist one Universal Monarch in heaven, at whose nod (as Homer expresses it) all Olympus trembles, and that he might be accounted both king and father of all creatures; for there is great authority, and there are many witnesses, . . . who attest that all nations have unanimously recognized, by the decrees of their chiefs, that nothing is better than a king, since they think that all the gods are governed by the divine power of one sovereign. (Cicero, *Tusculan Disputations,* On the Commonwealth, ch. 36).

2. The Harmony of Parts

One of the oldest arguments for gods is the *design argument*. A design argument goes generally like this: some natural things have organized structure; but all organized structure originates in some intelligent mind; therefore, natural things are designed by intelligent minds. And, since these natural things were not designed by any human minds, they must have been designed by divine minds. Therefore, there exists some divine mind which designed natural things. The Socratic design argument started with

the organization of human bodies – our organs appear to have purposes, but purposes come from minds. The Stoic design argument does not start from animal bodies. It starts with the order of the entire universe. Specifically, it starts with the orderly movements of the heavenly bodies in the solar system. The whole universe is like a grand machine whose parts are all coordinated or harmonized. And on earth, the parts of the earthly ecosystem are also harmonized with each other. Animals and plants are mutually adapted: animals eat plants, but then animal excrement fertilizes plants. So the whole universe is also like a city which is administered by a wise ruler.

3. Cicero: The Argument for a Divine Administrator

One early design argument was given by Cicero. Cicero was a Roman philosopher. He lived from 107 BC to 44 BC. He belonged to the school of philosophy known as *Stoicism*. He summarized the Stoic view of the universe in his book *On the Nature of the Gods*. He was a pagan philosopher, and not a Christian. He does not believe in the Christian God. He never heard of that God. On the contrary, he believes in the Greek and Roman gods. Here is his version of the design argument:

> Now, the universe sows, as I may say, plants, produces, raises, nourishes, and preserves what nature administers, as members and parts of itself. If nature, therefore, governs them, she must also govern the universe. And, lastly, in nature's administration there is nothing faulty. She produced the best possible effect out of those elements which existed. Let any one show how it could have been better. But that can never be; and whoever attempts to mend it will either make it worse, or aim at impossibilities.
>
> But if all the parts of the universe are so constituted that nothing could be better for use or beauty, let us consider whether this is the effect of chance, or whether, in such a state they could possibly cohere, but by the direction of wisdom and divine providence. Nature, therefore, cannot be void of reason, if technology can bring nothing to perfection without it, and if the works of nature exceed those of technology. How is it consistent with common-sense that when you view an image or a picture, you imagine it is wrought by art; when you behold afar off a ship under sail, you judge it is steered by reason and skill; when you see a sundial or water-clock, you believe the hours are shown by skill, and not by chance; and yet that you should imagine that the universe, which contains all skills and the engineers, can be void of reason and understanding?
>
> Consider the orrery which was recently made by our friend Posidonius. It shows the regular revolutions of the sun, moon, and the planets. Now suppose it were carried into Scythia or Britain. Even though the people in those countries are uneducated barbarians, they would all correctly conclude that the orrery had been made so perfect by the exertion of reason. If nature were not rational, then Posidonius would have more wisdom than nature; but that is impossible, since nature causes the motions of the heavenly bodies, while Posidonius merely represented those motions in his model. The universe is not the effect of chance, or some necessity. The universe, from whence all things arise and are made, is

> therefore the work of reason and a divine mind. But that divine mind is the intelligence of the universe itself. (Cicero, 1877: II.86-9)

Cicero's presentation of the cosmic design argument involves an Argument from Complexity:

(1) The universe was produced either by chance, necessity, or intelligence.
(2) The universe is a whole composed of adapted parts, like a complex machine.
(3) No complex machines are known to come from either chance or necessity.
(4) All complex machines are known to come from intelligence.
(5) Therefore: the universe was produced by intelligence.
(6) But designing more complex things requires greater intelligence.
(7) The universe is the most complex of all existing things.
(8) So the mind that designed it is the most intelligent of all minds.

4. Epictetus: The Argument from the City to the Ruler

Cicero is reporting an argument for a Stoic organizer-god. But the Stoic organizer-god is not a creator-god. The Stoics think that the universe was never created, it always existed. So the Stoics do not believe in a creator-god. The Stoic organizer-god does not stand outside of the universe like Plato's creator-god. The Stoic organizer-god lives inside of the universe. The Stoic organizer-god is the mind of the universe. Just as your body has a mind (or soul), so the universe has a mind (or soul). The mind of the universe is more like an internal administrator than like an external craftsman. An external craftsman builds a house from the outside; but an internal administrator organizes the life of a city from the inside. A god that works from inside the universe is immanent; a god that works from the outside is transcendent; so the Stoic organizer-god is immanent.

The Stoics were materialists: they don't believe in any mysterious spiritual stuff. For them, spirit is a kind of physical energy. They used the word *pneuma* to refer to spirit; the word *pneuma* literally means breath. So spirit, for the Stoics, is fire-energy. This energy is a power which drives matter to organize itself into complex structures. This fire-energy is intelligent and concentrates itself into the minds of animals, humans, and gods. The Stoic organizer-god is a material thing. About sixteen hundred years later, Hobbes will also argue that God is a material thing. For now, the important thing is that the Stoic organizer-god is distributed throughout the entire universe. The power of the Stoic organizer-god is present everywhere in the universe. This organizer-god exercises its power through its laws, which apply at all times and all places. For example, the law of gravity works at all times and all places. So the organizer-god has given laws to the universe, and these laws are always enforced by the power of this god. But the Stoic organizer-god is good and wise; so its laws are good and just.

The Stoics reason from the internal organization of the universe to the existence of a divine organizer. The Stoics sometimes referred to this divine organizer as Zeus. But this is not the crude human-like Zeus of the poets Hesiod and Homer. This is a more abstract Zeus; it is the *Cosmic Zeus*. But the Stoics also refer to their Cosmic Zeus as God. To distinguish it from the Christian God, we will refer to it as the Stoic God. After Cicero, the Roman Stoic Epictetus gave an argument for the Cosmic Zeus. When we see a city

whose citizens interact harmoniously, we infer the existence of a governor. The governor is good, wise, and powerful. But the universe is exactly like such a city. So it also has an excellent governor. So Epictetus gives an *Argument from the Analogy between a City and the Universe* (D 2.14.24-7).

> Our situation is like that of a crowded assembly or market. Animals are brought to be bought and sold; and the greater part of the men come to buy and sell, and there are some few who come to look at the market and to inquire how it is carried on, and why, and who organized the market and for what purpose. So it is here also in this assembly: some people are like cattle who trouble themselves about nothing except their food. For to all of you who are busy about possessions and lands and slaves and political offices, these are nothing except food. But there are a few people who attend the assembly, people who love to watch it and to wonder about the nature of the universe and who governs it. Has it no governor? And since a city or a family cannot continue to exist, not even for a short time, without an administrator and governor, how could it be that so great and beautiful a system as the whole universe should be display such great order by chance and without any purpose? There is then an administrator. What kind of administrator is it, and how does he govern? And who are we, who were produced by him, and for what purpose? Have we some connection with him and some relation toward him, or none? (Epictetus, 1904: 2.14.23-27)

His argument can be formalized like this: (1) A city is a complex system with many interacting parts. (2) If a city or household is not governed by a ruling intelligence, then it quickly disintegrates into chaos. (3) But the universe is far more complex than any city or household. It is a "vast and beautiful structure" which cannot be "kept so well ordered by mere chance and good luck." (4) So if the universe is not governed by a ruling intelligence, then it will quickly disintegrate into chaos. (5) But the universe does not disintegrate; on the contrary, it remains well ordered. (6) Therefore, there exists some ruling intelligence which maintains the order in the universe. Just as a city has a ruler, so the universe has a ruler. (7) But this cosmic ruling intelligence is the Stoic God.

5. The Divine Lawgiver

The Stoic God is a wise lawgiver. But what laws does God define? God does not define the laws of mathematics – God cannot do anything about those either way. The laws of mathematics are necessary laws. God defines the laws of nature. The universe runs or operates according to these laws. Here God has choices: there are many possible ways a universe can operate. So God selects a system of physical laws which govern our entire universe. These laws determine the entire history of the universe down to the smallest detail. The Stoic God is like a computer programmer who writes a program for a computer and then starts it up. The universe is like a computer running according to this program. According to the Stoics, all events are determined or fated.

By giving each thing its nature, the Stoic God determines what is best (and worst) for that thing. The Stoic God gave us our human natures. Our natures define the best (and worst) ways we can live, including the best (and worst) ways we can interact with each

other. Our natures define human morality. Since our natures are objectively real, there are objectively real laws of human morality. These were defined by the Stoic God when It designed and created us. Since the Stoic God is good, it wants us to do the best we can. It wants us to figure out the objective laws of morality and to live accordingly. The Stoic God wants every human to do his or her duty.

Stoicism: The Great Chain of Being

1. The Levels of Reality

The *henological argument* is an argument from stages or levels. It's like climbing a ladder from the lowest ranks of reality up to the highest, with God as the top of the ladder. This is the idea of God as the Supreme Being. When you think of God as a "higher power", "supreme being", or "transcendental", you're thinking of this ladder. The ladder itself is often referred to as the *Great Chain of Being*.

The henological argument is an ancient argument, much older than Christianity. It was first used by the early Roman Stoics. The Stoics thought that the universe was a living thing. For the Stoics, the universe itself is God. The identification of the universe with God is known as *pantheism*. The Stoics argued that the universe is animated by a divine fire. This divine fire is intelligent – it is the mind or soul of the universe. So the divine fire is like a spirit present in all things. The divine fire produced all other things, including the gods and goddesses of the old Greek-Roman pagan religion (gods like Zeus and goddesses like Athena). So the universe as a whole is God, but the divine fire is like the mind of God or the spirit of God. It is the power of God.

The Roman writer Cicero wrote one of the first books in the philosophy of religion. He lived from about 107 to 44 BC. He was a Roman politician and lived a dramatic life. His book was called *On the Nature of the Gods*. He presented the Stoic theory of the universe, the gods, and God. His reasoning is based on five levels of nature. These levels are shown in Table 1. This is Cicero's Great Chain of Being.

Rank	*Things*	*Powers*
5	God	The universe. More perfect than any of its parts.
4	gods and goddesses	Always rational & good;
3	humans	Sometimes rational & good; sense & motion; nutrition & reproduction
2	animals	Sense & motion; nutrition & reproduction
1	plants	Nutrition & reproduction

Table 1. The levels in Cicero's Great Chain of Being.

2. The First Henological Argument

The following is a selection from Book 2 of Cicero's *On the Nature of the Gods*. The text is public domain and has been edited by me for modern readability. For much of this section, Cicero is quoting the older Stoic philosopher Chrysippus. This section discusses the perfections of the universe:

> Chrysippus says "If there is anything in the universe which no human reason, ability, or power can make, the entity that produced it must certainly be superior to humanity. Now, celestial bodies, and all those things which proceed in any eternal order, cannot be made by humans; the entity which made them is therefore superior to humans. What, then, is that entity but a God? If there is no such thing as a God, what is there better than humanity, since humans alone have reason, the most excellent of all things? But it is only foolish human pride to think there is nothing superior to humanity. There is, therefore, something superior; consequently, there is certainly a God."
>
> When you behold a large and beautiful house, even if you do not see the architect, you do not conclude that it was built for mice. By analogy consider our universe. It so magnificently adorned: the heavens contain an immense variety of stars and planets of exquisite beauty; the earth contains the great seas and fantastic landscapes. We are to the universe like mice to a house. And, just as the house was not made for the mice, so the universe was not made for humanity, but was made instead as the mansion of the immortal gods. [And so the architect of the universe must be an even greater God.]
>
> The universe has many perfections. Shall the universe be possessed of other perfections, and be destitute of the perfection of intelligence, which is the most important and valuable of all? But certainly there is nothing better, or more excellent, or more beautiful than the universe; and not only there is nothing better, but we cannot even conceive anything superior to it; and if reason and wisdom are the greatest of all perfections, they must necessarily be a part of what we all allow to be the most excellent. So, the universe has intelligence, reason, and wisdom.
>
> Chrysippus goes on: "If any thing lacks perception, then every part of it also lacks perception; but some parts of the universe have perception; therefore the universe has perception." He in the same way: "If anything lacks life and reason, then it cannot generate something with life and reason; but the universe does generate things which have life and reason; the universe, therefore, is not itself destitute of life and reason." "That which reasons is superior to that which does not; nothing is superior to the universe; the universe, therefore, reasons."
>
> Chrysippus concludes with an analogy: "If well-tuned flutes should spring out of the olive tree, would you have the slightest doubt that there was in the olive-tree itself some kind of skill and knowledge? Or if the plane-tree could produce harmonious lutes, surely you would infer, on the same principle, that music was contained in the plane-tree. Since the universe produces living and wise beings out of itself, we ought to believe the universe is a living and wise being."
>
> By the same logic, the universe may be proved to be wise, happy, and eternal; for the possession of all these qualities is superior to the lack of them; and nothing

is superior to the universe; since it has all these excellent qualities, the universe is a God. (Cicero, 1877: II.16-22)

3. The Second Henological Argument

Cicero now argues that the universe contains reason:

> Every part of our body is less excellent than the entire body itself. And every part of the universe is less excellent than the entire universe. That is, the universe is more perfect than any part of the universe. Humans are parts of the universe, and we have reason. So, if the universe does not have reason, then some parts of it are more excellent that the whole universe; but that is impossible. Therefore, the universe has reason. (Cicero, 1877: II.??)

Cicero's argument that the universe contains reason goes like this:

(1) Every part is less excellent than the whole.
(2) So the whole is more excellent than every part.
(3) Humans are parts of the universe.
(4) So, the universe is more excellent than humans.
(5) Humans have reason.
(6) If the universe does not at least have reason, then humans are more excellent than the universe.
(7) But that is impossible.
(8) So the universe has reason.

Now Cicero develops his Henological Argument by climbing up the Great Chain of Being. He climbs up through four levels, ending with the gods:

> And thus, if we proceed from the lowest natures to the most superior and perfect ones, we shall inevitably come at last to the nature of the gods.
>
> (1) The lowest natures are those of the vegetables which are produced out of the earth; nature nourishes them, preserves them, and makes them grow.
>
> (2) Second, after the plants, we rise to the animals. To the animals nature has also given sense and motion, and a faculty which directs them to what is wholesome, and prompts them to shun what is noxious to them.
>
> (3) Third, we find humans. Humans have the natural powers of plants and animals; but in addition nature has granted us reason. We use reason to regulate our passions as best we can.
>
> (4) The fourth and highest degree are those beings which are naturally wise and good, who always have right and consistent reason, which we must consider superior to humans and deserving to be attributed to a god; that is to say, to the universe, which contains perfect and complete reason. (Cicero, 1877: II.33-5)

Stoicism: Holy Fire Fills All Things

1. The Universe is Divine

Now Cicero argues that the universe is divine; he argues that the universe is perfect, and that it contains all perfections; so the universe is divine. Cicero thinks of the universe as a living thing, containing its own mind or soul. He doesn't think of the universe in the way we usually think of it today (as just a bunch of space and matter). Since Cicero thinks of the universe as a divine living thing, he is a pantheist. He says:

> It is possible for something perfect to exist. For as in a plant or an animal we see that nature, if not prevented by some superior violence, proceeds by its own appropriate path to its destined end. When humans create, as in painting, architecture, and the other arts, it is possible to achieve perfection, and sometimes we even do achieve it. So it is even much more necessary that in universal nature there must be some complete and perfect result. Many bad accidents may happen to parts of the universe, and may impede their progress to perfection, but nothing can hinder the universe, because it is the ruler and governor of all other natures. It follows that the universe has the fourth and highest degree of power, above the powers of plants, animals, and humans.
>
> But this degree is that on which the nature of all things is placed; and since she is possessed of this, and she presides over all things, and is subject to no possible impediment, the universe must necessarily be an intelligent and even a wise being. But how marvelously great is the ignorance of those men who dispute the perfection of that nature which encircles all things; or who, allowing it to be infinitely perfect, yet deny it to be, in the first place, animated, then reasonable, and, lastly, prudent and wise! For how without these qualities could it be infinitely perfect? If it were like vegetables, or even like beasts, there would be no more reason for thinking it extremely good than extremely bad; and if it were possessed of reason, and had not wisdom from the beginning, the universe would be in a worse condition than man; for man may grow wise, but the universe, if it were destitute of wisdom through an infinite space of time past, could never acquire it. Thus it would be worse than man. But as that is absurd to imagine, the universe must be esteemed wise from all eternity, and consequently a Deity: since there is nothing existing that is not defective, except the universe, which is well provided, and fully complete and perfect in all its numbers and parts.
>
> For Chrysippus says, very acutely, that as the case is made for the shield, and the scabbard for the sword, so all things, except the universe, were made for the sake of something else. As, for instance, all those crops and fruits which the earth produces were made for the sake of animals, and animals for man; as, the horse for carrying, the ox for the plough, the dog for hunting and for a guard. But man himself was born to contemplate and imitate the universe; but the universe, since it includes everything, is entirely perfect.
>
> The universe cannot lack understanding and reason, for they are the most desirable of all qualities. The same Chrysippus observes also, by the use of analogies, that everything in its kind, when arrived at maturity and perfection, is

superior to that which is not--as, a horse to a colt, a dog to a puppy, and a man to a boy--so whatever is best in the whole universe must exist in some complete and perfect being. But nothing is more perfect than the universe, and nothing better than virtue. Virtue, therefore, is an attribute of the universe. But human nature is not perfect, and nevertheless virtue is produced in it: with how much greater reason, then, do we conceive it to be inherent in the universe! Therefore the universe has virtue, and it is also wise, and consequently a God. (II.35-9)

It is certain that the universe is the most perfect thing. But whatever has life, sense, reason, and understanding must be more perfect than that which lacks those things. It follows, then, that the universe has life, sense, reason, and understanding. Our idea of God involves two things. The first is that God is a living thing. The second is that there is nothing in all nature which is superior to God. But the universe is the most perfect thing, it has life, sense, and reason; hence the universe is God. (Cicero, 1877: II.45-7)

2. All Things Contain Fire-Energy

Cicero has argued that there is a God, which is the universe. The universe is the maximally perfect being; it is the greatest of all things. But the universe has a structure. The Stoics believed that the universe is a living thing, it is a cosmic animal. Here there is an analogy with human animals: just as a human animal is a material body animated by a spiritual energy, so the universe is a material body animated by a spiritual energy. But this spiritual energy is not mysterious – it is just a kind of physical energy. It is a kind of very pure fire. Cicero begins by arguing that every part of the universe contains some animating fire, as shown by the fact that motion is always driven by heat. When making these arguments, Cicero is referring to older Stoic philosophers like Cleanthes. Here is Cicero's argument that everything is powered by fire-energy:

It is a fact that all beings which take nourishment and increase contain in themselves a power of natural *thermal energy*, without which they could neither be nourished nor increase. For everything which is of a warm and fiery character is agitated and stirred up by its own motion. But that which is nourished and grows is influenced by a certain regular and equable motion. And as long as this motion remains in us, so long does sense and life remain; but the moment that it fades and is extinguished, we ourselves decay and perish.

By arguments like these, Cleanthes shows how great is the power of thermal energy in all bodies. He observes that there is no food so solid as not to be digested in a night and a day; and that even in the excrement, which nature rejects, there remains a thermal energy. Our veins and arteries seem, by their continual pulsing, to resemble the agitation of fire; and it has often been observed when the heart of an animal is just plucked from the body that it palpitates with such visible motion as to resemble the rapidity of fire. Everything, therefore, that has life, whether it be animal or vegetable, owes that life to the thermal energy inherent in it; it is this nature of energy which contains in itself the vital power which extends throughout the whole universe. This will appear more clearly on a more close explanation of this fiery quality, which pervades all things.

Every division of the universe is sustained by thermal energy; and first it may be observed in earthly substances that fire is produced from stones by striking or rubbing one against another; that "the warm earth smokes" when just turned up by the plow, and that water is drawn warm from well-springs; and this is most especially the case in the winter season, because there is a great quantity of thermal energy contained in the caverns of the earth; and this becomes more dense in the winter, and on that account confines more closely the innate thermal energy which is discoverable in the earth.

All the seeds which the earth conceives, and all those which it contains having been generated from itself, and fixed in roots and trunks, derive all their origin and increase from the temperature and regulation of thermal energy. And that even every liquor has a mixture of thermal energy in it is plainly demonstrated by the effusion of water; for it would not congeal by cold, nor become solid, as ice or snow, and return again to its natural state, if it were not that, when heat is applied to it, it again becomes liquefied and dissolved, and so diffuses itself. Therefore, by northern and other cold winds it is frozen and hardened, and in turn it dissolves and melts again by heat. The seas likewise, we find, when agitated by winds, grow warm, so that from this fact we may understand that there is thermal energy included in that vast body of water; for we cannot imagine it to be external and accidental energy, but it is energy that is stirred up by agitation from the deep recesses of the seas; and the same thing takes place with respect to our bodies, which grow warm with motion and exercise.

And the very air itself, which indeed is the coldest element, is by no means void of thermal energy; for there is a great quantity, arising from the exhalations of water, which appears to be a sort of steam occasioned by its internal heat, like that of boiling liquors. The fourth part of the universe is entirely fire, and is the source of the salutary and vital heat which is found in the rest. (Cicero, 1877: II.23-8)

3. The Holy Fire-Energy

Cicero now reasons from the parts to the whole: since every part of the whole is animated by holy fire, the whole universe is animated by this holy fire. The universe is God; and God is powered by a holy energy, which is pure fire. This pure fire is intelligent, it is like pure will-power. This holy fire is an all-pervading spirit. Cicero's ideas here may seem obsolete, but they are still talked about today. Many people still think of God as a holy energy. The idea of God as energy comes from the Stoics:

From hence we may conclude that, as all parts of the universe are sustained by thermal energy, the universe itself also has such a great length of time subsisted from the same cause; and so much the more, because we ought to understand that that hot and fiery principle is so diffused through every part of nature that there is contained in it a power and cause of generation and procreation, from which all animals, and all plants, the roots of which are contained in the earth, must inevitably derive their origin and their increase.

The fire of the universe is more pure, clear, and lively, and, consequently, better adapted to move the senses than the fire which animates us; and it vivifies and preserves all things. It follows that the universe, which is endowed with a perfect, free, pure, spiritual, and active fire, is sensitive, since by this fire men and beasts are preserved, and move, and think; more especially since this fire of the universe is itself the sole principle of action, and has no external impulse, but is moved spontaneously; for what can be more powerful than the universe, which moves and raises that fire by which it subsists?

For let us listen to Plato. He says that there are two sorts of motion, one internal and the other external; and that that which is moved spontaneously by its own internal power is more divine than that which is moved by some external power. This self-motion he places in the mind alone, and concludes that the first principle of motion is derived from the mind. Therefore, since all motion arises from the fire of the universe, and that fire is not moved by the effect of any external impulse, but of its own accord, it must necessarily be a mental power; from whence it follows that the universe is animated. The universe, therefore, must necessarily be possessed of wisdom; and that element, which embraces all things, must excel in perfection of reason. The universe, therefore, is a God, and the whole power of the universe is contained in that holy fire. (Cicero, 1877: II.30-2)

4. The Olympic Deities

Cicero has argued for the existence of a highest God, and he has argued that the nature of this God is energy. But traditional and popular Roman religion talks about gods and goddesses like Zeus (Jupiter) and Athena (Minerva) and so on. Cicero says that the myths and fables about these gods and goddesses are just foolish fiction. The truth is that the gods and goddesses are aspects of the God. They are natural powers:

It now remains that we consider what is the character of the gods. Nothing is more difficult than to divert our thoughts and judgment from the information of our corporeal sight, and the view of objects which our eyes are accustomed to; and it is this difficulty which has had such an influence on the unlearned, and on philosophers also who resembled the unlearned multitude, that they have been unable to form any idea of the immortal gods except by shaping them to look like human beings. . . .

There is another reason, too, and that founded on natural philosophy, which has greatly contributed to the number of Deities; namely, the custom of representing in human form a crowd of gods who have supplied the poets with fables, and filled mankind with all sorts of superstition. Zeno has treated of this subject, but it has been discussed more at length by Cleanthes and Chrysippus. All Greece was of opinion that Coelum was castrated by his son Saturn, and that Saturn was chained by his son Jupiter. In these impious fables, a physical and not inelegant meaning is contained; for they would denote that the celestial, most exalted, and ethereal nature – that is, the fiery nature, which produces all things

by itself--is destitute of that part of the body which is necessary for the act of generation by conjunction with another.

By Saturn they mean that which comprehends the course and revolution of times and seasons. He is called Saturn (the satiator), because he fills (satiates) himself with years; and he is usually said to have devoured his children, because time, ever hungry, consumes the rolling years; but to restrain him from devouring everything, his son Jupiter has confined him to the course of the stars, which are as chains to him. . . .

Do you not see, therefore, how, from the productions of nature and the useful inventions of men, have arisen fictitious and imaginary gods and goddesses, which have been the foundation of false opinions, pernicious errors, and wretched superstitions? For we know how the different forms of the gods--their ages, apparel, ornaments; their pedigrees, marriages, relations, and everything belonging to them--are adapted to human weakness and represented with our passions; with lust, sorrow, and anger, according to fabulous history: they have had wars and combats, not only, as Homer relates, when they have interested themselves in two different armies, but when they have fought battles in their own defense against the Titans and giants. These stories, of the greatest weakness and levity, are related and believed with the most implicit folly.

But, rejecting these fables with contempt, the true God is diffused in every part of nature; in earth under the name of Ceres, in the sea under the name of Neptune, in other parts under other names. Yet whatever they are, and whatever characters and dispositions they have, and whatever name custom has given them, we are bound to worship and adore them. The best, the chastest, the most sacred and pious worship of the gods and goddesses is to reverence them always with a pure, perfect, and unpolluted mind and voice; for our ancestors, as well as the philosophers, do not recognize superstition, but reject it in favor of religion. (Cicero, 1877: II.45, 63-4, 70-1)

5. From the High God to the Lesser Deities

The Stoic God (the Cosmic Zeus) absorbs the old notion of the Socratic Designer. But it is not the same as the Platonic Creator God. So at this point we have two ancient pagan concepts of a High God above and beyond all the Olympic gods and goddesses. Here it is interesting to note that there was an ancient pagan kind of monotheism, the worship of *Theos Hypsistos*, which just means "the Highest God." We don't know much about the religion of Theos Hypsistos (the Hypsisterians). But it is clear that a kind of monotheism is emerging in the ancient pagan world. More accurately, this is *henotheism* – the belief in one High God and many Lower Gods and Goddesses. Figure 6 diagrams this pagan henotheism. It includes both Stoic theology and Platonic theology.

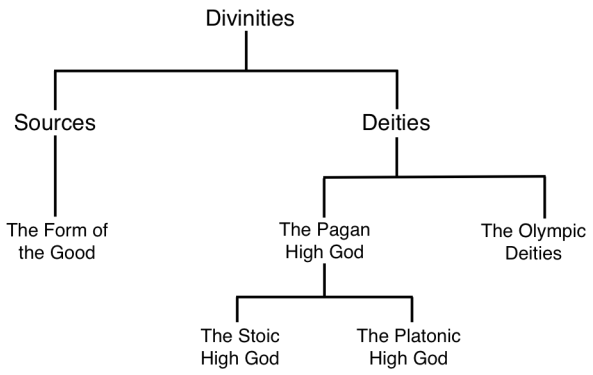


Figure 6. Our theological taxonomy so far.

Stoicism: Human Citizens in the Divine City

1. The Stoic God Determines the Fate of the Universe

By solving its design problem, the Stoic God produces a new cosmic script. All events in this new cosmic script are willed by God (D 1.1.17). The will of God *ordains* all things: "How do things come about? As the one who ordains them has ordained" (D 1.12.15-16; 1.17.27-28). To say that God has ordained all things means that God has assigned roles to all things. This in turn means that God gives natures to all things; God gives all things their proper functions. God gives all things their programs and their destinies. God is like the ruler of a city (D 1.9.4-6; 1.12.7-8). Just as the rulers of human cities define the laws of their cities, so God has defined the laws of the universe. Just as the rulers of human cities assign roles to all the citizens, so God has assigned roles to all the citizens of the cosmic city (D 1.12.7-8). Or God is like a general who organizes a campaign (D 3.24.31-6). Just as a general assigns a role to every soldier, so God assigns a role to every thing in the universe. Or God is like a composer who writes a symphony. Just as the composer assigns a score to every player in the orchestra, so God assigns a role to every thing in the universe. Or God is like an author who writes a play. Just as the author assigns a script to every actor, so God assigns a role to every thing in the universe (D 1.29.38-49). Or God is like the manager of a great cosmic household:

> This is how it goes in the great city of the universe. For just as there is a master in every earthly household who governs it, here also there is a master of the house who orders everything. The master of the universe says: 'You are the sun; by going around the heavens, you make the year and seasons, and make the fruits grow and nourish them, and stir the winds and make them stop, and warm the bodies of men properly: therefore go and do your duty, travel on your appointed course in the heavens, and so administer things from the greatest to the least.' To another thing the governor of the universe says: 'You are a calf; when a lion shall appear, perform your proper function: if you do not, you will suffer.' But the governor of the universe says to this thing: 'But you, you are a bull: when the lion comes, you will advance and fight, for this is your role in life, it is the function

which is proper to your nature, and therefore you have the power to do it.' To one person he says 'You have the ability to lead the army against Troy; you will be Agamemnon.' To another person he says: 'Your own warrior nature enables you to fight in single combat against the great warrior Hector; you are to be Achilles.' And so all things have their functions. (Epictetus, 1904: 3.22.4-7)

2. Serenity Prayers to the Stoic God

The Stoic God has perfectly ordered the universe. Since it is perfectly ordered, there is no point in asking the Stoic God to change anything. All things are determined by the divine will, and fate or destiny cannot be altered. So the Stoic Seneca wrote against petitionary prayers for external goods: we must "accept such practices with a smile and consider them only a solace for a troubled mind. The fates perform their function in another way and they are not moved by any prayer" (*Natural Questions,* 2.35).

Although the Stoics rejected the idea of asking the Cosmic Zeus (their God) for favors, they often addressed prayers to Zeus. But these Stoic prayers are not for external goods. They are prayers for internal goods like virtue and rationality. But these prayers mainly ask for fate to unfold as it will, and for the resources to accept fate properly (that is, with joy and gratitude). Thus the prayer by the Stoic Cleanthes, known as the *Hymn to Zeus*, asks Zeus to direct us to our ordained goals:

Lead me, O Zeus, and thou Destiny,
To that goal long ago to me assigned.
I'll follow readily, but if my will prove weak,
Wretched as I am I must follow still.
Fate guides the willing, but drags the unwilling.

Epictetus quotes the Hymn to Zeus at the end of the *Enchiridion*. He also refers to it in the *Discourses* (4.1.131). He offers a more detailed petitionary prayer for Zeus to give him his ordained destiny

Bring on me now Zeus, whatever trouble you may wish,
since I have the equipment that you granted to me,
and such resources as will enable me to distinguish myself
through whatever may happen" (D 1.6.37).

Epictetus later offers a similar prayer:

Use me as just as you will from this time onward;
I'm of one mind with you; I'm yours.
I refuse nothing that seems good to you.
Lead me where you will,
wrap me in whatever clothes you wish" (D 2.16.42-43).

As a final example, Epictetus gives this prayer:

> Is it your wish that I should be poor? Bring it on, then, and you'll see what poverty is when it finds a good actor to play the part. Is it your wish that I should hold office? Bring it on. Is it your wish that I should be deprived of office? Bring it on. Is it your wish that I should suffer hardships? Bring those on too. (D 4.7.13-14)

These Stoic prayers can be referred to as *serenity prayers*, since they resemble the famous Serenity Prayer by Reinhold Niebuhr. Here is Niebuhr's Serenity Prayer:

> God grant me the serenity to accept the things I cannot change;
> the courage to change the things I can;
> and the wisdom to know the difference.

The Body and the Soul

1. Plato: Arguments for the Soul

One of the earliest arguments for the existence of the soul is attributed to Socrates. But we don't really know what Socrates said. All our records of his conversations (his dialogs) were recorded by other people. And they may have put their own words into his mouth. At the very least, in the book known as *First Alcibiades*, the character named Socrates gives an argument for the soul based on the idea that we are the users of our bodies rather than identical with our bodies (*First Alcibiades*, 129b-130c). The argument goes like this: (1) We conceive of ourselves as the users of our bodies. (2) We are not deceived in our self-conceptions. (3) So we are the users of our bodies. (4) But the user of a thing is never the same as the thing. (5) So the user of the body is not the same as the body. (6) Hence there exists some thing which uses the body in the same way as the body uses tools. (7) But the thing that uses the body is the soul.

According to Plato, Socrates gives a compressed argument for the soul based on motion (*Phaedrus*, 245c-e). This argument may have been developed by Plato himself rather than by Socrates. Since it is hard to make sense of the argument as it appears in the text, it is necessary to use the text as the basis for a clearer argument. (1) Some bodies are moved by other things while some bodies move themselves. The bodies which move themselves are living bodies. (2) Any living body contains some self-moving thing. For if it did not contain some self-moving thing, then it would get its motion from some other thing; but we said that living bodies move themselves. (3) Any self-moving thing cannot come into existence. It is uncreated. To see this, suppose that some self-moving thing does come into existence. If it comes into existence, then it got its motion from some previously existing thing. But then it is not self-moving. (4) Any self-moving thing cannot go out of existence. For if it were to go out of existence, it would stop moving; but for a self-moving thing to stop moving is for it to contradict its own nature. Thus any self-moving thing is indestructible. (5) Therefore, the self-moving thing in any living body is both uncreated and indestructible. The name of this self-moving thing in any body is its soul. So the soul exists forever into the past and future.

Socrates seems to provide an argument for the existence of the soul from the fact that we know abstract truths. The *Parable of the Sun* from the *Republic* says "The soul is like the eye" (507b-508e). This is like the *Affinity Argument* for the immortality of the soul in the *Phaedo* (78b-84b); however, the Affinity Argument assumes the existence of the soul and just tries to prove that the soul is immortal. The Argument from Knowledge goes like this: (1) We have knowledge of perceivable things through our bodily senses. This knowledge depends on the changing body, and things we know through our senses are changing things. (2) However, we also have knowledge of things which we cannot perceive. We have knowledge of the eternally unchanging truths of arithmetic and geometry. We can see that two pairs of horses make four horses; but we know that two plus two is four independent of counting any perceivable things. We can observe triangles drawn in the sand, but we know the Pythagorean theorem as an equation whose truth does not depend on any physical triangles. (3) Just as we have organs through which we perceive changing physical things, so we must have an organ through which we know unchanging mathematical things as well as other abstract truths. (4) Just as the organs through which we know physical things are themselves physical organs, so the organ through which we know mathematical things must be like those mathematical things. This organ must be an eternally existing thing. It is the mind or soul.

2. The Soul is the Form of the Body

Aristotle is well-known for his definition of the soul as the form of the body. Aristotle's conception of the soul is scientific. The soul is an object of scientific study. Aristotle begins his discussion of soul with a distinction of kinds of existence:

> There are three senses of existence: (1) existence in the sense of matter or stuff; (2) existence in the sense of shape or form or pattern; and (3) existence in the sense of that which is compounded of both form and matter. Now matter is the potentiality for some actuality (form). (Aristotle, *On the Soul*, 412a5-412a10).

Some matter is potentially a tree and is actually a tree when it instantiates the form (when it is arranged or organized so that it has a tree-structure). Aristotle now asserts that the soul is a form or pattern:

> Of natural bodies some have life in them, others not; by life we mean self-nutrition and growth (with its correlative decay). It follows that every natural body which has life in it is an existence in the sense of a composite of matter and form But since the body is made of certain stuff, the body cannot be soul; the body is the composite of matter and form rather than just the form. Hence the soul must be an existence in the sense of the form of a natural body having life. (*On the Soul*, 412a15-412a22).

There are two kinds of actuality: (1) the actuality of some function that is possessed but not being performed and (2) the actuality of some function that is possessed and being performed. For instance: a person who is able to speak Spanish has that knowledge

or skill whether or not he or she is using it. The possession of the skill is actuality of the first kind; the exercise is actuality of the second kind:

> Now the word actuality has two senses corresponding respectively to the possession of knowledge and the actual exercise of knowledge. It is obvious that the soul is actuality in the first sense, viz. that of knowledge as possessed, for both sleeping and waking presuppose the existence of soul, and of these waking corresponds to actual knowing, sleeping to knowledge possessed but not employed. (*On the Soul*, 412a22-412b21).

Actuality of the first kind is the functionality that a thing has because of its form, pattern, or structure. For example: an axe is sharp; its sharpness is the functionality of cutting even though the axe is not being used to cut; the axe is able to perform the function of cutting because it has the property of sharpness; the axe is able to perform its function because it has a certain form. Aristotle says:

> the soul is the first grade of actuality of a natural body having life potentially in it. A living body that has a soul is a body which is organized. The parts of plants in spite of their extreme simplicity are 'organs'; e.g. the leaf serves to shelter the pericarp, the pericarp to shelter the fruit, while the roots of plants are analogous to the mouth of animals, both serving for the absorption of food. If, then, we have to give a general formula applicable to all kinds of soul, we must describe it as the first grade of actuality of a natural organized body. That is why we can wholly dismiss as unnecessary the question whether the soul and the body are one: it is as meaningless as to ask whether the wax and the shape given to it by the stamp are one, or generally the matter of a thing and that of which it is the matter. What is soul?-an answer which applies to it in its full extent. It is existence in the sense which corresponds to the definitive formula of a thing's essence. That means that it is 'the essential whatness' of a body of the character just assigned. Suppose that what is literally an 'organ', like an axe, were a natural body, its 'essential whatness', would have been its essence, and so its soul; if this disappeared from it, it would have ceased to be an axe, except in name. As it is, it is just an axe; it wants the character which is required to make its whatness or formulable essence a soul; for that, it would have had to be a natural body of a particular kind, viz. one having in itself the power of setting itself in movement and arresting itself. Next, apply this doctrine in the case of the 'parts' of the living body. Suppose that the eye were an animal-sight would have been its soul, for sight is the substance or essence of the eye which corresponds to the formula, the eye being merely the matter of seeing; when seeing is removed the eye is no longer an eye, except in name-it is no more a real eye than the eye of a statue or of a painted figure. (*On the Soul*, 412a22-412b21)

The powers of the soul correspond to the different general kinds of biological functions performed by organisms. These powers are: "the nutritive, the appetitive, the sensory, the locomotive, and the intellectual." (*On the Soul*, 414a29-33). These powers

of the soul are the different abstract biological operations of organisms. The powers are patterns that are found in the structure of the organism, in the arrangement of its parts.

3. Barrow & Tipler: The Soul is a Body-Program

Although the Aristotelian idea that the soul is the form of the body is very old, it has influenced many contemporary thinkers. The idea that the soul is the form of the body is easy to understand in terms of computers. On this view, the body is a kind of biological computer and the soul is its program or operating system. The form of the body is an algorithm. So this is a very modern way of thinking about the Aristotelian idea that the soul is the form of the body. For example, the 20th century cosmologists Barrow & Tipler identify the Aristotelian soul with a computer program:

> any living creature -- is fundamentally a type of computer . . . the really important part of a computer is not the particular hardware, but the program; we may even say that a human being is a program designed to run on particular hardware called a human body, coding its data in very special types of data storage devices called DNA molecules and nerve cells. The essence of a human being is not the body but the program which controls the body; we might even identify the program which controls the body with the religious notion of a soul, for both are defined to be non-material entities which are the essence of a human personality. In fact, defining the soul to be a type of program has much in common with Aristotle and Aquinas' definition of the soul as 'the form of activity of the body'. A living human being is a representation of a definite program rather than the program itself. In principle, the program corresponding to a human being could be stored in many different forms. (Barrow & Tipler, 1986: 659)

Following Aristotle, Barrow & Tipler say that the soul (as the form of the body) is a computer program. It is an algorithm. An algorithm can be thought of as an abstract list which pairs numbers with numbers (a function from numbers to numbers). It is a purely mathematical form. If this is right, then your soul is a mathematical form. The existence of mathematical objects is consistent with science. Clearly, scientific theories involve mathematical objects – they involve numbers and equations.

The *Indispensability Argument* says that any scientific theory of existence ought to recognize the existence of purely mathematical objects (Colyvan, 2001). It goes like this: (1) Science makes indispensable use of many mathematical theories. (2) If science makes indispensable use of some mathematical theory, then the mathematical theory is true. (3) So, all the mathematical theories used by science are true. (4) But these smaller mathematical theories are part of an all-inclusive mathematical theory. (5) If the smaller theories are true, then the all-inclusive mathematical theory is true. (6) Therefore, the all-inclusive mathematical theory is true. The all-inclusive mathematical theory describes an infinitely rich world of purely mathematical objects. Since it is true, the world described by that theory is not a fictional world. The mathematical objects exist.

The world of purely mathematical objects includes all computer programs. It includes all programs for finite state machines and it includes all Turing machines. So, the purely mathematical world includes your soul. The objects in the purely

mathematical world are usually thought to exist independently of the physical universe. They are not involved in spatial, temporal, or causal relations. They are eternal. If this is right, then your soul is an eternal pattern in the mathematical world – in the Platonic heaven.

Ancient Reincarnation

1. Reincarnation in the West

We often think of reincarnation as an Eastern idea, associated with Hinduism or Buddhism. But it is a idea found around the world. Although reincarnation theories sometimes appeal to gods, other reincarnation theories do not appeal to any gods at all. Most Buddhists do not believe in any creator-god or administrator-god; nevertheless, they believe in reincarnation. Reincarnation occurs as a result of the natural laws of the universe. Atheists can believe in reincarnation. Many ancient Greeks and Romans believed in reincarnation. Specifically, the Pythagoreans believed in it. Plato discusses it at the end of the *Republic*, in the Myth of Er. And he talks about it in the *Timaeus* and elsewhere. Plotinus is a Neoplatonist. He follows Plato. So Plotinus and other Neoplatonists also believed in reincarnation.

The Neoplatonic theory of reincarnation works like this: At the top of the Great Chain, there is the One, which is pure being. The One produces souls. These souls start out as godlike creatures. The bodies of these godlike souls are stars in the heavens. If these souls sin, then they fall to lower levels of the Great Chain. They may fall to a human level, and then sink further down to an animal level, or even to the level of plants. But as souls strive for goodness, they start to rise again. If you change your wicked ways, you can be reincarnated again as a godlike person. And your goal is ultimately to return back to the One, to be reabsorbed in its holy reality.

2. Arguments for Reincarnation

Plato gave arguments for reincarnation. Socrates gives the *Cyclical Argument for Reincarnation* (*Phaedo*, 69e-72e). It goes like this: (1) All things with qualities come into existence out of their opposite qualities. Larger things come from smaller things; faster things come from slower things; hotter things from colder things. (2) Any two opposites are linked by two opposed processes: the process from small to large is increasing while the process from large to small is decreasing; the process from cold to hot is heating while the process from hot to cold is cooling. (3) We see by observing nature that both processes linking opposites are always at work. Things heat up in the summer but then cool down in the winter. Thus all change is cyclical. (4) Life and death are opposites. (5) The dead come from the living through the process of dying. But since every process has an opposite process, the living must come from the dead through being born. Nature contains cycles of death and rebirth like other cycles. (6) But if these are two processes involving some change in quality, then there is something that is changing. The thing that undergoes these changes is the soul. Thus souls pass from the life to death

by dying and from death to life by being born. But it is more accurate to think of dying as disembodiment and being born as embodiment.

Plotinus gave an argument from justice to reincarnation (*Enneads*, 3.2.13). A crucial principle in any such argument is that the universe is governed by laws of justice. There are several ways to argue for universal laws of justice. The *Neoplatonic Argument* for the Laws of Justice goes like this: (1) The universe has been produced the Good. (2) But any product of the Good is governed by laws of justice. (3) Therefore, the universe is governed by laws of justice. The *Stoic Argument* for the Laws of Justice goes like this: (1) The argument from the order of the universe reveals that the universe is governed by a good ruler. This is the Cosmic Zeus. (2) Just as a good ruler of an earthly city enforces good laws in his or her city, so the cosmic ruler enforces good laws in the universe. (3) Therefore, the universe is governed by laws of justice. But there is also an *Atheistic Argument* for the Laws of Justice: (1) The success of mathematical science reveals that the universe is rationally organized. (2) But any rationally organized system also includes moral rationality: it is rational for a system to be governed by laws of justice. (3) Therefore, the universe is governed by laws of justice.

Now the *Argument from Justice* to reincarnation goes like this: (1) Your earthly life contained many morally significant deeds for which you were not compensated in that life. It contained bad deeds which were not punished in that life and good deeds which were not rewarded in that life. (2) The universe is governed by laws of justice. (3) The *laws of justice* state that every morally significant deed *will be* compensated. You will be punished for your bad deeds and you will be rewarded for your good deeds. (4) But you were not compensated in your earthly life for many of those deeds. (5) So, your earthly life will be followed by some future life in which you are compensated for what you did in your previous earthly life. (6) Therefore, you will be reincarnated.

Many religious and philosophical traditions say that the ultimate goal of the soul is to escape from the cycle of death and rebirth. The Hindus and Buddhists agree with this goal; Plotinus agreed with this goal. But that is not the only way to think about the soul. It might be good for a soul to be embodied. One might argue that a disembodied soul cannot really live. It is merely a shadow-person whose life is less intense than an embodied life and therefore less valuable. On this way of thinking about souls and bodies, embodiment is more natural for a soul; souls are in an anomalous and unnatural condition when they lack bodies. A disembodied soul has the capacity for seeing, but it has no eyes to see – it is blind. All its natural capacities are crippled by its lack of a body. So it is neither good nor natural for a soul to lack a body.

The result is an *Argument from the Value of Embodiment* to reincarnation: (1) It is more natural for souls to be embodied than disembodied. (2) At death the soul is separated from the body. (3) Since it is more natural for souls to be embodied, death puts the soul into an unnatural state. (4) The laws that govern the universe are natural laws which work to maintain the natural order of things. Those laws aim to change unnatural conditions back to natural conditions. So the laws which govern the soul aim to maintain it in its natural state of embodiment. When the soul becomes disembodied, the laws of nature aim to return it to its embodied state. (5) So, after you die, the laws of nature entail that your soul will become embodied again as quickly as possible.

3. How Souls Change Bodies

Plotinus affirms mind-body dualism: the soul wears its body like a body wears its clothes. You are therefore like an actor in a play; you're wearing a costume and a mask and playing a role; after you die, if you're reincarnated, then you'll come back on stage wearing another costume and playing another role:

> Nature is well-organized: when one animal eats another, the death is useful for the total purpose of life. What does it matter when they are devoured only to return in some new form? It comes to no more than the murder of one of the characters in a play; the actor alters his make-up and enters in a new role. The actor was not really killed; but if dying is but changing a body as the actor changes a costume, or even an exit from the body like the exit of the actor from the stage when he has no more to say or do, what is there so very dreadful in this transformation of living beings one into another? (*Enneads*, 3.2.15)

4. Retributive Karma

Retributive karma means that you will be compensated in your future lives for the good or bad deeds in your present life. You rack up karmic credits by doing good deeds and karmic debts by doing bad deeds. Your karmic credits lead to reward in the next life; you'll be rewarded with pleasure. However, in your next life, your karmic debts will have to be paid off, and they'll be paid off by suffering:

> There is something more to be considered than the present. There are the periods of the past and, again, those in the future; and these have everything to do with fixing the value of life. Thus a man, once a ruler, will be made a slave because he abused his power and because the fall is to his future good. Those that have money will be made poor- and to the good poverty is no hindrance. Those that have unjustly killed, are killed in turn, unjustly as regards the murderer but justly as regards the victim, and those that are to suffer are thrown into the path of those that administer the merited treatment. It is not an accident that makes a man a slave; no one is a prisoner by chance; every bodily outrage has its due cause. The man once did what he now suffers. A man that murders his mother will become a woman and be murdered by a son; a man that wrongs a woman will become a woman, to be wronged. Hence arises that awesome word retribution for in very truth this ordinance is a retribution, justice itself and a wonderful wisdom. (*Enneads*, 3.2.13)

Again Plotinus discusses the repayment of karmic debt, and the universal justice that governs all souls as they rise and fall along the Great Chain:

> No one can ever escape the suffering entailed by ill deeds done: the divine law is inevitable, carrying bound up, as one with it, the pre-ordained execution of its judgment. The sufferer, all unaware, is swept onward towards his due, hurried always by the restless driving of his errors, until at last wearied out by that against

> which he struggled, he falls into his fit place and, by self-chosen movement, is brought to the lot he never chose. And the law decrees, also, the intensity and the duration of the suffering while it carries with it, too, the lifting of chastisement and the ability of the soul to rise from those places of pain - all by power of the harmony that maintains the universal plan. (*Enneads*, 4.3.23)

5. Reincarnation into Animal Bodies

Humans occupy their own place on the Great Chain. Below us are the animals, and below them are the plants. Humans distinctively have reason – so if your present life is guided by your reason, you'll be a human in your next life. But animals are guided by their senses – they just strive to satisfy their bodily needs, to seek pleasure and to avoid pain. They just eat and have sex. So if you live like that, you'll be reincarnated as an animal. And if you're totally lazy, you'll come back as a plant! Animals and plants have their special characters (bees are highly social) and your soul will be assigned in its next life to a species of animal or plant that reflects your present lifestyle:

> Those that have maintained the human level are humans the next time around. Those that have devoted their lives to sensual pursuits become animals – corresponding in species to the particular temper of the life – ferocious animals where the sensuality has been accompanied by a certain measure of spirit, gluttonous and lascivious animals where all has been appetite for sex or food and its satisfaction. Those who in their pleasures have not even lived by sensation, but have gone their way in a torpid grossness become mere plants, for this lethargy is the entire act of the vegetative, and such people have been busy be-treeing themselves. People who are otherwise untainted by sin, but who have loved song, will be reincarnated as vocal animals. Kings ruling unreasonably but with no other vice will be reincarnated as eagles. Futile and flighty dreamers who soar skyward in their imaginations will become highflying birds. Observance of civic and secular virtue makes man again, or where the merit is less marked, one of the highly social animals, a bee or the like. (*Enneads*, 3.4.2)

6. Problems with Retributive Karma

There are many ways to interpret karma. On the *retributive model*, good deeds in one life are rewarded with benefits either in that same life or in subsequent lives; evil deeds done in one life are punished with harms either in that same life or in subsequent lives. It has been argued that any type of retributive karma is deeply immoral (Kaufman, 2005). There are at least four objections to retributive karma.

The first objection is that retributive karma provides no cognitive link between past deeds and future rewards or punishments (Kaufman, 2005: 19-20). Justice requires that people know why they are being punished or rewarded. If people cannot know why they are being punished or rewarded, then they cannot learn the moral laws. This moral understanding requires memory of the past deeds which triggered the punishments or rewards. However, people do not remember their past lives. Hence punishments or

rewards cannot serve any disciplinary purposes. Retributive karma does not permit either moral education or moral progress. It cannot motivate people to change their behaviors.

The second objection is that retributive karma preserves evil. The simplest type of retributive karma involves eye-for-eye retribution. Plotinus endorses this type of retributive karma (*Enneads*, 3.2.13, 3.3.4, 3.4.2 4.3.23). Plotinus says that someone who commits murder in this life will be murdered in some next life; somebody who rapes in this life will be raped in the next life. This clearly entails an endless future series of murders and rapes. Eye-for-eye retribution entails that evil is preserved; it rules out any moral progress. Further, this type of retribution does not morally benefit the evil doer in any way. But punishment ought to have some beneficial outcome.

The third objection is that retributive karma blames victims for their misfortunes. If a person is born with a mental or physical defect, then retributive karma entails that they deserved it. Or a person is the victim of a crime because they deserved it. However, it is morally wrong to blame the victim. Worse, an entire racial or ethnic group deserves its brutal treatment (Kaufman, 2005: 21). According to retributive karma, the Native Americans deserved genocide, the Africans deserved to be enslaved in America, and the Jews deserved the Holocaust. However, those peoples did nothing to deserve the evils which befell them. Retributive karma entails morally false and monstrous consequences.

The fourth objection is that retributive karma incorrectly entails that those who cause harm are legitimate agents of justice (Kaufman, 2005: 25). When a person harms their victim, retributive karma entails that the victim deserved the harm. The harm is a just punishment for past misdeeds. Hence the person who causes the harm acts as a legitimate agent of justice. By acting as a legitimate agent of justice, the person who causes the harm is not doing wrong. They are not a criminal and do not in turn deserve any punishment of their own. On the contrary, they are blameless. Or perhaps they even deserve some karmic reward. This seems to entail that there is no evil at all.

These objections all stem from the fact that retributive karma returns good for good and evil for evil. However, this is an immoral principle. Retributive karma cannot be a part of any morally acceptable reincarnation theory. Retributive karma is therefore rejected here. Fortunately, retributive karma is not the only type of karma. Better models of karmic action are available. The morally correct karmic law is based on the Golden Rule. It returns good for good and good for evil. It returns good for evil not by rewarding wickedness, but by punishing the wrongdoer in a way that teaches a moral lesson.

7. Escape from the Cycle of Rebirth

Retributive karma is troublesome. However, for Plotinus, the goal is to escape from karma entirely. You can escape the wheel of death and rebirth: "souls pass from body to body entering into varied forms -- and, when it can, a soul will rise outside of the realm of birth and dwell with the Universal Soul of all" (*Enneads*, 3.2.4). Once more Plotinus stresses that you can escape from the cycle of reincarnation:

> Souls which are bound to bodies are apt to body-punishment; but clean souls, no longer contaminating themselves with the sins of the body, can escape from the level of embodied existence. (*Enneads*, 4.3.23)

Neoplatonism: That Radiant Unity

1. Plotinus: The One Before the Many

Plotinus was a Roman philosopher writing about 250 ACE. He was a Neoplatonist, which means he was a follower of Plato. But the Neoplatonists systematized the writings of Plato. Neoplatonism was the core philosophical movement behind much Greek and Roman pagan religion. But Neoplatonism was a kind of religious movement in its own right. The Neoplatonists turned Plato's Form of the Good into the One. The One is Good; but it is a more sophisticated concept. Plato was never very clear about the Good; but Plotinus thinks of the Good as pure unity. The Good is pure simplicity. It is the simple one which generates the complex multiplicity of the universe. The One is the unity of all reality. Plotinus gives this argument:

> Standing before all things, there must exist something simple, differing from all the things that come after it, existing by itself and not mixed with the things that come from it, and yet able in some way of its own to be present to those other things. It must be really one, not merely something made one by gluing things together, which would thus not really be one; it will be impossible to think or talk adequately about it, except to say that it may be described as being beyond being. For if there were nothing outside all composition and togetherness, nothing really one, there would be no source of being. Since it has no share in multiplicity, it is wholly self-sufficient, the first which comes before all others. For any thing which is not the first requires something before it, and any thing which is not simple needs its simple components so that its composite existence can come into being from them. There can be only one first; for if there were another, the two would not differ in any way, and would resolve into one. (*Enneads* V.4.1)

Plotinus's argument is the first example of a long line of cosmological arguments for the existence of some necessary being. This argument will later be developed by Aquinas in his Third Way and by Leibniz in his sufficient reason argument. The argument in Plotinus's text is hard to figure out. But one plausible analysis of the text gives this *Argument for the One before the Many*. It goes like this: (1) There are many complex things, including the whole complex world. (2) But all complex things depend on simpler things. (3) If there is an endless regression of complex things depending on simpler things, there will not be any original source of existence for all those things. (3) But if there is no original source, they will not exist. (4) Therefore, there does exist at least one original source of all complex things, including the whole complex world. (5) Since they are original, all of these sources must be entirely simple. (6) But since they are entirely simple, they cannot differ from each other. (7) And since they cannot differ from each other, they must be identical. So there cannot be more than one original source. (8) Consequently, there is one original source of all things in the whole world; but this source is unlike those things. If those things are said to exist, then the being of this original

source is other than all worldly existence. (9) Since we are things in the world, it is impossible for us to adequately think of this otherness.

2. Plotinus: Every Many has its One

Besides his One Before the Many Argument, Plotinus also gives an argument that being requires unity: if any thing exists, it is one. A thing cannot be without being one. If there are many things, then there are many ones. But then they all have something in common, which is their unity. And if there are many things, then they are all parts or members of one reality. The unity of that reality is the One. Plotinus puts it like this:

> A thing must be either one thing or more than one, manifold: and if there is to be a manifold there must be a precedent unity. To talk of a manifold is to talk of what has something added to unity; to think of an army is to think of a multitude under arms and brought to unity. In refusing to allow the manifold to remain manifold, the mind makes the truth clear; it draws a separate many into one, either supplying a unity not present or keen to perceive the unity brought about by the ordering of the parts; in an army, even, the unity is not a fiction but as real as that of a building erected from many stones, though of course the unity of the house is more compact. (*Enneads*, 6.6.13)
>
> It is in virtue of unity that beings are beings. This is equally true of things whose existence is original and of all that are in any degree to be numbered among beings. What could exist at all except as one thing? Deprived of unity, a thing ceases to be what it is called: no army unless as a unity: a chorus, a flock, must be one thing. Even house and ship demand unity, one house, one ship; unity gone, neither remains thus even continuous magnitudes could not exist without an inherent unity; break them apart and their very being is altered in the measure of the loss of unity. (*Enneads*, 6.9.1)

3. Plotinus: The Sun Radiates Reality

The One is divine; but the One is not a deity. The One is not a person; it is not even personal in some metaphorical sense. The One has no intelligence; it is not a mind. So it is not a god or goddess. The One generates all gods and goddesses. It generates all the things that exist. Plotinus develops Plato's version of the Great Chain of Being. For Plotinus, the great chain has the One at the top. The One is his version of Plato's form of the Good. The One generates the Divine Mind; the Divine Mind generates the World Soul; then the World Soul generates the Universe. The very bottom of the Plotinian chain is matter. From top to bottom, the Plotinian chain has the One, the Divine Mind, the World Soul, the Universe, and then matter. Plotinus uses the sun to symbolize the One, which, following Plato, he also refers to as the Good. He also uses the analogy of a king: the One stands above all things like a king above his subjects. So the One is the Sun-King, the Highest Power, at the top over all things:

> For, again, that only can be named the Good to which all is bound and which itself is bound to none: for only thus is the Good truly the object of all desire. The Good must be unmoved, while everything else circles around it, as a circumference around a center from which all the radii proceed. Another illustration is the sun. For the sun is central to the light which streams from it and that light is inseparable from the sun. (*Enneads*, 1.7.1)
>
> The Divine Mind must be a circumradiation produced inexorably from the One; and the Divine Mind may be compared to the brilliant light encircling the sun and ceaselessly generated from that unchanging solar substance. (*Enneads*, 5.1.6)
>
> The only reasonable explanation of activity flowing from the One lies in the analogy of light from the sun. The entire order of the Divine Mind may be illustrated as a kind of light with the One in repose at its summit as its King; but this luminous manifestation is not expelled from the One: we may think, rather, of the One as a light before the light, an eternal irradiation resting upon the Divine Mind; the Divine Mind is not identical with its source; but the Divine Mind is not separated from its source (*Enneads*, 5.3.12)
>
> Our way then takes us beyond knowing; there may be no wandering from the One; knowing and knowable must all be left aside; every object of thought, even the highest, we must pass by, for all that is good is later than the One and derives from the One as from the sun all the light of the day. (*Enneads*, 6.9.4)

4. Sallustius: The Olympic Deities

Sallustius was a Roman philosopher. He lived during the 300s ACE. He was writing near the end of the Roman Empire, when Christianity had gained power over the old pagan religions (which worshipped the Olympic deities, like Zeus and Athena). He was a Neoplatonist. He followed the great Neoplatonic philosopher Plotinus in arguing for an original Unity. This is the One; it is the source of the existence of all other things. The One is pure goodness. It is the cause of the existence of all souls and minds.

> It is necessary, then, that the first cause should be one; for the One presides over every multitude, excelling all things in power and goodness, and on this account it is necessary that all things should participate of its nature; for nothing can hinder its energies through power; and since it is purely good, it will not separate itself from any thing. . . . [Since] beings subsist through goodness, and participate of the good, it is necessary that the first cause should be beyond existence, and that it is pure goodness. . . . After this ineffable power come the orders of the gods. (Sallustius, *On the Gods and the World*, ch. V)

Sallustius says that the One produces all the other gods. But these are not people; they are natural forces which we personify. Sallustius argues for these gods by saying that there are three levels of being: essence, intelligence, and souls. He uses these three levels to argue for the twelve Olympic gods and goddesses:

> But of the gods some are mundane and others super-mundane. I call those mundane who fabricate the world: but of the super-mundane, some produce essences, others intellect, and others soul; and on this account they are distinguished into three orders, in discourses concerning which orders, it is easy to discover all the gods. But of the mundane gods, some are the causes of the world's existence, other animate the world; others again harmonize it, thus composed from different natures; and others, lastly, guard and preserve it when harmonically arranged. And since these orders are four, and each consists from things first, middle, and last, it is necessary that the disposers of these should be twelve: hence Jupiter, Neptune, and Vulcan, fabricate the world; Ceres, Juno, and Diana, animate it; Mercury, Venus, and Apollo, harmonize it; and, lastly, Vesta, Minerva, and Mars, preside over it with a guarding power. (Sallustius, *On the Gods and the World*, ch. VI)

The gods can be arranged into a table based on their orders (essence, intellect, and soul) and their functions (causing, animating, harmonizing, preserving). Here it is:

	Fabricate	**Animate**	**Harmonize**	**Preserve**
Essence	Jupiter	Ceres	Mercury	Vesta
Intellect	Neptune	Juno	Venus	Minerva
Soul	Vulcan	Diana	Apollo	Mars

6. Divine Power Flows into Your Life

Since the gods and goddesses are eternal, they are unchanging. They don't experience emotions like joy or anger, or love or hate. They are so far above humanity that our acts do not influence them. But this leads to a problem: it entails that the divinities don't care about whether we do good or evil. They don't become happy with us when we do good and they don't get angry with us when we do evil. So they won't reward us for doing good and they won't punish us for doing evil. Nor can we do anything to show the gods that we want to be better people. We can't ask for forgiveness, and we can't make the gods happy by praising them or making sacrifices to them. It seems then that religion is futile and pointless. The gods and goddesses play no roles in human life. In the next passage, Sallustius expresses this problem and solves it:

> Since the gods are unchanging, you may doubt that they rejoice when we are good or become angry with us when we are guilty of doing evil; and you may doubt that they become favorably disposed to us when we do our religious duties (such as making sacrifices). And I agree, that the gods do not rejoice; for that which rejoices is also influenced by sorrow. And the gods never become angry; for anger is a passion. And the gods are never appeased with gifts (such as religious sacrifices); for then they would be influenced by delight. The natures of the gods are not affected either well or badly by human acts; for the divinities are perpetually good and benevolent, but are never harmful, and always persist in the same uniform mode of being.

> But we, when we are good, are conjoined with the gods through similarity; but when we are evil, we are separated from them through dissimilarity. And while we live according to virtue, we partake of the gods, but when we become evil we cause them to become our enemies; not that they are angry, but because guilt prevents us from receiving the illuminations of the gods, and subjects us to the power of avenging demons. But if we obtain pardon of our guilt through prayers and sacrifices, we neither appease nor cause any change to take place in the gods; but by methods of this kind, and by our conversion to a divine nature, we apply a remedy to our vices, and again become partakers of the goodness of the gods.
>
> So that it is the same thing to assert that the gods turn away from wickedness, as to say that the sun is concealed from those who are deprived of sight. . . . From this we are presented with a solution of the doubts concerning sacrifices and other particulars relative to the cultivation of divinity; for that which is divine is not lacking in any thing. But the honors which we pay to the gods, are performed for the sake of our advantage: and since the providence of the gods is every where extended, a certain resemblance, or fitness, is all that is needed in order to receive their beneficent outflow. (Sallustius, *On the Gods and the World,* chs. 14-5)

Sallustius's text contains this argument:

(1) The gods always radiate benevolent power.
(2) The more you resemble the gods, the more benevolent power flows from them through you.
(3) The more benevolent power flows from them through you, the better your life becomes.
(4) The more you do your religious duties, the more you become like the gods.
(5) So, the more you do your religious duties, the better your life becomes.

Religious practices are a system of techniques for making your life better. They are like eating right and otherwise taking care of yourself (or optimizing yourself through athletic training, or other practice or education). They are a *technology of the self,* which you can use to improve your life. Suppose you go (like a good Roman would) to the temple to make sacrifices to the gods and goddesses. You are using the temple, the altar, and the sacrificial animal as tools to make yourself more similar to the gods and to release greater power into your life. It's like going to the gymnasium and using weights or a spinning machine to make yourself stronger.

This might seem old-fashioned. But the same logic operates in contemporary American religions, especially those derived from New Thought and the Word of Faith movement. The same logic is at work in New Age ideas like the law of attraction or The Secret. The idea is that there is a benevolent power that is trying to flow into your body (to heal you) and into your life (to make you successful). You just have to use the right religious techniques to open your self up to the flow of this power.

The Biblical God

1. Yahweh and Asherah

The Hebrew Bible (incorporated into the Christian Bible as the Old Testament) mentions many gods and goddesses. There is considerable evidence from the Hebrew Bible that the ancient Hebrews initially worshipped many gods and goddesses. They were polytheists. They only became monotheists over a long period of time.

Many sources of evidence indicate that the Hebrew deity Yahweh had a wife named Asherah (Day, 1986; Hadley, 2000; Dever, 2005; Scham, 2005; Gilmour, 2009; Romer, 2013). Asherah was represented by trees or poles. It may be that she was represented by living trees which had been sculpted into special shapes through the cutting and bending of their branches. Many ancient artifacts have been discovered which depict Yahweh and Asherah together. Evidence indicates that the worship of Asherah was widely accepted from at least about the year 1000 BCE until the religious reforms instituted by the Hebrew King Hezekiah (around the year 700 BCE) and later King Josiah (around the year 620 BCE). Thus Romer writes: "There is also clear biblical and extra-biblical evidence that until the Josianic reform Yhwh was associated with a goddess, Asherah, whose title may have been 'the Queen of Heaven'" (2013: 1).

When the Hebrew nation of Judah was conquered by the Babylonians around 590 BCE, some of the people thought that their defeat was due to the fact that they no longer worshiped Asherah: "But from the time we stopped making incense offerings to the queen of heaven and pouring out libations to her, we have lacked everything and have perished by the sword and by famine" (Jeremiah 44: 18). But the religious authorities mainly turned against Asherah (and the other rival gods to Yahweh), and the Hebrew Bible is full of references to the destruction of the shrines of Asherah and the destruction of Asherah poles. There are forty verses in the Hebrew Bible which refer to Asherah directly by name and many others which appear to refer to her indirectly (e.g. as the "Queen of Heaven"). These verses are always critical, indicating that Yahweh does not approve of the worship of Asherah. Of course, if people had stopped worshipping Asherah, there would be no need for the persistent condemnation. But it was not just ordinary people who worshipped Asherah – many Hebrew Kings (including Solomon) are criticized for having built altars to Asherah and having set up Asherah poles.

The religious history of the ancient Hebrews looks to be this: They started out as polytheists, worshipping many of the gods and goddesses they found among the early Canaanite peoples. The chief of these deities was the god El, who becomes known by the Hebrew name Yahweh. El has a wife Asherah, and she is the wife of Yahweh too. Both the popular and official religions of the ancient Hebrews are polytheistic for a very long time, until the reformations by King Hezekiah. But polytheistic worship, including worship of Asherah, continues for a long time too. The Hebrew god Yahweh becomes the "God" of the Old Testament, and thus the God of Christianity. If this history is right, then, once upon a time, God had a wife.

2. The Old Testament God is a Man in the Sky

The book of Genesis, the first book in the Old Testament, describes the creation of humans by God. It says: "Then God said, "Let us make man in our image, after our likeness; . . . So God created man in his own image, in the image of God he created him; male and female he created them. " (Genesis 1:26-7). These verses suggest that human *bodies* not human souls, are made in the image of God. What God creates in this passage are physical things with male and female sex. Just as copies resemble their originals, so also an original resembles its copies; therefore, God must resemble the human body. But the text is ambiguous. On the one hand, since it uses the plural "in *our* image, after *our* likeness", and since it involves the creation of both male and female humans, it seems to imply that God is a male-female couple. On the other hand, the text also just uses the male pronouns "he" and "him" to refer to God. The Biblical conception of God is shifting from the male-female couple to a purely masculine deity.

The Old Testament often portrays God as a super-human man with a physical body. The Book of Exodus says: "Thus the LORD used to speak to Moses face to face, as a man speaks to his friend." (Exodus 33:11). Exodus describes a meeting in which God shows part of his body to Moses: "Then the Lord said, "There is a place near me where you may stand on a rock. When my glory passes by, I will put you in a cleft in the rock and cover you with my hand until I have passed by. Then I will remove my hand and you will see my back; but my face must not be seen." (Exodus 33:21-23).

Many verses declare that God lives in the sky, that is, in the heavens. The writer of Deuteronomy asks God to "Look down from thy holy habitation, from heaven, and bless thy people Israel and the ground which thou hast given us" (Deuteronomy 25:15). The writer of Kings asks God in heaven to hear people's prayers: "And hearken thou to the supplication of thy servant and of thy people Israel, when they pray toward this place; yea, hear thou in heaven thy dwelling place; and when thou hearest, forgive." (1 Kings 8:30) God describes himself as living in heaven: "Thus says the LORD: 'Heaven is my throne and the earth is my footstool'" (Isaiah 66:1)

The story of Jacob's Ladder portrays God as standing up in the skies: "And [Jacob] came to a certain place, and stayed there that night, because the sun had set. Taking one of the stones of the place, he put it under his head and lay down in that place to sleep. And he dreamed that there was a ladder set up on the earth, and the top of it reached to heaven; and behold, the angels of God were ascending and descending on it! And behold, the LORD stood above it and said, 'I am the LORD'" (Genesis 28: 11-3)

When God gives Moses the Ten Commandments, God stands with Moses on the top of Mount Sinai: "So Moses cut two tables of stone like the first; and he rose early in the morning and went up on Mount Sinai, as the LORD had commanded him, and took in his hand two tables of stone. And the LORD descended in the cloud and stood with him there." (Exodus 34:4-5). This suggests God is a man in the sky.

There is a popular image of God as an old man with white hair and a white beard, who sits on a throne in the sky. This image is directly taken from the Old Testament. Daniel says "As I looked, thrones were set in place, and the Ancient of Days took his seat. His clothing was as white as snow; the hair of his head was white like wool. His throne was flaming with fire, and its wheels were all ablaze" (Daniel 7:9).

The image of God as a man in the sky is repeated in the Book of Ezekiel. Ezekiel says that he saw in the heavens "what looked like a throne of lapis lazuli, and high above on the throne was a figure like that of a man. I saw that from what appeared to be his waist up he looked like glowing metal, as if full of fire, and that from there down he looked like fire; and brilliant light surrounded him. Like the appearance of a rainbow in the clouds on a rainy day, so was the radiance around him. This was the appearance of the likeness of the glory of the Lord." (Ezekiel 1: 26-8)

The New Testament sometimes echoes these Old Testament pictures of God. Thus John the Apostle says "And immediately I was in the spirit: and, behold, a throne was set in heaven, and one sat on the throne." (John 4:2) John of Patmos has a vision of heaven, where he sees God seated on a throne (Revelations 4:2-4).

Sometimes God comes down to earth and walks. God walks in the Garden of Eden; Adam and Eve hear him walking: "And they heard the sound of the LORD God walking in the garden in the cool of the day, and the man and his wife hid themselves from the presence of the LORD God among the trees of the garden." (Genesis 3:8). "Enoch walked with God after the birth of Methu'selah three hundred years, and had other sons and daughters. . . . Enoch walked with God." (Genesis 5: 22-4).

3. Beyond the Man in the Sky

There are many problems with the idea that God is a man in the sky. There isn't any evidence for the existence of that man. We don't see God when we fly in airplanes; our satellites don't collide with God or see God; we don't see God when we look through telescopes. And how would God survive in space? God can't breathe in space; space is too cold for any life. If this man in the sky exists, then he is a body of some kind; he is made out of some sort of material stuff. But what kind? How is this stuff affected by gravity or by other physical forces? The idea that God is a man in the sky raises many questions which have no answers. And, from a theological perspective, it can be argued that this concept of God is idolatrous. It is an example of us making God in our own image. God does not have any human form. God is not a man in the sky.

Most Christians regard these Old Testament portrayals of God as merely symbolic. They are not to be taken literally. The portrait of God as an old man is just a vivid way of depicting his eternity. God does not literally have a beard. Psalms depicts God as a big bird: "He will cover you with his feathers, and under his wings you will find refuge" (Psalms 91:4). However, God does not literally have feathers or wings; the verse is a metaphor: God protects us as a bird protects her young. According to the Book of John "Jesus said to them, "I am the bread of life; he who comes to me shall not hunger, and he who believes in me shall never thirst" (John 6:35). However, these are metaphors: just as bread and water satisfy our bodily needs, so Christ satisfies our spiritual needs. Jesus is not literally bread and water. Likewise John 10:9 portrays Jesus as a door. But that is a metaphor. Jesus is not literally a door. There are many more examples of metaphorical descriptions of God or Jesus in the Bible.

4. The Problem of Religious Revelation

The Bible says "God is spirit" (John 4:24). But what is that? Furthermore, whatever spirit might be, this Bible verse is a religious assertion about God. John gives no reasons why we should believe that God is spirit. If somebody says that John says it because God told John, then we can turn to John. We can wonder how John knows that God told him this information. Suppose John himself tells us that God spoke to him. John tells us that he heard a voice in his head saying "I am God and I am spirit". However, that does not prove that God spoke to John. John could have been deceived about the source of the information. After all, other religious prophets have claimed that God spoke to them, and they report exactly the opposite of what John reports. Who is right?

To see this, consider the case of Joseph Smith. He was the founder of the Church of the Latter-Day Saints (more commonly known as the Mormons). The Mormons say that God has a body of flesh and bone. This idea was revealed by God to Smith. Smith presented it publicly in his King Follett Discourse. So while John tells us that God is spirit, Smith tells us the exact opposite, namely, that God is a body. Both John and Smith say that God was the source of their claims. Since their claims are mutually contradictory, one of them is right and the other is wrong (or both are wrong). But this confirms the general point: if you hear a voice in your head, and the voice claims to be God, or you think it is God, then you may well be deceived. If you do hear voices in your head, then you should seek psychiatric help. Philosophers do not believe the things that are said by the voices in peoples heads. Voices in our heads do not provide any evidence. Nor do visions or dreams. All those are private experiences which cannot be trusted. The private experiences of different people usually disagree (and have caused much religious conflict). If God is spirit, then philosophers need an argument which justifies that claim, and which is based on publicly available evidence or reasons.

5. Divine Embodiment: Christ versus Jesus

Although Jews and Muslims deny that God has a son, Christians say that God has a son, and that the son of God is embodied. They say that the son of God is Jesus Christ. So the issues associated with divine embodiment are especially acute for Christians. The New Testament portrays Jesus as a Jewish man born in ancient Palestine. The events described in the New Testament suggest that Jesus was born around the year 4 BCE. Some people argue that Jesus never existed. They say he was merely a legend. So there are debates about the historicity of Jesus. But the identity of Jesus raises problems. Jesus has a sex (male) and an ethnic identity (Jewish). But what about Christ?

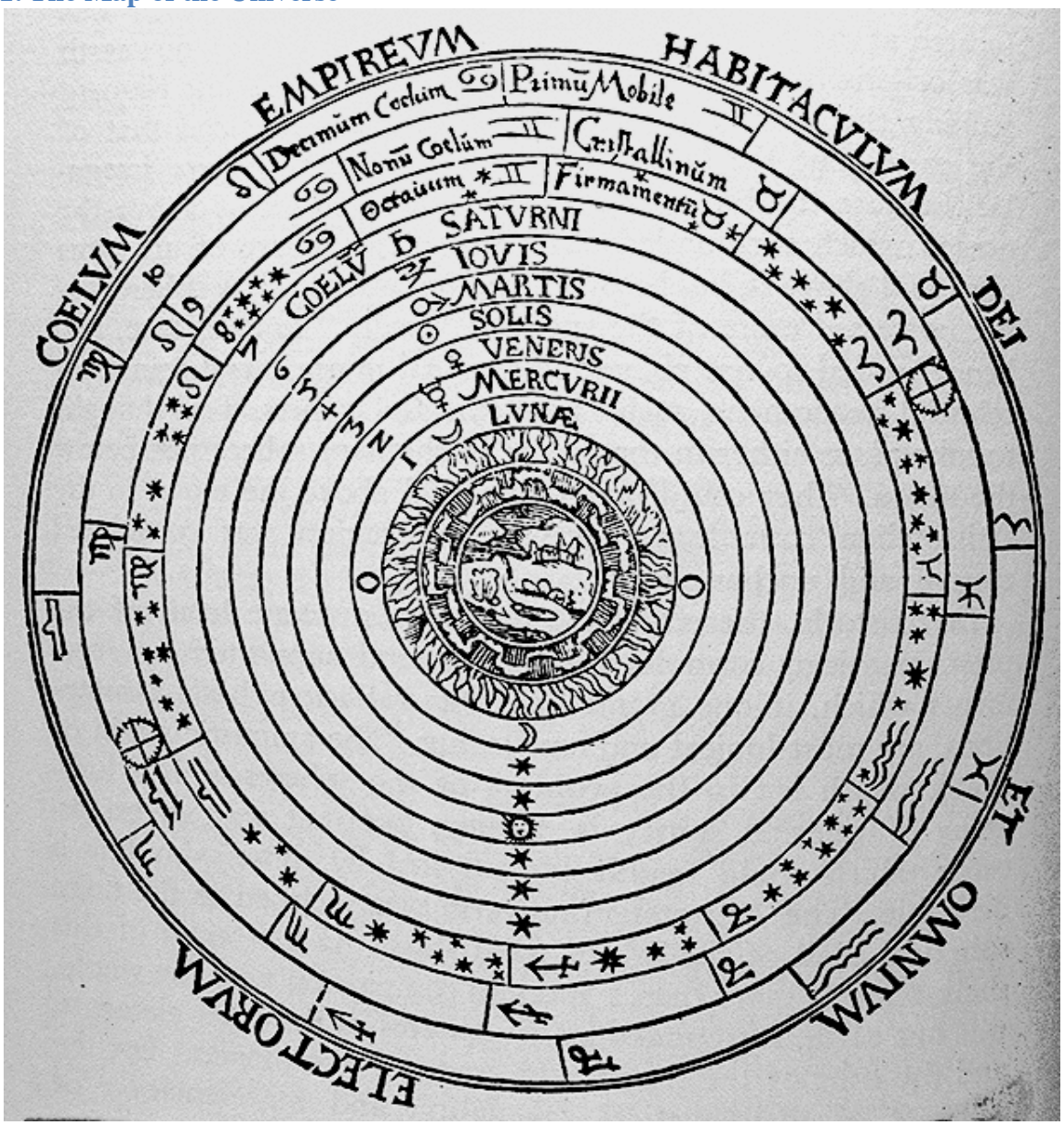
African churches have displayed crucifixes in which the body of Christ is African rather than Middle Eastern. The color of his skin is black rather than white. Some people have raised objections, but the African churches have argued that since African peoples have suffered, it is appropriate for them to depict Christ in a way which reflects their suffering. The argument is that Christ is not Jesus. Although Jesus was a particular person, Christ is a universal concept. Christ can be embodied in many ways.

Feminist theologians have argued that since women suffer, it is appropriate to depict Christ as female. In 1975, the sculptor Edwina Sandys made a crucifix with a female Christ. Her crucifix is known as the *Christa*. The Christa is shown in the traditional

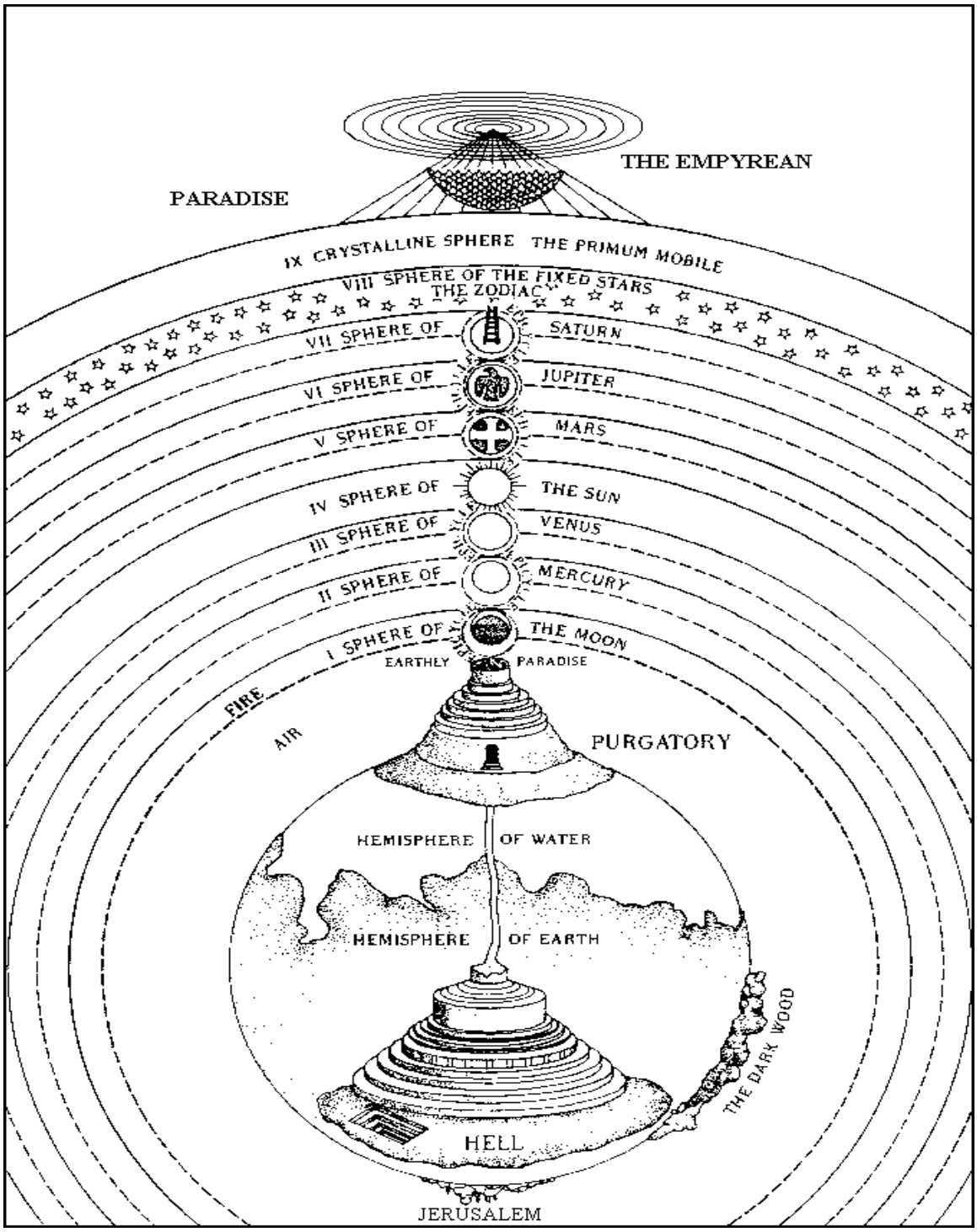
position of Jesus on the Cross. But it is the body of a woman, not a man. The Christa was first displayed in the Episcopalian Cathedral of St. John the Divine in New York City in 1984. The Christa was not displayed above an altar and it was not displayed in any way that would be associated with Christian prayer or worship. It was greeted with some approval, but also with great protest. The controversy was so intense that the Cathedral was forced to remove the Christa from the church. Fast forward to the year 2016, when Edwina donated the Christa to the Cathedral. The Cathedral put the Christa in the church above an altar. Indeed, she hangs above the altar at the head of the Cathedral (in the Chapel of St. Saviour), directly beyond the main altar in the center of the Cathedral. So now the Christa is in a position above an altar. And while the Christa has aroused some protest, Her reception has mainly been positive. There are now female priests and bishops in the Episcopal church, so the Christa is probably going to stay.

The Medieval Universe

1. The Map of the Universe



2. Dante's Cosmos



Anselm: The Medieval Henological Argument

1. The Medieval Great Chain

Ontology is the study of existence. An ontology is a kind of catalog or dictionary that lays out categories of existing things. One way to organize an ontology is to sort its objects into *levels*. The result is an *ontological hierarchy*. Plato's Divided Line is probably the first example of an ontological hierarchy. Aristotle also developed an ontological hierarchy. The Neoplatonists (Plotinus, Proclus) and the Medieval philosophers continued to define ontological hierarchies. The levels in these classical hierarchies correspond to *degrees of being* or *degrees of perfection*. Each level of a classical ontological hierarchy is a link in the *Great Chain of Being* (Plotinus, 1952; Proclus, 1992; Lovejoy, 1936).

One example of the Great Chain is taken from Augustine. He presents it in *The City of God* (Book XI, Ch. 16). The *Augustinian Hierarchy* has six main levels of being. The objects on higher levels are more perfect or exist more intensely than the objects on lower levels. The levels are: (1) merely existing things (e.g. rocks); (2) living existing things (e.g. plants); (3) intelligent living existing things (e.g. animals); (4) rational intelligent living existing things (e.g. humans); (5) immortal rational intelligent living existing things (e.g. angels); and finally (6) God. Table 2 illustrates the Augustinian Hierarchy. Similar hierarchies are found in Anselm's *Monologion* and in Aquinas (*Summa Theologica*, Part 1, Q. 4, Art. 2). So the idea was common enough in the Middle Ages. Table 3 shows a more expanded version of the Great Chain.

The Great Chain is also a complexity ladder. Rocks have the least complexity. Since plants can reproduce, they are more complex than rocks. Since animals can perceive and move, they have nervous systems; they are more complex than plants. Since humans can reason, they are more complex than non-human animals. It follows that angels are more complex than humans, and that God is more complex than angels. If this is right, then God (and not humanity) is living on the Mount Everest of complexity.

Level	**Types**	**Properties**
5	God	existence & life & motion & reason & immortality & omni-perfections
4	angels	existence & life & motion & reason & immortality
3	humans	existence & life & motion & reason
2	animals	existence & life & motion
1	plants	existence & life
0	rocks	existence

Table 2. The Main Levels in the Great Chain.

Level	Types	Subtypes
5	God	God
4	Angels	Archangels
		Seraphim
		Cherubim
3	Humans	Humans
2	Animals	Mammals
		Birds
		Insects
		Fish
		Oysters
1	Plants	Trees
		Bushes
		Crops/Herbs
		Ferns
		Moss
		Fungus
0	Rocks	Gems
		Metals
		Stones

Table 3. Sublevels in the Great Chain.

2. Anselm's Henological Argument

An old argument for God is based on the view that things have different degrees of some positive quality (such as perfection, excellence, or being). The argument from degrees of perfection is also known as the *Henological Argument*. An early version of the Henological Argument was presented by Cicero (1877: II.33-5). Cicero was a pagan Roman; but his ideas were soon taken up by Christian thinkers.

The Christian philosopher St. Augustine developed a version of the Henological Argument (1993: 40-64). But his argument is long and complicated, so we won't deal with it here. A later Christian philosopher, St. Anselm developed his own version. He was born in Italy in 1033 ACE. He moved to England and died in 1109 ACE. He presented his Henological Argument in Chapter 4 of the *Monologion*:

> (1) if one considers the natures of things, (2) one cannot help realizing that they are not all of equal value, but differ by degrees. For the nature of a horse is better than that of a tree, and that of a human more excellent than that of a horse . . . It is undeniable that some natures can be better than others. (3) there is some nature that so overtops the others that it is inferior to none. For if there is an infinite distinction of degrees, so that there is no degree which does not have a superior

> degree above it, then reason is led to conclude that the number of natures is endless. But this is senseless . . . (4) [It is] quite impossible that there exist several natures than which nothing is more excellent. . . . there is one and only one nature which is superior to others and inferior to none. (5) But such a thing is the greatest and best of all existing things. . . . there is some nature (or substance or essence) which is good, great, and is what it is, through itself. And whatsoever truly is good, great, and is a thing, exists through it. And it is the topmost good, the topmost great thing, the topmost being and reality, i.e. of all the things that exist, it is the supreme. (Anselm, 1998: ch. 4)

3. The Analysis of Anselm's Argument

The first statement in Anselm's text asks us to consider the *natures* of things. If such natures do not exist, then we cannot consider them. So the first step assumes the existence of these natures. Natures are abstract objects. Natures usually thought of as patterns shared by all instances of some kind or type of thing. For example, human nature is what all humans have in common. However, since the term *nature* can be used in many ways (e.g. to refer to the totality of concrete things), it seems clearer to use another term for these abstract objects. Hence the term *form* will be used here to denote any abstract object which can be instantiated by a concrete thing. Many arguments have been made for the existence of forms. They support the first step in the Henological Argument. Some philosophers, called *nominalists*, reject abstract objects like forms. But the existence of forms is one of the most plausible premises in this argument.

Replacing natures with forms, Anselm refers to the forms of trees, horses, and humans. Since his argument aims to prove more than just the existence of some greatest organism, there are forms of other kinds of things. An interpretation of Anselmian forms is provided by Millican (2004: 449-51). He seems to regard forms as *maximally specific* abstract objects. He discusses the forms of the specific dogs Lassie and Laika, and the specific British kings Alfred and Arthur. Following Millican, it is assumed here that, if any two things instantiate the same form, then they are exact replicas of each other. Millican treats a form as a set of properties. However, it can be argued that forms are purely mathematical structures (Steiner, 1998). Leibniz thought of forms as binary numbers. Since binary numbers can be interpreted as computer programs, and since properly programmed computers can precisely simulate many concrete things, computer science supports this Leibnizian thesis (Schmidhuber, 1997). Although the notion that forms are programs has many attractive features, it is not required here. Still, the henological argument does require *some* precise theory of forms.

The second statement in Anselm's text also asserts that forms are ranked by greatness. Anselm says "the [form] of a horse is better than that of a tree, and that of a human more excellent than that of a horse". Although the exact meaning of greatness in Anselm is far from clear, his ranking of forms appears to be an *ordinal ranking*. An ordinal ranking associates each form with an ordinal number. So there is a bottom rank of forms R(0), then a next rank R(1), and so on. Forms on ranks with higher indexes are greater forms. Thus forms on higher ranks surpass those on lower ranks.

While the great chain is largely discredited, modern scientists have developed ways to rank forms which closely resemble it. These rankings involve mathematical notions of

complexity – greater forms are more complex. These rankings are very naturally defined for binary numbers, computer programs, and computationally generated objects. Some of these notions of complexity can be said to track intrinsic value. Hence they seem to come close to the concept of greatness employed in the henological argument. The successes of the complexity-theoretic analyses of greatness support the thesis that forms are ordinally ranked by some unique greatness relation. Still, no precise or widely accepted theory of greatness exists. But the existence of an ordinal ranking of forms by greatness remains highly plausible.

The third statement in Anselm's text states that the series of ranks is finite. Anselm writes that "if there is an infinite distinction of degrees, so that there is no degree which does not have a superior degree above it, then reason is led to conclude that the number of [forms] is endless. But this is senseless." He thus denies that there exists a rank of forms for every ordinal number. There is some highest rank R(n) for some finite n. If Anselm is following the ranking given by Augustine, then the highest rank is the sixth.

The fourth statement in Anselm's text asserts that there exists exactly one highest form: "[It is] quite impossible that there exist several natures than which nothing is more excellent. . . . there is one and only one nature which is superior to others and inferior to none." Of course, Anselm gives no explanation for this.

The fifth statement in Anselm's text shifts from natures to things: "But such a thing is the greatest and best of all existing things. . . . there is some nature (or substance or essence) which is good, great, and is what it is, through itself. . . . And it is the topmost good, the topmost great thing, the topmost being and reality, i.e. of all the things that exist, it is the supreme." So the highest nature is also the highest thing. By definition, this highest thing is God. But this shift from natures to things is not valid (see Visser & Williams, 2009: 68-70). Natures or forms are abstract objects; but things are concrete particulars. Human nature is not a human; the nature of a tree is not a particular tree.

Anselm's Henological Argument fails in multiple ways. The series of ever better forms is not finite. Anselm has given no reason to believe that there is a single unique topmost form. Anselm confuses the abstract natures of things with things. If the argument worked, it would justify the existence of a Supreme Being, and it would be fair to identify that Supreme Being with God. But the argument does not work. Nevertheless, it will be useful to go on to examine Anselm's conception of the Supreme Being.

4. The Characteristics of the Supreme Being

Material things change. They come into existence and pass out of existence. They are limited in space and time. Since material things are limited, it is possible to think of something greater than any material thing, namely, something which does not come into being or pass out of being. Hence God cannot be any material being. God is not a body (that is, a material thing); on the contrary, God is a spirit. Anselm does not rely on revelation to justify the claim that God is spirit. He gives reasons. His argument runs like this: (1) God is maximally perfect. (2) If any thing is maximally perfect, then it is the greatest kind of thing. (3) But spirits are a greater kind of thing than bodies. (4) Therefore, God is a spirit. Anselm presents the argument like this:

> And since we know of no better kind of existence than spirit and body, and since spirit is better than body, it must certainly be maintained that this Supreme Being is spirit and not body. Furthermore, since a spirit does not have any parts, and there cannot be more than one supreme spirit, it must be an indivisible spirit. Since the Supreme Being is neither put together from any parts, nor can it be thought of as changeable in any of its features, it is impossible that it is divisible by any form of division. (Anselm, 1903: *Monologion*, sec. 27; all quotations from the *Monologion* have been edited for modern readability.)

The nature of a spirit is not at all clear. Anselm tries to clarify the existence of God by saying that rational minds are the closest approximations to God. The best we can do when we try to think of God is to think of God as a mind which is rational, conscious, self-conscious, wise, good, and perfect in every way:

> [The Supreme Being] is not a material thing; nor is it any thing which can be perceived by the senses of the body. For the rational mind is better than material things and perceivable things, and it exists in a different way than they do. None of the bodily senses can perceive what the rational mind is, nor what kind of thing it is, nor how great it is. If the rational mind were perceivable, then it would be inferior. But it is not perceivable, and it is greater than any perceivable thing. . . . Hence, the Supreme Being must be living, wise, powerful, and all-powerful, true, just, blessed, eternal, and must have every quality which is better to have than to not have. (Anselm, 1903: *Monologion*, sec. 15)
>
> Would it not think of itself? But how can it be even imagined that the supreme Wisdom fails at any time to think of itself? A rational mind can be conscious not only itself, but also of supreme Wisdom; it can both be self-conscious and conscious of its wisdom. . . . Hence, that Spirit, as supreme as It is eternal, is like the rational mind, and is therefore eternally conscious of Itself. But this is not quite right: the Supreme Being is not like anything else; it is the first Being; it is not like the rational mind, rather the rational mind is like it. (Anselm, 1903: *Monologion*, sec. 32)
>
> But it is obvious that whatever good thing the Supreme Being is, it is in the highest degree. It is, therefore, supreme Being, supreme Justice, supreme Wisdom, supreme Truth, supreme Goodness, supreme Greatness, supreme Beauty, supreme Immortality, supreme Incorruptibility, supreme Immutability, supreme Blessedness, supreme Eternity, supreme Power, supreme Unity; which is nothing else than supremely being, supremely living, and so on. (Anselm, 1903: *Monologion*, sec. 16)

5. The Problems with the Anselmian God

Anselm's characterization of God suffers from many problems. The first problem is his assertion that God is spirit. Nobody knows what spirits are. The Epicurean Challenge to Anselm is this: either define spirits with clarity or admit that you aren't talking about anything. The Epicureans and the Mormons, not to mention most atheists, all agree that if there are any spirits, then they have bodies. Spirits without bodies are

incoherent. Anselm suggests that spirits are like minds. But everything we know about minds suggests that they are just brains. More generally, minds are computers. They could be natural computers (brains) or artificial computers (machines made from silicon). Now, it is not necessary for a machine to be made of any material stuff. They could made of spiritual stuff. It is possible that there are spiritual machines. If spirits are spiritual computing machines, made of immaterial stuff, then that leads to some clarity. We can turn to computer science to define the structure of these machines.

The second problem is his effort to fuse the Stoic God with the Neoplatonic One. The Stoic God is a mind which is embodied in the physics of the universe. It is extended through space. It has parts. Since it fills the whole universe, it is the largest and most intelligent mind; it is also the most powerful mind. The Stoics also argue that this cosmic mind is good. But it is not simple or abstract. The Neoplatonic One is both simple and abstract. But the Neoplatonists correctly argued that the One has no mentality. Precisely because it is simple, the One has no intelligence. All known minds belong to complex organisms or artifacts. As the organisms and artifacts get simpler, they get stupider, until they become so simple that they have no mentality at all. A perfectly simple thing, like a quark or an electron, has absolutely zero mentality. And its lack of mentality does not stem from its materiality. A simple immaterial thing would be just as mindless as a simple material thing. So either God is a mind or else God is simple; God cannot be both simple and intelligent. Anselm cannot have it both ways.

Anselm: The Ontological Argument

1. Introduction

Anselm develops his ontological argument in the second chapter of his *Proslogion*, written in about 1076. Anselm was a Christian saint. So, for Anselm, this is an argument for the theistic God, where that God is the maximally great person of traditional Abrahamic theology. The Anselmian ontological argument differs from the design and cosmological arguments. The design argument appealed to our experiences of the order in nature. The cosmological argument appeals to our experiences of cause and effect. But the ontological argument does not appeal to experience at all. It is a work of pure reason. It is more like a mathematical proof than like a scientific argument. Science appeals to evidence; but mathematics only appeals to pure reason. The fact that the ontological argument appeals only to pure reason means that it hides some very deep secrets. If all you want to do is to try to find the faults with the argument, then you'll never discover its secret. The argument looks like this:

> Truly there is a God, although the fool hath said in his heart, There is no God. AND so, Lord, do thou, who dost give understanding to faith, give me, so far as thou knowest it to be profitable, to understand that thou art as we believe; and that thou art that which we believe. And indeed, we believe that thou art a being than which nothing greater can be conceived. Or is there no such nature, since the fool hath said in his heart, there is no God? (Psalms xiv. 1). But, at any rate, this very fool, when he hears of this being of which I speak --a being than which nothing

greater can be conceived --understands what he hears, and what he understands is in his understanding; although he does not understand it to exist. For, it is one thing for an object to be in the understanding, and another to understand that the object exists. When a painter first conceives of what he will afterwards perform, he has it in his understanding, but he does not yet understand it to be, because he has not yet performed it. But after he has made the painting, he both has it in his understanding, and he understands that it exists, because he has made it. Hence, even the fool is convinced that something exists in the understanding, at least, than which nothing greater can be conceived. For, when he hears of this, he understands it. And whatever is understood, exists in the understanding. And assuredly that, than which nothing greater can be conceived, cannot exist in the understanding alone. For, suppose it exists in the understanding alone: then it can be conceived to exist in reality; which is greater. Therefore, if that, than which nothing greater can be conceived, exists in the understanding alone, the very being, than which nothing greater can be conceived, is one, than which a greater can be conceived. But obviously this is impossible. Hence, there is no doubt that there exists a being, than which nothing greater can be conceived, and it exists both in the understanding and in reality. (Anselm, 1903)

2. An Analysis of Anselm's Argument

Anselm's text is very dense. It needs to be unpacked and put into a step-by-step argument. Since the Anselmian text talks about concepts in the mind of the Fool, the first analysis yields the Ontological Argument over Concepts:

(1) There are some concepts which exist in the mind of the Fool.
(2) These concepts are ranked in terms of their greatness.
(3) Every concept in the mind of the Fool either corresponds to something in reality or it does not correspond to anything.
(4) Any concept which corresponds to something in reality is greater than any concept which does not.[1]
(5) Some concepts in the mind of the Fool, such as the foolish concept of the local tavern, do correspond to things in reality.
(6) The greatest concept in the mind of the Fool is G.
(7a) Assume that G does not correspond to anything in reality.
(7b) If G does not correspond to anything in reality, then some concepts in the mind of the Fool are greater than G. For instance, the foolish concept of the local tavern is greater than G.
(7c) But then G is not the greatest concept in the mind of the Fool.
(7d) So the assumption that G does not correspond to anything in reality leads to a contradiction.
(8) Hence the greatest concept in the mind of the Fool corresponds to something in reality.
(9) The thing to which that greatest concept G corresponds is God.
(10) Therefore, God exists.

The Ontological Argument over Concepts is valid. But is it sound? The least plausible premise is the ninth statement, which asserts that the thing to which G corresponds is God. Presumably, some humans are more intelligent than the Fool, so that their minds contain concepts greater than G. The tradition of maximal perfect being theology implies that if any concept is greater than G, then G is not the concept of God.

To avoid any difficulties which arise from the small mind of the Fool, the argument can be reformulated in terms of all concepts in all human minds. It starts like this: (1) There are some humanly thinkable concepts. (2) These concepts are ranked by greatness. (3) The greatest humanly thinkable concept is H. And so it goes. If this reformulation is sound, then it runs to the conclusion that H corresponds to something in reality. If H is the concept of God, then God exists. Against that conclusion, most theists will object that the divine nature infinitely exceeds all human comprehension. So the greatest humanly thinkable concept H corresponds to something far less than God. Anselm, of course, already understood that divine maximality cannot be tied to our conceptual abilities (*Proslogion*, 15). Thus he correctly states that God is something greater than can be conceived. To avoid problems caused by our limited human mental abilities, it is necessary to develop an ontological argument which does not use concepts.

3. An Ontological Argument over Forms

It is necessary to go beyond subjective versions of the ontological argument. Subjective versions of the argument rely on mental entities like ideas or concepts. These can be avoided by arguments which rely instead to the abstract patterns of things. These abstract patterns exist objectively. All trees share a common abstract pattern, which is why they can all be classified as a single kind of thing, namely, trees.

Anselm uses the term *nature* to refer to these abstract patterns. He talked about "natures" in his Henological Argument (*Monologion*, ch. 4). He says that there is a system of natures ordered by greatness. He states that the nature of a human is greater than that of a horse; but the nature of a horse is greater than that of a tree. He further states that it is impossible for there to be an infinite series of ever greater natures. So there exists some greatest nature, which is divine. And Anselm refers to the nature of God in *Proslogion 2*. So we can reformulate the ontological argument using natures. For example, Millican (2004: 457-8) gave an ontological argument using natures.

Although the shift from subjective concepts to objective natures is welcome, the term "nature" is not very useful. It has too many meanings and connotations. So natures will be replaced with *forms*. Using forms, the ontological argument runs like this:[2]

(1) There are some forms.
(2) These forms are ordered by greatness.
(3) Forms are either instantiated by things or are not instantiated.
(4) Some forms are instantiated (e.g. humanity is a form which is instantiated by Socrates).
(5) Any instantiated form is greater than any uninstantiated form.
(6) The greatest form is F.
(7a) Assume that F is not instantiated by anything in reality.
(7b) If F is not instantiated by anything, then some forms are greater than F.

(7c) But then F is not the greatest form.
(7d) So the assumption that F is not instantiated by anything leads to a contradiction.
(8) Therefore, F is instantiated by something in reality.
(9) The thing which instantiates F is God.
(10) Therefore: God exists.

4. Evaluating the Ontological Argument over Forms

The Ontological Argument over Forms is valid; it remains to examine its premises. Its first step asserts the existence of forms. Forms are abstract objects which need not be concretely instantiated. Perhaps forms are individual essences, universals, or properties. Perhaps they are machines, such as finite state machines, Turing machines, or transfinite elaborations of such machines. A powerful case can be made that forms are purely mathematical structures. Perhaps forms are just pure sets. Many arguments have been made for the existence of all these types of abstract objects.[3] All these arguments support the first step in the Ontological Argument over Forms. Of course, this first step can be challenged: nominalists reject abstract objects. But the existence of abstract objects is one of the most plausible premises in this ontological argument.

The second step says that forms are ranked by greatness. The classical way to rank forms by greatness is codified in the great chain of being (Lovejoy, 1936).[4] Anselm himself used something like the great chain in his Henological Argument. While the great chain is vague, and largely discredited, modern scientists have developed ways to rank forms which closely resemble the rankings in the great chain.[5] These rankings involve formalized notions of complexity – greater forms are more complex.[6] Some of these notions of complexity can be said to track intrinsic value.[7] Hence they seem to come close to the concept of greatness employed in the ontological argument. The successes of the complexity-theoretic analyses of greatness support the premise that forms are ranked by some unique greatness relation, a relation which can also be referred to as the surpassing relation: greater forms surpass lesser forms. Unfortunately, no precise or widely accepted theory of greatness (or surpassing) exists. But the existence of a greatness relation remains a highly plausible premise.

The third and fourth steps in the Ontological Argument over Forms are uncontroversial. Versions of the fifth step have tortured many minds (Hartshorne, 1941: 317-18; Kiteley, 1958; Plantinga, 1966: 544; Makin, 1988: 85).[8] Nagasawa (2007: 1029) refers to it as the *Principle of the Superiority of Existence*. However, since the existence which the premise asserts is that of an instance of a form, it will be referred to here as the *Principle of the Superiority of Instantiation*. More precisely, for any forms P and Q, if P is instantiated but Q is not, then P is greater than Q. To avoid confusions about existence, it will be helpful to state this Principle more formally: for any forms P and Q, if $(\exists x)(P(x))$ but $\sim(\exists y)(Q(y))$, then P is greater than Q. This Principle clearly uses existential quantifiers to deal with existence. It *does not* treat existence as a predicate, property, or perfection. Nevertheless, this Principle is almost certainly false.[9]

The sixth step states that there exists exactly one greatest form. This premise is one of the weakest in this ontological argument, and it is almost certainly false. Against this premise, it can be argued that every form is surpassed by some greater form. The

argument against greatest forms is mainly inspired by mathematics. Hartshorne saw clearly that modern mathematics raises hard problems for the use of maximality in the ontological argument (1967: 19-20; 1984: 7-10, 31). The argument starts with the ordinals, and continues through other kinds of things. Since every ordinal is surpassed by some bigger ordinal, there is no biggest ordinal. Since every set is surpassed by some more complex set, there is no maximally complex set. Every abstract computer is surpassed by some greater abstract computer; so there is no greatest abstract computer. Every logical language is surpassed by a greater logical language, so there is no greatest logical language. Since abstract computers and logical languages are the ingredients in mental forms, it can be argued that every mental form is surpassed by some greater mental form, so that there is no greatest mental form. Hence there is no greatest personal form. Every cosmic form is surpassed by some better cosmic form, so that there is no best cosmic form. Since there is no best cosmic form, there is no greatest benevolent universe-creating agent. So this sixth step is problematic.

The seventh steps merely run the logic of the argument. That logic is valid. The eighth step asserts that the greatest form is instantiated by something in reality. This step correctly follows from the logic of the argument. If the premises of the Ontological Argument are true, then there really does exist something which instantiates the greatest form. There exists some greatest thing. The ninth step tells us that this greatest thing is God. The ninth step merely defines the meaning of the term "God". So God exists. God is the greatest thing, the Supreme Being. But what is that?

Although this ontological argument over forms is valid, it fails at steps five and six. It does not prove the existence of anything. It does not prove God. However, the logic in this argument may be useful for building stronger arguments. And, like many other arguments for God, their failure is not very interesting. It is far more interesting to think about the thing that the argument aims to prove. If it were sound, what would the ontological argument prove? The Christian God? Or something else?

5. The Identity of the Supreme Being

The Ontological Argument does not identify the thing which instantiates the greatest form. Theists think that the greatest form is the form of a divine person, such as the maximally perfect person of Abrahamic theology. And Anselm would have said it is the form of the Christian God. There have been several nontheistic options.

The first nontheistic option is motivated by the key phrase "that than which no greater can be conceived". Before Anselm, this phrase was used by the Stoic writer Cicero (*On the Nature of the Gods,* Book 2). And the Stoics thought the phrase referred to the universe, which they thought of as a living organism with a divine soul. For the Stoics, the ontological argument would prove the existence of the universe (or perhaps that the universe has a divine soul). If the universe is that than which no greater can be conceived, then it is the supreme being. As such, it might be religiously significant. Pantheists think the universe is God. The conception of God as the universe meets the Epicurean Challenge. The universe is clearly defined.

The second nontheistic argument is motivated by the fact that it is possible that there are many other universes besides our own universe. But a collection of many universes is greater in many ways than any single universe. So a multiverse containing our universe

and all possible variations of our universe is greater. But then a bigger multiverse which also contains all possible variations of all those universes is even greater. And a multiverse containing all possible universes is the greatest of all. It is not possible to conceive of anything greater than all possible universes. After all, if you conceive of any possible thing, then it must be in some possible universe. So some pantheists say that God is the multiverse. This conception of God as the biggest multiverse meets the Epicurean Challenge. The multiverse is clearly defined.

The third nontheistic option is motivated by mathematics. The physicist Max Tegmark thinks that the multiverse is really just the totality of all possible purely mathematical structures. Here he is like the ancient Pythagoreans, who were said to worship numbers; more accurately, they thought that mathematics described a divine reality. The contemporary philosopher Mark Johnston writes that: "It is conceivable that mathematical reality taken as a whole is the Most Perfect Being, because it is utterly complete, beautiful, self-contained, and inherently intelligible, in a way that cannot be approximated by anything in the spatio-temporal realm" (2009: 11). So perhaps mathematical reality is that than which no greater can be conceived. Perhaps God is just mathematical reality. After all, that than which no greater can be conceived must be infinite; but mathematics defines endless ranks of infinities. This conception of God meets the Epicurean Challenge. Mathematics is clearly defined.

6. The Secret in the Ontological Argument

The ontological argument hides a deep and fascinating secret. It wasn't until the middle of the twentieth century that people began to suspect the existence of this secret. They failed to see the secret because they were focused only on whether or not the argument proved God. Suppose the argument does prove that God exists. Would this be good news or bad news for a theist? It would probably be very bad news.

The argument is based on pure reason. God did not create the logic of the ontological argument; on the contrary, if the ontological argument works, then there is a sense in which the logic of the ontological argument creates God. God exists *because* that logic entails that God exists. The ontological argument explains why God exists. The ultimate sufficient reason for the existence of God does not lie in God, but in some purely rational logic that exists before God. Pure reason is more powerful than God. Pure reason produces God out of itself. This position is referred to today as axiarchism: God exists because it is better for the form of God to have an instance that it is for that form to lack an instance. God exists because it is good that God exists. God is brought into being by the logic of goodness. This is an old Neoplatonic idea. For the Neoplatonists, the Good produces the Divine Mind. The Divine Mind is God. But the Good is not God; the Good is superior to God. God comes in second, not first. Theists probably would not like that consequence. So maybe theists shouldn't want the ontological argument to work. If it does work, it proves mainly that ultimate reality is not God.

Petitionary Prayers

1. Asking for Benefits

One type of prayer is known as *petitionary prayer*. Petitionary prayer asks God to do something for you. You might ask God to help you find a mate, to help you overcome some disease, to get a job or to get more money. Or you might ask God to make it rain so that your crops will grow and you will have food. You might ask God to help your country win a war. You might ask God to kill your enemies.

You could ask God to do things that will be done naturally. If you are about to drop a rock, you might ask God to make it fall. Or you might ask God to make the sun rise tomorrow morning. But these kinds of events are usually thought to follow from the laws of nature. These laws act all the time. Of course, it may be that God is the author of the laws of nature or that God sustains those laws. Perhaps God makes gravity work. But it still seems silly to ask God to make a rock fall when dropped. We already know that gravity works. Assuming the laws of nature come from God, there's no point in asking God to do something you already know God is going to do.

Petitionary prayers are usually directed at outcomes which are uncertain. We ask God to help us with things over which we have very little control (health, success, winning a war, the weather). Or we might even ask God to violate the laws of nature. If the laws of nature imply some outcome which we don't like, we might ask God to suspend or alter those laws. A *miracle* suspends or alters the laws of nature.

2. Religious Arguments against Petitionary Prayer

At least six religious arguments can be given against petitionary prayer. The first argument is the *Argument from Divine Changelessness:* God is perfect. If God were to change, then God would become less perfect; hence God cannot change. Since God cannot change, God cannot be changed by petitionary prayer; so petitionary prayer has no effect on God. But if petitionary prayer has no effect on God, then it has no effect on the universe. Petitionary prayer is pointless. The second argument is the *Argument from Divine Knowledge:* God is perfect. Since God is perfect, God is all-knowing. Since God is all-knowing, God always knows what you want. Since God always knows what you need, petitionary prayers cannot ever tell God something that God does not know. Therefore, petitionary prayers cannot have any effect on God. There is no reason to ask God for anything; petitionary prayers are religiously pointless.

The third argument is the *Argument from Divine Moral Perfection*. God is perfect. Since God is perfect, God is all-good, all-powerful, and all-knowing. Since God is all-knowing, God always knows what is best for you; since God is all-good, God always wants to give you exactly what is best for you; since God is all-powerful, God can always give you exactly what is good for you. Therefore, God always does give you exactly what is best for you; but this means that God never gives you anything other than what is best for you. But the perfection of God does not depend on you. So the fact that God always gives you what is best does not depend on your asking for it. When you ask God for something, either you ask for what is best or for what is not the best. On the one

hand, whether you pray for the best or fail give a prayer asking for the best, God will give it to you. So prayers asking for the best do not effect God; they are irrelevant. On the other hand, whether you pray for something other than the best or fail to give a prayer asking for something other than the best, God will not give it to you. So, prayers asking for something other than the best do not effect God; they are futile. Since petitionary prayers are either irrelevant or futile, there is no religious reason to offer petitionary prayers. God always gives you the best; you should accept it.

The fourth argument is the *Argument from the Proper Response to Fate*. God is perfect. Since God is perfect, God always gives you the best. If you are sick, or poor, or lonely, or in any other condition, it is because this is best for you. So if you pray for God to change your condition, then you are asking God do to what is not the best; you are asking God to be less than God; but it is wrong to ask God to be less than perfect; so you should never pray for God to change your condition. Since God is perfect, God always gives you the best. If you are given the best, you ought to accept it with joy and gratitude. But if you ask God to change your condition, then you are not accepting it with joy and gratitude. Your prayer is a complaint against what God has given you; it is an act of ungrateful rejection of the will of God. But you should never reject the will of God; therefore, you should never pray to God to change your condition. A religious person will agree that fate comes from God; since it comes from God, it is good; therefore, you ought to accept your fate rather than rebel against it.

The fifth argument against petitionary prayers is the *Argument from Disembodiment*. Since God does not have a body, God does not have ears. So God has no organs by means of which God can receive sound from human mouths. But more generally, God does not have any organs by means of which God can receive any signals of any kind from human bodies or brains. But prayers are signals sent from human bodies and brains to God. Since God has no way to receive those signals, God does not hear our prayers. Since God does not hear our prayers, God cannot answer our prayers.

The sixth argument against petitionary prayer is the *Argument from Mystery*. Prayer begins with natural events in human bodies. So if prayer has any effect on God, then there are laws which link events in human bodies to events in God. These are causal laws which specify that events in human bodies cause events in God. For example, these laws explain how words silently formed in human brains cause effects in God. Since human bodies are natural, these laws are natural. Since they are natural, we can learn about these laws by studying brains. And our knowledge of brains is sufficiently advanced that if these laws existed, then we would know about them by now. But we do not know about these laws. Hence it is likely that no such laws exist. And since God designed and created the universe, God has designed and created its laws. Therefore it is not likely that God has designed any laws which permit prayers to have any effect on God. But this suggests that God has no interest in human prayer.

Somebody might object that God does not want us to know about these laws. But this contradicts the goodness of God. If God wants us to pray, then, since God is good, God also wants us to know that God hears our prayers. If God is good, and God wants us to pray, then God does not want there to be reasons for doubting that God hears our prayers. A good God does not want prayer to be mysterious. A good God does not want us to be ignorant of how to communicate with God. Hence a good God will not want us to pray based on blind faith or unjustified trust. Since God is good, God wants us to know about

the laws that make prayer work. Yet we do not know of any such laws. The best explanation for our ignorance of these laws is that they do not exist. So either God does not exist at all, or God is not the designer and creator of the universe, or God is not good, or God does not care about prayer. It seems like the most religiously appropriate response is that human prayer is irrelevant to God.

There are good religious reasons why petitionary prayer would not be relevant. God has designed and created a good universe. Although it contains challenges, they are part of the divine plan for human growth. So God has given us all we need. There is no reason to ask God for anything else. And since God has given us all we need, it is morally wrong to ask God for more. God does not want us to use God as a crutch. God has thrown us into the world to sink or swim. And God has given us all the resources we need to be able to swim in this world. Therefore, prayer is irrelevant.

3. A Scientific Test of God from the Bible

The power of God to answer prayers can be tested. We can check to see whether prayer helps people recover from their diseases or live longer or more successful lives. Of course, somebody might argue that it is not appropriate to test God in this way. But the Bible itself explicitly states that God is open to being tested.

The Old Testament suggests that religious claims are empirically testable hypotheses. This is expressed very vividly in the contest between Elijah and the prophets of Baal (1 Kings 18: 21-40). Elijah opened this contest by proposing a dilemma to the gathered people of Israel (v. 21, NIV): "If the Lord is God, follow him; but if Baal is God, follow him." To decide whether the Lord or Baal is the true God, Elijah proposed an empirical test of competing god-hypotheses. Elijah said

> "Get two bulls for us. Let Baal's prophets choose one for themselves, and let them cut it into pieces and put it on the wood but not set fire to it. I will prepare the other bull and put it on the wood but not set fire to it. Then you call on the name of your god, and I will call on the name of the Lord. The god who answers by fire — he is God." Then all the people said, "What you say is good." (v. 23-24)

After the prophets of Baal prepared their bull and placed it on their altar, they "called on the name of Baal from morning till noon. 'Baal, answer us!' they shouted. But there was no response; no one answered" (v. 25). Their failure provoked a mocking response:

> At noon Elijah began to taunt them. "Shout louder!" he said. "Surely he is a god! Perhaps he is deep in thought, or busy, or traveling. Maybe he is sleeping and must be awakened." So they shouted louder and slashed themselves with swords and spears, as was their custom, until their blood flowed. Midday passed, and they continued their frantic prophesying until the time for the evening sacrifice. But there was no response, no one answered, no one paid attention. (v. 27-29)

By this time, Elijah regards the prophets of Baal as having failed. Their hypothesis, that God is Baal, has been falsified. Of course, it still remains for Elijah to test his own god-hypothesis. To this end, he constructs his own altar (v. 30-32). He cuts up his bull

and places it on the altar (v. 32-33). To make his own test harder, he then douses his bull and altar with water (v. 33-35). Elijah then calls upon the Lord "the God of Abraham, Isaac and Israel" (v. 36). After he asks the Lord to demonstrate his divine power to the people (v. 37), "then the fire of the Lord fell and burned up the sacrifice, the wood, the stones and the soil, and also licked up the water in the trench" (v. 38). Consequently, the hypothesis that the Lord is the true God was empirically verified. As expected, the gathered people were persuaded: "When all the people saw this, they fell prostrate and cried, 'The Lord—he is God! The Lord—he is God!'" (v. 39). Since the prophets of Baal worship a false god, they must pay a penalty for their idolatry: "Then Elijah commanded them, 'Seize the prophets of Baal. Don't let anyone get away!' They seized them, and Elijah had them brought down to the Kishon Valley and slaughtered there" (v. 40).

4. The Unreliability of Petitionary Prayer

There are very few studies which aim to test the power of petitionary prayer. Most of these studies have focused on the power of prayer to cure disease. However, among those studies, most are flawed. Prayer may produce positive (or negative) results naturally. For example, prayer may just produce a placebo effect; but the placebo effect does not involve God. Or, if you know that people are praying for you when you are sick, you may become more anxious; that anxiety may make you sicker; but that does not involve God. Probably the best study of the power of prayer to cure disease was done by Benson and others (2006). They studied the effects of prayer on heart disease patients. Their study showed that prayer does not help.

The Resurrection of the Body

1. Resurrection by Revival

The theory of resurrection as revival is one of the main theories of resurrection in the Bible. Many verses refer to the opening of graves and the raising of the dead.[10] Jesus revives Lazarus and the daughter of Jairus.[11] The revival of Jesus is obviously the primary example of resurrection in the New Testament. The theory of resurrection by revival goes something like this: (1) An earthly body is born. (2) The earthly body dies and is buried in its grave. (3) At some later time, the grave opens and the corpse is raised from the grave. God brings the corpse back to life. It is revived or re-animated. It becomes the new body. One of the most famous revival stories is the resurrection of Lazarus by Jesus:

> 1. Now a certain man was ill, Lazarus of Bethany, the village of Martha and her sister Mary. . . . 5. Now Jesus loved Martha and her sister and Lazarus. 6. So when he heard that he was ill, he stayed two days longer in the place where he was. 7. Then after this he said to the disciples, Let us go into Judea again. . . 11. Thus he spoke, and then he said to them, Our friend Lazarus has fallen asleep, but I go to awake him out of sleep. 12. The disciples said to him, Lord, if he has fallen

asleep, he will recover. 13. Now Jesus had spoken of his death, but they thought that he meant taking rest in sleep. 14. Then Jesus told them plainly, Lazarus is dead; 15. and for your sake I am glad that I was not there, so that you may believe. But let us go to him. . . . 17. Now when Jesus came, he found that Lazarus had already been in the tomb four days. . . . 38. Then Jesus, deeply moved again, came to the tomb; it was a cave, and a stone lay upon it. 39. Jesus said, Take away the stone. Martha, the sister of the dead man,, said to him, Lord, by this time there will be an odor, for he has been dead four days. 40. Jesus said to her, Did I not tell you that if you would believe you would see the glory of God? 41. So they took away the stone. And Jesus lifted up his eyes and said, Father, I thank thee that thou hast heard me. . . . 43. When he had said this, he cried with a loud voice, Lazarus, come out. 44. The dead man came out, his hands and feet bound with bandages, and his face wrapped with a cloth. Jesus said to them, Unbind him, and let him go. (Chapter 12) 1. Six days before the Passover, Jesus came to Bethany, where Lazarus was, whom Jesus had raised from the dead. 2. There they made him a supper; Martha served, and Lazarus was one of those at table with him. (John 11; RSV)

2. Resurrection by Reassembly

One version of the reassembly theory goes something like this: (1) Your earthly body is born and lives. (2) It dies and disintegrates. (3) After your death, you survive in the mind of God. God stores your biography. God encodes an atomic-level blueprint of your body. God tracks the smallest last parts of your body (e.g. its atoms) as they wander through the universe. At the time of the resurrection, God gathers these atoms back together. God uses its atomic-level blueprint to rebuild your body. So your new body is made out of its old parts according to its old form. It perhaps originates with Ezekiel's vision of the valley of dry bones (Ezekiel 37: 1-14).[12] The vision of Ezekiel goes like this:

1 The hand of the LORD was upon me, and he brought me out by the Spirit of the LORD and set me in the middle of a valley; it was full of bones. 2 He led me back and forth among them, and I saw a great many bones on the floor of the valley, bones that were very dry. 3 He asked me, "Son of man, can these bones live?" 3b I said, "O Sovereign LORD, you alone know." 4 Then he said to me, "Prophesy to these bones and say to them, 'Dry bones, hear the word of the LORD! 5 This is what the Sovereign LORD says to these bones: I will make breath enter you, and you will come to life. 6 I will attach tendons to you and make flesh come upon you and cover you with skin; I will put breath in you, and you will come to life. Then you will know that I am the LORD.'" 7 So I prophesied as I was commanded. And as I was prophesying, there was a noise, a rattling sound, and the bones came together, bone to bone. 8 I looked, and tendons and flesh appeared on them and skin covered them, but there was no breath in them. 9 Then he said to me, "Prophesy to the breath; prophesy, son of man, and say to it, 'This is what the Sovereign LORD says: Come from the four winds, O breath, and breathe into these slain, that they may live.'" 10 So I prophesied as he commanded me, and

> breath entered them; they came to life and stood up on their feet ? a vast army. (Ezekiel 37:1-9; NIV)

Although the Ezekiel story is vivid, it might not really be a resurrection theory. But Jesus suggests resurrection by reassembly with his remarks that his body is a temple that will be rebuilt in three days. The reassembly theory is the dominant classical theory of the resurrection (Bynum, 1995). More recently, reassembly by the power of God is defended by Hershenov (2002; 2003). A fairly precise description of the reassembly of the atoms of the earthly body by the power of God is given in a fragmentary work ascribed to the early church father Justin Martyr. Here is Martyr's description:

> Again, according to Epicurus, the atoms and the void being indestructible, it is by a definite arrangement and adjustment of the atoms as they come together, that both all other formations are produced, and the body itself; and it being in course of time dissolved, is dissolved again into those atoms from which it was also produced. And as these remain indestructible, it is not at all impossible, that by coming together again, and receiving the same arrangement and position, they should make a body of like nature to what was formerly produced by them; as if a jeweler should make in mosaic the form of an animal, and the stones should be scattered by time or by the man himself who made them, he having still in his possession the scattered stones, may gather them together again, and having gathered, may dispose them in the same way, and make the same form of an animal. And shall not God be able to collect again the decomposed members of the flesh, and make the same body as was formerly produced by Him? (Justin Martyr, 114-165: 297)

Another version of the reassembly theory says that, at the time of the resurrection, your soul gathers your atoms. Your soul pulls them together. Your new body is built from the atoms and form of your earthly body by your soul. Gregory of Nyssa gives a good presentation of this version of the reassembly theory of resurrection:

> we assert [that] the soul know[s] the natural peculiarities of those atoms whose concourse makes the frame of the body in which it has itself grown, even after the scattering of those atoms. . . . [the soul] remains after [the dissolution of the body] in those very atoms in which she first grew up, and, like a guardian placed over private property, does not abandon them when they are mingled with their kindred atoms, and by the subtle ubiquity of her intelligence makes no mistake about them, with all their subtle minuteness, but diffuses herself along with those which belong to herself when they are being mingled with their kindred dust, and suffers no exhaustion in keeping up with the whole number of them when they stream back into the universe, but remains with them, no matter in what direction or in what fashion Nature may arrange them. But should the signal be given by the All-disposing Power for these scattered atoms to combine again, then, just as when every one of the various ropes that hang from one block answer at one and the same moment to the pull from that centre, so, following this force of the soul which acts upon the various atoms, all these, once so familiar with each other,

> rush simultaneously together and form the cable of the body by means of the soul, each single one of them being wedded to its former neighbor and embracing an old acquaintance. (Gregory of Nyssa, *On the Soul and Resurrection*, secs. 10 – 14).

3. Resurrection by Replication

The theory of resurrection by replication states something like this: (1) An earthly body is born. (2) The earthly body dies and disintegrates. Its life does not continue. Its life is disrupted by death. (3) At the time of the resurrection, God takes some atoms and arranges them to make a replica of the earthly body. This act of replication produces the new body. The resurrection body is made of the same *types* of atoms arranged in exactly the same way as the earthly body just before its death. But it is not made of the same *token* atoms. Those tokens are irrelevant. Parfit (1971b) briefly discusses resurrection by replication.

The replication theory is also associated with a computational analysis of personhood: the soul is to the body as a program is to a computer. This is the old Aristotelian idea of the soul as the form of the body. Resurrection is the divine installation of the original earthly body-program on a new bio-computer. Reichenbach (1978: 27) describes resurrection in computational terms like this:

> Viewed monistically, man is nothing more than a physical organism constructed and programmed in a certain fashion. . . . Some have likened man to an extremely complex computer with a physical body. If one adopts this analogy, and applies it to the issue of life after death, the following would be the monistic re-creationist's thesis: just as one can construct two computers to look identical, program them identically, and feed them precisely the same program data, so it would not seem to be self-contradictory that an individual could be physically re-created to possess all the physical characteristics of the deceased in identical proportions and correlations, such that he would look identical to the person who died, and since consciousness is a brain process, that his brain could be re-created and programmed as to have identical neural and chemical components and structures, such that he would possess the same memories, ideas, perspectives, and personality traits as the individual who died. In short, a person precisely identical to the one who died could be re-created, with the result that the re-created person would be the same person as the deceased; he would begin to live where the deceased left off. Working from this thesis, the re-creationist argues that at some time in the future, a large number of individuals will reappear (will be re-created), each (respectively) making claims to be a particular individual who died sometime in the past, and that these beings will not be merely similar to those deceased individuals, but identical with them.

Polkinghorne also describes resurrection in computational terms (1985: 180-181; 2002). Mackay (1997: 248 - 249) sketches a computational resurrection theory in which programs are treated as mathematical properties of machines. On Mackay's theory, resurrection is the re-instantiation of an equation in a novel computational medium:

> We are nowadays accustomed to the idea that a computer can be set up to solve a mathematical equation. . . . If we think of our mental activity as "embodied" in our brain activity, in the sense in which the solving of an equation can be embodied in the workings of a computer, then there is a clear parallel sense in which our behavior can be determined by that mental activity, regardless of the extent to which our brain activity is determined by physical laws. The two explanations, in mental and in physical terms, are not rivals but complementary. . . . we are here thinking of mental activity as *embodied in* brain activity rather than *identical with* brain activity. . . . the solving of an equation is not a separate series of events, running in parallel with the physical happenings in the machine. It is rather the mathematical significance of one and the same series of events, whose physical aspect is well-explained by the engineer. On the other hand it would be nonsensical on these grounds to identify equations with computers as physical objects . . . It might appear that thinking of our conscious experience as "embodied" in our brains would still be incompatible with the Christian concept of "life after death". What we have seen in the case of the computer, however, shows that there need be no conflict. The physical destruction of a computer is certainly the end of that particular embodiment of the equation it was solving. But it leaves entirely open the possibility that the same equation could be re-embodied, perhaps in a quite different medium, if the mathematician so desires. By the same logic, mechanistic brain science would seem to raise equally little objection to the hope of eternal life expressed in biblical Christian doctrine, with its characteristic emphasis on the "resurrection" (not to be confused with resuscitation) of the body. The destruction of our present embodiment sets no logical barrier to *our* being re-embodied, perhaps in a quite different medium, if our Creator so wishes.

So far all replication theories have produced resurrection replicas in this universe. But Hick says that the replica is created in a distinct universe.[13] Hick (1976: ch. 15) puts it like this:

> I wish to suggest that we can think of [the resurrection of the person] as the divine creation in another space of an exact psycho-physical 'replica' of the deceased person. . . . it is logically possible for there to be any number of worlds, each in its own space . . . And the idea of bodily resurrection requires (or probably requires) that there be at least two such worlds, and that when an individual dies in our present world in space number one he is either immediately or after a lapse of time re-created in a world in space number two (pp. 279 - 280).[14] . . . The picture that we have to consider is one in which Mr. X dies and his 'replica', complete with memory, etc., appears . . . as a resurrection 'replica' in a different world altogether, a resurrection world inhabited by resurrected 'replicas' — this world occupying its own space distinct from the space with which we are familiar. . . . Suppose then that I exist, not as a disembodied consciousness but as a psycho-physical being, a psycho-physical being exactly like the being that I was before death, though existing now in a different space. I have the experience of waking

> up from unconsciousness, as I have on other occasions woken up from sleep; and I am no more inclined in the one case than in the others to doubt my own identity as an individual persisting through time. I realize . . . that I have died, both because I can remember being on my death-bed and because my environment is now different and is populated by people some of whom I know to have died. . . . Resurrected persons would be individually no more in doubt about there own identity than we are now, and would presumably be able to identify one another in the same kinds of ways and with a like degree of assurance as we do now. (pp. 285)

4. Resurrection by Rebirth

According to Sutherland (1964: 386), we can think of resurrection as a kind of cloning. Sutherland is motivated by a story told by Shorter (he says on p. 386 that Shorter's story is "more or less a possible account of bodily resurrection"). Shorter (1962: 81 – 84) describes a possible planet that is populated by clones:

> There is in the universe a planet on which people live. Let us call the planet Juno. . . . The Junonians come into being in rather a peculiar fashion. In a certain part of the planet bodies of the normal human sort grow to maturity. While they grow they are in a state similar to a person in a coma. Periodically these 'come to life' and start to walk about and talk in a normal sort of way. . . . they are able to talk English and sometimes other languages too as soon as they 'come to life'. It also seems to them that they remember doing certain deeds, thinking certain thoughts and witnessing certain events, although these events and deeds they seem to remember certainly did not occur on Juno. . . . Now it is a fact that the occasion when each of these Junonians 'came to life' corresponds to the time when someone died in Britain. . . . each Junonian is in appearance, character, and personality very like his [counterpart in Britain] was before he died. (Shorter, 1962: 82)

One might think that Shorter's story is an isolated piece of metaphysical fiction. But a similar story is apparently independently told by Forrest (1995: 58). Forrest is committed to naturalism. He argues that "God will provide us with an afterlife without breaking the laws of nature" (1995: 58). His cloning story goes like this:

> Perhaps, then, in a distant part of the universe in the distant future, there would be, apparently by chance but really because God so intended it, a paradise replica of Earth. There are animals in this paradise which look very human, although their offspring grow up without challenges or education, and indeed with very little worth remembering. At least as children, the neuronal connections for these beings are only influenced by the surroundings to the extent of recording vague memories of their uneventful lives. Instead, their brains develop so that, apparently by chance, the events which occurred to us, in our lives, are stored as apparent memories. And perhaps they could re-live such 'remembered' events in a rather vivid way. Likewise their character, habits and capacities would effortlessly

> develop so as to be just like those we had. When they mature they have, therefore, apparent memory of having been us, and they have the appropriate character etc. . . . whatever neuronal mechanism underlies consciousness operates only at the end of the whole process, by which time the life of a human being on Earth is totally recorded in one of these replicas. That would ensure an apparent psychological continuity between a life on Earth and the life in this paradise.

Kundera tells a similar story. One interesting feature of Kundera's story is that there is a series of rebirths on a series of planets. Here's Kundera:

> Somewhere out in space there was a planet where all people would be born again. They would be fully aware of the life they had spent on earth and of all the experience they had amassed here. And perhaps there was still another planet, where we would all be born a third time with the experience of our first two lives. And perhaps there were yet more and more planets, where mankind would be born one degree (one life) more mature. That was Tomas's version of eternal return. Of course we here on earth (planet number one, the planet of inexperience) can only fabricate vague fantasies of what will happen to man on those other planets. Will he be wiser? Is maturity within man's power? Can he attain it through repetition? Only from the perspective of such a utopia is it possible to use the concepts of pessimism and optimism with full justification: an optimist is someone who thinks that on planet number five the history of mankind will be less bloody. A pessimist is one who thinks otherwise. (Kundera, 1999: part 5, sec. 16).

Infinite Henological Arguments

1. To Infinity

Anselm, in the finite henological argument, says that the ranks of forms cannot rise endlessly. On any account of forms, it seems that every form is surpassed by greater forms. This thesis about forms is supported by the more precise hypotheses that forms are mathematical structures like binary numbers or computer programs. After all, every mathematical structure is surpassed by greater mathematical structures. Just as the natural numbers increase endlessly, so these ranks rise endlessly (Broad, 1953: 179-80).

2. The Infinite Series of Numbers

We all know that there are infinitely many numbers. The initial number 0 is surpassed by 1, which is surpassed by 2, and so it goes. Every number is surpassed by its successor. The result is an infinite series of ever greater finite numbers. But modern mathematicians also say that there is an infinite number which is greater than every finite number. This infinite number is ω. These numbers are defined by three rules:

1. *Initial Rule*. The initial finite number is 0.

2. *Successor Rule*. Every finite number n is surpassed by its successor n+1. More formally, for every finite number n, there exists a greater finite number n+1. The result is the infinite series of finite numbers 0, 1, 2, 3, and so on.

3. *Infinity Rule*. Since the series of finite numbers is infinite, there has to be some number of finite numbers. But that is an infinite number. So the infinity rule states that there exists an infinite number, which is greater than every finite number. Mathematicians refer to this infinite number as ω.

3. The Infinite Ranks of Forms

Just as there are infinitely many numbers, so there are infinitely many ranks of forms. Each rank of forms has a number. The ranks of forms are shown in Table 4. These ranks are defined by three rules:

1. *Initial Rule*. The initial rank of forms is Rank-0, which is R(0).

2. *Successor Rule*. The n-th rank is just Rank-n, which is R(n). Every finite rank Rank-n is surpassed by its successor rank R(n+1). More formally, for every finite rank R(n), there exists a greater finite rank R(n+1). Every finite rank contains some finite forms. The result is the infinite series of ranks of finite forms.

3. *Infinity Rule*. Just as the infinite series of finite numbers is surpassed by an infinite number, so the infinite series of finite ranks of forms is surpassed by an infinite rank of forms. The infinite rank of forms is indexed by the infinite number ω. So that rank is R(ω). The infinite rank contains exactly one infinite form.

Rank	Forms
ω	The form of God
...	
n+1	Even higher forms
n	Higher Forms
...	
4	Forms of angels
3	Forms of humans
2	Forms of animals
1	Forms of plants
0	Forms of rocks

Table 4. The infinite hierarchy of forms.

4. Aquinas: The Infinite Henological Argument

Anselm's Henological Argument is taken up by Aquinas. It is presented as the Fourth Way to prove the existence of God. Aquinas is not clear about how high the levels of being go – do they just rise finitely high? Or infinitely high? Since he doesn't say that there is any topmost finite rank, he seems to allow the ranks of things to increase to infinity. His argument goes like this:

> (1) The fourth way is taken from the degrees of greatness to be found in things. (2) Among beings there are some more or less good, more or less true, more or less perfect or excellent, and the like. (3) But if "F" stands for something (like "good"), then "more F" and "less F" are said of different things, according as they resemble in their different ways something which is the most F or has F in the greatest, highest, or maximum degree; (4) for example: a thing is said to be hotter (more hot) because it has a greater resemblance to that which is hottest; (5) since there are things that are more or less good, true, and perfect, it follows that there is something which is most true, something that is most good, and something that is most perfect; (6) and since those things that are greatest in truth are greatest in their degree of existence or being (as Aristotle said in his book *Metaphysics*), it follows that there is something which has the greatest or maximum degree of existence or being. (7) Now if F is any kind, then whatever has F to the greatest degree is the cause of the fact that any other things have F to some lesser degree; (8) for example: since fire is that which is most hot (it has heat to the maximum degree), it follows that fire is the cause of the heat of all other things. (9) Therefore: since there is something that has the greatest degree of being, goodness, and every other perfection, that thing is the cause of the being, goodness, and perfection of all other things. (10) And this we call God. (Aquinas, 1920: *Summa Theologica*, Part 1, Q. 2, Art. 3).

5. Locke: The Infinite Henological Argument

One main objection to Anselm's Henological Argument is that there is nothing senseless about an infinite series of ever greater natures. After the Middle Ages, the great chain of being became endless. As early as Locke, the hierarchy of increasingly perfect natures was thought to rise to the infinite. And the divine nature was thought to be greater than every nature in the endlessly rising hierarchy. So the perfection of the divine nature was truly infinite. Locke says:

> in all the visible corporeal World, we see no Chasms or Gaps. All quite down from us, the descent is by easy steps, and a continued series of Things, that in each remove, differ very little one from the other. . . . And when we consider the infinite Power and Wisdom of the Maker, we have reason to think, that it is suitable to . . . the great Design and infinite Goodness of the Architect, that the Species of Creatures should also, by gentle degrees, ascend upward from us toward his infinite Perfection, as we see they gradually descend from us downwards: Which if it be probable, we have reason then to be persuaded, that

there are far more Species of Creatures above us, than there are beneath; we being in degrees of Perfection much more remote from the infinite Being of GOD, than we are from the lowest state of Being. (Locke, 1690: III.6.12)

6. The Infinite Ladder of Angelic Machines

The ladder of forms rises through all finite degrees of perfection up to an infinite degree above all the finite degrees. The Infinite Henological Argument entails that the topmost form (the infinite form) is instantiated by the Supreme Being, namely, by God. The Infinite Henological Argument has these steps:

(1) There are some forms.
(2) The forms are ordered by greatness.
(3) The ranks of forms rise infinitely high.
(4) The highest rank $R(\omega)$ contains exactly one highest form.
(5) The highest form is instantiated by the highest thing.
(6) The highest thing is God.

Thus God is infinitely perfect. More precisely, the power of God is infinite, the knowledge of God is infinite, and the goodness of God is infinite. On the assumption that God is a mind, this means that God is an infinite mind. But this also means that God is an infinitely complex mind. All known minds store or encode their distinct thoughts in distinct parts. For instance, human brains encode their thoughts in the trillions of connections among their billions of neurons, while powerful computers encode their thoughts in their billions of memory registers. So it will be very hard to say that God is an infinite mind and also that God is simple (in the sense of being partless). If God has infinitely many thoughts, or if the thoughts of God are infinitely complex (that is, infinitely detailed or infinitely long), then God has infinitely many parts.

According to the Epicureans and Mormons, any God has a body of flesh and bone. If God has a body of flesh and bone, then God must have a brain with infinitely many nerve cells arranged into infinitely complex patterns. It is difficult to make much sense of a brain with infinitely many nerve cells. An alternative idea is that God is an infinite computer. To form the idea of an infinite computer, we just make a series of ever more powerful finite computers, and then form the mathematical limit of that series. These finite computers are angelic machines. They are defined by three familiar rules:

1. *Initial Rule*. There is an initial rank of angels. These angels are spiritual computers just slightly more perfect than human animals. They are more powerful, more intelligent and more knowledgeable, and more benevolent.

2. *Successor Rule*. Every rank of angels is surpassed by a successor rank of more perfect angels. These successor angels are also spiritual computers. The angels on each successor rank are twice as perfect as the angels on the previous rank. They are twice as powerful, twice as intelligent and knowledgeable, and twice as benevolent. This rule implies an infinite ladder of ever more perfect finite angels.

3. *Infinity Rule*. Just as the infinite series of finite numbers is surpassed by an infinite number, so the infinite series of finite spiritual ranks is surpassed by an infinite spiritual rank. While the finite spiritual ranks contain many angels, the infinite spiritual rank contains only a single infinite spiritual machine. This infinitely perfect spiritual machine is infinitely powerful, infinitely intelligent and knowledgeable, and infinitely benevolent. This infinite spiritual machine is God.

7. Tipler: The Infinite Computer

The physicist Frank Tipler has argued that God is an infinite computer. He says this infinite computer will emerge in our universe at the end of time. As the universe evolves, all space, time, and matter will converge into a tiny superhot dot. This convergence is a Big Crunch (the opposite of the Big Bang). The end of this convergence is the *Omega Point*, the final point in the history of the universe. But Tipler argues that this Omega Point is in fact an infinitely powerful computer. Tipler says the Omega Point is God. He says "the Omega Point in Its transcendence is in essence a self-programming universal Turing machine, with a literal infinity of memory" (1995: 249-50). The Omega Point is an omniscient and omnipotent thinking machine. But Tipler also argues that the Omega Point is an accelerating machine (1995: 265, 462, 505). It computes faster and faster. Suppose there is one minute of time left before the universe collapses into a Big Crunch. The Omega Point performs its first operation in 1/2 second; its next operation in 1/4 second; its next operation in 1/8 second. It always doubles its speed. If it can do that, then it can perform infinitely many computations in the last minute before the Big Crunch. Tipler's theory of the Omega Point is probably false (Oppy, 20xx). But his definition of God as an infinite computer meets the Epicurean Challenge. Tipler provides a concrete and intelligible example of an infinite mind. There is nothing mysterious or obscure about the definition of an accelerating Turing machine with an infinite memory. It is defined with mathematical precision.

The Infinite God

1. Augustine: God Knows All the Natural Numbers

Many classical writers object to the thesis that God is only finitely perfect. They say that God is infinitely perfect. Many writers say that the mind of God contains infinitely many ideas. For example, Augustine tells us that God knows all the positive integers – they are concepts in the mind of God (*City of God,* Bk. XII, Ch. 19).

> It is certainly true that numbers are infinite. If you think to make an end with any number, then that number can be increased by the addition of one. . . . Every number is defined by its own unique character, so that no number is equal to any other. They are all unequal to one another and different, and the individual numbers are finite but as a class they are infinite. Does that mean that God does

> not know all numbers, because of their infinity? Does God's knowledge extend as far as a certain sum, and end there? No one could be insane enough to say that. . . . Never let us doubt, then, that every number is known to God. Although the infinite series of numbers cannot be numbered, this infinity of numbers is not outside the comprehension of God. And so, if what is comprehended in knowledge is bounded within the embrace of that knowledge, and thus is finite, it must follow that every infinity is, in a way we cannot express, made finite to God, because it cannot be beyond the embrace of his knowledge. (Augustine, *City of God,* Bk. XII, Ch. 19).

Aquinas deals with God and infinity in several places. For the most part, Aquinas is caught up in the old Aristotelian theory of infinity. We are not interested in that theory. It is mathematically obsolete. We are only interest classical writings that tend towards current mathematics. In his work on truth (*Quaestiones Disputatae de Veritate*), Aquinas shows that he is able to move beyond Aristotle. Question 2, Articles 9 and 10 deal with God and infinity in surprisingly modern ways. Question 2 Article 9 deals with divine knowledge of the infinite. Aquinas suggests that God can know an infinite plurality without iteration. God knows it all as a single undivided whole:

> The divine intellect, however, knows all things through one species, Hence, simultaneously and with one intuition, God has knowledge of all things. Consequently, He does not know a multitude according to the order of its parts, and He can know an infinite multitude, but not according to its infinity; for, if He were to know it according to its infinity so that He would be grasping part after part of the multitude, He would never come to its end and never know it perfectly. I simply concede, therefore, that God actually knows infinites absolutely. These infinites, however, are not equal to His intellect in the way in which He Himself as known equals His intellect; for the essences of created infinites are, as it were, intensively finite as whiteness is in an infinite body. God's essence, however, is infinite in all respects; and because of this all infinites are finite to Him and can be comprehended by Him. (Aquinas, 1952-4: Q. 2, Art. 9).

God's knowledge is defined by three rules. The three rules are: the initial rule; the successor rule; and the limit rule. They look like this:

1. *Initial Rule*. God knows initial number 0. Of course, if God knows some thing, then that thing exists (at least as a concept in the mind of God). Thus 0 exists.

2. *Successor Rule*. For every finite number n, if God knows n, then God knows the successor number n+1. Hence God knows all the positive finite numbers 1, 2, 3, and so on. Each of these numbers exists, at least as a concept in the mind of God. Hence the mind of God contains an endless series of increasingly large numbers.

3. *Limit Rule*. For the endless series of increasingly large finite numbers, God knows the whole series. That is, God grasps the series as a single unified whole (the series is "made finite to God"). But the whole series is the limit of the sequence of finite

numbers. God therefore knows the limit of that series. God knows the first infinite number ω. God knows the set {0, 1, 2, 3, . . . }.

2. Aquinas: God Can Make Infinitely Complex Objects

Aquinas discusses the divine creation of infinitely complex objects in Article 10. He argues that if there is a consistent theory of the infinite, then God can make infinitely complex objects. Of course, we have good reason to believe that the Cantorian theory of the infinite is consistent. If that is right, then God can make infinitely complex objects, including infinitely large sets and an infinite hierarchy of sets. Here's Aquinas:

> The infinite can be distinguished in two ways. In one way, it is distinguished by means of potency and act. A potential infinite is that which consists in an endless succession. For example, we find potential infinity in generation, in time, and in the division of a continuum; for, when one member is given, another always follows. An example of an actual infinite, however, would be a line which we would assume to have no termini. . . . [I]f an actual infinite is not contradictory to the infinite as such and can exist, as I hold, or if it cannot exist merely because of some impediment extrinsic to the notion of an infinite, then I say that God can make an actual infinite. If, however, actual existence is repugnant to the very notion of an infinite, then God cannot make one, just as, for example, He cannot make a man be an irrational animal. This would mean that two contradictories would coincide in one act of existence. However, whether or not it is intrinsically repugnant for an actual infinite to exist must be discussed elsewhere . . . [A]lthough the potency of a creature does not extend to the existence of actual infinites, this does not exclude ability on the part of God to make actual infinites. (Aquinas, 1952-4: Q. 2, Art. 10)

One way that God might make an infinite class of things is by *acceleration*. To accelerate, God performs each next act twice as fast. Suppose God creates angels according to these rules:

1. *Initial Rule*. God creates an Angel-0 in 1/2 second. This is the weakest angel.

2. *Successor Rule*. For every angel God creates, it is possible for God to create an angel that is twice as powerful. So if God creates any angel, then God creates a successor angel twice as fast. Thus God creates Angel-1 in 1/4 second; Angel-2 in 1/8 second; Angel-3 in 1/16 seconds; and so on.

3. *Limit Rule*. For any finite angel you pick (that is, for Angel-*n*), God created that finite angel at some fractional time less than 1 second. But this means that at 1 second, God has created every finite angel. After 1 full second has passed, God has created an infinity of finite angels.

The Biblical Creator

1. The Biblical Creation Stories

Plato gave an argument for a pagan Creator God. But the Biblical God is also a creative first cause: God creates the universe. The Bible has two creation stories. The first occurs at the very start of the Old Testament: "In the beginning God created the heavens and the earth. The earth was without form and void, and darkness was upon the face of the deep; and the Spirit of God was moving over the face of the waters. And God said, "Let there be light"; and there was light." (Genesis 1:1-3)

The second Biblical creation story is found in the New Testament. The Book of John describes God as an abstract creative power, namely, as the Word. The Word is somehow both identical with God and distinct from God. Thus: "In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God; all things were made through him, and without him was not anything made that was made." (John 1:1-3). John later says "And the Word became flesh and dwelt among us" (John 1:14). This seems to imply that, in the beginning, the Word was *not* flesh. Before becoming flesh, the Word was spirit.

Richard Swinburne is a leading modern philosopher of Christianity. He gives a very abstract definition of God. He says that to say that the Christian God exists means that "there exists necessarily and eternally a person essentially bodiless, omnipresent, creator and sustainer of any universe there may be, perfectly free, omnipotent, omniscient, perfectly good, and a source of moral obligation" (1994: 125). Since God is essentially bodiless, this definition of God seems to imply that God is spirit.

2. The New Testament God is Spiritual

The New Testament portrays God in spiritual terms. Quotes are taken from the Revised Standard Version unless otherwise noted. John quotes Jesus as saying that "God is spirit, and his worshipers must worship in the spirit and in truth" (John 4:24). Jesus himself declares that spirits do not have bodies and do not have physical organs like flesh and bones. The Book of Luke says that, after his resurrection, Jesus appeared suddenly to his disciples: "But they were startled and frightened, and supposed that they saw a spirit. And he said to them, "Why are you troubled, and why do questionings rise in your hearts? See my hands and my feet, that it is I myself; handle me, and see; for a spirit has not flesh and bones as you see that I have" (Luke 24: 37-39).

Bodies are visible, but God is often said to be invisible. Thus "No one has ever seen God" (John 1:18). Paul writes of Jesus that "He is the image of the invisible God" (Colossians 1:15). God is praised as invisible: "To the King of ages, immortal, invisible, the only God, be honor and glory for ever and ever" (1 Timothy 1:17). God is the one "who alone has immortality and dwells in unapproachable light, whom no man has ever seen or can see" (1 Timothy 6:16).

A body occupies one place at one time, but God is said to be omnipresent, that is, to completely fill all of space and time. Note that these verses come from the Old Testament. Of God it is said "Behold, heaven and the highest heaven cannot contain

thee" (2 Chronicles 6:18). The Book of Jeremiah says that God spoke to Jeremiah like this: "Am I a God at hand, says the Lord, and not a God afar off? Can a man hide himself in secret places so that I cannot see him? says the Lord. Do I not fill heaven and earth? says the Lord." (Jeremiah 23: 23-24).

The English philosopher Thomas Hobbes (1588-1679) attacked the idea of immaterial spirits. He argues that immateriality (what he calls *incorporeality*) is incoherent. Hobbes is raising the Epicurean Challenge against the idea that God is an immaterial spirit. If immaterial things are not in space, then they do not exist. Moreover, the idea of a bodiless person is absurd. Persons, by definition, have bodies. But Hobbes does not thereby reject the concept of spirit. Hobbes thinks spirit is a subtle matter, like a wind or flame. His way of defining spirit goes back to the Stoic idea of an energy that fills all things. For Hobbes, this spiritual energy fills all space and all things in space.

3. Hobbes: The Materiality of Spirit

Thomas Hobbes is a materialist about God. He believes God is a spirit, which is a kind of material thing which occupies space. Hobbes says: "By the name of *spirit*, we understand a *body natural*, but of such *subtilty*, that it worketh not upon the senses; but that filleth up the place which the image of a visible body might fill up. Our conception therefore of spirit consisteth of *figure without color;* and in figure is understood dimension, and consequently, to conceive a spirit, is to conceive something that hath dimension." (*The Elements of Law Natural and Politic,* part 1, ch. XI, sec. 4)

Hobbes says spirits are *corporeal*. They are *material*. He writes "though the Scripture acknowledges spirits, yet doth it nowhere say, that they are incorporeal, meaning thereby, without dimension and quality; nor, I think, is that word *incorporeal* at all in the Bible; but it is said of the spirit, that it abideth in men; sometimes that it dwelleth in them, sometimes that it cometh on them, that it descendeth, and goeth, and cometh; and that spirits are angels, that is to say messengers: all which words do imply locality; and locality is dimension; and whatsoever hath dimension, is body, be it never so subtile." (*The Elements of Law Natural and Politic,* part 1, ch. XI, sec. 5)

Hobbes says: "Spirit is thin, fluid, transparent, invisible body. The word in Latin signifies breath, air, wind, and the like. In Greek *pneuma*, from *pneu*, *spiro*, *flo*." (*Answer to Bramhall*, 309) Hobbes says: "[I] maintain God's existence, and that he is a most pure, and most simple corporeal spirit. . . . I say the Trinity, and the persons thereof, are that one pure, simple, and eternal corporeal spirit" (*Answer to Bramhall*, 306) Hobbes writes again that God is a corporeal spirit: "What [do] I make God to be? I answer, I make him to be a most pure, simple, invisible spirit corporeal. By *corporeal* I mean a substance that has magnitude," (*Answer to Bramhall*, 313, see 336)

Hobbes says God is a substance: "The word substance, in Greek *hypostasis*, *hypostan*, signify the same thing, namely, a ground, a base, any thing that has existence or subsistence in itself, anything that upholdeth that which else would fall, in which sense God is properly the *hypostasis*, base, and substance that upholdeth all the world, having subsistence not only in himself', but from himself; whereas other substances have their subsistence only in themselves, not from themselves." (*Answer to Bramhall*, 308)

Hobbes distinguishes between *body* and *a body*. *Body* fills an indeterminate space (which may be the entirety of the universe) while *a body* fills a determinate and bounded

space (a body has a boundary which encloses it). Hobbes says: "*Body* (Latin, *corpus*, Greek, *awpa*) is that substance which hath magnitude indeterminate, and is the same with corporeal substance; but *a body* is that which hath magnitude determinate, and consequently is understood to be *totum* or *integrum aliquid*. Pure and simple body, is body of one and the same kind, in every part through out; and if mingled with body of another kind, the total be compounded or mixed, the parts nevertheless retain their simplicity, as when water and wine are mixed, the parts of both kinds retain their simplicity." (*Answer to Bramhall*, 309) Hobbes says:

> I have seen . . . two waters, one of the river, the other a mineral water, so like that no man could discern the one from the other by his sight; yet when they have been both put together, the whole substance could not by the eye be distinguished from milk. Yet we know that the one was not mixed with the other, so as every part of the one to be in every part of the other, for that is impossible, unless two bodies can be in the same place. How then could the change be made in every part, unless by the activity of the mineral water, changing it everywhere to the sight, and yet not being everywhere, and in every part of the water? If then such gross bodies have so great activity, what shall we think of spirits, whose kinds are as many as there are kinds of liquor, and activity greater? Can it then be doubted, but that God, who is an infinitely fine Spirit, and also intelligent, can make and change all species and kinds of body as he pleases? . . . And it is better to think of God as an infinitely fine corporeal substance, than to think of God as an incorporeal ghost, which is nothing. (*Answer to Bramhall*, 309-10)

These passages imply that, for Hobbes, God is *body* but not *a body*. God fills the entirety of space (He is omnipresent) and therefore occupies no particular region of space (God is not a body). God is distributed throughout space like the mineral water is distributed throughout the mixture. So God is a kind of spiritual stuff that saturates the universe: Hobbes writes: "I mean by the universe, the aggregate of all things that have being in themselves ; and so do all men else. And because God has a being, it follows that he is either the whole universe, or a part of it" (*Answer to Bramhall*, 349). Hobbes does a pretty good job of meeting the Epicurean Challenge. It's still not clear what a spirit is, but Hobbes at least thinks of it as a stuff diffused through space.

4. More and Edwards: God is Space

Henry More was an English philosopher who wrote in the 1600s. At that time it was common to distinguish between material things and immaterial things. Material things were also called *bodies*, while immaterial things were called *spirits*. Material things were said to have spatial extension while spirits were said to have no spatial extension. Since material things were extended in space, they were also located in space; and since spirits were not extended, they were not located anywhere in space. But More, like Hobbes, thought that the idea of an unextended thing, lacking all spatial location, was absurd: to say that something has no location is to say that it does not exist.

And now More makes an ingenious move: he says that space itself is not material; so if reality divides into material things and spiritual things, then space is spiritual. Space

itself is infinitely extended, it includes all things, it cannot be created or destroyed (it is eternal), it exists necessarily, and it turns out to have many of the qualities usually associated with God. So More identifies God with space:

> For if after the removal of corporeal matter out of the world, there will be still space and distance in which this very matter, while it was there, was also conceived to lie, and this distant space cannot but be something, and yet not corporeal, because neither impenetrable nor tangible, it must of necessity be a substance incorporeal necessarily and eternally existent of itself; which the clearer Idea of a Being absolutely perfect will more fully and punctually inform us to be the self-subsisting God. (More, 1655: 338)

The idea that God is space was picked up by the American minister and philosopher Jonathan Edwards. Edwards was a Puritan minister, famous for his hell-fire sermon "Sinners in the Hands of an Angry God". As a very young man, he wrote an essay entitled "Of Being", in which he identified God with space:

> Space is this necessary, eternal, infinite, and omnipresent being. We find that we can, with ease, conceive how all other beings need not exist. We can imagine them being removed from their places, and replaced with empty space: but Space is the very thing, that we can never remove, and conceive of its not being. If a man would imagine Space anywhere to be divided, so as there should be Nothing between the divided parts, there remains Space between, notwithstanding, and so the man contradicts himself. And it is self-evident I believe to every man, that Space is necessary, eternal, infinite and omnipresent. But I may as well speak plain: I have already said as much as that Space is God. And it is indeed clear to me, that all the Space there is, not proper to body, all the Space there is without the bounds of Creation, all the Space there was before the Creation, is God himself. (Edwards, 1718: 45)

The idea that God is space goes back to the Stoic idea that God is the whole universe. Both of these ideas have the benefit of clarity and undeniability: it is hard to deny that the universe exists, or that space exists. If God is space, then we can study God using math and science. Geometry is the study of the structure of God. And geometry, like all mathematics, is perfectly logical. It does not involve mysteries or obscurities. Of course, it is hard to see how space has the other traditional attributes of God, such as intelligence and benevolence. But perhaps the idea of God as a person is wrong. Perhaps God is just impersonal space. The idea that God is space will help to motivate modern pantheism (which says God is the universe) and modern deism (which says God is impersonal). Right now the important point is that this conception of God is *naturalistic*. Since space is not supernatural, God is not supernatural. *God is a natural thing*. The idea that God is space meets the Epicurean Challenge. Space is defined with mathematical precision.

And this idea is consistent with physics: the Big Bang is an event that occurred in space. At that time, in the beginning, space was compressed into a tiny point, into a singularity. So at that time, in the beginning, God was an impersonal creative power contained in that initial singularity. Acting from within that singularity, God triggered

the Big Bang, causing time to flow and space to expand. The creative power of God filled the universe with energy, which condensed into matter, and which evolved into the vast universe we see today. God expanded and evolved along with space.

The First Cause Arguments

1. Aquinas: The First Cause Argument

Plato gave an argument for the existence of his Creator God. Although the Bible portrays its God as a creator, it offers no argument. Christian philosophers like Saint Thomas Aquinas used older pagan arguments to justify the Biblical idea that God is a creator. To prove the existence of God, Aquinas offers five arguments. The First Cause Argument is the Second Way in the Five Ways to prove God listed by Aquinas. The First Cause Argument reasons backwards from the present to the beginning of time. Here is an overview of the argument: (1) There is a series of events. (2) Each event causes the next. (3) The series cannot go back infinitely. (4) Since no event causes itself, the series cannot start with an event that causes itself. (5) It must start with an event that is caused by something not in the series. (6) This first cause is God. Aquinas presents the argument in more detail. His text goes like this:

> (1) The second way is from the nature of physical causality.[15] (2) In the world of sense we find there is a sequential order of physical causes. (3) There is no case known (neither is it, indeed, possible) in which a thing is found to be the physical cause of itself; (4) for if it were the physical cause of itself, then it would be the effect of itself and so would exist both before and after itself, which is impossible. (5) It is not possible to go back to infinity in the sequence of physical causes, (6) because in all chains of physical causes following in sequential order, the first change is the cause of the intermediate change, and the intermediate change is the cause of the last change, and this is true no matter how long the chain of causes may be. (7) But to take away the cause is to take away the effect. (8) Therefore, if there be no first cause (no initial change that produces a later effect) among physical causes, there will be no intermediate changes and no intermediate causes, nor any ultimate effects in the end. (9) So if it is possible to go back to infinity in the series of physical causes, there will be no first physical cause, neither will there be any intermediate causes, nor will there be any ultimate effects in the end; (10) all of which is plainly false, since there are changes happening now. (11) Therefore it is necessary to admit a first efficient cause, to which everyone gives the name of God. (Aquinas, 1920: *Summa Theologica*, Part 1, Q. 2, Art. 3)

2. The Endless Regression of Universes

If you go backwards along causal chains in our universe, you eventually regress back to the Big Bang. The Big Bang is the first event in our universe. So the idea now is that the Big Bang needs to have some cause. And since the Big Bang is the first event in our

universe, the cause of the Big Bang cannot be any physical event in our universe. The argument now says that the cause of the Big Bang is God. So when God said "Let there be light!", the light that emerged was the Big Bang. But why God? Nobody has any idea how God causes things. It would be more natural to say that the cause of the Big Bang is some earlier physical event. Of course, that earlier physical event would not be in our universe. So perhaps it was in some earlier universe. Physicists have put forward several hypotheses here: the Big Bang was caused when a previous universe collapsed in a Big Crunch; the Big Bang was caused when some star collapsed into a black hole in a previous universe; and there are other hypotheses too.

Now the causal chains run backwards through the Big Bang and into events in earlier universes. So we can turn our attention to the universes themselves. It seems plausible to say that there is an endless regression of universes. If there is an endless regression of universes, then the series of causes does go back to infinity. This is the Negative Numbers Objection. Say our universe is universe zero. Write it like this: U(0). Our universe U(0) is caused by an event in universe negative one. So U(0) is caused by an event in U(-1). But U(-1) is caused by an event in U(-2), and so it goes. The negative numbers go back infinitely, so can the series of events. No first cause is ever needed. And, if it is a general rule that events in earlier universes cause later universes, then our universe causes the universe U(1). The series looks like this:

$$\ldots \rightarrow U(-3) \rightarrow U(-2) \rightarrow U(-1) \rightarrow U(0) \rightarrow U(1) \rightarrow U(2) \rightarrow U(3) \rightarrow \ldots$$

Following the idea of the Alpha and the Omega, the Omega Point of every previous universe is the Alpha of every next universe. This is illustrated in Figure 7.

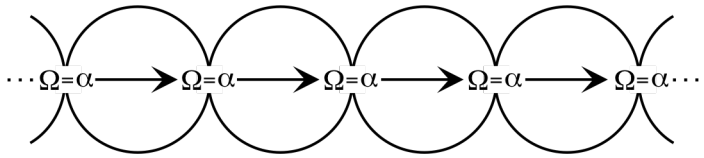


Figure 7. The last Omega is the next Alpha over and over again.

3. From Regressions to Progressions

The First Cause Argument is not hopeless. There is a strategy which might be able to rescue it. The strategy uses complexity. Perhaps surprisingly, the strategy comes from Richard Dawkins. Dawkins says complex things are improbable. He is concerned with living things, but his reasoning applies just as well to universes: complex universes are improbable. Since our universe is complex, it too is improbable. But improbable things need explanations. And, in this case, they need causal explanations. It doesn't help to say that a complex thing is caused by some more complex thing. That just makes the explanatory task harder. And it doesn't help to say that the complex thing is caused by an equally complex things. That just pushes the same question back. The only alternative is to say that *the complex thing is explained by some less complex thing*.

We now have a regression of causes in which complexity *decreases*. This decreasing complexity provides some hope: if complexity cannot decrease endlessly, then the chain

of ever less complex causes cannot regress endlessly. The chain will bottom out in some least complex cause. It will bottom out in some simple first cause. Mathematical ways of thinking about complexity make it plausible that complexity cannot decrease endlessly. Every step backwards from more complex to less complex is a discrete step, like subtracting one from a finite number. This mathematical idea is plausible, but it might not be correct. Still, it is a defensible idea, and it implies that the First Cause Argument can be saved. It gives us hope that the First Cause Argument is valid.

Right now all we can say is that the First Cause Argument is plausible. It isn't as easy to defeat as people sometimes think. So what if it is correct? If it is correct, then, as we mentioned before, the causal chain eventually bottoms out in some simple first cause. This simple first cause is the Ultimate Alpha. (And from now on we can just let "Alpha" mean the Ultimate Alpha.) Since Alpha is simple, it cannot have any mentality. All minds are extremely complex. Alpha might have some minimal amount of power – just enough power to get the chain going. It can produce a successor universe, which is more complex than itself. And perhaps it has some very abstract sort of benevolence, some universe-making virtue. But that virtue is very thin. Alpha isn't the theistic God. It looks more like a concrete version of the Neoplatonic One.

Figure 8 shows a series of universes produced by Alpha. Alpha creates the first universe. Now the universes are like organisms: they can reproduce themselves. The first universe begets the second universe; the second universe begets the third universe; and so it goes, all the way out to the last universe, which is our universe. Of course, if this story is correct, then our universe will also beget some later universe. And this story says that universes grow more complex. Alpha is simple; the first universe is the simplest universe; but simpler universes beget more complex universes. This is indicated by the circles in Figure 10. Universes with more circles are more complex.

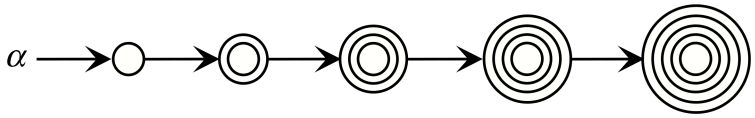


Figure 8. Alpha initiates a progression of universes.

Leibniz: The Argument for a Ground

1. The Sufficient Reason Argument

The First Cause Arguments entail that physical reality has a beginning. But it remains possible that physical reality has no beginning at all. Either our universe has no start, or there is some endless regression of universes. So time goes endlessly backwards, and there cannot be any first cause. Hence there is no God.

Back in 1697, the German philosopher *Leibniz* thought about this possibility. He considered the idea that the universe is an infinite series of states. It goes back infinitely far into the past and infinitely far into the future. But Leibniz argues that even if that is true, there has to be some *reason* for that infinite series. A reason is more abstract than a cause. If the series of causes is infinite, nevertheless, there still needs to be some reason

for that infinite series of causes. The reason *explains* the series. It is sufficient for the series. Since reasons are usually found in minds, Leibniz believes that the sufficient reason for the universe has to be contained in a divine mind (God). The result is Leibniz's *Sufficient Reason Argument*. His Sufficient Reason Argument very closely reproduces the logic of the Cosmological Argument of Plotinus (*Enneads* V.4.1). So the Leibnizian argument is a modern imitation of an old pagan argument. Here it is:

> Neither in any single thing, nor in the total aggregate and series of things, can the sufficient reason for their existence be discovered. Let us suppose a book entitled *The Elements of Geometry* to have existed eternally, one edition having always been copied from the preceding. Although you can account for the present copy by a reference to the past copy which it reproduces, yet, however far back you go in this series of reproductions, you can never arrive at a complete explanation. You always will have to ask why at all times these books have existed, that is, why there have been any books at all and why this book in particular. What is true concerning these books is equally true concerning the diverse states of the universe, for here too the following state is in some way a copy of the preceding one (although changing according to certain laws). However far you turn back to antecedent states, you will never discover in any or all of these states the full reason why there is a universe rather than no universe, nor why it is such as it is. You may well suppose the universe to be eternal; yet what you thus posit is nothing but the succession of its states, and you will not find the sufficient reason in any one of them, nor will you get any nearer to accounting rationally for the universe by taking any number of them together. The reason must therefore be sought elsewhere. Things eternal may have no cause of existence, yet a reason for their existence must be conceived. . . . Hence it is evident that even by supposing the universe to be eternal, the recourse to an ultimate reason for the universe beyond the universe . . . cannot be avoided. The reasons for the universe are therefore concealed in some entity not in the universe, which is different from the chain or series of things, the aggregate of which constitutes the universe. (Leibniz, 1697)

2. The Simple Necessary Being

Leibniz says there is "some entity not in the universe" which contains the sufficient reason for all physical things. It contains the explanation for the entire series of physical states. Of course, this Sufficient Reason Argument works whether the series of states is infinite or finite. Its main advantage is that it works in both of those cases (whereas the Kalam Argument requires finiteness). So the Sufficient Reason Argument is stronger. To summarize this argument, it will help to introduce the distinction between contingent things and necessary things. To say that a thing is *contingent* means that it depends on something else either for the way that it is or for the fact that it is. To say that a thing is *necessary* means that it does not depend on anything else – it is totally independent. We can summarize the Leibnizian argument like this:

(1) Every contingent thing has an explanation.
(2) The explanation for any contingent thing lies in some other thing.
(3) Every set of contingent things is a contingent thing.
(4) The world is the set of all contingent things.
(5) The world is a contingent thing.
(6) The world has an explanation.
(7) The explanation for any set of things is not a member of the set.
(8) The explanation for the world is not a member of the world.
(9) If any thing is not a member of the world, then it is not a contingent thing.
(10) The explanation for the world is not a contingent thing.
(11) If something is not contingent, then it is necessary.
(12) The explanation for the world is some Necessary Being.
(13) Therefore, this Necessary Being exists (and it exists necessarily).

The argument tells us very little about the Necessary Being. It certainly does not tell us that this Necessary Being is God. Nevertheless, the argument is not entirely silent about the Necessary Being. Consider the following reasoning: if anything X depends on any other thing Y, then Y either has power over the way that X is or over the fact that X is; so, any less dependent thing has some power over the things that depend on it; and since every other thing depends on the Necessary Being, the Necessary Being has power over every other thing; therefore, the Necessary Being is all-powerful. Of course, this power is abstract; it is explanatory rather than causal.

3. Dawkins: The Necessary Being is not the Designer

The argument also tells us that the Necessary Being is simple. For suppose the Necessary Being were complex. If it were complex, then it would depend on its parts. But if it were to depend on its parts, then it would be contingent. Therefore, the Necessary Being is simple. This simplicity leads to *Dawkins Dilemma*. Dawkins writes:

> Either God is simple, in which case he doesn't have the knowledge and design skills to provide the explanation of complexity that we seek. Or he is complex, in which case he needs explaining in his own right, no less than the complexity that he is being invoked to explain. The simpler you make your god, the less qualified he is to explain the complexity of the world. And the more complex you make him, the more does he require an explanation in his own right. (2016: 420)

The Dawkins Dilemma works like this: On the one hand, if God is the Necessary Being, then God is simple; but if God is simple, then God has no intelligence; if God has no intelligence, then God cannot be the Designer. On the other hand, if God is the Designer, then God is complex; but if God is complex, then God cannot be the Necessary Being. There can be no doubt that Dawkins is right to say that a simple being has no intelligence and cannot be the designer of anything. The upshot is that the complex Designer cannot be identical with the simple Necessary Being. God can be at most one of these. But perhaps God is neither. An alternative is that there are two gods: one of these gods is the Necessary Being while another is the Designer. And if there is a great

gap in complexity from the Simple Necessary God to the Complex Designer God, then the gap can be bridged by a series of increasingly complex gods.

Leibniz: The Optimizer

1. God Knows Every Possible World

Leibniz says that the mind of God contains mental representations (ideas) of all possible worlds (*Theodicy*, secs. 414-7). These are alternate universes, other ways our universe could have been or might be. There are infinitely many other possible universes (that is, worlds). But these possible universes in the mind of God are not actual universes. Your idea of your car is not your car, and God's ideas of universes are not universes. The distinction between a possible universe and an actual universe is like the distinction between a blueprint for a house and the house itself. A possible universe is just a plan for a universe, it isn't the universe itself. Or a possible universe is like a script for a movie, but an actual universe is the movie. To use another analogy, a possible universe is like a computer program for a video game; when that program is run on some game console or computer, it generates an actual universe. A possible universe is just a description of a universe; but an actual universe is a physical model of that description. So the mind of God is like an immense library of books describing universes.

2. The Ranks of Possible Universes

Leibniz says that all possible universes have degrees of perfection. Some are more perfect than others (they are better than others). Leibniz defines perfection as a combination of order and variety.[16] More perfect universes contain both more order and more variety. Less perfect universes are more chaotic or more regular. Leibniz says that God can compare any two possible universes in terms of their perfections. Leibniz says that God sorts all the possible universes into ranks based on their perfections. You can picture the mind of God as a library. Leibniz refers to this library as the *Palace of the Fates*. Each possible universe is a book in this library. At first all the books just exist in a big pile. But God arranges the books by their degrees of perfection. The books are sorted into floors of the library. Books on higher floors are more perfect possible universes. Leibniz describes the sorting process like this:

> The infinity of possibles, however great it may be, is no greater than that of the wisdom of God, who knows all possibles. One may even say that if this wisdom does not exceed the possibles extensively, since the objects of the understanding cannot go beyond the possible, which in a sense is alone intelligible, it exceeds them intensively, by reason of the infinitely infinite combinations it makes thereof, and its many deliberations concerning them. The wisdom of God, not content with embracing all the possibles, penetrates them, compares them, weighs them one against the other, to estimate their degrees of perfection or imperfection, the strong and the weak, the good and the evil. It goes even beyond the finite

> combinations, it makes of them an infinity of infinites, that is to say, an infinity of possible sequences of the universe, each of which contains an infinity of creatures. By this means the divine Wisdom distributes all the possibles it had already contemplated separately, into so many universal systems which it further compares the one with the other. The result of all these comparisons and deliberations is the choice of the best from among all these possible systems, which wisdom makes in order to satisfy goodness completely; and such is precisely the plan of the universe as it is. Moreover, all these operations of the divine understanding, although they have among them an order and a priority of nature, always take place together, no priority of time existing among them. (Leibniz, *Theodicy*, 225)

3. The Sorted Pyramid of Universes

As the possible universes are sorted, God puts them into a structure in which the better universes are higher. Leibniz believes that as universes get better, they get rarer. So the library has the shape of a pyramid. Leibniz describes this pyramid like this:

> The halls rose in a pyramid, becoming even more beautiful as one mounted towards the apex, and representing more beautiful worlds. Finally they reached the highest one which completed the pyramid, and which was the most beautiful of all: for the pyramid had a beginning, but one could not see its end; it had an apex, but no base; it went on increasing to infinity. That is (as the Goddess explained) because amongst an endless number of possible worlds there is the best of all, else would God not have determined to create any; but there is not any one which has not also less perfect worlds below it: that is why the pyramid goes on descending to infinity. (Leibniz, *Theodicy*, 416)

This pyramid is shown in Table 5. The top rank contains exactly one possible universe, which is the best of all possible universes. The ranks descend forever. Each rank has a rank of less perfect worlds below it. So the ranks get negative numbers.

Rank	Possible Universes
0	W0
-1	W1 W2
-2	W3 W4 W5 W6
-3	W7 W8 W9 W10 W11 W12
. . .	. . .
-*n*	. . .
. . .	. . .

Table 5. The pyramid of possible universes ranked by value.

4. The Best of All Possible Worlds

Leibniz argued previously that God contains the ultimate sufficient reason for the universe. This means that God has a reason for creating the universe. The reason God created our universe is that it is the best of all possible universes. To say that God creates our universe means that there exists a description of our universe in the mind of God (that description is a possible universe) and that God creates a physical model of that description (an actual universe). This is shown in Table 6, which indicates the actual universes beside the possible universes. As Table 6 shows, none of the possible universes on lower ranks are actualized. The logic of divine creation can be expressed as an argument for the existence of the best universe. It looks like this:

Rank	Possible Universes	Actual Universes
0	W0	W0*
-1	W1 W2	
-2	W3 W4 W5 W6	
-3	W7 W8 W9 W10 W11 W12	
. . .	. . .	
-n	. . .	
. . .	. . .	

Table 6. The best possible world is the actual world.

The Argument from Evil

1. God Must Create the Best

For Leibniz, God is maximally perfect. But this leads to an argument that God creates the best of all possible universes. This argument can be spelled out in terms of the perfections of God. The argument is: (1) God is maximally perfect. (2) Since God is maximally perfect, God is all-powerful, all-knowing, and all-good. (3) Since God is all-powerful, God can create any possible universe. (4) Since God is all-knowing, God knows which possible universe is best. (5) Since God is all-good, God wants to create the best of all possible universes. (6) If God wants to do something, knows how to do it, and has the power to do it, then God does it. (7) Therefore, God creates the best of all possible universes. Assuming that God creates only one universe, the universe that actually exists (our universe) is the best of all possible universes.

2. The Argument from Evil

The Argument from Evil is an ancient argument, first proposed by Epicurus, against the existence of a perfect God. There are many versions of this argument. In the Leibnizian context of possible universes, the argument goes like this: (1) The actual universe @ is full of evil. (2) The evil is unnecessary. This means that it is possible for the evil to not exist. (3) Since it is possible for the evil to not exist, there are possible universes in which it does not exist. (4) But then those are better possible worlds than @. (5) Since there are better possible worlds than @, then @ is not the best. (6) Consequently, @ is not the best of all possible worlds. (7) But God created @. (8) And God is maximally perfect, which is to say, God is all-good, all-knowing, and all-powerful. (9) And the Leibnizian creation argument above entails that @ is the best of all possible worlds. (10) There is a contradiction between 6 and 9. (11) So: we have to reject either 6 or 9. (12) But the reasoning in steps 1 to 5 is undeniable; so 6 is undeniable. (13) Since we can't reject 6, we have to reject the statements about God. (14) God does not exist.

Over the centuries, people have written an almost endless number of books and articles trying to disprove the Argument from Evil. A theory that tries to disprove the Argument from Evil is a theodicy. A *theodicy* tries to explain how the evil in our universe is consistent with God. Since Christianity has long been the dominant religion in the West, most theodicies have been developed in a Christian context. They try to save the Christian God from the Argument from Evil. The fact that the Argument from Evil is still widely discussed today, and is still used by atheists to reject the Christian God, shows that none of those theodicies have been persuasive. But previous theodicies have always assumed that exactly one universe actually exists. If we turn to a *multiverse*, which contains many actual universes, then perhaps the argument can be defeated.

3. The Infinite Series of Ever Better Universes

The Argument from Evil depends the premise that there is exactly one best of all possible universes. There exists some supreme universe which is unsurpassably good. So one way to defeat the Argument from Evil is to deny that there is any best of all possible universes. Perhaps the universes are like numbers: there is no biggest number, so God can't create a biggest universe. If God creates any universe with n things, God could have created a bigger universe with n+1 things. Any universe that God creates will be surpassable by some bigger universe. Since there is no biggest possible universe to create, God cannot be blamed for not having created it. The same reasoning applies to goodness. Every possible universe is surpassed by some better possible universe. If some possible universe has n degrees of goodness, then some better possible universe has n+1 degrees. Hence there is no best possible universe. Since there is no best possible universe to create, God cannot be blamed for not having created it.

The idea that goodness is an increasable quantity leads to a mathematical approach to the goodness of possible universes. Just as the finitely large numbers are defined by two rules, so the finitely good universes can be defined by two rules:

Initial Rule. There are some least good possible universes. These occupy the lowest rank (the bottom floor) in the library of possible universes.

Successor Rule. Every possible universe can be improved in at least one way. All the improvements of each universe on the n-th floor are on the (n+1)-th floor.

These two rules define an infinite hierarchy of possible universes. This is shown in Table 7. For every number n, there is an n-th rank of universes. Just as there is no biggest number, so there is no best rank of universes, and therefore no best universe. Leibniz got the pyramid upside down. The ranks do not decrease forever like the negative numbers. On the contrary, they increase forever like the positive numbers. Table 8 shows the correct picture. It is an inverted pyramid.

Rank	**Possible Universes**
…	…
n+1	Improvements of all universes on rank n.
n	Improvements of lower universes.
…	…
2	Improvements of all the universes in rank 1.
1	Improvements of all the universes in rank 0.
0	The least good universes.

Table 7. The ranks of surpassable universes.

Rank	**Possible Universes**
. . .	. . .
n	. . .
. . .	. . .
3	W7 W8 W9 W10 W11 W12
2	W3 W4 W5 W6
1	W1 W2
0	W0

Table 8. Universes with increasing value.

4. Perfection can Increase Endlessly

Leibniz denies that every universe can be surpassed by a better universe. He wrote: "Someone will say that it is impossible to produce the best, because there is no perfect thing, and that it is always possible to produce something which would be more perfect. I answer that what can be said of a thing, which can always be surpassed by better thing, is not to be applied to the whole universe" (*Theodicy*, sec. 195). But he gives no argument for this. And his concept of perfection as a combination of order and variety seems to

imply that the universes ought to increase endlessly in perfection. Probably the clearest way to interpret his definition of perfection says that perfection is a kind of complexity. More complex things contain more order and variety. If that is right, then the perfection of a universe is proportional to the complexity of the most complex thing it contains. Since bacteria are more complex than rocks, a universe with bacteria is more perfect than one that just contains rocks. Table 9 shows some ranks of possible universes.

Rank	**Most Complex Things**
. . .	. . .
Transhumanoid Universes	On some planets, life evolves past the humanoid level. The organisms are more intelligent and benevolent than humans.
Humanoid Universes	On some planets, life evolves to the humanoid level. Some planets have rational moral agents.
Animate Universes	On some of the planets, life evolves to animals.
Multicellular Universes	On some of the planets, life evolves to multicellular complexity.
Unicellular Universes	Contains stars and planets. Some of the planets are covered with single-celled organisms.
Molecular Universes	Contains particles, atoms, and molecules. The atoms form stars and planets. The molecules cover the surfaces of planets.
Atomic Universes	Contains particles and particles organized into atoms.
Particulate Universes	Contains only material particles in chaotic motion.

Table 9. Some possible universes ranked by complexity.

5. Reasons for Creating Many Universes

Leibniz thought that if no possible universe is the best, then God would not create any universe. He thought that if there were infinitely many ranks of surpassable possible universes, then God would not have a reason for choosing one of them. Why would God chose a universe from rank n when God could chose a better universe from rank n+1? But God never acts without a reason. Leibniz puts it like this: if every universe were surpassed by better universes, then "it would follow that God would not produce any universe at all: for God is incapable of acting without reason, and [producing a universe that is not the best] would be even acting against reason" (*Theodicy*, 195-6).

But God can act in a rational way, by starting at the bottom with the simplest and least valuable universe, and working upwards. God creates many universes, rather than just one. There are two rules for divine creation. The *initial rule* states that God creates every initial universe (that is, God creates every least good universe). The *successor rule* states that if God creates any universe, then God creates every improvement of that universe. So God creates a tree of universes. Figure 9 shows part of this tree. All these universes are actual, so that reality is a multiverse. Universes with more circles are more perfect. They have greater degrees of internal order and variety.

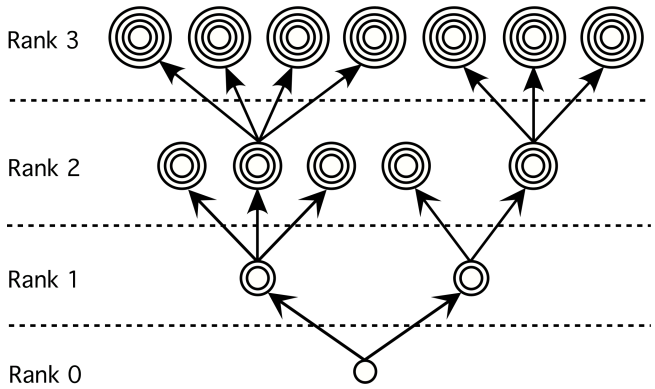


Figure 9. Multiple actual universes.

The Divine Counterparts

1. The Three Universes with the Three Sextuses

Our lives could be different in many ways. Our different possible lives inhabit different possible worlds. Leibniz illustrates this idea with his story of the Three Sextuses. Sextus was a Roman. Leibniz describes him as having three distinct possible lives, in three distinct possible universes. Since these are different lives in different universes, they are the lives of different people. There are three different Sextuses. They are not identical. Each is a possible version of the others. These three Sextuses are all *counterparts* of each other. Figure 10 shows these three Sextuses. The dashed lines illustrate the counterpart relation. Leibniz describes them like this:

> *Universe-0*. Sextus has been commanded by Zeus to leave Rome. He complies and goes to Corinth. There he becomes a rich man. He is generous and beloved by all the people. He leads a happy life. This is Sextus-0 in Universe-0.
>
> *Universe-1*. Sextus has been commanded by Zeus to leave Rome. He complies and goes to Thrace. There he marries the daughter of the king. After the king dies, Sextus becomes king. He is a wise and just ruler, beloved by all the people. He leads a happy life. This is Sextus-1 in Universe-1.
>
> *Universe-2*. Sextus has been commanded by Zeus to leave Rome. He refuse to leave and starts a civil war. He commits crimes; he is punished and exiled. His life is miserable. This is Sextus-2 in Universe-2.
>
> *Universe-3*. It is possible that Sextus does not exist. This possibility is expressed by a universe that does not contain any Sextus at all. Universe-3 does not contain any Sextus. It contains Marcia.

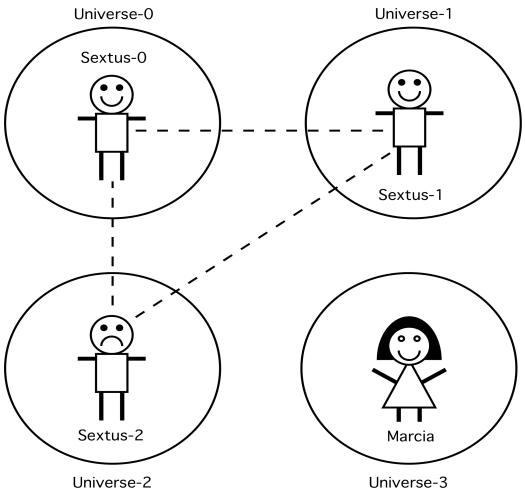


Figure 10. The three Sextuses and one Marcia.

2. The Multiplicity of Gods and Universes

Sextus is a contingent thing. This means that it is possible that Sextus does not exist. But this means that there are some universes which do not contain any Sextus. Perhaps universe-4 does not contain any counterpart of the three Sextuses. Sextus exists in some universes but not in others. But what about God? Where is God relative to all the many different possible universes? Leibniz thinks that God is a pure mind, an immaterial mind existing apart from every universe. But what is this mind? What is its nature? On this point, Leibniz fails to meet the Epicurean Challenge. Hobbes would have said that the Leibnizian God is an incorporeal ghost, meaning, it is nothing.

Thinkers like Hobbes, More, and Edwards argued that God is very tightly bound up with the space-time of any universe at which God exists. If God creates a universe, God might even *be* the space-time of that universe. What God really creates are the material things that fill up that space-time. But distinct universes have distinct space-times. So if thinkers like Hobbes, More, and Edwards are right, then there are as many Gods as there are universes. When Leibniz argued that God is the ultimate sufficient reason for all things, he argued that God is a necessary being. God exists necessarily. This means it is not possible for God to fail to exist; but this in turn means that it is not possible for any universe to lack God. God exists at every possible universe.

Saying that God exists at every possible universe is like saying that Sextus exists at three different universes. To say that Sextus exists at three different universes means are three different Sextuses. Likewise, to say that God exists at every universe means there are as many Gods as there are universes. If there is only one universe, then there is only one God. But what if there are many universes? If there are many universes, then there are many Gods. There is one God at each universe, but they are not identical. They are counterparts. Figure 11 shows four universes. Each contains its own God. Each God exists necessarily, meaning that it has a counterpart at every other universe. The counterpart relations are shown by dashed lines.

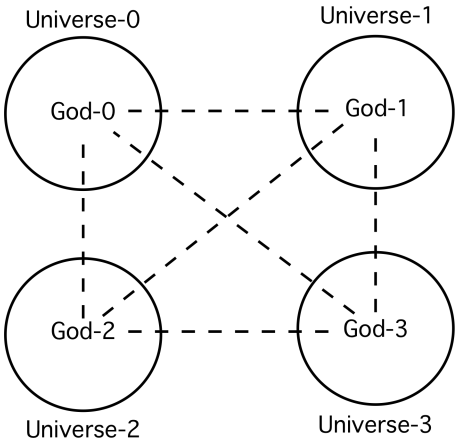


Figure 11. Four distinct Gods at four distinct universes.

The idea that distinct universes have distinct Gods changes the logic of divine creation. It is no longer the case that one God creates many universes. On the contrary, each God creates exactly one universe. Here a Hobbesian would have to say there are many universes; each universe has its own distinct space-time; its distinct space-time either contains or is identical with the God at that universe; that God creates its universe by filling its space-time with material things.

3. Modal Polytheism

Leibniz argued that God is a necessary being. But the analysis of necessity in terms of possible worlds leads to this logic: God is a necessary being; if a being is necessary, then it exists in every possible world; therefore, God exists in every possible world; but that means that distinct worlds contain distinct gods. The contemporary British philosopher Robin Le Poidevin describes the multiplication of divine counterparts like this:

> The theist may . . . defend the idea of a necessary God as follows. Although nothing can exist in more than one world, still there could in every world exist a being who is omnipotent, omniscient, and perfectly good. That is, there is *a* God in every world, even though it is not the same God. Gods in other worlds are counterparts of the actual God [the God in our world]. It is in this sense that "God exists" is a necessary truth. This solution is certainly coherent, and it preserves something at least of the idea of a necessary God. (Le Poidevin, 1996: 30)

Le Poidevin does not find the idea of divine counterparts very attractive. He worries that we would not know which God to worship. But the solution to that problem seems obvious: if you're going to worship any God, you worship the one at your universe. The other Gods are not relevant to you. It's just like your job: there are many companies, but you don't have to please the bosses at other companies; you only have to please the boss at the company where you work. So worship isn't really a problem. Of course, this

modal conception of God conflicts with the Anselmian conception of God. Anselm thought there is exactly one God. But maybe Anselm was wrong.

Since there are many Gods, this is a kind of polytheism. But it is not like the old Greek polytheism, since it posits exactly one God at each universe, rather than many gods at each universe. Since possibility and necessity are said to be *modes* of existence, this kind of polytheism can be referred to as *modal polytheism*. It is not entirely clear what Abrahamic monotheists should think about this modal polytheism. Since there is exactly one God at each universe, monotheism holds at every universe. And the distinct Gods do not compete with each other. An Abrahamic monotheist can satisfy the command to worship only one God by worshipping only the God at his or her universe. Still, it is likely that many Abrahamic monotheists will not find this attractive. They will want to insist that the uniqueness of God is *absolute*.

Hume: Cosmic Design

1. The Universe Resembles a Machine

God is often said to be both the designer and creator of our universe. Designers and creators need not be the same. The architect who designs a building is often not the same person as the carpenter or mason who builds it. Nevertheless, arguments have been given that God is the designer as well as the creator. The first cosmic design arguments were given by the Stoics. But people started to make those arguments again in the modern age. Hume offers a cosmic design argument based on analogy. The argument goes like this: (1) the universe resembles a machine designed by humans; (2) just as machines are designed by human minds, so the universe is designed by a cosmic mind; (3) but the universe is far more intricate than any humanly designed machine; (4) therefore, the mind that designed the universe is greater than any human mind. Hume says;

> Look at the world: contemplate the whole and every part of it. You will find it to be nothing but one great machine, subdivided into an infinite number of lesser machines, which again admit of subdivisions to a degree beyond what human senses and abilities can trace and explain. All these various machines, and even their most minute parts, are adjusted to each other with an accuracy which astonishes all people who have ever contemplated them. The amazing adapting of means to ends, throughout all nature, resembles exactly the productions of human design and engineering. But the adjustment of things in nature greatly exceeds the human skill, thought, wisdom, and intelligence. Since, therefore, the effects resemble each other, we are led to infer, by all the rules of analogy, that the causes also resemble; and that the Author of Nature is somewhat similar to the mind of man, though possessed of much larger mental powers, proportional to the greatness of the work which he has executed. By this argument from experience, and by this argument alone, do we prove at once the existence of a Deity, and his similarity to human mind and intelligence. (Hume, 1779: part 2)

2. The Slowly Improving Art of World-Making

The *technological analogy* says that the divine mind is to the universe as a human mind is to a humanly designed machine. If this analogy is correct, then it suggests that the way that the divine mind came up with the universe-design is similar to the way that human minds come up with their machine-designs. And we know from experience that human engineers come up with their designs through long processes of trial-and-error; we come up with our machine-designs through a process of gradual technological evolution. So the divine design process must be similar. But this implies that the divine designer of our universe might not be very intelligent. Through repeated trial-and-error, a series of "stupid mechanics" can design incredibly sophisticated machines:

> And no matter how perfect our material world may be, it must still remain uncertain, whether all the excellences of the work can justly be ascribed to the workman. If we survey a ship, what an exalted idea must we form of the ingenuity of the carpenter who framed so complicated, useful, and beautiful a machine? And what surprise must we feel, when we find him a stupid mechanic, who imitated others, and copied an art, which, through a long succession of ages, after multiplied trials, mistakes, corrections, deliberations, and controversies, had been gradually improving? Many worlds might have been botched and bungled, throughout an eternity, before our present world was manufactured; much labor lost, many fruitless trials made; and a slow, but continued improvement carried on during infinite ages in the art of world-making. (Hume, 1779: part 5)

3. From Technology to Biology

The universe appears to be very complex. So the technological analogy tells us that we should study how human engineers design and create complex machines. And if we look at how humans make complex machines, we see immediately that it almost never happens that one human makes a complex machine. The greater the complexity, the greater the number of humans involved in design and creation. But this suggests then that there are many gods who designed and created our universe. So the design argument leads to something like the polytheism of the ancient Greeks, in which different gods were responsible for different parts of nature. But where did these gods come from? If they are like us, then they were produced through sexual reproduction. So there must be gods and goddesses. The ancient Greek gods and goddesses have mothers and fathers. And from this we may as well infer that the gods and goddess look like us:

> A great number of men join in building a house or ship, in rearing a city, in framing a commonwealth; why may not several deities combine in contriving and framing a world? This is only so much greater similarity to human affairs. . . . But further: men are mortal, and renew their species by generation; and this is common to all living creatures. The two great sexes of male and female . . . animate the world. Why must this circumstance, so universal, so essential, be excluded from those numerous and limited deities? Behold, then, the theogony of ancient times brought back upon us. And why not become a perfect

> Anthropomorphite? Why not assert the deity or deities to be corporeal, and to have eyes, a nose, mouth, ears, and so on? Epicurus maintained, that no man had ever seen reason but in a human figure; therefore the gods must have a human figure. (Hume, 1779: part 5)

The design argument says that the universe resembles a human-made machine; just as human-made machines have designers, so the universe has a designer. But the designer is intelligent; the designer uses reason to design the universe. Any god or gods must be rational designers. But where did their reason come from? Hume says it comes from the principle of generation, namely, from biological reproduction. Biological reproduction, specifically, sexual reproduction, is the only power we know which has produced rational agents, namely, humans. All known rational agents were produced through sex; hence if there are any gods, they too are produced through sex. But then sexual reproduction is the deeper principle than rational design. Hence the ultimate origin of the universe is not design, but sexual reproduction:

> The world resembles a machine; therefore it is a machine, therefore it arose from design. . . . I infer a divine generation or theogony from this principle of reason. I have at least some faint shadow of experience, which is the utmost that can ever be attained in the present subject. Reason, in innumerable instances [namely, humans], is observed to arise from the principle of generation, and never to arise from any other principle. Hesiod, and all the ancient mythologists, were so struck with this analogy, that they universally explained the origin of nature from an animal birth, and copulation. (Hume, 1779: part 7)

4. Organisms Design and Create Machines

The technological analogy says that the creator of the universe is like the rational designer of a machine; but all known makers of machines are organisms. If we keep going with the technological analogy, then we conclude that our universe was designed and created by some cosmic organism. But why think this organism is human? Many organisms design artifacts; both these organisms and their artifacts evolve together. For example, spiders design webs; but parent spiders beget offspring spiders; and offspring spiders design new webs. So both spiders and their webs can evolve. Hume combines the biological and technological analogies:

> The BRAHMINS assert, that the world arose from an infinite spider, who spun this whole complicated mass from his bowels, and annihilates afterwards the whole or any part of it, by absorbing it again, and resolving it into his own essence. Here is a species of cosmogony, which appears to us ridiculous; because a spider is a little contemptible animal, whose operations we are never likely to take for a model of the whole universe. But still here is a new species of analogy, even in our globe. And were there a planet wholly inhabited by spiders, which is very possible, this inference would there appear as natural and irrefutable as that which in our planet ascribes the origin of all things to design and intelligence.

> Why an orderly system may not be spun from the belly as well as from the brain, it will be difficult for him to give a satisfactory reason. (Hume, 1779: part 8)

Hume: Cosmic Organisms

1. The Universe Resembles an Organism

The Stoics thought that the universe was alive. And while they sometimes identified God with the universe itself, they sometimes also identified God with the animating power of the universe, with the holy fire that energizes all things. Hume followed the Stoics in arguing that the universe resembles an organism. He says:

> Now, if we survey the universe, so far as it falls under our knowledge, it bears a great resemblance to an animal or organized body, and seems actuated with a like principle of life and motion. A continual circulation of matter in it produces no disorder: a continual waste in every part is incessantly repaired: the closest sympathy is perceived throughout the entire system: and each part or member, in performing its proper offices, operates both to its own preservation and to that of the whole. The world, therefore, I infer, is an animal; and the Deity is the SOUL of the world, actuating it, and actuated by it. (Hume, 1779: part 6)

2. Universes Beget Universes

The main point about living things is that they reproduce: organisms make other organisms. So if the universe is an organism, then it should also make other universes. The argument goes like this: (1) the universe resembles an organism; (2) but like effects have like causes; (3) reasoning by analogy, just as organisms are generated by organisms, so the universe-organism is generated by a parent universe-organism. The universe may be like a tree or a bird. Hume says:

> If the universe bears a greater likeness to animal bodies and to vegetables, than to the works of human art, it is more probable that its cause resembles the cause of the former than that of the latter, and its origin ought rather to be ascribed to generation or vegetation, than to reason or design. . . . there are other parts of the universe (besides the machines of human invention) which bear still a greater resemblance to the fabric of the world, and which, therefore, afford a better conjecture concerning the universal origin of this system. These parts are animals and vegetables. The world plainly resembles more an animal or a vegetable, than it does a watch or a knitting-loom. Its cause, therefore, it is more probable, resembles the cause of the former. The cause of the former is generation or vegetation. The cause, therefore, of the world, we may infer to be something similar or analogous to generation or vegetation. . . . Just as a tree sheds its seed into the neighboring fields, and produces other trees; so the great vegetable, the world, or this planetary system, produces within itself certain seeds, which, being scattered into the surrounding chaos, vegetate into new worlds. A comet, for

> instance, is the seed of a world; and after it has been fully ripened, by passing from sun to sun, and star to star, it is at last tossed into the unformed elements which every where surround this universe, and immediately sprouts up into a new system. . . . Or if, for the sake of variety (for I see no other advantage), we should suppose this world to be an animal; a comet is the egg of this animal: and in like manner as an ostrich lays its egg in the sand, which, without any further care, hatches the egg, and produces a new animal. (Hume, 1779: part 7)

3. The Divine Self-Reproducing Spiders

Hume suggested that our universe was designed and created by a cosmic organism. He illustrated his idea with the image of a spider: just as earthly spiders design and create their webs, so some cosmic spider designed and created our whole universe (1779: xx). But now the analogy of the cosmic organism can be developed to explain the complexity of our universe. Like any earthly organism, this cosmic spider reproduces; and, like any lineage of earthly organisms, the lineage of this spider evolves. As cosmic spiders beget their offspring, those offspring gradually become more complex, and their cosmic webs become more complex. The evolution of these cosmic spiders and their webs is biological and technological. Every spider contains, as its genome, an algorithm for bio-technical evolution. This bio-technical algorithm runs like this:

Step 0. There exists single initial adult cosmic spider. This initial spider is justified by a cosmological argument which runs back to an ultimate first cause or ultimate sufficient reason. This initial spider has a genetic program (its genome). This genome contains a strategy for divine evolution. It contains both a web-building code and a spider-making code. This genome is the ultimate sufficient reason for all things.

Step 1. Every adult spider begins by running the web-building part of its genome. It uses this web-building subroutine to design and create its web. It spins its web out of its own energy; it thus creates itself rather than out of some external materials. On this analogy, the web is a universe. So the spider stands to its web as a deity to its universe. The act of spinning the universe is the whole history of that universe from start to end.

Step 2. Every cosmic spider is capable of its own reproduction. It is a self-reproducing organism. It reproduces like an asexual organism. Or it is a hermaphrodite, containing internal male and female organisms. It reproduces through parthenogenesis. So, after running the web-building part of its genome, every spider runs its reproductive code; it runs its spider-making code. This reproductive code begins by generating all minimally different (closest) variants of the genome of the spider. These *seeds* are abstract spider-descriptions. Each seed contains a variant of the web-building code and a variant of the spider-making code. So the spider contains a set of seeds.

Step 3. The reproductive organs of the spider search through its seeds to find those that are minimally more complex than its own genome. These seeds are *fit* for reproduction. Each fit seed contains an improved version of the parent genome. Any improvement of the genome contains improved versions of its parts. So it contains an improved version of its web-building code and of its spider-making code.

Step 4. If the spider does not find any fit seeds, then it generates all possible closest variants of those unfit seeds and it returns to step three, using those next variants as its new seeds. The richness of abstract possibility guarantees that some looping through

steps three and four will eventually find some fit seeds. So, at the end of this fourth step, the spider contains some non-empty set of fit seeds.

Step 5. The spider uses every fit seed it contains as the genome for an egg. For each fit seed, it creates an egg; it creates these eggs out of its own energy. After creating these eggs inside of itself, the spider lays them. They hatch into offspring spiders. Since it has run its full genome, the adult spider now ages and dies. Its offspring become grow up to become the new adult spiders. The bio-technical algorithm now returns to Step 1. Each spider in the next generation runs this bio-technical algorithm.

The bio-technical algorithm is an evolutionary algorithm. It climbs up Mount Improbable. Since the spiders select only better versions of their web-building codes, this algorithm ensures that web designs get better and better. But these are the designs for universes. So, along every lineage of spiders, the universes get better and better. Of course, by selecting only better versions of their own self-generation plans, the spiders themselves also get better and better. They evolve into superior spiders; they evolve into trans-spiders and then into post-spiders. They become novel kinds of organisms. Perhaps they evolve into cosmic birds or cosmic primates.

4. The Divine Self-Reproducing Birds

Hume suggests that universes are like self-reproducing ostriches. These cosmic birds reproduce by laying eggs. The eggs hatch into new cosmic birds. On that analogy, each universe is a bird; but the analogy makes more sense in the Humean context if the birds and their universes are distinct. Hume talked about cosmic spiders spinning their universes as their webs. So these cosmic birds build their universes like earthly birds build their nests. To keep up the cosmic imagery, the birds are *phoenixes*. Although the cosmic spiders were asexual, these phoenixes reproduce sexually. They come in pairs. So the bio-technical algorithm for divine reproduction looks like this:

Step 0. There exists single initial mated pair of phoenixes. This initial couple is the result of previous cosmic evolution. This mated pair contains a male and female. Each bird contains its own genetic program. Each bird contains some nest-building code and some bird-making code. But these codes are divided into male and female.

Step 1. Every pair begins by running the nest-building part of its genome. The male and female cooperate in building their nest. The female produces sticks out of her own energy; the male arranges these sticks into the nest. On this analogy, the nest is a universe. So the couple stands to its nest as a mated pair of deities stands to its universe. It stands to its universe as a god-goddess pair stands to its universe. The act of building the nest is the whole history of that universe from start to end.

Step 2. Every mated pair of phoenixes reproduces sexually. So, after running the nest-building part of its genome, every mated pair runs its reproductive code. The female generates a plurality of copies of the genome. These are her ova. The male generates a plurality of modifiers. These are his sperm. The phoenixes now have sex; they make love; the male fertilizes the female. His sperm fuse with her ova. When any sperm fuses with some ova, it modifies that ova; the result is the seed. These *seeds* are abstract descriptions of offspring mated pairs of phoenixes. Each seed contains a variant of the male genome and a variant of the female genome. It thus contains variants of the nest-building codes and reproductive codes. So the female contains a set of seeds.

Step 3. The reproductive organs of the female search through her seeds to find those that are minimally more complex than her own genome. These seeds are *fit* for reproduction. Each fit seed contains an improved male genome and improved female genome. It contains an abstract description for an improved mated pair of phoenixes.

Step 4. If the female does not find any fit seeds, then she initiates another round of love-making. They return to Step 2. The richness of abstract possibility guarantees that some looping through steps two through four will eventually find some fit seeds. So, at the end of this fourth step, the female contains some non-empty set of fit seeds.

Step 5. The female phoenix now embraces her partner; as they embrace, they grow hotter and hotter with love; they burst into flames; the energy of these flames converts the seeds into eggs. After these parent phoenixes are consumed by the fire of love, all that remains in their nest is a set of eggs. Each egg hatches into an offspring pair of phoenixes. Each offspring pair is mated for life. These offspring grow up. They fly away to repeat the process of divine reproduction. The bio-technical algorithm now returns to Step 1. Each mated pair in the next generation runs this algorithm.

Paley: The Watchmaker Argument

1. Animal Designers

Many animals design structures (often as dwellings). For example, caddis flies and bagworms are insects that build cases around their bodies. These are simple artifacts. And it is well-known that spiders make webs. Suppose that, as you walk through the fields, you come across a *spider web*. A spider web is an elaborate structure. It has a regular geometrical order. If you encounter a spider web, then it is reasonable for you to infer that it was designed by an intelligent agent. Likewise, insects like bees and wasps and hornets build *nests* and *hives*. These structures are regular and orderly. If you were to encounter one of these structures, then it would be reasonable for you to infer that it was designed by intelligent agents. Birds build *nests*. If you had never seen a bird, but you discovered one of its nests, and it would be reasonable for you to infer that the nest was designed and created by an intelligent thing. Beavers build *dams*, *canals*, and *lodges* in which they live. These things are all designed by the beavers.

Simple organisms can produce incredibly complex structures. Consider ants. Although an individual and as a simple organism, with a very simple nervous system, and colonies can multiply the intelligence of a single and many thousands of times. An ant has about 250,000 nerve cells in its brain; a colony may have 40,000 ants; the result is a system of coordinated brains containing 10 billion neurons. A social brain with 10 billion neurons can do very complex things. And *ant colonies* are extremely complicated. They contain structures for the regulation of temperature, gas concentrations, and humidity. They contain functional division of space (food storage, mating, nurseries). They contain rooms for the cultivation of fungus gardens and the farming of aphids. *Termite mounds* resemble ant colonies. They are also extremely complex. If you were to encounter an ant colony or a termite mound, but had never seen ants or termites, it would be reasonable for you to infer that those structures were intelligently designed. You would probably then go on to discover the ants or termites that built those structures.

2. Human Designers

Human beings have obviously designed extremely complex things. We have built enormously complicated technologies. If some aliens were to visit our planet, and they found watches, smart phones, computers, and airplanes, then they would be correct in saying that those things were designed by some very intelligent agents.

Humans have designed many lifelike things. For example, humans have designed and created *robots*. Robots are like artificial organisms. They perceive, they calculate, and they act. They can move around in the world much like animals. When we design robots, we usually carefully and deliberately design every part of the robot. We design every organ in the robot body. Robots are intelligently designed.

Computers are probably the most complicated things humans have ever designed and created. Computers run many different kinds of software programs. Among these programs, there are some which simulate biological evolution. One example of an artificial evolution program is the *Tierra* system by Thomas Ray. A second example is the *Avida* system. A third example is the *Framsticks* program. A fourth example is the *Aevol* program. All these programs generate digital worlds. These digital worlds contain digital organisms. These digital organisms contain genetic self-descriptions. These digital organisms live and mate in their simulated environments. They produce offspring which are mutated in various ways. Some of these offspring survive, while others die. So these digital environments simulate Darwinian survival of the fittest. As time goes by, these digital organisms evolve in various ways.

If you were to encounter one of these artificial evolution programs, then it would be reasonable for you to infer that it was intelligently designed. Obviously, the designers of these programs are analogous to gods. For example, Thomas Ray is like the God of the Tierra system. The gods of these digital worlds designed their laws. They define how those worlds operate. But the gods of these worlds do not intervene in their worlds. After those worlds get set up, they run all by themselves. So while the worlds are intelligently designed, the digital organisms that evolve inside those worlds are *not* intelligently designed. Or at least they are not directly intelligently designed. The digital creatures living inside those worlds are produced by purely evolutionary processes.

3. The Watch and its Designer

One of the most famous versions of the design argument was developed by the British minister William Paley. He lived from 1743 to 1805 AD. Paley focuses on living things – that is, he focuses on organisms. Hence his design argument is an *organic design argument*. The following text is taken from Paley's (1830) *Natural Theology:*

> In crossing a meadow, suppose I pitched my foot against a *stone*, and were asked how the stone came to be there, I might possibly answer, that for anything I knew to the contrary, it had lain there forever; . . . But suppose I had found a *watch* upon the ground, and it should be enquired how the watch happened to be in that place, I should hardly think of the answer which I had before given . . . Yet, why

> should not this answer serve for the watch, as well as for the stone? . . . For this reason, and for no other, viz. that, when we come to inspect the watch, we perceive (what we could not discover in the stone) that its several parts are framed and put together for a purpose (p. 9) . . . the inference, we think, is inevitable; that the watch must have had a maker; that there must have existed, at some time and at some place or other, an artificer or artificers who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use (p. 10) . . .every indication of contrivance, every manifestation of design which existed in the watch, exists in the works of nature; with the difference, on the side of nature, of being greater and more, and that in a degree which exceeds all computation. I mean that the contrivances of nature surpass the contrivances of art in the complexity, subtlety, and curiosity of the mechanism; (p. 17-18) . . . I know of no better method of introducing so large a subject, than that of comparing a single thing with a single thing; an eye, for example, with a telescope. As far as the examination of the instrument goes, there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it (p. 18) . . . For the contrivance discovered in the structure of the thing produced, we want a contriver (p. 36) . . . Every observation which was made, in our first chapter, concerning the watch, may be repeated with strict propriety concerning the eye; concerning animals; concerning plants; concerning indeed, all the organized parts of the works of nature (p. 36) . . . Were there no example in the world of contrivance except that of the *eye*, it would be alone sufficient to support the conclusion which we draw from it, as to the necessity of an intelligent Creator (p. 46).

Paley's argument is an Argument from Technology:

(1) Living things are highly complex.
(2) Machines are highly complex.
(3) Similar things have similar causes.
(4) Just as machines are caused by minds, so living things are caused by minds.
(5) Since living things are more complex than machines, the minds that cause them are more complex than human minds.
(6) Therefore: there are some super-human minds.
(7) But these are the minds of gods or goddesses.

4. Two Ways for God to Create Life

If the design argument is correct, then there exists some Great Mind that designed life. But how did this Great Mind design life? There are two ways in which the great mind can design living things. The first way is the *robot way*. According to the robot way, God designed each organism (or species) individually. God designed organisms just like we design robots. Thus God designed insects and humans like we design robots. God paid special attention to the design of specific organs, such as eyes or brains. But this theory makes God directly responsible for the evils in the biological world. God is responsible for parasites and disease. And this theory contradicts everything we know

about life. Specifically, it contradicts evolution by natural selection. The evidence for evolution by natural selection is overwhelming. Since the robotic way contradicts our knowledge about life, God did not proceed according to the robotic way.

The second way for God to design life is the *evolutionary way*. According to this way, God designs an artificial evolution program. Just as Thomas Ray designed Tierra, so God designed our earthly ecosystem, or our entire universe. God wrote the software of the universe, or at least the software that governs physical processes in our solar system. God define the laws of nature, or at least the laws that govern earthly biology. After defining those laws, as setting up the system, God lets it run. Thus God designed a system in which evolution by natural selection can happen. But God did not design the species or organisms which evolve inside of that system. Those species and organisms were generated entirely by Darwinian evolution. According to this Evolutionary Way, God does not intervene in creation. Since *deists* say that God does not intervene in creation, the evolutionary way is a deistic way.

5. Dawkins: The Objection from Complexity

Dawkins says "however little we know about God, the one thing we can be sure of is that he would have to be very very complex" (2008: 151; hereafter *GD*). He says "A God capable of continuously monitoring and controlling the individual status of every particle in the universe *cannot* be simple" (GD 178). He says "God may not have a brain made of neurones, or a CPU made of silicon, but if he has the powers attributed to him he must have something far more elaborately and non-randomly constructed than the largest brain or the largest computer we know" (GD 184).

The first cause is often said to be the designer of our universe. But Dawkins argues that any designer is complex. This argument is justified by the observation of all known designers: all the things that design other things are extremely complex animals. Thus Dawkins says "any God capable of designing a universe, carefully and foresightfully tuned to lead to our evolution, must be a supremely complex and improbable entity" (GD 176). He says "a God capable of designing a universe, or anything else, would have to be complex and statistically improbable" (GD 183).

Dawkins says "Entities that are complex enough to be intelligent are products of an evolutionary process" (GD 98). He says that "any creative intelligence, of sufficient complexity to design anything, comes into existence only as the end product of an extended process of gradual evolution" (GD 52). This is justified by the observation of the evolution of all known intelligent designers. They emerge late in the evolution of physical things. They are late because they are complex.

The theologians tell Dawkins that "There must have been a first cause of everything, and we might as well give it the name God" (GD 184). Dawkins replies like this: "Yes, I said, but it must have been simple and therefore, whatever else we call it, God is not an appropriate name" (GD 184). The argument is like this: (1) the first cause is simple; (2) God is complex; (3) therefore, the first cause cannot be God. This Dawkinsian first cause is not the complex designer of our universe (Dawkins, 1996: 77).

The Dawkinsian objection uses complexity to draw a distinction between the First Cause and the Designer. The First Cause exists at the beginning of all things; it is simple. But the Designer exists just before the start of our universe (which it designed, and then,

perhaps also created). The Designer is highly complex. So there is a long road from the First Cause to the Designer. Both cannot be God; so either one is God while the other is not; or else neither of them is God. Another solution is polytheistic: both are gods. So the First Cause is a simple god while the Designer is a complex god.

Biological Evolution

1. The Logic of Evolution

The design arguments present two alternatives: *chance* versus *intelligent design*. But these are not the only alternatives. The third alternative is *evolution*. Here it is important to see that *evolution is not the same as chance!* This is a point which most of the critics of evolution get very wrong. Both intelligent design and evolution *include* chance, but intelligent design is more than chance, and evolution is more than chance.

Evolution is chance *plus memory*. Evolution works like this: start with some randomly produced things. These are the first generation things. Since they are randomly produced, they are likely to be simple. Now produce some random variations of those first generation things. Put these things through a *filter*. The filter selects some of these things and rejects others. The ones that pass through the filter are selected. These become the second generation things. Repeat this process. As this process repeats, the things in the later generations will be more adapted to the filter.

The development of resistance to antibiotics is a good example of evolution. Start out with some bacteria that infect people. They are not all the same, but have many different features. We invent an antibiotic, such as penicillin, to kill these bacteria. Penicillin is a filter applied to the first generation of bacteria. It works great: it kills almost all of the bacteria. It kills 99.9% of them. This means it kills 999 out of 1000. But penicillin does not kill them all. That 1 bacterium survives. It has some feature that gives it some resistance to penicillin. Soon, it breeds to make 1000 new bacteria in the second generation. Since their ancestor had some resistance to penicillin, more of them have some resistance. So when penicillin is used again, 10 survive. And these survivors are even more resistant. The next time penicillin is applied, 100 out of 1000 survive. And so it goes, until all the bacteria are immune to penicillin. This only works because chance is coupled with memory. There has to be a memory of what works, a memory of the features that pass through the filter. This memory is genetic, it is DNA. A bacterium that has a penicillin-resistance gene passes it down to its offspring.

In natural selection, the filter is provided by nature. But artificial selection uses a filter made by some intelligent human mind, for human purposes. Artificial selection is an example of an evolutionary process. Suppose you want to breed taller dogs. Start with some first generation dogs. Let them breed and make puppies. The puppies are random variations of their parents. Now use a filter to select the puppies. Since you want taller dogs, your filter is height. You select the tallest dogs for your breeding program. These are the second generation dogs. You repeat the process. The second generation dogs breed to make puppies. You select the tallest puppies. These become the third generation dogs. Over the generations, since the tallest dogs are always being selected for making new dogs, the dogs will tend to grow taller. This process works

because *it uses both chance and memory*. The memory is the DNA in the dogs. It is a biological memory. The puppies inherit the features of their parents.

Artificial selection shows that intelligent design and evolution are not entirely opposed; they are not mutually exclusive. Intelligent minds can use evolution, they can use artificial selection, to design artifacts. And much intelligent design does use artificial selection. This is trial-and-error. Here the memory of what works is human memory (or the memory of a computer). *Genetic algorithms* are evolutionary procedures used by computers to design things. So, if a divine mind wanted to design living things for some purpose, that divine mind could use artificial selection. A god might run a genetic algorithm to evolve a solar system which is really friendly to life.

2. The Evolution of Complexity

The organic design arguments are motivated by the *complexities* of living things. These complexities go along with greater functional powers. Plants are more complex than rocks; and plants can do things that rocks can't do; animals are more complex than plants; and animals can do things that plants (and rocks) can't do. So the evolutionary algorithms running on earth are generating increasingly complex things. This does not mean that they are selecting for complexity; complexity might not be the filter. It may be that increasing complexity is a side-effect of the natural filter. Evolution teaches that complexity gradually grows out of simplicity. Simpler organisms slowly evolve into more complex organisms. Complex organisms have simpler ancestors.

When we find complex things, Darwinism teaches us "to seek out graded ramps of slowly increasing complexity" (2008: 139). According to Dawkins, simple things are common and probable, while complex things are rare and improbable. Complexity is improbability. Evolution proceeds by starting with some simple and probable thing. It then proceeds through a chain of small gains in complexity, which are probable because they are small. A long sequence of small gains results in a cumulative large gain – something very complex. Dawkins uses a landscape metaphor to illustrate this point. Height on the landscape is complexity. So, any high point of complexity is a mountain of improbability. Dawkins writes:

> In *Climbing Mount Improbable,* I expressed the point in a parable. One side of the mountain is a sheer cliff, impossible to climb, but on the other side is a gentle slope to the summit. On the summit sits a complex device such as an eye or a bacterial flagellar motor. The absurd notion that such complexity could spontaneously self-assemble is symbolized by leaping from the foot of the cliff to the top in one bound. Evolution, by contrast, goes around the back of the mountain and creeps up the gentle slope to the summit: easy! (2008: 147)

3. Biological Complexity

Since biological complexity plays a key role in the organic design arguments, we need some way to measure it. We need some way to define it precisely. There are several ways to measure biological complexity. The first way says that the complexity of

an organism is proportional to its number of distinct cell types (Bower, 1988). The second way states that the complexity of any organism is the complexity of its species; the complexity of its species is the complexity of its typical genotype; the complexity of any genotype is the ratio of its non-protein-coding-DNA to its total amount of DNA (Taft, Pheasant, and Mattick, 2007). These writers provide a table of specific genotypic complexities for dozens of species (Taft, Pheasant, and Mattick, 2007: 292). The third way to measure biological complexity says that the complexity of an organism is proportional to its free energy rate density (Chaisson, 2001, 2006). These different ways to measure biological complexity disagree on the details. But they agree on the general features of complexity. There is no need to pick one over the others.

On any way of measuring biological complexity, some species are simple while others are more complex. Their degrees of complexity are like heights in a landscape. The less complex species are located at lower elevations. They are in the valleys or plains. So the plains are covered with single-celled organisms like bacteria. The more complex species are at higher elevations. There are some hills covered with sponges and worms. As you climb into the higher elevations, you meet plants and fishes and reptiles. Then you get to the Mountains of Mammals. Mammals are pretty complex, and they occupy higher elevations on the landscape of biological complexity. The most complex things are on the peaks of the mountains. There are mountain peaks occupied by dolphins and elephants and chimps. If humans are the most complex things, then we're located on the highest peak in the biological landscape. We're on the top of Mount Everest.

The biological landscape holds all currently living species. But it also has places for all extinct species, like the dinosaurs. And it also has a place for every future species. The future species are defined by their DNA codes. Even if they don't exist yet their codes exist in the landscape. More generally, the biological landscape is a landscape of possibilities. It has a place for every possible species of life on earth.

On the biological landscape, the simpler forms of life inhabit the valleys while the more sophisticated forms lie on the peaks of great mountains of biological complexity. And, like ordinary landscapes, biological landscapes obey a law that makes higher elevations ever more rare. On ordinary landscapes, the amount of land at any elevation is inversely proportional to the elevation. Much land lies at low elevations while little land lies at high elevations. As you climb higher, there are fewer places to climb. The plains are wide and expansive, but the peaks of the mountains are small. So there are many types of simple organisms but fewer and fewer types of more complex organisms.

4. The Biological Arrow

Two equally complex organisms are in the same biological complexity class. These classes stack up, with more complex classes at greater heights. Hence they form the *biological complexity hierarchy*. This hierarchy is the biological ladder, whose rungs are biological complexity classes. One of the most impressive features of evolution on our planet is that living things seem to get more complex over time. The *arrow of complexity hypothesis* "asserts that the complex functional organization of the most complex products of open-ended evolutionary systems has a general tendency to increase with time" (Bedau, 1998: 145). Applied to organisms, you get

- *The Biological Arrow:* The complexities of the most complex organisms tend to increase with time.

The Biological Arrow does *not* entail that the complexities of all organisms increase (primitive bacteria still exist). The Biological Arrow does *not* imply that the curve of biological complexity is always ascending; it merely says that the wheels of life tend to roll ever higher in the landscape of abstract biological possibilities.

There is considerable evidence in favor of the Biological Arrow. Over time, exactly insofar as the biological wheels roll, the curve of biological complexity does tend to rise to ever higher levels of complexity. Of course, various external accidents have caused mass extinctions (e.g. asteroid collisions, gamma ray bursts, volcanic mega-eruptions etc.). But since those accidents are external, they do not count against the Biological Arrow. On the contrary, the fact that biological complexity ascends again after every great extinction counts in favor of the Biological Arrow.

The wheel of life rolls within a planetary context; it is constrained by the resources and climate of the earth; it cannot increase the size of the earth nor provide more resources for life. It does not count against the Biological Arrow if life on earth dies out because the resources of earth are exhausted. The Biological Arrow is consistent with a curve of biological complexity that rises and falls; it entails only that the shape of the biocurve generated by the wheels of life tends to be upwards. A line drawn from the start to current state slopes up. The Biological Arrow does not entail that the biocurve will rise forever. Indeed, since the sun will eventually incinerate the earth, the biocurve will eventually permanently collapse. But life probably cannot change the sun.

5. The Biological Crane

The main evolutionary idea is that complexity accumulates. If something is complex, then it ultimately came from something simpler. If you were to make a list of all the ancestors of some complex thing, and plot their complexities, the resulting curve would look like a *roller coaster*. Sometimes it will go up and sometimes it will go down. But it always starts on the ground. Roller coasters don't start high up in the air; if they did, you couldn't get on them. (Sure, you could use a ladder: but that's the point – you'd be starting on the ground.) And if you're on any place on a roller coaster, then the roller coaster has *climbed up* to that height. It starts on the ground; it climbs up; it may go down and then climb back up; but however high you are on some roller coaster, you've already climbed through every lower altitude to get to that height. If you were to draw a line from the start to where you are, it will pass through every lower height.

Evolution implies that any biological process, like life on earth, starts on some very low level, like a roller coaster. It starts in the plains or valleys and climbs to higher heights. It may drop down, and then climb back up. But an evolutionary process can't start out at some high level of complexity. And if it is at any high elevation, then it has passed through every lower elevation. Evolution climbs mountains. The path it takes, by going up and down, looks like a roller coaster. Nevertheless, although the path traced by evolution may look like a roller coaster, the general principle which produces that path is

the principle of lifting things up from below. The roller coaster is constructed by a crane. So we'll talk about cranes instead of roller coasters. Here's the idea:

- *The Biological Crane*. If any species is biologically complex, then it has been generated by some evolutionary process that started out simple and climbed up through all lower levels of biological complexity.

Figure 12 illustrates the biological crane. The Figure shows the curve of biological complexity rises and falls over time. The curve itself is the roller coaster. But the roller coaster was constructed by the biological crane, which kept lifting things up from lower levels to higher levels. And the general trend is upwards.

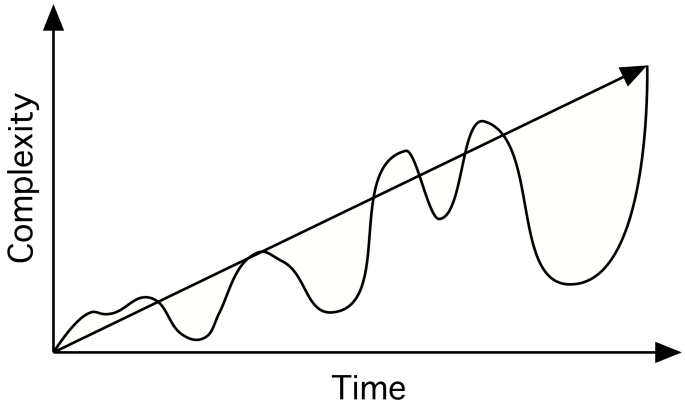


Figure 12. The biological roller coaster.

The Biological Crane does *not* say that every lineage of species uniformly rises in complexity. On the contrary, some lineages may devolve or degenerate; some lineages may lose complexity. And lineages may repeatedly rise and fall. But every descent is supported by some earlier ascent. Any complexity that was lost or wasted is complexity that was previously gained or accumulated. Biological evolution does not start with complex things which then tend to degenerate to simplicity. Of course, this principle applies to particular organisms as well as their species:

- *The Organism Crane*. If any organism is biologically complex, then it has been generated by some process that started out simple and climbed up through all lower levels of biological complexity.

Deism

1. Introduction

Deism was a movement that started in the 1700s. Although the term "deism" went out of fashion, the ideas behind it never really died. It is in many ways a return of ancient Stoic ideas about God and religion. Deism regards true religion growing out of science.

You learn about God by studying nature (not by studying the Bible or Quran). Deism opposes all the traditional religions, declaring them to be both false and evil.

Deism was especially influential in the founding of the United States. Many of the Founding Fathers were deists. Jefferson and Washington were deists. Deism inspired the separation of church and state found in the US Constitution. Deistic ideas continue to exercise great influence today. The New Atheists inherit many deistic ideas as do the Religious Naturalists. One of the most famous deists was Thomas Paine. He wrote a deist book called *The Age of Reason* (1796). Paine writes "I believe in one God, and no more; and I hope for happiness beyond this life." (1796: I.1) He writes: "The true deist has but one Deity; and his religion consists in contemplating the power, wisdom, and benignity of the Deity in his works, and in endeavouring to imitate him in every thing moral, scientifical, and mechanical." (1796: I.13)

Religious duties are usually thought to involve going to church, saying prayers, singing hymns, performing rituals, and, in general, worshipping God. But for deists, the only religious duty is to live a virtuous life which aims to improve the human condition: "I believe the equality of man, and I believe that religious duties consist in doing justice, loving mercy, and endeavoring to make our fellow-creatures happy." (1796: I.1) Deists do not worship God; on the contrary, they honor God by living virtuously.

2. The Rejection of Revealed Religions

Deists reject all traditional religions. Paine explicitly rejects the Abrahamic religions. He writes: "I do not believe in the creed professed by the Jewish church, by the Roman church, by the Greek church, by the Turkish church [that is, Islam], by the Protestant church, nor by any church that I know of" (1796: I.1). Deists reject all religious revelation as false. Paine offers an argument from mutual contradiction to the falsity of all religious revelation: "Each of those churches shows certain books, which they call revelation, or the Word of God. . . . Each of those churches accuses the other of unbelief; and, for my own part, I disbelieve them all" (1796: I.2).

Deists argue that holy books like the Bible contain too much evil to be attributed to God. As an example, Paine points to the story in Numbers 31:13-47. According to this story, God orders Moses to commit the genocidal slaughter of the Midianites. It is plausible to say that genocide is the supreme form of human wickedness. Since God is good, God would not order genocide; such wickedness comes only from human evil. Since the Bible says God commands genocide, Paine writes: "it is a book of lies, wickedness, and blasphemy; for what can be greater blasphemy, than to ascribe the wickedness of man to the orders of the Almighty!" (1796: II.1). The deists therefore deny that the Old Testament God is God. The deistic conception of the Old Testament God is reflected in the description of that same God by the New Atheist Richard Dawkins:

> The God of the Old Testament is arguably the most unpleasant character in all fiction: jealous and proud of it; a petty, unjust, unforgiving control-freak; a vindictive, bloodthirsty ethnic cleanser; a misogynistic, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sado-masochistic,

> capriciously malevolent bully. Those of us schooled from infancy in his ways can become desensitized to their horror. (2006: 51)

Deists believe that organized religions are not merely false but also evil: "All national institutions of churches, whether Jewish, Christian, or Turkish, appear to me no other than human inventions set up to terrify and enslave mankind, and monopolize power and profit" (1796: I.1). Paine writes: "The most detestable wickedness, the most horrid cruelties, and the greatest miseries, that have afflicted the human race have had their origin in this thing called revelation, or revealed religion" (1796: II.3). Here the deist view that revealed religions are evil anticipates the New Atheists.

3. God Works through Universal Natural Laws

Deists are not atheists. They do believe in God. They agree with the design argument, which reasons from the organization of nature to the existence of a divine intelligence which designed nature. And they agree with the cosmological argument, which reasons from causality to a first cause, that is, a creator. Hence deists believe that God reveals Itself to us through nature, which God created. Paine writes: "Are we to have no word of God – no revelation? I answer yes. There is a Word of God; there is a revelation. THE WORD OF GOD IS THE CREATION WE BEHOLD: And it is in this word, which no human invention can counterfeit or alter, that God speaketh universally to man." (1796: I.9; all capitalization herein is Paine's) Thus Paine writes:

> It is only in the CREATION that all our ideas and conceptions of a word of God can unite. The Creation speaketh an universal language, independently of human speech or human language, multiplied and various as they be. It is an ever existing original, which every man can read. It cannot be forged; it cannot be counterfeited; it cannot be lost; it cannot be altered; it cannot be suppressed. It does not depend upon the will of man whether it shall be published or not; it publishes itself from one end of the earth to the other. It preaches to all nations and to all worlds; and this word of God reveals to man all that is necessary for man to know of God. Do we want to contemplate his power? We see it in the immensity of the creation. Do we want to contemplate his wisdom? We see it in the unchangeable order by which the incomprehensible Whole is governed. Do we want to contemplate his munificence? We see it in the abundance with which he fills the earth. Do we want to contemplate his mercy? We see it in his not withholding that abundance even from the unthankful. In short, do we want to know what God is? Search not the book called the scripture, which any human hand might make, but the scripture called the Creation. (1796: I.9)

Deists believe that we learn about God by studying nature. Thus true theology is "the study of God himself in the works that he has made" (1796: I.11). We learn about God by doing science (which in their day was called "natural philosophy"). Paine writes: "That which is now called natural philosophy, embracing the whole circle of science, of which astronomy occupies the chief place, is the study of the works of God, and of the power and wisdom of God in his works, and is the true theology." (1796: I.11) The deepest

theology is the study of the purely mathematical structure of the physical universe. We learn this theology from nature itself: "It is the structure of the universe that has taught this knowledge to man. That structure is an ever-existing exhibition of every principle upon which every part of mathematical science is founded." (1796: I.11).

The scientific study of nature reveals that it follows universal laws. The universe resembles a machine. It is like a watch or clock which runs according to laws and does not deviate from them. Or it is like a computer which has been programmed with the laws of physics and which cannot deviate from its programming. From this fact that the universe operates according to universal laws, we can infer that God is a cosmic law-giver, like the divine administrator of the Stoics. Since the laws of nature are universal and unchangeable, there are no deviations from those laws. So there are no miracles (Paine, 1796: I.17). Hence the stories of miracles in the Bible or other scriptures are false. Since those stories are false, any religion which depends on them is false. Likewise petitionary prayer never produces any effects.

It is sometimes said that deists believe that God created the universe and then abandoned it. God stands to the universe like a watchmaker stands to a watch. The watchmaker makes the watch, winds it up, and leaves it to run on its own. Thus God made the universe, wound it up, and leaves it to run on its own. But this view is false. It is entirely consistent with deism that God continuously generates the universe. God is the source of the energy which powers the world-machine. Or, to use the computational analogy again, God is like a self-powered and self-programming computer. God continuously creates our universe by running the cosmic program. If God were to stop running that program, our universe would cease to exist. It would be like unplugging a video game console in the middle of the video game. Deists are free to believe that the universe depends on God at every moment of its existence. But all deists do believe that God creates the universe through universal laws. The will of God produces its effects through laws. God does not violate those laws through miracles. It is logically impossible for God to produce miracles, since to do so would be for God to contradict God's own will.

4. Morality Springs from the Imitation of God

By learning the mathematical principles which govern nature, we can apply them to make technologies ("arts") that can help humanity flourish: "It is from the study of the true theology that all our knowledge of science is derived; and it is from that knowledge that all the arts have originated." (1796: I.11) So the study of nature reveals a moral purpose. As we learn more about the excellence of the organization of nature, we learn that we ought to apply that knowledge to improve the human condition, and to ensure the flourishing of humanity. God has ordered nature so that all of its parts can interact harmoniously. Hence we learn from this harmonious organization of parts that we ought to behave with justice and morality to each other:

> The Almighty lecturer, by displaying the principles of science in the structure of the universe, has invited man to study and to imitation. It is as if he had said to the inhabitants of this globe that we call ours, "I have made an earth for man to dwell upon, and I have rendered the starry heavens visible, to teach him science and the

> arts. He can now provide for his own comfort, AND LEARN FROM MY MUNIFICENCE TO ALL, TO BE KIND TO EACH OTHER." (1796: I.11)

Religion is not merely the intellectual activity of learning the mathematical structure of nature. Religion also involves morality. The design argument reveals that God acts benevolently towards us; so we must learn to act benevolently towards each other. Thus we honor God by imitating God (by becoming more like God):

> Religion, therefore, [is] the belief of a God, and the practice of moral truth,. . . And the practice of moral truth, or, in other words, a practical imitation of the moral goodness of God, is no other than our acting towards each other as he acts benignly towards all. We cannot serve God in the manner we serve those who cannot do without such service; and, therefore, the only idea we can have of serving God, is that of contributing to the happiness of the living creation that God has made. (1796: I.17)

Paine summarizes his deistic religion like this:

> the Creation we behold is the real and ever existing word of God, in which we cannot be deceived. It proclaimeth his power, it demonstrates his wisdom, it manifests his goodness and beneficence. . . . the moral duty of man consists in imitating the moral goodness and beneficence of God manifested in the creation towards all his creatures. That seeing as we daily do the goodness of God to all men, it is an example calling upon all men to practice the same towards each other; and, consequently, that every thing of persecution and revenge between man and man, and every thing of cruelty to animals, is a violation of moral duty. (1796: I.17)

5. Life after Death

Deists generally believe in life after death. But they do not believe in heaven and hell. Since they believe that God is just, they believe that if you live a morally good life here, you will be rewarded for it in the next life. You do not need to worry about the details. Paine writes:

> I trouble not myself about the manner of future existence. I content myself with believing, even to positive conviction, that the power that gave me existence is able to continue it, in any form and manner he pleases, either with or without this body; and it appears more probable to me that I shall continue to exist hereafter than that I should have had existence, as I now have, before that existence began. (1796: I.17)

Deists believe it is reasonable to infer the existence of life after death from many signs in nature: "the belief of a future state is a rational belief, founded upon facts visible in the creation: for it is not more difficult to believe that we shall exist hereafter in a

better state and form than at present, than that a worm should become a butterfly" (1796: II.2). Paine observes that information can remain the same when it is copied. This fact justifies the belief in life after death. All the information in our bodies can be repeated in some new matter. A more modern way to put this is to say that human minds are *multiply realizable:* our minds can be realized by brains made of protein or computers made of silicon (of course, Paine did not know about computers). The fact that human minds are multiply realizable justifies the belief in life after death:

> Statues of brass and marble will perish; and statues made in imitation of them are not the same statues, nor the same workmanship, any more than the copy of a picture is the same picture. But print and reprint a thought a thousand times over, and that with materials of any kind, carve it in wood, or engrave it on stone, the thought is eternally and identically the same thought in every case. It has a capacity of unimpaired existence, unaffected by change of matter, and is essentially distinct, and of a nature different from every thing else that we know of, or can conceive. If then the thing produced has in itself a capacity of being immortal, it is more than a token that the power that produced it, which is the self-same thing as consciousness of existence, can be immortal also; and that as independently of the matter it was first connected with, as the thought is of the printing or writing it first appeared in. The one idea is not more difficult to believe than the other; and we can see that one is true. (1796: II.2)

The fact that the world is organized mathematically reveals that its creator (God) is a rational mind. But rationality also implies justice. Hence God is just. Since God is just, we will be judged after death for the way we have lived our lives: "We must know also, that the power that called us into being, can if he please, and when he pleases, call us to account for the manner in which we have lived here;" (1796: II.3) Since God can judge us after death, and God is just, "it is rational to believe that he will" judge us. But how this judgment will shape our future lives, we cannot know.

Divine Justice

1. The Divine Laws

The old Stoics reasoned from the order of the universe to the existence of a divine administrator. Their divine administrator rules the universe like a wise king: the Stoic God is a law-giver. It defines the laws of nature and the natural functions of all things. The idea that God is a wise and powerful lawgiver or king moved from paganism into Christianity. The henological argument implies that God is whatever it is better to be than to not be. Since it is better to be the ruler than to be ruled, and it is better to rule more than to rule less, God is the ruler of the universe and all things in it. God rules the universe like a wise, powerful, and benevolent king. God ordains the laws of nature. God is at the top of the Great Chain like a human king is at the top of human society. So God is to humans as a king is to his subjects.

According to the design arguments and the cosmological arguments, God designed and created humans. We get our natures from God. Human nature implies that there are natural laws for human flourishing. These include principles of health (don't have contact with infectious materials). This is often naturally regulated by natural mechanisms of attraction and avoidance (e.g. disgust). These also include principles of natural morality which have evolved for human social flourishing. These are deeply wired by natural selection: humans who disobeyed them died or did not reproduce; humans who obeyed them flourished and reproduced.

Religious believers say that the natural laws for human flourishing were defined by God. They also usually say that God has defined an additional system of religious laws. These religious laws classify our behaviors into those which are *required* by God, *permitted* by God, or *forbidden* by God. These laws are *general divine commands*. For example, the Ten Commandments are general commands: "Thou shalt not murder" prohibits a whole class of actions. The command "Honor thy father and mother" applies to everybody in a general way. It means you are required to honor your parents.

Many religious laws are recorded scriptures like the Bible, the Quran, or the Book of Mormon. For the sake of precision, we need to focus on some system of religious laws. Since Christianity is the largest Western religion, and since the Bible is central to Christianity, we can focus on the religious laws in the Bible. Many of those laws are found in the Old Testament. They are concentrated in Exodus, Leviticus, Numbers, and Deuteronomy. Of course, the Bible contains laws at other places too.

Religious believers also often say that God gives specific divine commands. These are cases in which God tells a specific person to do a specific thing. There are many specific commands in the Bible. For instance, God commanded Abraham to sacrifice his son Isaac (Genesis 22:2). He commanded Moses to strike a rock to make water come out of it for the Israelites to drink in the desert (Exodus 17:5).

If God issues either a general or specific command, then you can either obey God or disobey God. You *obey* God if you do what is required and avoid what is forbidden; you *disobey* God if you avoid what is required and do what is forbidden.

The concept of divine commands produces many problems. The first problem involves figuring out what God really commands. How can you tell? Different religions have different laws. For example, most Christians permit drinking alcohol; Mormons and Muslims forbid drinking alcohol. Likewise Christians say God permits eating pork while Jews and Muslims say God forbids eating pork. Since these many religions conflict, some of these commands do not come from God. But there is no independent way to tell which commands come from God and which do not.

The second problem is that many divine laws seem arbitrary and irrational. The Bible forbids people from wearing fabrics which combine many types of thread (Leviticus 19:19). It also commands farmers not to harvest the corners of their fields (Leviticus 19:9). It is difficult to find any moral purpose for these commands.

The third problem is that God's commands often violate deep moral principles (*norms*). These are norms which seem to be *analytic*; this means that they follow directly from the meaning of goodness itself. They are *necessary moral truths*. For example, it seems to follow from the meaning of goodness itself that killing innocent people is wrong. It is always immoral to kill people who do not deserve to die. However, according to the Bible, God often commands the slaughter of infants who have done

nothing (Exodus 11-12; Numbers 31:17; Hosea 13:16; 1 Samuel 15:3; Psalms 137:9). As another example, consider genocide, which is the killing of an entire social group (e.g. a tribe or race). Genocide does not take into consideration any of the moral qualities of the individuals to be killed. Genocide is evil by definition. But God commands genocide (Numbers 21:2-3; Deuteronomy 20:17; Joshua 6:17-21; 1 Samuel 15).

The fourth problem concerns the additional value of religious laws. It can be argued that there is no value to God's laws beyond their natural value. Consider prohibitions against promiscuity. These prohibitions have naturally evolved to protect against disease and to minimize social conflicts involving mates. Whether or not God exists, it is prudent to avoid having many sexual partners. Many religious rules concerning diet are medically sound whether or not God exists. If you don't drink alcohol or smoke tobacco, you'll have better cardiac health. Here the link is entirely natural.

2. The Argument for Divine Justice

Many arguments say that God is maximally perfect. Aquinas's Henological Argument (the Fourth Way) says that God is maximally perfect. God is all-good, all-powerful, and all-knowing. Anselm's Ontological argument also shows that God is maximally perfect. The Cosmological and Design arguments show that God has absolute power over the universe and life. Suppose God exists and has all these perfections.

The *Argument for the Principles of Divine Justice* goes like this: God exists and is as the theists say. Thus God is all-knowing, all-powerful, and all-good. God issues general and specific commands. You can either obey or disobey those divine commands. Since God is all-knowing, God knows whether you're obeying or disobeying. Since God is all-powerful, God can reward you for obeying and punish you for disobeying. Since God is all-good, God wants to reward you for obeying and wants to punish you for disobeying. Therefore: if you obey God, God will reward you; if you disobey God, then God will punish you. These are the *Principles of Divine Justice*.

There is a long list of Biblical warnings that disobedience yields punishment and obedience yields reward. Many verses from the Bible promise that if you obey God, you will be rewarded on earth (Proverbs 3).

Religious people say these ideas apply to you. You want to live well; if you obey God, then you will get rewards; if you get these rewards, then you will live well; but if you want to get something, then you ought to do what you need to do to get it; therefore, you ought to obey God. You want to avoid suffering; if you disobey God, then you will be punished; if you are punished, then you will suffer; but if you want to avoid something, then you ought to do what you need to do to avoid it; therefore, you ought to not disobey God. It is in your self-interest to obey God and to not disobey God.

The main problem with the Principles of Divine Justice is that God does not always seem to follow them. It is often the case that even if you obey God, you will be harmed. The Bible says that God brings harms to those he loves (Proverbs 3:11-12). The main example here is Job. According to the Book of Job, Job was a righteous; but God allowed great harm to come to Job merely to win a bet with the Devil. And God allowed the children and servants of Job to be killed; but they were innocent.

Moreover, the Principles of Divine Justice entails that innocent people should *not* be harmed by God. But God harms the innocent. After creating humanity, God regrets that

creation; thus God decides to destroy nearly the entire human species with a flood (Genesis 6). God kills all the firstborn children of Egypt (Exodus 12). God slowly tortures the child of David and Bathsheba to death (2 Samuel 12:14-18). Other cases of divinely commanded infanticide and genocide have already been mentioned. Hence it often seems that God acts unjustly. But if God acts unjustly, then there is no reason for you to obey the religious laws or avoid disobeying them.

3. Divine Justice in this Life

If God rewards you, then God will reward you either in this life or some future life; if God punishes you, then God will punish you either in this life or some future life.

If God rewards you in this life, then you'll get things which are valuable to humans (long life, health, prosperity, success). If God punishes you in this life, then you'll get things which are harmful to humans (short life, sickness, poverty, failure).

Divine reward in this life often involves natural forces: rain; bountiful harvest; victory in war. Divine punishment in this life often involves large actions which influence many people: earthquakes; storms; floods; droughts; failed crops; defeat in war; plagues; economic collapse. For example, God sent ten disasters to Egypt in order to persuade the Pharaoh to release the enslaved Israelites (Exodus 7-11).

The Bible lists many examples of individuals and nations punished for disobeying God (fewer examples of reward for obeying God). Examples include casting Adam and Eve out of the Garden of Eden; Noah's Flood; Sodom and Gomorrah; Lot's wife turned into a pillar of salt; the disasters visited upon Egypt; a long list of harms done to the nation of Israel. King David's son was struck dead. The New Testament (especially Revelations) lists various future punishments for unbelievers.

The first problem is that the evidence shows that distribution of benefits and harms is not just. Even the Bible recognizes that, at least here on earth, the righteous suffer while the wicked flourish (Psalm 73). The Bible says: "There is something else meaningless that occurs on earth: the righteous who get what the wicked deserve, and the wicked who get what the righteous deserve" (Ecclesiastes 8:14). This is the evidential problem: there is little evidence for divine justice on earth and plenty of evidence against it. This suggests that the Principles of Divine Justice can be tested.

4. Testing the Principles of Divine Justice

The Principles of Divine Justice state that if you obey God, you will flourish; if you disobey God, you will suffer. These Principles are made precise by specific laws about specific human behaviors (e.g. eating, drinking, dressing, having sex, farming). The acts involved in obeying or disobeying God are observable. Human acts can be empirically sorted into those which obey God's laws or disobey them. So the *inputs* to the Principles are observable. The conditions involved in flourishing or suffering are observable. So the *outputs* from the Principles are observable. So the Principles of Divine Justice link observable inputs to observable outputs. Since the inputs and outputs are observable, the *statistical correlations* between them are observable.

The Principles are *effective* to the extent that obeying God is statistically correlated with flourishing and disobeying God is statistically correlated with suffering. Since the correlations are observable, the effectiveness of the Principles can be tested by observation. The Principles can be studied and tested scientifically. The Principles often have some *natural effectiveness*. This natural effectiveness includes all psychological effectiveness (such as the placebo effect). Natural effectiveness is calculated without any reference to God. The *supernatural effectiveness* of the Principles is obtained by subtracting their natural effectiveness from their effectiveness.

5. The Principles of Divine Justice Fail

Testing shows that the distribution of benefits and harms has fully natural explanations (no need for God). The greater cardiac health of Mormons is explained by their refusal to drink alcohol and smoke. If non-Mormons did the same, they'd get the same results. Any special Mormon relation with God makes no difference. Much benefit of going to church is the result of purely natural social bonding. Whether or not God exists, going to church provides social support; social support is beneficial.

And testing shows that that the distribution of benefits and harms does not correlate with piety and impiety. The evidence is overwhelming that greater religion goes with greater social suffering and greater social dysfunction. The sociologist Gregory Paul surveyed 38 countries. He examined the correlation between belief in God and social dysfunction. The data on these countries shows that "higher rates of belief in and worship of a creator correlate with higher rates of homicide, juvenile and early adult mortality, STD infection rates, teen pregnancy, and abortion" (2005: 7). Paul concluded that

> Higher rates of non-theism and acceptance of human evolution usually correlate with lower rates of dysfunction, and the least theistic nations are usually the least dysfunctional. . . . only the more secular, pro-evolution democracies have, for the first time in history, come closest to achieving practical "cultures of life" that feature low rates of lethal crime, juvenile-adult mortality, sex related dysfunction, and even abortion. The least theistic secular developed democracies such as Japan, France, and Scandinavia have been most successful in these regards. The non-religious, pro-evolution democracies contradict the dictum that a society cannot enjoy good conditions unless most citizens ardently believe in a moral creator. The widely held fear that a Godless citizenry must experience societal disaster is therefore refuted. (Paul, 2005: 7-8)

After surveying the data on the association between religion and social benefits, the social scientist Phil Zuckerman wrote this:

> This essay began with a well-known Biblical quote stating that atheists are simply no good. Do the findings of contemporary social science support this Biblical assertion? The clear answer is no. Atheism and secularity have many positive correlates, such as higher levels of education and verbal ability, lower levels of prejudice, ethnocentrism, racism, and homophobia, greater support for women's

> equality, child-rearing that promotes independent thinking and an absence of corporal punishment, etc. And at the societal level, with the important exception of suicide, states and nations with a higher proportion of secular people fare markedly better than those with a higher proportion of religious people. (Zuckerman, 2009: 960)

The supernatural effectiveness of the Principles turns out to be no greater than chance. Or, worse, the supernatural effectiveness is negative: obedience leads to suffering while disobedience leads to flourishing. So the Principles are not causal principles. They do not correctly describe any causal linkages that exist in reality. They fail to link causes to effects. Since they fail, they have no *utility*. They cannot be positively used by human beings. They define a false technology (a pseudo-technology).

6. Divine Justice in Some Future Life

Divine rewards may occur in some future life. Divine reward after this life is some future life which contains things which are valuable to humans (no pain or suffering, no disease, no death, no war or conflict). Divine punishment after this life is some future life which contains things which are harmful to humans (pain or suffering, disease, war and conflict). The Bible promises two options for life after death: divine reward in heaven and divine punishment in hell (Matt 13:36-43, 25:31-46; Luke 16:19-26). The assignment of people to heaven or hell is permanent. The idea that you will either go to a permanent heaven or permanent hell is the *two destinies* theory. But there are many serious moral problems with the two destinies theory.

- There are many degrees of human goodness and badness; however, according to the two destinies doctrine, these are sorted into just two classes (heaven or hell); this is neither fair nor just.

- Humans are only finite; all human goodness is only finite; heaven is an infinite reward; no finite goodness deserves an infinite reward; so heaven is unjust.

- Humans are only finite; all human wickedness is only finite; hell is an infinite punishment; no finite wickedness deserves an infinite punishment; so hell is unjust.

- God is all-powerful and all-good; if God is all-powerful and all-good, then all creation serves some good purpose. However, an everlasting punishment cannot serve any purpose. Hell is purposeless. If hell is purposeless, then much of God's creation is purposeless; but none of God's creation is purposeless. So there is no hell.

- Unnecessary suffering is evil. God is all-powerful; if God is all-powerful, then God can save any finitely wicked human; hence God can save any finitely wicked human; and therefore the suffering in hell is not necessary; so hell is an infinite evil. God is good; if God is good, then there is no infinite evil; but then there is no hell.

- God is love; however, if God is love, then all will be saved; so, all will be saved. But if all will be saved, then no one is in hell. It follows that hell is empty.

An alternative to the two destinies theory is that every person will somehow be saved. This is known as universalism, universal salvation, or universal reconciliation. Many verses in the New Testament seem to promise universal salvation (John 12:32; Romans 5; Romans 8; Romans 11:36; 1 Cor. 15:20-28; Ephesians 1:10-11; Colossians 1:18-20; 1 Timothy 2:6; 1 Timothy 4:10; 2 Peter 3:9; 1 John 2:2; 1 John 4:18). There are many other passages that suggest universal salvation. But universal salvation is not widely accepted. Most Christian groups affirm the two destinies theory. So the idea that life after death can provide divine justice is problematic.

Perhaps divine justice after death entails reincarnation. Many writers argued that reincarnation with retributive karma is morally superior to the two destinies theory (Filice, 2006; Di Muzio, 2013). If they are right, then divine justice entails reincarnation with retributive karma. But it has been objected that any type of retributive karma is deeply immoral (Kaufman, 2005). So it has been argued that reincarnation with progressive karma is even better (Shade, 1995). Progressive karma ensures that any series of lives perpetually increases in goodness. Progressive karma has been developed in spiritism (Kardec, 1857). It is also developed in the theology of John Hick (1976). Hick was a very important Protestant theologian. Hick argued that reincarnation with progressive karma is compatible with Christianity. However, no Christian groups have adopted his theory. So divine justice after death remains problematic.

The most general problem with any theory of rewards or punishments after death is that there is no way to test that theory. There is no evidence either for it or against it. And the failure of divine justice here on earth seems to justify the failure of divine justice in an afterlife. If the Principles of Divine Justice don't apply to human lives here on earth, why would they apply to human lives after death?

7. Science and Pantheism

One of the main purposes of religion is to make human life better. If being religion does not help us to flourish, then there is no reason to be religious; and if being religious leads to suffering, then it is immoral to be religious. As it turns out, when religious principles are tested, they do not correlate with flourishing. On the contrary, they correlate with suffering. Religion fails as a strategy for human flourishing.

One explanation for this failure is that God does not exist. Another explanation is that, while God exists, the religious laws being tested do not accurately correspond to God's laws. The priests or religious authorities have incorrectly understood God's laws. They might have made mistakes; or perhaps they are following the wrong religion. But how can we compare religions? How can we tell which is the best religion?

But now somebody might reason like this: Since God is maximally perfect, God's laws are the most effective laws; we can discover God's laws by discovering the most effective laws; we discover the most effective laws purely by means of scientific study of nature; so, science is the true religion, and God's true laws are the laws of nature. If somebody reasons like that, then they are *naturalizing religion*. They are arguing for an

identification of the will of God with the power of nature, and the structure of the will of God with the causal structure of nature. This is *pantheism*.

The Divine Sexual Couple

1. Divine Reproduction

The ancient Greek cosmology began with Chaos, from which the goddess Gaia somehow emerged. She asexually produced the god Uranos. Sometimes the Greek deities produce other deities asexually: Athena is born directly from the head of Zeus. But most of the gods and goddesses are produced through sexual reproduction. Gaia and Uranos have sex and make children; their children have sex; and so it goes. The idea of a divine male-female couple appears in early Hebrew thought with the idea that the male god Yahweh is married to a female goddess Asherah. The religious texts which present these ideas do not give reasons for them. But Hume gave reasons for thinking that any divine creators must be sexual pairs. The best argument for the existence of God is an argument by analogy: just as human artifacts are made by human engineers, so the universe was made by a divine engineer. But the analogy continues: just as human engineers are the children of male-female parents, so any divine engineers must also be the children of male-female parents. Deities are just super-animals; like other animals, these divine super-animals are produced through sex. The idea of divine sexuality haunts Western religion. It won't go away, despite the best efforts of official Abrahamic faiths to suppress it.

2. The Shakers: Father God and Mother God

The Shakers began in England in the mid 1700s. By the early 1800s they had moved to America, where they began to introduce radical new religious ideas. One of their most radical ideas was to introduce sexuality into the divine. They thought of God as a sexual dyad composed of an Eternal Father and Eternal Mother. The Eternal Father is a god while the Eternal Mother is a goddess. The Shakers influenced New Thought, and New Thought in turn influenced the development of Wicca. So the Shaker conception of the god-goddess pair has modern consequences. Probably the first appearance of this doctrine in writing is in the 1808 Shaker manual *The Compendium*. Here it is:

> To have just conceptions of the real character of that Divine Principle of Being whom we call God, it is necessary to understand the nature of his attributes, which stand in perfect correspondence with each other, and which are fully displayed in his Word and Works, and clearly manifest his Divine perfections. "For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made" (Romans 1:20).
>
> It is certainly most reasonable and consistent with infinite Wisdom, that the image and likeness of God should be most plainly manifested in man, who was made the most noble part of the natural creation. Accordingly we read, "And God

said, Let us make man in our image, after our likeness. – So God created man in his own image; in the image of God created he him; male and female created he them." Hence it must appear evident that there exists in the Deity, the likeness of male and female, forming the unity of that creative and good principle from which proceeds the work of *Father and Mother*, manifested in *Power* to create, and *Wisdom* to bring forth into proper order, all the works of God. If it were not so, then man, who was created male and female, as father and mother, could not, with any propriety, be said to show forth the image and likeness of God. But the manifestation of Father and Mother in the Deity, being spiritual, does not imply two *Persons*, but two *Incomprehensibles*, of one substance, from whom proceed all Divine power and life.

The Almighty is manifested as proceeding from everlasting, as the *first Source* of all power, and the *fountain* of all good, the *Creator* of all good beings, and is the Eternal Father; and the Holy Spirit of Wisdom, who was the *Co-worker* with him, from everlasting, is the Eternal Mother, the *bearing Spirit* of all the works of God. (Green & Wells, 1823: Part III, Ch. 1, p. 92).

The Shakers use a kind of design argument to reason from the sexual dimorphism of life to sexual dimorphism in God: (1) Living things on earth are divided into male and female sexes; (2) Living things on earth were made by God in the image of God; (3) So the nature of God can be inferred from the nature of the things God made; (4) Hence the divine nature of God is divided into male and female. God has two aspects. The male aspect appears as God the Father while the female as God the Mother. These can be thought of as two things: the Eternal Father and Eternal Mother. This reasoning can be found in the compendium of Shaker beliefs by Evans (1859):

25. An all-important, sublime, and foundational doctrine of the Shakers is the Existence of an Eternal Father and an Eternal Mother in Deity – the Heavenly Parents of all angelical and human beings. . . .

31. As *Father*, God is the infinite Fountain of intelligence, and the Source of all power – "the Almighty, great and terrible in majesty;" "the high and lofty One, that inhabiteth eternity, whose name is Holy, dwelling in the high and holy place;" and "a consuming fire."

32. But, as *Mother, "God is love"* and tenderness! If all the maternal affections of all the female or bearing spirits in animated nature were combined together, and then concentred in *one individual human female*, that person would be but as a type or image of our Eternal Heavenly *Mother*.

33. The *duality* of God is expressed in the book of "Genesis" as follows: "Let us make man in our image, after our likeness. So God created man in his own image; male and female created He them; and called their name Adam."

34. From which, the Shakers insist, that it is the male and female in man that is peculiarly the *"image of God."* In this conclusion they further strengthen themselves from the Apostle Paul, who affirms that the order of the "Godhead," and the "eternal creative power of God," which would otherwise be invisible to man, are "clearly seen, by," through, and in, "the things that are made."

> 35. Consequently, if this be admitted, it follows, from the undeniable fact that all the things which God has "made" are *dual;* beginning with the mineral kingdom, which, from the "old red sandstone" to the very latest geological formation, exhibit the action of *two forces,* the positive and negative, which forms, in the *vegetable* kingdom, gradually resolve themselves into male and female types, from the fern to the polypus; and, in the *animal* kingdom, they are progressively developed from the polypus up to the simian tribes; and ultimately the culminate in *man* and *woman,* the image of God their Creator.
>
> 36. It seems scarcely possible to resist this evidence of a *dual order,* so "clearly seen" throughout all the domains of nature; or to admit it, without proving that *God also is* DUAL, Father and Mother, the image and likeness of man, whom He has made *male* and *female*. (Evans, 1859: paras. 25-36).

The Shakers believed that Jesus was an avatar or manifestation of the male aspect of God; but they also believed that one of their founders, a woman known as Ann Lee (1736-1784), was an avatar or manifestation of the female aspect of God (hence she has equal theological status to Jesus):

> 38. The Shakers believe that the distinction of sex is eternal; that it inheres in the soul itself; and that no angels or spirits exist who are not male and female.
>
> 39. From the fact that Adam (and Eve) "was the figure of him that was to come," they argue that the "second Adam, the Lord from heaven, a quickening Spirit," was also *dual*, male and female; and that they were the spiritual Father and Mother of Jesus, begetting, watching over, and bearing him . . .
>
> 41. Jesus, being a male, could only reveal and manifest the *Father* in Christ and God. But when the *second* Adam appeared to Ann, and became her spiritual Parents, she, being a female, revealed and manifested the *Mother Spirit* in Christ and in Deity. (Evans, 1859: paras 38-41).

3. The Mormon Heavenly Father and Heavenly Mother

The founder of the Mormon church was Joseph Smith. He lived in Vermont and New York before founding the Mormon church. There were Shaker communities in these areas. Smith was familiar with Shaker ideas and gave sermons about the Shakers (some early converts to Mormonism were Shakers). It is likely that Smith was exposed to Shaker ideas about a Father God and Mother God. But wherever the idea came from, the doctrine that God is a married couple composed of a Heavenly Father and Heavenly Mother is standard in the Mormon church (Paulsen & Pulido, 2011; Givens, 2015: ch. 12). Smith never publicly preached the doctrine that God is composed of a Heavenly Father along with a Heavenly Mother. However, his close associates said that he endorsed this idea in private conversations.

The doctrine of a Father God and Mother God was first put in writing by W. W. Phelps, a close friend and confidant of Joseph Smith. Phelps wrote "O Mormonism! Thy father is God, thy mother is the Queen of heaven" (1844: 758). He identified the Mormon Queen of heaven with the Queen of heaven in Jeremiah: "the Jews thought so much of his coronation among Gods and Goddesses; Kings and Queens of heaven, that

they broke over all restraints and actually began to worship the 'Queen of heaven,' according to Jeremiah" (1844: 758). This Queen of heaven was the goddess Asherah, the alleged wife of the Old Testament God Yahweh (Jeremiah 44). Thus Mormonism seems to point back to early Hebrew polytheism. After his death, one of his wives, Eliza Snow, wrote a poem in 1845 describing the sexual duality of God:

> I had learn'd to call thee Father,
> Through thy Spirit from on high,
> But, until the key of knowledge
> Was restor'd, I knew not why.
> In the heaven's are parents single?
> No, the thought makes reason stare!
> Truth is reason – truth eternal
> Tells me I've a mother there.
> (Snow, Eliza, 1845)

After Joseph Smith's death, Brigham Young became the leader of the Mormon church. He wrote that "We were created upright, pure, and holy, in the image of our father and our mother, in the image of our God." (Young, 1856; in 1954: 51). Erastus Snow, an early Mormon leader, wrote that: "If I believe anything that God has ever said about himself . . . I must believe that deity consists of man and woman" (1878: 269) and he wrote that "there can be no God except he is composed of the man and woman united" (1878: 270). Erastus Snow says the idea that the divine is both male and female comes from our *natural* observation of animal and human reproduction:

> To [the Mormons] this great truth is most precious, precious to contemplate, and it is an inexpressible privilege to be able to draw nigh unto Him and say 'Our Father' in simplicity and faith, knowing that He is indeed our Father and that we are His children. And [as soon as] this great truth is impressed upon our minds, we very naturally begin to associate with it the idea of mother. This is a natural result of our knowledge and experience of human affairs; that earthly tabernacles owe their origin to mother as well as to father; that the two principles are associated together, and that by the union of the two principles, male and female, God has ordained an increase, not alone to his children but to all other branches of the animal kingdom . . . the two principles going hand and hand together. Without the two principles being thus united there is no increase. Further, we are taught that things on earth are organized after the pattern of heavenly things. Need it, therefore, be a marvel and a wonder to the world that we should irresistibly be carried forward to this conclusion—that if we have a Father in heaven we have also a Mother there." (Erastus Snow, 1884: 2)

A little later Snow also repeats the idea that the doctrine of the Heavenly Father and Heavenly Mother comes from the universal law of sexual reproduction. This is a natural law, and Snow says that God is not "an anomaly in nature". So natural theology implies that God is a divine male-female couple. Snow said:

> It is left for us to infer this from what we see and know of all living things in the earth including man. The male and female principle is united and both necessary to the accomplishment of their being, and if this be not the case with our Father in heaven after whose image we are created, then it is an anomaly in nature. . . . the idea of a Father suggests that of a Mother. (Erastus Snow, 1885: 214)

But Snow, like the Shakers, also appeals to the Bible when he writes that: "Hence when it is said that God created our first parents in His likeness—'in the image of God created He him; male and female created He them' [Genesis 1:26-7] —it is intimated in language sufficiently plain to my understanding that the male and female principle was present with the Gods as it is with man." (Erastus Snow, 1885: 214). The highest leadership council of the Mormon church, known as the First Presidency of the Church, affirmed that God is a divine male-female couple. The First Presidency was a committee of three men (Joseph F. Smith, John Winder, and Anton Lund). They wrote that: "All men and women are in the similitude of the universal Father and Mother and are literally the sons and daughters of deity" (1909: 78). John Widtsoe was an early Mormon theologian. He wrote that the Heavenly Mother has all the divine attributes. So the Heavenly Father and Heavenly Mother are equally divine. He wrote that we have "a mother who possesses the attributes of Godhood" (1928: 298). Widtsoe writes that the gods have sex:

> *Sex Among the Gods*. Sex, which is indispensable on this earth for the perpetuation of the human race, is an eternal quality which has its equivalent everywhere. It is indestructible. The relationship between men and women is eternal and must continue eternally. In accordance with the Gospel philosophy there are males and females in heaven. Since we have a Father who is our God, we must also have a mother, who possesses the attributes of Godhood. This simply carries onward the logic of things earthly, and conforms with the doctrine that whatever is on this earth, is simply a representation of great spiritual conditions, of deeper meaning than we can here fathom. (1915: 64-5).

The doctrine of the Heavenly Mother has been maintained by the Mormon church through the twentieth century. Gordon Hinckley, the fifteenth President of the Mormon church, wrote that "Logic and reason would certainly suggest that if we have a Father in Heaven, we have a Mother in Heaven. That doctrine rests well with me. . . . The fact that we do not pray to our Mother in Heaven in no way belittles or denigrates her." (1994: 100). A recent official Mormon tract states that: "All human beings—male and female—are created in the image of God. Each is a beloved spirit son or daughter of heavenly parents, and, as such, each has a divine nature and destiny." (Hinckley, 1995: 102). The claim that "logic and reason" justify belief in the divine couple goes back to the argument from natural sexual reproduction: just as we are earthly children of an earthly male-female dyad, so we are spiritually children of a divine male-female dyad.

Some early Mormon writers used the concept of the Heavenly Mother to argue that Mormonism honors women as much as men. Thus President Clawson wrote: "It doesn't take from our worship of the Eternal Father, to adore our Eternal Mother, any more than it diminishes the love we bear our earthly fathers, to include our earthly mothers in our

affections. . . . We honor woman when we acknowledge Godhood in her eternal prototype." (1910: 619-20). An early Mormon feminist, Susa Young Gates, wrote that "The divine Mother, side by side with the divine Father, [has] the equal sharing of equal rights, privileges and responsibilities." (1920: 542). Nevertheless, the Mormon church is often considered to be extremely patriarchical. Women are not given the same religious roles or rights as men. And Mormon feminists have been excommunicated.

New Thought

1. Energy and Evolution

Writers like Peirce, Kurzweil, and Tipler all argue for cosmic evolution: our universe is self-organizing. Our universe started out simple but grows progressively more complex. It supports atomic, molecular, and biological evolution. All those evolutionary processes have arrows that point to increasingly high levels of complexity. It is reasonable to wonder why complexity is increasing. It is reasonable to ask for an explanation for physical evolution. And, when we see something moving or tending in some way, or in some direction, then it seems reasonable to posit some force, energy, or power that drives it in that direction. The result is an argument:

(1) Our universe evolves from simple to complex.
(2) This directed change requires some explanation.
(3) The best explanation for any directed change is some force.
(4) But the best explanation is highly probable.
(4) So it is highly probable that evolution is powered by some force.
(5) This force drives things to ever higher levels of complexity.

Cicero referred to this force as a holy fire. He said it produced the Olympian deities (the Greek-Roman gods and goddesses), who were just more specific natural forces. The hypothesis of some holy force or original power is a persistent theme in Western theology. It appears in the Platonists and Neoplatonists.

2. Plotinus: The One as the Source

The One is an ancient pagan concept. It was developed by the Neoplatonists, who were mainly Roman philosophers writing between 100 and 300 AD. Plotinus was one of the main Neoplatonic philosophers. There are two ways to think about the relation of the One to everything else. The first way places the One over and above everything. To be over and above things is to transcend them. So, on this way, the One transcends all other things. The second way places the One under and below all other things. To be under and below all things is to serve as their foundation or support. On this way, the One is immanent in all things. Although Plotinus often describes the One as over and above, he sometimes describes it as under and below. He describes reality as a tree whose buried root is the One (*Enneads*, 3.3.7, 3.8.10). He also describes the One as the hidden spring from which all being flows (*Enneads*, 3.8.10). He says:

> For think of a spring which has no other origin, but gives the whole of itself to rivers, and is not used up by the rivers but remains itself at rest, . . . or think of the life of a huge plant, which goes through the whole of it while its origin remains and is not dispersed over the whole, since it is, as it were, firmly settled in the root. So this origin gives to the plant its whole life in its multiplicity, but remains itself not multiple but the origin of the multiple life.

The Plotinian imagery is very rich. A spring is a subterranean reservoir of water which emerges or erupts from a crack or hole in the ground. The water flows upwards out of the ground. The One is the source of this water. The water itself is the power of the One, a power which originally dwells below the ground and which then emerges above the ground. But Plotinus quickly shifts from the imagery of the spring to the imagery of a tree. Of course, these two images are similar. The spring is analogous to the root of some tree. Roots, like springs, are buried in the ground. And, just as water flows out of the spring into all the rivers, so sap flows up out of the root into all the veins and branches of the tree. Figure 13 illustrates the One, the ground, and the world tree. The One can also be identified as Alpha, the simple necessary first cause.

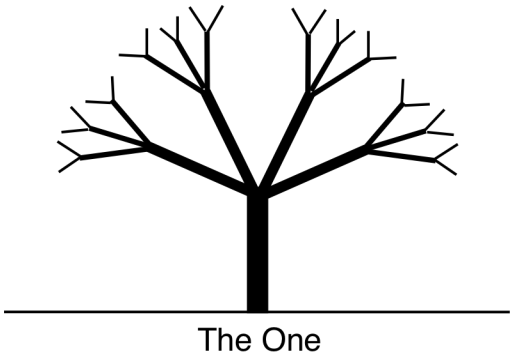


Figure 13. The One, the ground, and the world tree.

3. New Thought: Persons and Principles

Another way to talk about a power or energy is to refer to it as a principle. A principle is a driving cause. The Western philosophical tradition has long recognized that God can be described both as a Principle and as a Person. Leibniz discussed these two ways of describing God. But these two ways are in tension: it seems impossible for one thing to be both Principle and Person. One way to resolve this tension is to declare that God is an impersonal Principle. This is the idea that God is a holy energy or force. This idea was developed in the *Unity Churches*. The Unity Churches are a branch of the *New Thought* movement, which started in America in the mid 1800s. One of the founders of the Unity Churches was Harriet Emilie Cady. Here is what she says about God:

> God, then, is not, as many of us have been taught to believe, a big personage or man residing somewhere in a beautiful region in the sky called "heaven." . . . God

> is Spirit, or the Creative energy which is the cause of all visible things. God as Spirit is the invisible life and intelligence . . . which underlies all physical things. There could be no body, or visible part, to anything unless there was first Spirit as creative cause. God is not a being or person having life, intelligence, love, power. God is that invisible, intangible, but very real something we call Life. God is perfect Love and infinite Power. God is the sum total of these combined, the sum total of all good, whether manifested or unmanifested. There is but one God in the universe, but one source of all the different forms of life or intelligence we see, whether they be man, animal, tree, or rock. (Cady, 1919: 6-7)

According to Cady, all physical things are expressions or manifestations of this holy power. She is far from clear about how that works, but she does say that humans are the final manifestations of the God-Principle. When the God-Principle expresses itself in human persons, it becomes personal. So the God-Principle expresses itself as a God-Person. Cady writes:

> Childlike, untrained minds say God is a personal being. The statement that God is Principle chills them . . . Broader and more learned minds are always cramped by the thought of God as a person, for personality limits to place and time. God is both Principle and Person. As the creative underlying cause of all things, he is Principle, impersonal; as expressed in each individual, he becomes personal to that one – a personal, loving, all-giving Father-Mother. (Cady, 1919: 11)

Note that Cady refers to God as Father-Mother. She treats God as a hermaphroditic or androgynous Principle. She says that we all seek God, and that "the hunger of every one for satisfaction is only the cry of the homesick child for its Father-Mother – God" (1919: 12). And "While the child is crying out for its Father-Mother God, the Father-Mother is yearning with infinite tenderness to satisfy the child" (1919: 26). She says again that "Before ever you are conscious of any lack, of any desire for more happiness, for fullness of joy, the greater Father-Mother heart has desired them for you" (1919: 62). The distinction between Father and Mother is linked to the distinction between God as Principle and God as Person:

> God is principle, but God is individual also. Principle becomes individualized the moment it comes to dwell in external manifestation in a human body. Principle does not change because of pity or sympathy, "even as a father pitieth his children." The "Father in me" always moves into helpfulness when called upon and trusted. It is as though Infinite Wisdom and Power, who is Creator, Upholder, Father, outside, becomes transformed into Infinite Love, which is Mother, with all of the warmth and tender helpfulness which that word implies, when he becomes focalized, so to speak, within a human body. (Cady, 1919: 147).

Perhaps the best way to make sense of Cady goes like this: if God had remained purely self-contained or self-concentrated, God would be a genderless energy. But that genderless energy has not remained self-contained; on the contrary, it manifests or expresses itself in all the concrete things in the universe. When that energy expresses

itself, it somehow divides into God as Principle and God as Personal. The Principle is the male while the Personal is the female. Cady writes theology always comes to

> the place where God as cold principle alone will not suffice any more than in the past God as personality alone could wholly satisfy. . . . [We get] little comfort from the thought, "This suffering comes as the result of my wrong thinking; but God, my Father, takes no cognizance of it; I must work it out unaided and alone." Just here we must have, and we *do* have, the *Motherhood of God*, which is not cold principle any more than your love for your child is cold principle. I would not make God-principle less, but God-individual more. (Cady, 1919: 148)

The Holy Energy in New Thought

1. The Self is Rooted in God

Every human being is a manifestation of God. A human being has three parts: spirit, soul, and body. The core part is spirit; the next part is the soul; the outermost part is the body. Notice how Cady identifies the spirit with the heat of steam and the body with the cold of ice. Whether she knows it or not, she is using old Stoic imagery from Cicero. The divine part is fire-energy. She says:

> Man is made up of spirit, soul, and body. Spirit is the central unchanging I of us . . . In our descent, or outspringing, from God into the material world, spirit is inner – next to God; soul is the clothing, as it were, of the spirit; body is yet the external clothing of the soul. And yet all are in reality one, which makes up the man – as steam at the center, water next, and ice as an external, all one, only in different degrees of condensation. In thinking of ourselves we must not separate spirit, soul, and body, but rather hold all as one, as if we would be strong and powerful. Man originally lived consciously in the spiritual part of himself. He fell by descending in his consciousness to the external or more material part of himself. (Cady, 1919: 14-5)

The holy energy is at the root of your self; it is your essential "I", your True-Self. The spirit is connected to God. Notice the use of the "fountain" image, which goes back to Plotinus's image of the One as a spring:

> We each have direct access through the Father in us – the central "I" of our being – to the greater whole of life, love, wisdom, power, which is God. What we now want to know is, how to receive more from the Fountainhead and to make more and more of God (which is but another name for All-Good) manifest in our daily lives. There is but one Source of Being. That source is the living Fountain of All-Good, be it life, love, wisdom, power, or whatever – the Giver of all good gifts. That Source and you are connected every moment of your existence. You have power to draw upon this Source for all of good you are, or ever will be, capable of desiring. (Cady, 1919: 12)

2. Your Thoughts Create Your Reality

According to New Thought, everything is an expression of Spirit, which is God. But this Spirit is also pure intelligence or pure mind-power. So pure mind-power creates all reality, including the physical world. This means that thought creates and controls physical reality. God is a Great Reservoir of power which is trying to pour its goodness out into your life (Cady, 1919: 24-5).

There is a pipe from God to you. But the root of your Self is a like a valve. You can keep this valve turned off so that God's power cannot get into your life; if you do, you will be poor and sick. Or you can open up this valve to let more divine power into your life; if you do, you will be healthy and prosperous:

> If you keep your thoughts turned toward the external of yourself, or of others, you will see only the things which are not real, but temporal, and which pass away. All the faults, failures, or lacks in people or circumstances will seem very real to you, and you will be unhappy, miserable, and sick. If you turn your thoughts away from the external toward the spiritual, and let them dwell on the good in yourself and others, all the apparent evil will first drop out of your thoughts and then out of your life. (Cady, 1919: 23)

Your thoughts control and create your reality. Of course, to gain enough power to control and create your own reality, you need to properly root your thought in God. But if you can open up yourself to God, you will gain power over your body and life. You will be able to achieve health and prosperity:

> Take the thought "God loves me, and approves of what I do." Think these words over and over continually for a few days, trying to realize that they are true, and see what the effect will be on your body and circumstances. First, you will get a new exhilaration of mind, with a great desire and a sense of power to please God; then a quicker, better circulation of blood, with sense of pleasant warmth in the body, followed by better digestion, etc. Later, as the truth flows out through your being into your surroundings, everybody will begin to manifest a new love for you without your knowing why; and finally, circumstances will begin to change and fall into harmony with your desires instead of being adverse to them. (Cady, 1919: 21)

3. Denying the Illusory World

Your True-Self, your innermost "I" has fallen into delusion. It thinks false thoughts about reality. You cannot see yourself as rooted in God; rather, you see yourself as caught up in the world of struggle and change. But this is illusory. To overcome this illusion, and reclaim the power of your True Self, you need to deny the illusion. Thus Cady advocates denials. She suggests four:

> Repeat these four denials silently several times a day, not with a strained anxiety to get something out of them, but trying calmly to realize the meaning of the words spoken: (1) There is no evil (or devil). (2) There is no reality, life or intelligence apart from Spirit. (3) Pain, sickness, poverty, old age and death are not real, and they have no power over me. (4) There is nothing in all the universe for me to fear. (Cady, 1919: 38)

4. Affirming the True World

According to New Thought, you have fallen away from your True Self; you have fallen into bad thought-habits. If you change your thoughts, you can change your reality. Just as you need to deny false thoughts, so you need to affirm true thoughts. Affirmations are positive and empowering statements that you repeat frequently to yourself either mentally or out loud. Cady recommends four affirmations:

> First, God is Life, Love, Intelligence, Substance, Omnipotence, Omnipresence, Omniscience. Second. I am the child or manifestation of God; and his life, love, wisdom, power, flow into and through me at every moment. I am one with God, and am governed by his law. Third, I am Spirit, perfect, holy, harmonious. Nothing can hurt me or make me sick or afraid, for Spirit is God, and God cannot be sick or hurt or afraid. I manifest my real Self now. Fourth, God works in me to will and to do whatsoever he wishes done by me; hence I cannot fail. Commit each one of these affirmations to memory, so that you may repeat them in the silence of your own mind in any place and at any time. (Cady, 1919: 49)

5. Testing New Thought

The New Thought movement has had an enormous influence on American culture in the twentieth and twenty-first centuries. It inspired Christian Science, which claims that you can use your mind to cure sickness. It inspired Norman Vincent Peale and the "power of positive thinking" movement. It inspired the Prosperity Gospel and the Word of Faith movements. It inspired *The Secret* and the "law of attraction." But the claims made by the New Thought movement are open to testing. They can be tested easily. And nobody has ever shown that they work. It may be that affirmations and denials have some effect, but they do not have the powers that New Thought claims.

Wicca

1. Introduction

Pagan religions existed in the West prior to Christianity. These included the ancient Greek-Roman religion, as well as the Celtic and Norse religions. Various pagan religions have started to appear recently. These include Wicca, Druidism, Asatru, and so on. Since they are new, they are sometimes called *neo-pagan* religions (but we'll usually just

say *paganism* here.) Paganism is growing in the West, including in the United States. Since Wicca is the largest "denomination" of pagans, it seems appropriate to focus on Wicca. Wicca was founded in Britain in the mid twentieth century by Gerald Gardner. There are many branches of Wicca; but here we will focus on the tradition that stays close to Gardner. This is British Traditional Wicca, or Gardnerian Wicca.

Our purpose here is philosophical: to learn about and to try to accurately understand new religious movements. As philosophers, we must be both respectful and critical. Your job in philosophy class is to *never* believe anything you read or are told just because you read it or are told it. You must look for arguments based on evidence. And it is always important to try to gain *accurate* information about any religion. The most important point is that Wiccans are not Christians, and are also not a variety of Christianity. Wiccans consider themselves to be part of a distinct religion. Since Wiccans are not Christians, they do not believe in the Christian God and they do not believe in the Christian Devil. So it is wrong to say that Wiccans are "Satanists" or devil-worshippers. As any Wiccan text will quickly point out, Satan is a Christian invention. Wiccans often (but not always) refer to themselves as witches. Since they are not Christian, they do not view that term as negative; they regard "witch" as a positive term. Witches are not evil nor are they ugly old ladies. Wiccans often regard the negative stereotyping of witches as part of a Christian propaganda campaign to discredit Wicca.

Although Gardner relied on many sources in his development of Wicca, he seems to have been heavily influenced by Neoplatonism. After a long discussion of Sallustius's *On the Gods and the World*, Gardner says that "it might have been spoken at a witch meeting, at any time, as a general statement of their creed .... [T]he spirit of his teaching, the spirit of the Mysteries of his day, which is also the spirit of the beliefs of the witch cult, is timeless" (Gardner, 1959: 174). So Neoplatonism, and specifically the Neoplatonism of Sallustius, can serve as the philosophical background for our discussion of Wicca. There are several aspects of Wicca which are relevant to philosophy of religion: (1) There is an ultimate deity. (2) The ultimate deity manifests itself in a Male God and a Female Goddess. (3) The cycles of nature are deeply holy and are celebrated on the holidays on the Wheel of the Year. (4) Many Wiccans affirm reincarnation.

2. The Ultimate Deity

Gardner says the Wiccans recognize that "there must be some great 'Prime Mover,' some Supreme Deity" (1959: 17). However, this ultimate deity is distant and does not directly reveal itself to us. This ultimate deity resembles the Neoplatonic One, the great first cause described by Sallustius. The Wiccan ultimate deity is not the Abrahamic God. And it is not a theistic deity. The Wiccan ultimate is non-theistic. The ultimate deity is not the same as the male God and female Goddess. These deities will be dealt with later. Here are some quotes, taken from popular Wiccan books, that describe the Wiccan ultimate deity. In these quotes, the ultimate deity is referred to in various ways ("Divine creative principle", "Ultimate Source", etc.).

The Farrars write that "Wicca is both a religion and a craft . . . As a religion . . . its purpose is to put the individual and the group in harmony with the Divine creative principle of the Cosmos" (1981: 12). They refer to an "Ultimate Source" when they say that "the God and Goddess [are] aspects of the Ultimate Source" (Farrar & Farrar, 1981:

49). And they say that the "Seventh Plane" of reality is the "Upper Spiritual" plane and consists of "Pure or Abstract Spirit. The 'Divine Spark'. Substance and energy direct from the Great Unmanifest" (1981: 117). And they say that "To the witch, the Divine Principle of the Cosmos is real, conscious and eternally creative, manifesting through Its creations, including ourselves" (1981: 154)

Buckland writes that "This higher power – the "Ultimate Deity" – is some genderless force that is so far beyond our comprehension that we can have only the vaguest understanding of its being. Yet we know it is there and, frequently, we wish to communicate with it. As individuals we wish to thank it for what we have and to ask it for what we need. How do we do this with such an incomprehensible power?" (1986: 19)

Cunningham writes that "The Wicca acknowledge a supreme divine power, unknowable, ultimate, from which the entire universe sprang. The concept of this power, far beyond our comprehension, has nearly been lost in Wicca because of our difficulty in relating to it. Wiccans, however, link with this force through their deities. In accordance with the principles of nature, the supreme power was personified into two basic beings: the Goddess and the God" (1988: 9)

Silver Elder writes: "In Wicca we know that there is a Higher Power, an Ultimate Force, the Archetypal Energy, the Supreme Power, because we see it manifest in Nature and within ourselves each and every day." (2011: 18). She states that:

> All is therefore sacred and bears the blueprint of the Divine Source manifest as a binary force of male and female which we call the God and Goddess, complementing one another to form the Whole, The All. We are an integral part of the All, having been created by the Divine Source of All, and therefore bear the blueprint of the Divine Source, giving us potential for a direct connection with the All, and the Divine, which are One. The concept of Deity and the sacred in Paganism and therefore, also in Wicca, is not transcendent, but immanent and indwelling in all. The divine is therefore integral with ourselves; we are inherently divine. We respect Nature as all is alive and divine for we are a part of that All. (2011: 9)

The Council of American Witches states "We conceive of the Creative Power of the Universe as manifesting through polarity – as masculine and feminine – and that this same Creative Power lives in all people, and functions through the interaction of masculine and feminine." (Thesis 4 in the Principles of Wiccan Belief, from the Council of American Witches, 11-14 April 1974; taken from Cuhulain, 2011: 28)

Cuhulain writes that "The Wiccan concept of the Divine is shaped by what we see around us in the natural world. . . . We believe that the Divine is immanent in everything around us. We do not separate the Divine from the everyday world . . . Everything around us is divine" (2011: 14).

The Wiccan ultimate deity is an impersonal power; it is an immanent creative force. The Wiccan deity is an idea of the divine with a very long history in Western philosophy. It does indeed go back to the Platonic Form of the Good and to the Plotinian One. And this point must be stressed: Plato and Plotinus were ancient pagan philosophers. Later they become Christianized, but they weren't Christians. One might try to analyze the Wiccan deity using the old Platonic and Neoplatonic texts. But those texts are indeed

ancient, and, as such, they are foreign to us in many ways. It's fine to say that the Wiccan deity has Neoplatonic roots, but we should probably leave it at that.

3. The God and Goddess

The Wiccan ultimate deity manifests itself as a male deity (the god) and female deity (the goddess). The concept of manifestation in Wicca appears to be derived from the concept of emanation in Neoplatonism. The Plotinian One, for instance, emanates the Divine Mind, which is split into a duality based on the subject-object polarity of cognition. However, the similarities with Neoplatonism quickly end. The Wiccan god and goddess are intended not as disembodied and intellectual, but as highly carnal and sexual.

The Farrars write that "the God and Goddess [are] aspects of the Ultimate Source" (1981: 49). Buckland explains that the Wiccan ultimate deity manifests itself to us as the male god and female goddess (1986: 19-21). He writes that "in their early development, people came to worship to principle deities: the Horned God of Hunting and the Goddess of Fertility. . . . In virtually all instances . . . the Ultimate Deity was equated with both masculine and feminine . . . broken down into a god and a goddess. This would seem most natural since everywhere in nature is found this duality." (1986: 20).

Cunningham writes that Wiccans gain personal access (both cognitive and practical) to their ultimate deity through the intermediation of the God and Goddess. Although the ultimate deity is distant and hard for humans to relate to, Wiccans "link with this force through their deities. In accordance with the principles of nature, the supreme power was personified into two basic beings: the Goddess and the God" (2004: 9). He writes that "Wicca reveres these twin deities because of its links with nature. Since most (but certainly not all) nature is divided into gender, the deities embodying it are similarly conceived" (2004: 9). The God and Goddess are immanent powers: "The Goddess and God are both within ourselves and manifest in all nature" (2004: 4); they are "omnipresent" (2004: 5).

Cunningham also tells us that the god and goddess are natural creative powers: "the deities *are* the creative forces of the universe (not just symbols)" (2004: 14, itals his). However, he then tells us that the deities are *personifications* of those creative forces; they are projections of human forms onto impersonal energies: "the deities didn't exist before our spiritual ancestor's acknowledgement of them. However, the *energies* behind them did; they created us. Early worshippers recognized these forces as the Goddess and God, personifying them in an attempt to understand them." (2004: 10, itals his).

Cuhulain writes: "The Wiccan concept of the Divine is shaped by what we see around us in the natural world. . . . We conceive of Divinity as manifesting as both female and male, as this reflects what we see in our universe. Therefore, unlike Christianity, we are not monotheistic. Most Wiccans recognize a Goddess and a God."(2011: 14)

Sabin writes that "Wiccans believe that deity separates (or we separate it) into facets – or aspects – that humans can relate to. The first 'division' of deity is into its male and female halves. . . . The two main aspects of deity that Wiccans work with – the male and the female – are simply called the God and the Goddess" (2011: 26).

Silver Elder writes that "the Divine Source [is] manifest as a binary force of male and female which we call the God and Goddess" (2011: 9). She says that Wicca involves

"the veneration of the God and Goddess of Nature" (2011: 13) and that "The God and Goddess are revered and celebrated as a binary team, representing the ultimate power and force" (2011: 18). She says:

> within this work you will find frequent reference to the God and Goddess . . . Reference is not being made to physical people resembling us, instead these are energies and forces which we perceive through our own psychic powers using visualization and mental focus. . . . in order to make these perceived higher powers more intellectually accessible . . . we make them representative. We personify them and give them names . . . We therefore call them the God and Goddess . . . and give them physical representation. (2011: 18)

4. A Wiccan Creation Story

Many religions have creation stories, and Wicca is no exception. Since Wiccan metaphysics is so deeply interested in energy, and since the Big Bang can be thought of as an explosion of pure energy, Wiccans can happily endorse the idea that our universe began billions of years ago with the Big Bang. Silver Elder summarizes and endorses the Big Bang and the standard evolutionary story of the universe (2011: 37-38). To be sure, Silver Elder is no scientist, and her writing is sloppy. She affirms that "our universe began as a seething mass of energy . . . Within a fraction of a second, this pure energy exploded into matter and eventually grew large enough to encompass All That Is" (2011: 37). She writes that "We are part of the Universe in origin and evolution . . . We are part of this ever expanding energy field" (2011: 38).

The Farrars endorse the notion of a cosmic evolution which includes but exceeds biological evolution by natural selection. They have a metaphysics involving various Neoplatonic levels of existence (material, spiritual, etc.). Evolution is occurring on all these levels. For them, all reality, on all levels, is evolving. Thus: "Evolution . . . does not merely mean Darwinism (though Darwin certainly defined one of the ways, on one of the levels, in which cosmic evolution expresses itself). It is the continuing process by which the ultimate creative force of the universe manifests itself 'downwards' through the levels, with increasing complexity, and is itself enriched by the experience of that complexity" (1981: 136). Thus the Farrars affirm the evolution of complexity in the material universe, including the Darwinian theory of the evolution of biological complexity on earth. MacMorgan is a Wiccan with biological training who insists that, since Wicca is a nature religion, all incompatibilities with science must be excluded from Wicca. She strongly endorses Darwinian evolution and strongly opposes intelligent design (2003: 164-185).

On the basis of these texts, it seems fair to say that Wiccans affirm the scientific story of the origin and history of our universe. They agree with evolution (even if they enlarge it in ways that scientific naturalists cannot endorse). Nevertheless, Wiccans do have an ultimate deity as well as their god and goddess – and these must play some roles in any properly Wiccan story of the origin and history of universe. Wiccans will interpret the scientific story religiously. Cunningham provides an interesting Wiccan interpretation of the scientific story. He is *explicit* that he is using the scientific story to make a myth and

that his mythic presentation is *merely poetry* (2004: 119). His creation myth goes like this:

> Before time was, there was The One; The One was all, and all was The One.
> And the vast expanse known as the universe was The One, all wise, all-pervading, all-powerful, eternally changing.
> And space moved. The One molded energy into twin forms, equal but opposite, fashioning the Goddess and God from The One and of The One.
> The Goddess and God stretched and gave thanks to The One, but darkness surrounded them. They were alone, solitary save for The One.
> So they formed energy into gasses and gasses into suns and planets and moons; they sprinkled the universe with whirling globes and so all was given shape by the hands of the Goddess and God.
> Light arose and the sky was illuminated by a billion suns. And the Goddess and God, satisfied by their works, rejoiced and loved, and were one.
> From their union sprang the seeds of all life, and of the human race, so that we might achieve incarnation upon the earth.
> The Goddess chose the moon as her symbol, and the God the sun as his symbol, to remind the inhabitants of the earth of their fashioners.
> All are born, live, die, and are reborn beneath the sun and moon; all things come to pass there under, and all occurs with the blessings of The One, as has been the way of existence before time was. (Cunningham, 2004: 123).

The Cunningham myth looks somewhat like a Neoplatonic creation story in which the emanation follows an arrow of time. Cunningham uses the Neoplatonic term "The One" for the ultimate deity. However, since Cunningham describes the One as "wise", it is not the One of Plotinus and it is not natural creative power. Indeed, Cunningham's story looks less Neoplatonic and more Stoic – it looks like the pantheism presented in Cicero's *De Natura Deorum* (*On the Nature of the Gods*). And yet, on his presentation, the One looks like the Christian God. Given their deep rejection of Christianity, it is doubtful that many Wiccans would accept it. As expected, he also portrays both the god and goddess as designers. His story is far too close to theistic evolution (even if it is not intelligent design). Although the myth presented by Cunningham is far closer to natural science than the myths in Genesis, it is obviously inconsistent with known facts. It involves scientifically erroneous and theologically idolatrous projections of human and personal features into a process which is entirely inhuman and impersonal.

Of course, it is entirely reasonable for Cunningham to return to his earlier explicit assertion that he is merely making up some poetry. He does not present his story as scientific truth and he is clear that "This is not, I repeat, *not* sacred writ, nor does it consist of revealed writing" (2004: 119). His only intention is to "spark your imagination" (2004: 119). His story is part of his *Book of Shadows*, which is a Wiccan religious diary. Every Wiccan is encouraged to have his or her own individualized Book of Shadows; there is no standard document. And Cunningham urges you to "alter anything for any reason" (2004: 119). Criticisms of his creation story should serve as the basis for improved versions. Obviously, this differs from the Christian approach to Genesis. Christians will not encourage you to re-write the Bible.

5. The Wheel of the Year

The Wheel of the Year involves eight solar holidays (the *sabbats*). The sabbats include the solar quarter days (the solstices and the equinoxes) as well as the solar cross-quarter days intermediate between the quarters. Figure 14 shows the Wheel. For theistic Wiccans, these days symbolize events in the life-cycles of the god and goddess. Silver Elder (2011: 23) writes that the sun represents the male principle in nature (the Wiccan god) and the earth represents the female principle in nature (the Wiccan goddess).

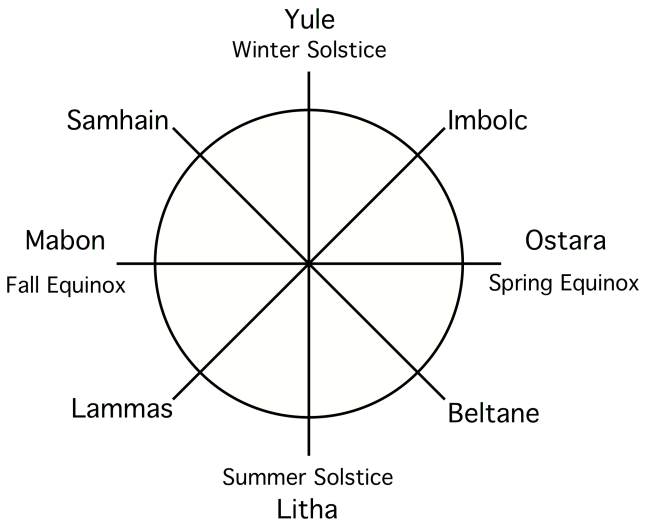


Figure 14. The wheel of the year.

The sabbats are closely associated with agriculture (the annual cycle of planting, tending, and harvesting) and animal husbandry (the annual cycle of animal mating, birth, growth, and slaughter). For Wiccans, these yearly patterns are deified; they are translated into the life-cycle of the god and goddess. The stable earth represents the goddess and the variable sun represents the god. Although the earth remains constant, the sun waxes and wanes. Hence the god is born, grows, peaks, declines, dies, and is reborn.

Since the Wheel of the Year symbolizes the repeated biological pattern of the solar god, the Wheel also symbolizes the pattern of reincarnation. Silver Elder writes that the Wheel of the Year illustrates "the Cycle of Infinity and Reincarnation with the seasonal cycle acting as the metaphor for the regeneration of life" (2011: 23).

The dramatic interaction of the sun-god and earth-goddess includes both the cycles of fertility and of reincarnation. Thus the old sun-god mates with the earth-goddess so that she becomes impregnated with the new sun-god. After mating, the old sun-god dies. Shortly after his death, the new sun-god is born, grows to sexual maturity, and mates with the earth-goddess. Hence the cycle repeats. Although the cycle appears to involve mother-son incest, Wiccans reject all literal interpretations of the cycle and thus reject the idea that the cycle either depicts or affirms incest (Cunningham, 2004: 71). On the contrary, the sun-god and earth-goddess are merely ideal types or natural forces. At the level of biological types, the same abstract male is always fertilizing the same abstract

female. It seems more accurate to say that the cycle depicts a perfectly enclosed male-female pair. It is a complete couple which, for Wiccans, is sufficient for the generation of all things.

As religious holidays, the sabbats are celebrated through various ritual forms. All sabbat rituals share a common framework holding content which varies from sabbat to sabbat. The common framework is presented in The Farrars (1981: 11-60), Cunningham (2004: ch. 13), Sabin (2011: ch. 10), Silver Elder (2011: 88-105). Here are the stages of the common framework as described by Silver Elder (2011: 88): "Preparation; Opening the Rite; Casting the Circle; Calling of the Quarters and Inviting the Deities; Cakes and Wine; Banishing of the Circle and Closing the Rite."

After the formal ritual, the sabbat celebration often involves an informal potluck feast. The Farrars encourage every sabbat to turn into a party (1981: 21). Although the details of the sabbat rituals are of little philosophical interest, it is worth pointing out that casting the circle involves drawing or marking out a sacred circle in which the ritual takes place. This circle is typically cast by moving in a *deosil* direction, which is the direction of the movement of the sun across the sky. Hence casting the circle mirrors the solar cycle of the year.

The eight sabbats on the Wheel of the Year are outlined below. Sabin describes the sabbat celebrations (2011: ch. 9). Silver Elder's entire 2011 is dedicated to them. Each sabbat includes relations between the god and goddess. For the Farrars, these relations are extremely complex, involving avatars of the sun-god as the Oak King and Holly King (1981: 24-28). As Wicca evolved and became Americanized, this complexity seems to have been dropped. By the time of Cunningham and Sabin, the god-goddess interactions are simpler. Here the god-goddess interactions are taken from Cunningham (2004: ch. 8).

Yule (Winter Solstice; about 21 December) – Yule is the shortest day of the year; after Yule, the days lengthen and the sun grows stronger. Thus Wiccans interpret this to mean that the earth-goddess gives birth to the sun-god at Yule. Cunningham says that at Yule "[t]he Goddess gives birth to a son, the God" (2004: 67). The fallow fields are interpreted as the goddess resting after giving birth. For Wiccans, the birth of the sun is in fact rebirth; thus Yule "is a reminder that the ultimate product of death is rebirth" (2004: 67). Yule is celebrated in the traditional pagan ways, with a tree, gifts for children and so on.

Imbolc (about 1 February) – The lengthening days are interpreted as "the recovery of the Goddess after giving birth to the God" (2004: 67). The sun-god is "a young lusty boy", though he is still immature. Cunningham says that Imbolc is a "sabbat of purification after the shut-in life of winter, through the renewing power of the sun" (2004: 68). Outside of the sabbat ritual proper, celebration of Imbolc involves bonfire parties.

Ostara (Spring Equinox; about 21 March) – At the start of spring, natural creative power is manifest in increased biological activity. The emergence of vegetation during the spring is interpreted as the greater sexual maturity of the god and goddess: "The Goddess blankets the earth with fertility" while "the God stretches and grows to maturity. He walks the greening fields and delights in the abundance of nature" (2004: 68). Natural creative power stirs in animals as well as plants: "the God and Goddess impel the wild creatures of the earth to reproduce" (2004: 68).

Beltane (May Day; about 1 May) – By May Day the creative sexual powers of the god and goddess are fully mature: "They fall in love, lie among the grasses and blossoms, and unite. The Goddess becomes pregnant of the God" (2004: 69). The old pagan celebrations on Beltane often involved dancing around a Maypole.

Litha (Summer Solstice; about 21 June) – The summer solstice is the longest day of the year. On this day "the powers of nature reach their highest point. The earth is awash in the fertility of the Goddess and God" (2004: 69).

Lammas (about 4 August) – Lammas is the first harvest festival, when many agricultural products of the summer initially become available. Since the foremost of these products in the northern hemisphere is corn, it is often thought of as a corn festival. At this time the waning of the sun becomes manifest in the sky. The god loses his strength and "[t]he Goddess watches in sorrow and joy as she realizes that the God is dying, and yet lives on inside her as her child" (2004: 70).

Mabon (Fall Equinox; about 21 September) – At the fall equinox, light and darkness are in balance, but darkness is ascending. The god is preparing to die. Thus "[t]he Goddess nods in the weakening sun, though fire burns within her womb. She feels the presence of the God even as he wanes" (2004: 70).

Samhain (about 31 October) – At Samhain the sun-god dies: "the Wicca say farewell to the God. This is a temporary farewell. He isn't wrapped in eternal darkness, but readies to be reborn of the Goddess at Yule" (2004: 70). Samhain is the Wiccan new year and is marked with elaborate and varied ceremonies. One way that some Wiccans honor the dead is through Silent Suppers (Cuhulain, 2011: 96; Sabin, 2011: 171). A Silent Supper is meal that is served and eaten in silence, with a place at the table set for the dead. Buckland (1986: 99-101) describes a ritual for burning away weaknesses at Samhain. Participants write down their weaknesses on papers which are then ritually burned.

6. Reincarnation

Although reincarnation is often thought of as an Eastern doctrine, it has a surprisingly large following in the West. The Pythagoreans affirmed reincarnation. Plato affirms it in his Myth of Er (*Republic*, 614b-621d) and Plotinus affirms it in the *Enneads* (III.2-4, III.6.6, VI.7.6). Versions of reincarnation seem to be endorsed by classical American thinkers like Emerson and Thoreau. As for modern America, reincarnation beliefs appear to be surprisingly common (see the Pew 2009 Religion and Public Life Survey).

Reincarnation is a common doctrine among Wiccans. The Farrars say that "Almost all witches [Wiccans] believe in reincarnation" (1981: 113). Buckland talks about it (1986: 25-28). Sabin reports that "most Wiccans will tell you that they believe in reincarnation" (2011: 31). And Cunningham says that "reincarnation is one of Wicca's most valuable lessons" (2004: 73). Silver Elder discusses it (2011: 56-57). She writes that "It is the Soul or, the Spirit body that transcends the earthly physical realm to be re-manifest within the cycle of birth, life, death, and re-birth" (2011: 38).

According to Cunningham, reincarnation is not revealed by any super-natural agency, but is inferred from the observation of natural fertility cycles. Thus reincarnation is manifest in the lawful patterns of nature: "reincarnation is as real as a plant that buds, flowers, drops its seed, withers, and creates a new plant in its image" (2004: 77). Of

course, this botanical fertility cycle corresponds to the solar cycle. So Cunningham writes that "our very lives are symbolically linked with the endless cycles of the seasons that shape our planet" (2004: 76). Silver Elder says that reincarnation is manifest by the solar cycle, that is, by the Wheel of the Year: "the Wheel of the Year forms the story of birth, life, death and rebirth, the Cycle of Infinity and Reincarnation with the seasonal cycle acting as the metaphor for the regeneration of life" (2011: 23). Silver Elder also says that the daily sleep-wake cycle is a metaphor for reincarnation (2011: 43).

The Farrars say "The theory of reincarnation holds, briefly, that each individual human soul or essence is reborn again and again, in a series of bodily incarnations on this earth" (1981: 116). Cunningham writes that "when the physical body dies we do not cease to exist, but are reborn in another body" (2004: 73). Sabin says that reincarnation is "the soul returning again to earth in a new body or form after death" (2011: 31). But reincarnation is not limited to being reborn on earth. Buckland suggests that you might be reincarnated on some other planets or worlds: it is possible that "we not only experience lives here on Earth, but also on other planets . . . Perhaps we go through the cycle here having already been through it a dozen times or more on other worlds" (Buckland, 1986: 26).

The basic Wiccan reincarnation doctrine seems to be this: A human person is composed of a soul and body (this is *soul-body dualism*). The soul is some kind of divine spark from the ultimate deity (or god and goddess). Thus Cunningham writes "The soul is ageless, sexless, nonphysical, possessed of the divine spark of the Goddess and God" (2004: 73). Although the body dies, the soul cannot be destroyed. After the body dies, the soul travels to some spiritual place where it prepares for its next incarnation (Cunningham, 2004: 75; Silver Elder, 2011: 56-57). The soul then enters a new human body. The Farrars say that it enters the fetus at conception (1981: 121).

The cycle of reincarnation aims at self-perfection and is repeated over and over again until the soul becomes perfected. Cunningham says "Wicca teaches that reincarnation is the instrument through which our souls are perfected. One lifetime isn't sufficient to attain this goal; hence, the consciousness (soul) is reborn many times, each life encompassing a different set of lessons, until perfection is achieved" (2004: 73). Cuhulain says that the purpose of reincarnation is "to continue the process of perfecting ourselves" (2011: 17). Buckland writes discusses the purpose of reincarnation like this: "your job is to progress; to strive your hardest towards perfection" (1986: 27). Buckland uses an educational analogy to illustrate the process of self-perfection through multiple lives:

> A very good simile for [reincarnation] is the grades of a school. You enter school in a low grade and learn the basics. When you have mastered these you graduate, take a short vacation, then come back into a higher grade to learn and experience more things. So it is in life. In each life you have a certain amount to learn and to experience. When you have done that, you graduate (e.g., you die). To come back into a higher grade, you are reborn in a new body. (1986: 26)

Once the soul is perfected, the Farrars say that it advances to some higher level of spiritual reality that is beyond our detailed comprehension (1981: 116). Cunningham is more explicit: "after rising upon the spiral of life and death and rebirth, those souls who

have attained perfection break away from the cycle forever and dwell with the Goddess and God. Nothing is ever lost. The energies resident in our souls return to the divine source from which they originally emanated" (2004: 76). Cunningham's version of Wicca is highly Neoplatonic. For Cunningham, reincarnation climbs great chain of being. This is Neoplatonic: the soul is emanated by the One, the soul returns to the One.

Although Cunningham tries to interpret Wicca using old Neoplatonic ideas, his Neoplatonic notion of that the purpose of reincarnation is to reunite the soul with the One does not seem consistent with other Wiccan doctrines. It is not consistent with the Wiccan conception of nature as a perpetual cycle (which Silver Elder refers to as the "Cycle of Infinity" (2011: 23)). And Sabin writes that "Wiccans aren't trying to get off the wheel" (2011: 12). She says that Wiccans are not trying to escape from the cycles of nature: "Wiccans believe that they actively participate in turning the wheel – in nature, essentially – while practitioners of some other religions try to transcend it" (2011: 12). This opposes Cunningham's view of reincarnation as Neoplatonic return. And Cunningham contradicts himself: after all, he said our lives are linked with the "endless cycles" of the earthly seasons. Neoplatonic return can't be right. It is certainly possible for self-perfection to continue forever, through infinitely many reincarnations, always rising to higher and higher levels of perfection. You could have as many reincarnations as there are numbers.

For Wiccans, reincarnation is associated with compensatory justice: you are rewarded or punished in your next lives for what you did in your past lives. This is commonly known as *karma* although in Greek-Roman thought it was known simply as *justice* (and Plotinus uses the Greek term *adrasteia* to refer to it (*Enneads*, III.2.13)). There is little need to go into the details of the Wiccan theory of karma here (e.g. the Threefold Law).

Although the details of the Wiccan ethics of reincarnation are of little philosophical interest, there is an important ethical point that must be said: any reincarnation theory, when coupled with the doctrines of self-perfection and justice across lives, is surely morally superior to the Christian notion of the afterlife as spent either in eternal heaven or eternal hell. For an earthly life to be punished forever in hell is infinite injustice. No finite human being deserves infinite pain. And this is true for heaven as well: to be rewarded forever in heaven is also infinite injustice. No finite human being deserves infinite pleasure. The Christian theory of the afterlife entails infinite injustice. Reincarnation is morally superior. And here it is worth noting that the *Christian* philosopher John Hick rejects the Christian doctrines of heaven and hell in favor of a reincarnation-resurrection theory that is surprisingly similar to the Wiccan theory of reincarnation (Hick, 1976: chs. 15, 20, 22).

Wiccans attempt to construct evidence-based arguments to justify reincarnation. They attempt to empirically justify reincarnation (e.g. deja-vu, alleged memories of past lives, explanations of the injustices of this life, etc.). Here it must be noted that Christians do not make any efforts to empirically justify the theory of the general resurrection of the body; it is simply asserted as a matter of faith based on the Bible. Unfortunately for the Wiccans, their theory of reincarnation is not consistent with natural science. And it is foolish to try to mount some defense based on some alleged gaps in our present scientific knowledge. All the science that is needed to refute reincarnation has been available for a long time. And purely logical arguments against reincarnation have been well-known for a long time (see Tertullian, 1997). And philosophical

arguments against soul-body dualism also refute Wiccan reincarnation. There is no earthly reincarnation.

Nevertheless, reincarnation is not the only theory that says we have multiple lives. The Buddhist theory of *rebirth* also says that we all have many lives. It does not involve any soul that travels from body to body. It need not even involve having future lives here on earth; your future lives may exist in other universes. The Buddhist theory of rebirth suggests a way to have multiple lives that is consistent with scientific naturalism.

The Holy Energy in Wicca

1. Alternatives to Worship

Worship goes with the concept of the Divine King. But the worship of the Divine King is not the only way to be religious in the West. The West also has a long tradition in which holy energy plays the main religious role. This tradition begins to emerge in the 1800s and it becomes increasingly powerful in the 2000s. If your main religious focus is on holy energy, then you won't sing hymns of praise to it, you won't make sacrificial offerings to it, and you won't petition it in prayer. Since the holy energy is not a person, it cannot respond to those acts. You can't worship holy energy; on the contrary, you summon it, you arouse it, you invoke it, you channel it and you shape it. As in New Thought, you do denials and affirmations. Or, in Wicca, you use the holy energy as a source of power for magical spells.

2. The Use of Energy in Wicca

Many Wiccan practices involve *energy*. Here the term "energy" is used as a Wiccan term of art rather than as a scientific term: it is an alleged *mysterious energy,* rather than the energy studied in physics. This energy does not exist in nature or elsewhere. The Farrars use electro-magnetic metaphors to talk about (mysterious) energy (1981: 107-110). However, the Farrars do not seem to use the term "energy." The term does appear in Buckland (1986: 14-16). Energy plays more prominent roles in later American Wiccan writers. The main idea is that all energy originates from the Wiccan ultimate deity. Cunningham writes that "All natural objects . . . are manifestations of divine energy" (2004: 92). Hence Wiccans like Cunningham stress that the energy involved in Wiccan practices is physical and natural rather than super-natural. He stresses that "[t]he energy and magical powers at work in Wicca are real. They aren't of some astral plane. They're within the earth and ourselves" (2004: 90).

For Cunningham, the energy used in Wiccan practices is immediately felt as the metabolic energy of the body: "We daily deplete our store of energy and replenish it through the air we breathe, the food we eat" (2004: 90). This energy is closely related to the arousal and activation of the autonomic nervous system: "This energy is the same power we're filled with when we're angry, nervous, terrified, joyous, or even sexually aroused" (2004: 92). For Buckland, the energy in Wiccan practices also comes from the body: "Witches have always believed in this power coming from the body" (1986: 14).

Cunningham presents a ritual intended to demonstrate the existence of this energy. You rub your palms together for about twenty seconds and then hold them about two inches apart. After you do this, he asks: "Feel them tingling? That's a manifestation of power . . . It's flowing out from your palms as you hold them apart" (2004: 90). After you learn to sense this energy, Cunningham says that you can use visualization to manipulate it. He says you should "visualize jolts of energy" passing from one palm to another (2009: 90). He then recommends visualizing the energy as forming a sphere between your palms. He says you can learn how to manipulate this "bit of energy that you've released from your body" (2004: 91). You can then learn to direct this energy out of your body: "When you feel yourself bursting with power, hold out your right (projective) hand and direct energy from your body, through your arm, and out your fingers. Use your visualization. Really see and feel it streaming out" (2004: 93). Obviously, our bodies do generate energy. And equally obviously, everything Cunningham says about it is false. The only way to externalize somatic or emotional energy is by activating your muscles.

Sabin offers an elaborate system of energy exercises (2011: chs. 3 & 4). She describes the energy exercises involve rubbing hands and directing energy from the hands (2011: 43-45). She describes exercises intended to enable the practitioner to feel the energy in non-human things like crystals and trees (2011: 45-46). She develops detailed "grounding" exercises for sending excess energy into the earth (2011: 51-58) as well as detailed "shielding" exercises for protection from excess energy or negative energy (2011: 59-64). She frequently discusses techniques for "raising" energy (e.g. 2011: 52, 208). The result is a complex theory of energy that has no empirical basis – it is a pseudo-science. There is no evidence that this energy exists.

Just as real science is the basis for real technology, the pseudo-science of energy is the basis for the pseudo-technology of magic. Buckland writes that Wiccans have "developed ways to increase [energy], collect it, and use it to do what we term magick" (1986: 14). Sabin writes that Wiccans "believe that they can bend and use energy to bring about change, which is what magic is all about" (2011: 43). These Wiccan energy exercises, and the magical procedures that make use of this energy, are designed to produce *illusions of control* (Langer, 1975). These illusions can decrease anxiety and increase confidence.

3. Magic and Spell-Casting

Many Wiccan books extensively discuss magic. They offer many definitions of magic (e.g. Buckland, 1986: 222-223; Sabin, 2011: 195-196). Cuhulain offers these definitions from other authors: "Magic is a joyous exceptional experience which leads to a sense of well-being."; "Magic is the science of the control of the secret forces of nature."; "Magic is a comprehensive knowledge of all nature."; "Magic is the art of affecting changes in consciousness at will" (2011: 27). And Cunningham defines it like this: "Magic is the projection of natural energies to produce needed effects" (2004: 21).

These definitions are so vague that they are useless. The only way to understand it is to proceed by the way of example. Magic is a catalog of *spells*. A spell is a procedure or algorithm: "A spell is a set of actions done in a specific sequence to manifest your intent. . . . it is a recipe to bring about change" (Sabin, 2011: 197). Thus Wiccan magic includes

the spells listed in Wiccan books. It includes at least the spells presented in Farrar & Farrar (1981); Bucklands (1986); Cunningham (2004); Sabin (2011).

One of the main questions about magic concerns its *reliability* (that is, whether or not the spells included in Wiccan books have any effectiveness above chance). Those who assert that spells do have such reliability are *realists* about magic. Cunningham is a realist about magic. He writes that "Magic is effective in causing manifestations of needed change. This isn't self-deception. Correctly performed magic works, and no amount of explaining away alters this fact" (2004: 23). Sabin writes that "Wiccans believe that magic is real, that it works" (2011: 29).

Cunningham illustrates the alleged effectiveness of magic as follows: "Say I need to pay a hundred-dollar phone bill but don't have the money. My magical goal: the means to pay the bill" (2004: 23). To achieve this goal, he outlines a magical procedure (a spell). The spell involves candles, herbs, paper, and ink. Cunningham writes that the spell uses "a good selection of money-drawing herbs" (2004: 23), thus indicating that he believes that certain plants have powers to attract money to people. After the spell is performed, "Within a day or two, perhaps a week, I'll either receive unexpected (or delayed) money, or will satisfy other financial obligations in a manner that frees me to pay the bill." (2004: 24). Of course, Cunningham offers no data to justify this claim. He does not offer a detailed list of trials of this money-spell along with its rate of success and failure.

The lists of spells in Wiccan books is enormous; spells are offered for allegedly changing almost any given situation in to almost any desired situation. Sabin writes that there are spells "for things like finding a new job or protecting your home" (2011: 18). It should be noted that spells include procedures for gaining information.

4. Criticizing Magic

There is no evidence for the effectiveness of magic. Magic is not reliable. And it is unethical to use magic. It is especially unethical to use it in the case of healing; it is unethical to promise to cure some disease if you cannot cure it.

Magic is a pseudo-technology based on the pseudo-science of energy. Magic makes it appear as if an event that involves mainly chance is one that involves mainly skill. The purpose of magic is entirely to produce the *illusion of control:* "By encouraging or allowing participants in a chance event to engage in behaviors that they would engage in were they participating in a skill event, one increases the likelihood of inducing a skill orientation, that is, one induces an illusion of control" (Langer, 1975: 313).

The illusion of control appears to be an adaptive illusion: "a nonveridical perception of control over an impending event reduces the aversiveness of that event. . . . A temporary loss of control is anxiety arousing. A chronic feeling of no control is characterized by passivity and giving up in the face of failure" (Langer, 1975: 323). The illusion of control may help people avoid learned helplessness (Langer, 1975: 325). *Learned helplessness* is a defective and depressed condition of agency that results when a person comes to believe that their actions have no power to solve their problems. Long fruitless searches for jobs, money, lovers, children, or social status may all produce learned helplessness; any activity that induces an illusion of control can counteract learned helplessness, and help a person to continue to act in the face of adversity

generated by randomness or complexity. Thus magic, by inducing illusions of control, can help people function. It can make an agent more confident, and more willing to continue to try to solve a problem, rather than just giving up. Thus magic may be beneficial for agency.

5. Visualization

Visualization is the mental generation of images of desired future states of affairs. If you want to achieve some goal, then you imagine yourself on the way to achieving it, or closer to achieving it, or as having achieved it. You may imagine yourself as going through the operations needed to achieve it. For example, if you are going to perform in some sports contest, you may mentally rehearse your moves; if you are going to have a job interview, you may mentally rehearse successful versions of your interview.

Visualization techniques involve creating, manipulating, and destroying mental images. Cunningham deals extensively with visualization (2004: 88-90). He gives four detailed visualization exercises. The first exercise involves visualizing a single image for several minutes. The second exercise begins with visually memorizing the appearance of some physical thing and then mentally focusing on the image of that thing for five minutes. The third exercise involves the deliberate mental construction of a detailed visual image while keeping your eyes closed. The fourth exercise involves the deliberate mental construction of a detailed mental image while keeping your eyes open. Sabin also deals extensively with visualization (2011: 47-51). She develops several visualization exercises like the ones described by Cunningham.

According to Sabin, the Wiccan use of visualization is linked with the theory of spiritual energy: "There is a magical idea that 'energy follows thought.' What that means is that if you create and see something in your mind, that image attracts energy, and whatever you're picturing begins to become a reality" (2011: 47). She writes that "The more often you visualize something, the more real it becomes in your mind. And the more real it becomes in your mind, the more real it is elsewhere too" (2011: 48). Sabin is correct to point to the utility of visualization for sharpening mental focus on some goal; but she is wrong to suggest that it has any causal power beyond its power to cause changes in the self. There is no good evidence for the existence of Wiccan energy; nor that it follows thought; nor that the more real something becomes in your mind, the more real it becomes outside of your mind. Those principles are irrational.

6. Other Wiccan Practices

Although there are many types of spiritual exercises, Wiccans and many other groups focus on three many types: meditation, visualization, and breathing. The British Wiccans like the Farrars and Buckland either do not discuss these techniques at all or mention them only briefly. These techniques seem to develop in American Wicca. These spiritual exercises are very briefly described below:

Breathing. Breathing exercises involve the conscious regulation of inhalation and exhalation to regulate arousal or to induce trance states. The Farrars very briefly discuss breathing in the context of certain rituals (1981: 230-231). Cunningham discusses

Wiccan breathing techniques (2004: 86-87). Sabin discusses Wiccan breathing techniques for facilitating visualization and for inducing trance states (2011: 55, 70-71).

Meditation. Meditation involves the self-regulation of conscious activity. It may be done in many different ways and with many different objectives. Cunningham describes the use of meditation in Wicca to decrease arousal while increasing alertness (2004: 87). Sabin describes meditation practices that involve "concentrating on an image or desired outcome while in a trance state" (2011: 75). She gives a detailed ritual procedure for using meditation to decrease arousal prior to taking a test (2011: 76-77).

Self-Hypnosis. Self-hypnosis involves various relaxation techniques and the use of affirmative thoughts or words to modify emotion or behavior. It typically involves going into a deeply relaxed quasi-trance state followed by the repetition of statements that aim to affirm some positive goal. Sabin briefly mentions affirmations: "Affirmations are positive statements that you repeat over and over to yourself" (2011: 47).

Physical Evolution

1. The Early Universe

Our universe begins with the Big Bang, an enormous explosion of energy. This energy first appears as radiation: as light waves and gamma waves. After the radiation era, the simplest particles (quarks and leptons) appear. These are the first stable things, the first persistent structures. Simple particles conjoin to make more complex particles. Most commonly, quarks conjoin to make protons and neutrons. These evolve into simple atoms (hydrogen, helium, lithium). Simple atoms coalesce into the first stars.

After some time, some of these stars collapse into black holes. These black holes are the seeds for galaxies. Our galaxy begins with the collapse of the star that made the black hole at its center. More stars form in our galaxy. The first stars are composed mostly of hydrogen. They fuse it into helium. So hydrogen atoms fuse to form helium; helium atoms fuse to form carbon; carbon atoms fuse to form neon and sodium; neon atoms fuse with other simpler atoms to form oxygen and magnesium; oxygen atoms fuse to form silicon and phosphorus; silicon atoms fuse to form iron atoms. Of course, simpler atoms fuse in many other ways to form more complex atoms. But iron is the end of the line for the formation of more complex atoms through fusion in the cores of stars. When supernova explode, the explosive force causes atoms to fuse together all the way up to the complexity of uranium and perhaps sometimes beyond.

2. The Evolution of Atomic Complexity

The complexity of any atom is its atomic number: the number of protons it contains in its nucleus. At the beginning of our universe, the initial atoms are very simple (e.g. hydrogen, helium, lithium). Gathered together by gravity, these atoms forms stars. The cores of stars fuse simpler atoms into more complex atoms.

Two equally complex atoms are in the same complexity class. Two hydrogen atoms are equally complex. These classes stack up, with more complex classes on top of

simpler classes. Hence they form the *atomic complexity hierarchy*. This hierarchy is the atomic ladder, whose rungs are atomic complexity classes. The evidence shows that atoms grow in complexity. They evolve by accumulating complexity. More complex atoms have simpler atoms as their ancestors. This leads to the Atomic Arrow:

- *The Atomic Arrow:* The complexities of the most complex atoms tend to increase with time.

The Atomic Arrow states that over time, higher levels of complexity are added to the atomic ladder. The Atomic Arrow does *not* entail that the complexities of *all* atoms increase. Even as more complex atoms emerge to populate the higher levels, many simpler atoms remain on lower levels of the atomic ladder. Our universe still contains plenty of hydrogen. And the Atomic Arrow does not imply that atomic complexity will always increase, so that the atomic ladder will grow ever higher without bound. The atomic ladder appears to have a highest level of complexity, not too much higher than uranium. Above that level, atoms become so unstable that they fall apart. The laws of physics in our universe put an upper bound on atomic complexity.

3. The Atomic Crane

After complex atoms form, they can fall apart into simpler atoms. Complex atoms produce simpler atoms through fission. Sometimes a cosmic ray strikes a complex atom, causing it to split apart into simpler atoms. Sometimes complex atoms are unstable, and fission naturally. Thus uranium fissions into barium and krypton. Nevertheless, it remains true that the most complex ancestor of any atom is produced by a process in which complexity accumulates. After complexity accumulates (through fusion), it may dissipate (through fission). But the evolution of atomic complexity traces out a curve that looks like a roller coaster. It starts on the ground with hydrogen. It may rise and fall, but however high it rises, it has always reached that height by climbing up through all the lower levels of atomic complexity. All atomic complexity is constructed by atomic cranes which lift things up from below. So here's the principle:

- *The Atomic Crane*. If any atom is physically complex, then it has been generated by some evolutionary process that started out simple and climbed up through all lower levels of atomic complexity.

This principle does *not* say that every lineage of atoms uniformly rises in complexity. On the contrary, some lineages may devolve or degenerate; some lineages may lose complexity through fission. And lineages may repeatedly rise and fall. But every descent is supported by some earlier ascent. Any complexity that was lost or wasted is complexity that was previously gained or accumulated. Atomic evolution does not start with complex atoms which then tend to degenerate to simplicity. It doesn't start with uranium which then fissions repeatedly to make simpler atoms. Simple atoms come first, complex atoms come later. Atomic complexity accumulates.

A *crane* is a series of things in which complexity gradually *accumulates*. The later and more complex things in an escalator depend on the earlier and simpler things. On

any escalator, later things *inherit* most of their complexity from their earlier and simpler antecedents. Complexity grows through the preservation and elaboration of previously acquired complexity. Any complex atom lies at the top of an escalator that has climbed up through all the lesser degrees of complexity. Once at the top of some crane, the atom may be torn apart; or it may be taken up by another crane. Cranes can be chained together. A chain of cranes is just another bigger crane.

4. The Evolution of Molecular Complexity

Stars produce complex atoms. They scatter these atoms into space. These atoms form clouds. But gravity works on these clouds so that they start to condense. Focus on one of these clouds. As this cloud condenses, gravity pulls the atoms into the center, where they form a compact ball. This ball grows in size and mass. Eventually, it becomes very hot. It becomes so hot that the atoms in its core start to fuse together. This ball is a new star. The rest of the cloud of atoms rotates around the star. Parts of this cloud start to stick together. They form grains of dust covered with atoms. The atoms are heated and cooled as their grains of dust rotate around the star. Chemical reactions start to occur on these grains of dust; as they do, the atoms combine to make molecules.

Since molecules are networks of atoms, their complexities are defined in terms of the structural properties of those atoms (Bertz, 1981). This complexity of any molecules depends on both the types of its atoms and the ways they are interconnected. Garrod et al. (2008) have developed a detailed model of molecular evolution in space. Their model predicts that "greater chemical complexity is expected where evolution timescales are longer" (2008: 283). On their model, molecular complexity is cumulative. Work on the evolution of networks of linked objects also suggests that molecular complexity is cumulative (Johnston et al., 2011). Complex molecules lie at the ends of escalators that climb up slowly through lesser degrees of complexity.

Two equally complex molecules are in the same molecular complexity class. These classes stack up, with more complex classes at greater heights. Hence they form the *molecular complexity hierarchy*. This hierarchy is the molecular ladder, whose rungs are molecular complexity classes. Since molecular complexity accumulates, molecular evolution builds a molecular complexity hierarchy; it climbs the ladder of molecular complexity rung by rung. This justifies an arrow of molecular complexity:

- *The Molecular Arrow:* The complexities of the most complex molecules tend to increase with time.

The Molecular Arrow does *not* entail that the complexities of all molecules increase (primitive molecules, like water and methane still exist). The Molecular Arrow does *not* imply that the curve of molecular complexity is always ascending; it may rise and fall. The Arrow merely says that more complex molecules tend to have longer histories; they tend to be at the ends of longer escalators. The Molecular Arrow does not entail that molecular complexity will always increase or that it can increase without bound. There are upper bounds on molecular complexity. And eventually, in our universe, molecular evolution will come to an end. The molecules will disintegrate.

The process of molecular evolution starts out on some low level, like a roller coaster. It starts in the plains or valleys and climbs to higher heights. It may drop down, and then climb back up. But an evolutionary process can't start out at some high level of complexity. And if it is at any high elevation, then it has passed through every lower elevation. Evolution climbs mountains. The path it takes, by going up and down, looks like a roller coaster. But the molecular roller coaster was constructed by a molecular crane, which lifted simpler molecules up to higher levels. Here it is:

- *The Molecular Crane*. If any molecular species (or molecule) is complex, then it has been generated by some evolutionary process that started out simple and climbed up through all lower levels of molecular complexity.

The Molecular Crane does *not* say that every lineage of molecules uniformly rises in complexity. On the contrary, some lineages may devolve or degenerate; some lineages may lose complexity. And lineages may repeatedly rise and fall. But every descent is supported by some earlier ascent. Any complexity that was lost or wasted is complexity that was previously gained or accumulated. Molecular evolution does not start with complex molecules which then tend to degenerate to simplicity. It doesn't start with, say, DNA, which then falls apart to make simpler molecules.

5. The Evolution of Biological Complexity

By the time a planet like our earth has formed, molecular evolution has produced some very complex molecules. The surface of our earth is covered with complex molecules, which interact with each other. As they do, they form networks of chemical reactions. Some of these become cyclical and self-sustaining. Some of them become enclosed in protective molecular membranes, so that they become self-sustaining reactions. As these little molecular reactors split, they start reproducing. They become living cells. Very complex molecules like RNA and DNA form to encode information. As a result, biological evolution gets underway. This leads to the Biological Arrow:

- *The Biological Arrow:* The complexities of the most complex organisms tend to increase with time.

Biological evolution is cyclical. The cycle of reproduction is a wheel in which one generation of organisms gives birth to another generation. The wheel of biological evolution is a *winged wheel,* it is a *wheel that rolls uphill* in the landscape of biological forms. So the Biological Arrow motivates the Biological Crane:

- *The Biological Crane*. If any species is biologically complex, then it has been generated by some evolutionary process that started out simple and climbed up through all lower levels of biological complexity.

6. The Evolution of General Physical Complexity

Atoms tend to increase in complexity over time. The accumulation of atomic complexity justifies the Atomic Arrow and the Atomic Crane. Molecular evolution justifies the Molecular Arrow and Crane. Biological evolution justifies the Biological Arrow and Crane. These principles provide evidence for the idea that physical complexity itself tends to increase. But what is physical complexity?

One way to measure physical complexity is offered by Chaisson (2001, 2006). He defines the complexity of any physical thing as "the *rate* at which free energy transits a complex system of given mass" (2001: 134). Thus Chaisson defines the complexity of any physical thing as the free energy rate density of that thing, and he refers to this quantity as Φ_M. He provides detailed rankings of the complexities of various types of things, including stars, organisms, technologies, and civilizations (2011A; 2011B). Chaisson argues that if some physical thing has high Φ_M, then its Φ_M has been historically accumulated. If he is right, then Φ_M is accumulated complexity.

According to our best current physics, our universe starts with a great explosion of energy: the big bang. After the big bang, this energy organizes itself into the forms of all the things we see around us today. From the big bang to the present, the history of our universe is often referred to as the *Epic of Evolution* (Swimme & Berry, 1992). There are many ways to present the Epic of Evolution. Carl Sagan displays the main events in the Epic of Evolution on an ordinary twelve-month calendar, which he refers to as the *Cosmic Calendar* (1977: ch. 1). Many other writers have produced lists of the major events in our universe (see Modis, 2002). One of these lists comes from Barrow and Silk (1980). It has contains twenty three milestones of physical evolution. It is presented in Modis (2002: 397-398) and is quoted directly here:

(23) *Homo sapiens*;
(22) Mammals increase;
(21) First primates;
(20) First birds;
(19) First mammals;
(18) Ferns, conifers;
(17) Early land plants;
(16) First fishes;
(15) Earliest fossil record;
(14) Macroscopic life forms;
(13) Oxygen-rich atmosphere develops;
(12) Microscopic life forms;
(11) Oldest terrestrial rocks form;
(10) Intense cratering of planets;
(9) Planets form; rock solidifies;
(8) Collapse of protosolar nebula;
(7) Our parent interstellar cloud forms;
(6) Population I stars form;
(5) Quasars are born; population II stars form;
(4) Our protogalaxy collapses; first stars form;

(3) Galaxies begin to cluster;
(2) Galaxies begin to form;
(1) Big bang.

7. The Physical Arrow and Crane

Two equally complex physical things are in the same physical complexity class. These classes stack up, with more complex classes at greater heights. Hence they form the *physical complexity hierarchy*. At a high level of idealization, the levels in this hierarchy look like this: (1) simple particles like quarks combine to form hadrons (protons and neutrons); (2) hadrons combine to form atomic nuclei; (3) atomic nuclei combine with electrons to make atoms; (4) atoms combine to make molecules; (5) molecules combine to make nano-machines and autocatalytic networks; (6) nano-machines and autocatalytic networks combine to make cells; (7) cells combine to make multi-cellular organisms; (8) multi-cellular organisms combine to make super-organisms, societies, ecosystems.

All the evidence suggests that physical complexity accumulates. More complex things appear later in our universe. The atomic, molecular, and biological arrows all provide evidence for a general Physical Arrow. This Arrow is supported by Chaisson's notion that physical complexity accumulates over time. Chaisson (2001, 2006) describes seven epochs of physical evolution: the particle epoch; the galactic epoch; the stellar epoch; the planetary epoch; the chemical epoch; the biological epoch; the cultural epoch. He suggests an eighth epoch: technological. Each epoch corresponds to the formation of a higher level of physical complexity. The Physical Arrow looks like this:

- *The Physical Arrow:* The complexities of the most complex physical things in our universe tend to increase with time.

The Physical Arrow does not imply that every physical thing evolves into some more complex physical things. Simple physical things still exist (the universe contains lots of hydrogen, water, and bacteria). And, just as the other arrows imply cranes, so the most general physical arrow implies its own crane:

- *The Physical Crane*. If any physical thing is complex, then it has been generated by some evolutionary process that started out simple and climbed up through all lower levels of physical complexity.

The Physical Crane does not imply that physical evolution will always continue, or that it will always increase. There are upper bounds on the accumulation of physical complexity in our universe. Eventually complex things grow so complex that they start to fall apart. And the second law of thermodynamics entails that complexity will reach a peak in our universe, and then start to totally decline into simple randomness. So the general arc of complexity in our universe rises, peaks, and falls.

Degrees of Intelligence

1. Simple Minds

Many organisms process information using chemical signaling systems. They do not have nervous systems. It's plausible to use nervous system size as an indicator for the intelligence of an organism. This indicator is very crude; however, in the absence of detailed studies of intelligence, it's the best we've got. The nerve cells in an organism are its *intellectual cells*. If some primitive organism has no nervous system, then its intelligence rank is zero. This doesn't mean it has no intelligence. It only means that this kind of organism is on the bottom rank of intelligence. Since brains contain large numbers of nerve cells (intellectual cells), the best way to display those numbers is to use exponential notation. Table 10 shows the nervous system rankings for several simple kinds of animals. The table contains both raw numbers and their exponents.

Species	Intellectual Cells	Exponent
Honey bee	960,000	5
Ant	250,000	5
Lobster	100,000	5
Fruitfly	100,000	5
Snail	11,000	4
Jellyfish	800	2
Roundworm	302	2
Bacteria	0	0

Table 10. Rankings of brains.

2. Animal Intelligence

As animal brains become more complex, they become specialized. It is widely thought that the intelligence of animals is concentrated in the part of the brain known as the cerebral cortex. So, if an animal has a cerebral cortex, then its intellectual cells are the nerve cells in that cortex. Table 11 shows the nervous system rankings for several kinds of animals. This ranking is based on Roth and Dicke (2005).

Species	Intellectual Cells	Exponent
Human	11500 million	10
African elephant	11000 million	10
False killer whale	11000 million	10
Chimpanzee	6200 million	9
Bottlenose dolphin	5800 million	9
Gorilla	4300 million	9
Horse	1200 million	9
Capuchin monkey	610 million	8
Squirrel monkey	480 million	8
Cat	300 million	8
Dog	160 million	8
Opossum	27 million	7
Hedgehog	24 million	7
Rat	15 million	7
Mouse	4 million	6

Table 11. Further rankings of brains.

3. Intelligence Goes with Brain Complexity

One widely used way to measure human intelligence is the general intelligence factor, known as *g*. The *g* concept can be extended to other animals, such as primates. Humans, apes, and monkeys are all primates. Twenty five primate species were ranked in terms of their *g* factors by Lee (2006). The top rank is humans; then orangutans, chimpanzees, spider monkeys, and gorillas. After gorillas, there are twenty more ranks. But we don't need to worry about these details here. Lee makes two points: "the performance of primate taxa on diverse cognitive tasks can be efficiently captured by a single dimension of domain-general mental ability that looks much like *g*" and ranking on the mental ability dimension "shows a strong correlation with brain size" (2006: 263). Other studies of intelligence in primates show that "absolute brain size measures were the best predictors of primate cognitive ability" (Deaner et al., 2007: 115). This suggests the general hypothesis that *brain size is correlated with intelligence*. Smaller brain size means lower intelligence, while bigger brain size means greater intelligence.

Another approach to intelligence is based on brain complexity. Deamer & Evans (2006) developed a measure of brain complexity based on the number of nerve cells and the number of their interconnections. They produce at table of rankings of complexities for different nervous systems (2006: 209). This is shown in Table 12. If the bigger is smarter hypothesis is true, then this rank is also an intelligence rank. Thus intelligence goes with brain complexity: smarter brains are more complex brains.

Rank	Species	Nerve Cells	Connections	Complexity

			per cell	
10	Human	100000000000	10000	99
9	Chimpanzee	30000000000	10000	94
8	Monkey	10000000000	10000	90
7	Cat	5000000000	10000	87
6	Pigeon	1000000000	10000	81
5	Mouse	200000000	10000	75
4	Frog	50000000	1000	54
3	Salamander	10000000	1000	49
2	Bee	1000000	100	30
1	Roundworm	302	10	7

Table 12. Rankings by Deamer & Evans (2006).

Moravec (1988: 168) sorts organisms into levels based on their computational powers. His ranking is shown in Table 13. Moravec says that elephants and sperm whales have brains which are more powerful than human brains. Elephants are twice as powerful as humans; sperm whales are five times as powerful as humans. If intelligence goes with computational power, then those animals have super-human intelligence.

Animal	Memory (bits)	Speed (bits/sec)
Sperm whale	$5*10^{14}$	$5*10^{14}$
Elephant	$2*10^{14}$	$2*10^{14}$
Human	10^{14}	10^{14}
Mouse	10^{11}	10^{11}
Hummingbird	10^{10}	10^{10}
Bee	10^{9}	10^{9}
Snail	10^{8}	10^{8}

Table 13. Moravec's ranking of brain powers.

4. Super-Human Intelligence

Both Moravec (1988: 186) and Tipler (1995: 22-3) estimate that the human brain stores about 10^{15} bits of information and that it processes about 10^{15} bits per second. Moravec speculates that machines may evolve intellects 10^{30} times more powerful than human minds (1988: 74). Sandberg (1999) describes three kinds of technologically possible computers that vastly exceed human intelligence. Sandberg argues that these computers are consistent with the physical laws of our universe. They exist in some of the alternative technological futures of our universe. These greater computers are the Jupiter brains, the Dyson brains, and the neutronium brains. He describes them like this:

Jupiter Brains. A Jupiter brain is a planet-sized computer. Sandberg (1999: 27) describes a Jupiter brain named "Zeus." (Don't confuse this machine with the Greek god of the same name.) Sandberg says:

> Zeus is a 9000km [radius] sphere of nearly solid diamondoid, consisting mainly of reversible quantum dot circuits and molecular storage systems. Surrounding

> the central sphere is a concentric shield protecting it from radiation and holding radiators to dissipate heat into space. Energy is provided by fusion reactors distributed outside the shield. . . . There are 5 * 10^{37} nodes in Zeus; if they all were storage only, the capacity would be up to 10^{47} bits. The number of 'operations' per second if they were all single processors would be up to 10^{49}.

Dyson Brains. A Dyson brain is a cloud of interacting computing machines surrounding a star. Sandberg (1999: 28 - 29) describes a Dyson brain named "Uranos." He says:

> Uranos gradually emerged when the matter of a solar system was converted by intelligent life into a Dyson sphere surrounding its sun-like star at a distance of 1 [astronomical unit]. It consists of numerous independently orbiting structures, ranging from large (hundreds of kilometers) solar collectors to microscale devices moving between the structures for repair and adjustment. . . . Uranos can contain up to 10^{52} bits. Assuming processing nodes of the same type as Zeus, we get 10^{39} nodes and 10^{51} operations per second. . . . Where Uranos really outperforms Zeus is information production / destruction; the high energy throughput makes it possible to dissipate 10^{22} times as many bits as Zeus. It might make sense to keep Zeus-like structures in orbit outside Uranos to act as information repositories and [to use] the Dyson shell itself for processing.

Neutronium Brains. A neutronium brain is a computing machine made of neutronium (matter compressed so densely that its protons and neutrons have dissolved into a soup of quarks). Sandberg (1999: 29) describes a neutronium brain named Chronos. He says:

> Chronos was originally created by the carefully orchestrated collapse of a globular cluster. By manipulating the orbits of the stars and organizing close encounters, half of the stars were ejected from the cluster and the other half dropped into the core. . . . The result is an extremely massive body delicately balanced between gravity and rotation, surrounded by a huge system of support systems. . . . [Chronos has] a maximum of 5 * 10^{61} bits of potential storage capacity . . . [It can] perform on the order of 10^{85} operations per second.

The intelligence ranks of these computers can be defined by listing their processing speeds and memory sizes. These processing speeds and memory sizes are displayed as exponents in Table 14 below. The rank for Zeus assumes he uses about half his nodes for memory and about half for processing.

Computer	Memory (bits)	Speed (bits/sec)
Chronos	61	85
Uranos	52	51
Zeus	25	24

Table 14. The intellectual ranks of some hypothetical computers.

5. Divine Intelligence

Many religions involve gods. But what is a god? Richard Swinburne is one of the leading philosophers of religion today. He says a god is "a very powerful rational being who is not a material object (viz., is invisible and intangible)" (1968a: 320). He says "The argument from design is an argument from the order or regularity of things in the world to a god or, more precisely, a very powerful free non-embodied rational agent, who is responsible for that order" (1968b: 199). He repeats that a god is "a very powerful non-embodied rational agent" (1970: 53). Swinburne's definition seems to include most of the gods worshipped throughout history. Here we'll agree with Swinburne.

For example, consider the Judeo-Christian god (and here we'll often just refer to this god as "God"). The astronomer Hugh Ross says "the Cause (or God) of creation, at minimum, is ten trillion trillion trillion trillion trillion trillion trillion trillion times more intelligent, more knowledgeable, more creative, and more powerful than human beings" (2006: 144). To figure out the greatness of this God, we have to do a little arithmetic. A trillion is a 1 followed by 12 zeros; Ross says "trillion" eight times, so we multiple the 12 zeros by 8 to get a 1 followed by 96 zeros; he also says God is ten times more powerful than that, so we add a zero to get a 1 followed by 97 zeros. Thus God is 10^{97} times as great as any human. If the power of a human mind is 10^{14}, then we add the exponents to get the result that the greatness of God is at least 10^{111}. If we indicate the greatness of a mind using the exponent only, then the greatness of God is 111. It is 10 followed by 111 zeros. This is a big number. But it is just a finite number. Of course, we're just getting started with our theory of gods (and God). Perhaps divine minds are infinitely intelligent. But we'll need to slowly work up to the notion of infinite intelligence.

According to Ross, God is extremely intelligent. As the animals get more intelligent, their brains get bigger, and they get more complex. Brains are networks of nerve cells, which are the processing elements of brains. The super-intelligent computers don't have brains, but they have extremely complex networks of processors. Brains and computers are both networks of processors. As computers get more intelligent, they also get more complex. Since God is extremely intelligent, God is an enormously complex network of information-processors. God has big memory and fast speed. Dawkins says "God may not have a brain made of neurons or a CPU made of silicon, but if he has the powers attributed to him he must have something far more elaborately and non-randomly constructed than the largest brain or the largest computer we know" (2008: 184).

You might object that God is not made of matter like a brain or a computer. On the contrary, God is a spirit. The laws of information and computation apply to all intelligent things, whether spiritual or material. So a spirit can be a network of processors made of spirit-stuff. The definition of computer components does not specify what they are made out of. It only specifies their functions, how they work. Computers have parts that act on bits of information. Spirits can process bits of information. Computers transform bits of information using logic gates. These are named for the operations AND, OR, and NOT. A spiritual information-processing circuit can be made of spiritual logic gates. Memory stores information. But spirits traditionally have memories. So the spiritual nature of God is consistent with the idea that God has many parts, and that these parts are arranged in an extremely complicated way. Of course, many theologians say that God is simple.

But simple things process exactly zero bits of information and have exactly no intelligence. So if God is simple, then God has no mind at all.

Table 15 combines the rankings of previous tables. For the computers, only the exponents of processing speed are given. Table 15 is like the old great chain of being, but it is based on more scientific estimates of mental power.

Intellect	Speed (bits/sec)	Intellect	Speed (bits/sec)
God	111	Cat	8
…	…	Dog	8
Chronos (computer)	85	Opossum	7
Uranos (computer)	51	Hedgehog	7
Zeus (computer)	24	Rat	7
…	…	Mouse	6
Human	10	Honey bee	5
African elephant	10	Ant	5
False killer whale	10	Lobster	5
Chimpanzee	9	Fruitfly	5
Bottlenose dolphin	9	Snail	4
Gorilla	9	Jellyfish	2
Horse	9	Roundworm	2
Capuchin monkey	8	Bacteria	0
Squirrel monkey	8		

Table 15. Combined rankings of mental powers.

Digital Universes

1. The Game of Life

The game of life is a computer game (Poundstone, 1985). It was invented by John Conway, and is sometimes called "Conways Life." You play the game of life by setting up a digital universe and watching it change over time. Although the rules of the game of life are simple, you can use it to generate extremely complex patterns; these patterns change in surprising and fascinating ways. There are lots of apps for playing the game of life. You should download one and play it.

The game of life is played on a grid composed of square cells, like a chessboard. The grid is a two-dimensional space. Each cell in the grid can be in one of two states. It is either ON or OFF (alternatively, LIVE or DEAD, or 1 and 0). Each cell is little computer that gets input from its neighbors. So the grid of cells (the life grid) is a computer network. You start the game of life by specifying a pattern of live cells. The states of these cells will change over time. Time passes like a ticking clock. At every clock tick, each cell computes its next state, and it updates itself. All the cells update together, so

that a new pattern of live cells forms at every new clock tick. The patterns can be very surprising. Each cell uses the following rules to change its state:

- *Survival*. If the cell is alive and it has two or three live neighbors, then it stays alive, otherwise it dies. This means the cell survives if it has two or three live neighbors.

- *Birth*. If the cell is dead and it has three live neighbors, then it becomes alive, otherwise it stays dead. This means that the cell is born if it has three live neighbors.

Figure 15 shows three live cells and one dead cell. They are surrounded by dead cells, which are not shown. The live cells have the thick black borders. Each live cell has two live neighbors, so it will survive. It will stay alive for the next moment. The dead cell has three live cells, so it will be born in the next moment. It will come to life. The transition from Time 1 to Time 2 is shown in Figure 18. But now, at Time 2, each cell is alive and it has three live neighbors. So now the rule says that each cell survives. The square with four live cells will not change.

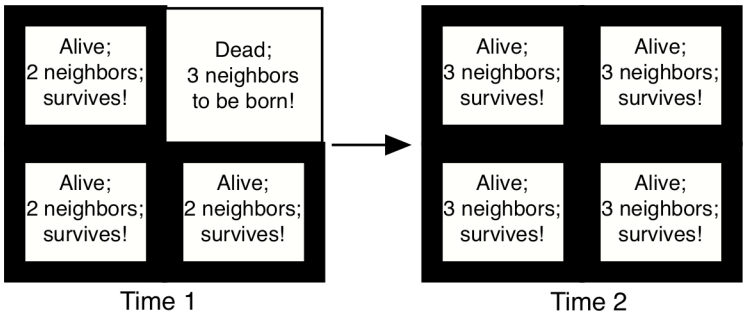


Figure 15. Four cells in the game of life.

2. Some Simple Patterns in the Game of Life

Figure 16 shows how the rule acts on a horizontal bar of three ON cells. The rule changes the horizontal bar into a vertical bar. The rule then changes that vertical bar back into a horizontal bar. The oscillating bar of three ON cells is known as the *blinker*.

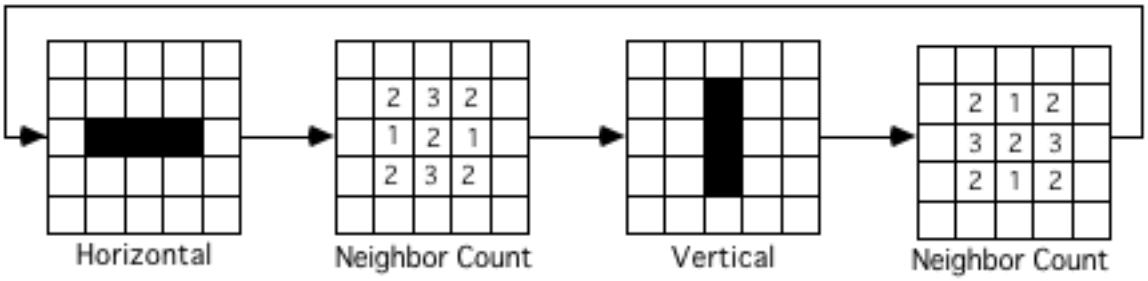


Figure 16. The life rule acting on a bar of cells.

Figure 17 shows a pattern of cells that moves. This mobile pattern is the *glider*. Although it looks like the cells in the glider are moving, they are not. The cells stay put. The motion of the glider is the motion of a higher level object – a software object. It is like the motion of a pattern of light values on a scoreboard. The pattern of light values moves although the light bulbs stay put. The glider is a simple machine. There are many other kinds of simple machines in the game of life. You can build more complex machines out of simpler machines. These machines can be of arbitrarily high finite complexity. Several researchers have shown how to build universal computers on the life grid (universal Turing machines and register machines).

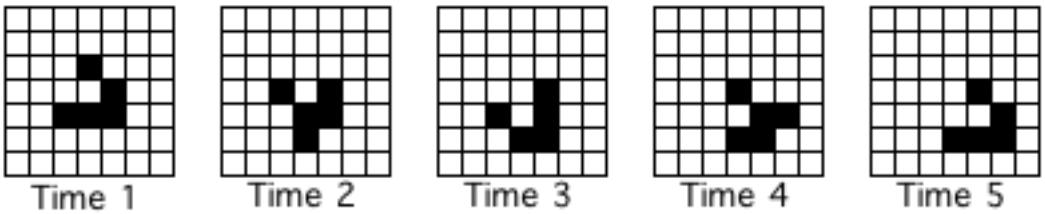


Figure 17. The glider.

3. Variations of the Game of Life Rule

The game of life has a single natural law. It can be stated as Survive on 2 or 3; Born on 3. This can be compressed into S23/B3. If you change this law, you get a different kind of universe. Variants of Conway's Life are referred to as life-like universes. Figure 18 shows a way of representing the S23/B3 rule in a table. In the "Survives" row, the columns under 2 and 3 are checked; in the "Birth" row, the column under 3 is checked. You define other rules by checking the boxes in a different way. But instead of using check marks, you can use numbers: a box gets a 1 if it is checked, it gets a 0 otherwise. Figure 19 shows the S23/B3 rule represented as a table containing numbers.

	Live Neighbors								
	0	1	2	3	4	5	6	7	8
Survives			X	X					
Born				X					

Figure 18. The table for the game of life.

	Live Neighbors								
	0	1	2	3	4	5	6	7	8
Survives	0	0	1	1	0	0	0	0	0
Born	0	0	0	1	0	0	0	0	0

Figure 19. The table for the game of life.

Since there are 18 slots in the table, and there are 2 ways to fill in each slot, there are 2^{18} different life-like universes. This just means that any rule for a life-like universe is a series of 18 binary digits (bits). Using the digits in Figure 19, you can write out the life rule as a series of 18 digits:

001100000000100000.

Since 2^{18} is 262144, there are 262144 different possible versions of the game of life. When these versions are written as strings of digits, they can be ordered. You can list these from the least (all zeros) to the biggest (all ones). Part of this list looks like:

000000000000000000
000000000000000001
…
001100000000100000 – Conway's game of life
…
111111111111111110
111111111111111111.

4. The Intrinsic Value of Lifelike Universes

Life-like universes (including the game of life itself) can be classified according to their physical richness. Universes whose appearances have more regularities (more patterns with more complex yet orderly behaviors) are worlds with richer physics. Universes with richer physics have more order and variety. Physical richness corresponds to natural value. If one universes is more physically rich than another, then it is structurally (i.e. scientifically) and aesthetically *more valuable* than that other universe. This kind of value is *intrinsic* – it does not depend on any human observer, or on any other observer. The value that a universe has is purely objective, and does not depend on any minds. Table 16 shows seven different degrees of value of life-like universes.

Rank	Most complex pattern	How Many	Examples
6	Universal computers	1	S23/B3 – Conway's Life
5	Self-reproducing patterns	1	S23/B3 – Conway's Life
4	Machines with parts		S23/B3 – Conway's Life
3	Mobile patterns (like gliders)	>50	S23/B23, S34/B34 S34678/B3678 S5678/B35678 S245/368 (About 50 rules known)
2	Repeating patterns (like blinkers)	?	S23/B23, S34/B34, S34678/B3678, S5/B345
1	Stable patterns (like blocks)	?	S23/B23
0	Chaos (no patterns)	?	S0/B2

Table 16. Classification of life-like universes by perfection.

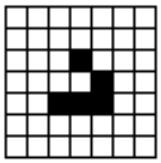
Figure 20 shows four life-like universes. For each universe, a mobile pattern is shown and the richness of the world is indicated in the comments. Here the standard game of life (Conway's version) is the richest world.

Rule Description and Name	Moving Pattern	Comments

Rule B3/S23 (John Conway's Life)

Sum of Neighbor States

Current State	0	1	2	3	4	5	6	7	8
0	0	0	0	1	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0

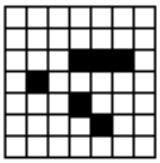


Very rich physics; has patterns that are universal computers; has self-reproducing patterns.

Rule B36/S125 (Alan Hensel's Life)

Sum of Neighbor States

Current State	0	1	2	3	4	5	6	7	8
0	0	0	0	1	0	0	1	0	0
1	0	1	1	0	0	1	0	0	0

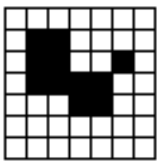


Very rich physics; I don't know if Hensel's shown his rule to have universal computers or self-reproducing patterns.

Rule B37/S135 (Eric Steinhart's Life)

Sum of Neighbor States

Current State	0	1	2	3	4	5	6	7	8
0	0	0	0	1	0	0	0	1	0
1	0	1	0	1	0	1	0	0	0

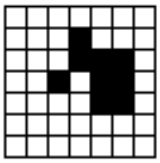


My own rule; a variant of Hensel's B36/S135; has fairly rich physics, I don't know if it has universal computers or self-reproducing patterns.

Rule B36/S35

Sum of Neighbor States

Current State	0	1	2	3	4	5	6	7	8
0	0	0	0	1	0	0	1	0	0
1	0	0	0	1	0	1	0	0	0



Seems to have almost no physics at all; but it does have a moving pattern. A degenerate world.

Figure 20. Four sample life-like universes.

5. The Sacredness of Lifelike Universes

There are many ways to define *sacredness*. But many of these ways reveal a common theme: to say something is *sacred* means that it is *precious*, *fragile*, and *rare*. To say that it is precious means that it has high intrinsic value. To say that it is fragile means that its value is easily destroyed. Thus to say that a structure is fragile means that even small variations of that structure destroy its value. The concept of sacredness can be applied to universes. The sacredness of a universe increases along with its preciousness (its intrinsic value), its fragility, and its rarity. This concept of sacredness is entirely natural.

It is a purely physical or scientific definition. Consider the sacredness of some lifelike universe containing a universal computer. A universe that contains a universal computer (a universal Turing machine) has extremely high intrinsic value. But such machines are easy to destroy – just changing a single cell is enough to wreck a machine containing tens of thousands of cells. So a universe containing a universal Turing machine is extremely fragile. And such universes are extremely rare. This means that a universe containing a universal Turing machine is an extremely sacred universe.

A universe is defined by its rule and by its initial distribution of values to cells. Since universes have degrees of sacredness, so do rules. Since many different universes can share the same rule, the sacredness of a rule is the sacredness of its most sacred universe. The sacredness of Conway's Game of Life is the sacredness of its most sacred universe, which is a universe containing a universal Turing machine. And so that is an extremely high degree of sacredness. The rules in Table 16 are ranked by sacredness. Since universes have sacredness, so do their initial distributions. Within Conway's game of life, an initial distribution that just contains a block does not have much value; so it does not have much sacredness. But a complex machine has more.

The sacredness of a universe is interesting because sacred things are improbable in a special way. They get their improbability not from their uniqueness, but from their preciousness and fragility. You could say that every hand of poker is equally rare because it only occurs once out of all possible hands (it is unique); but a royal flush is rare because it is precious and fragile. Because they are improbable in this special way, sacred things are not likely to be produced by chance. They require some other explanation for their existence. This is where theists turn to God. They say that sacred things, not being products of chance, must be produced by intelligence. Of course, there may be other explanations. But chance can't explain sacred things.

6. How Conway Designed the Game of Life

The game of life was designed in the 1970s by John Conway, a professor of mathematics. He had help from some of his students. He described his work on the game of life to Tanya Khovanova (2012). Conway had a goal: "to find a simple set of rules that would lead to a system able to simulate a universal computer." Working a little bit almost every day, it took eighteen months to find the rules for the game of life.

Much of the work was done by trial-and-error: try a rule and see what it does with some simple patterns. They didn't use computers, they worked it out by hand, so it was very time-consuming, and they couldn't test big patterns. The totality of all possible life-like rules is the *design space*. By testing different rules, Conway and his students were doing *design space exploration*. They were wandering around in the library of possible life-like games, and experimenting. The use of intelligence helped eliminate large classes of rules that had too much growth or too little growth. But Conway didn't look at rules one by one and infer whether or not they would have a universal computer. He had to actually try out the rules; he had to wander through design space. The process of finding the game of life rule was an evolutionary process.

This has consequences for the design argument for God. John Conway is like the god of the game of life. He was its designer. So, if he had to wander through design space, that suggests that God has to wander through design space. Perhaps God mentally

searches through the library of possible universe-designs for one that maximally encourages the internal evolution of complex life. But God is running a search algorithm – God has to search through the universe-plans and test them. On the other hand, suppose God simply knows which universe-plan is best, and then creates it. If that's true, then God didn't do any *design work* at all, and God is not a designer.

7. Physical Software Runs on Nonphysical Hardware

Setting up a game of life is like setting up a little universe. Watching it run is like watching a universe evolve. The distribution of ON cells is the initial condition of your little life universe. The game of life rule is the most basic physical law. A game of life is a simple example of what Quine called a *Democritean world* (1969: 147 – 155). It is a kind of computer game known as a *cellular automaton* (Toffoli & Margolus, 1987). Any cellular automaton is a *cellular universe*. Many writers have argued that our universe is a cellular universe (Fredkin, Landauer, & Toffoli, 1982; Fredkin, 1991; Zeilinger, 1999; Steinhart, 1998). And even if our universe isn't a cellular automaton, there are plenty of ways for networks of computing machines to approach the complexity of our universe. Our universe might be realized by a network of computers. But this is equivalent to the hypothesis that our universe is realized by a big computer.

A philosophical theory known as *digitalism* says that our universe resembles the game of life. Just as a game of life runs on some underlying computer, so our universe runs on an underlying computer. The game of life is a physical universe. It has its own space and time, its own causal laws, and its own material structures. All these things are realized by the logic of the underlying computer. The game of life is a software process running on an underlying hardware substratum. The activity of this hardware substratum produces the game of life. This hardware activity generates all the physics of the game of life; it generates the space, the time, the causal laws, and the material structures.

Nevertheless, this hardware substratum is not itself a game of life. It is a computing machine whose particular programming produces the game of life. The way that the hardware exists is distinct from the way that the software exists. The game of life has some space. Its space is realized by registers in the underlying computer. But those registers are not organized in the same way as the points in the game of life. They have their own underlying spatial structure. The same holds true for time. The game of life has its own causal laws. The laws of the game of life are realized by the laws of the underlying computer. But the underlying computer does not run according to those laws. It operates according to its own laws. Gliders in the game of life are material particles in the game of life; but they are not material particles in the computer running the game of life. They are packets of data. The things in the game of life have energies. A glider has some energy, defined by the equations of its motion. Although this energy is based on the energy of the underlying computer, that hardware energy is distinct. Things inside of the game of life will appear to each other as parts of an enclosed physical whole. To them, the computer running the game of life is like a thing existing in another world. The computer that runs the game of life has a distinct kind of reality.

8. Physical Software Runs on Divine Hardware

Many early modern writers thought that the universe was a process running inside of God. Hobbes thought that God was a substance distributed through space. Henry More and Jonathan Edwards just identified God with space. The idea is that the material universe takes place inside of an immaterial space. The material universe supervenes on immaterial substance. All material things are local qualities of space. They are like wrinkles. Although an electron appears to be a thing that has its own independent existence, it is really only a wrinkle in space. It is like a little twist or vortex in space, like a small whirlpool in a stream. The whirlpool supervenes on the stream.

Once you start to focus on the interactions between the whirlpools in the stream the stream itself fades into the silent background. The stream is the underlying reality. So the idea is that all material things supervene on an immaterial God. They are material wrinkles or whirlpools in an immaterial deity. They move across the surface of God like waves move across the surface of a lake. And you can interpret the game of life this way: the game of life is to its underlying computer as the material universe is to the underlying immaterial deity. If our universe is like the game of life, then this applies to our universe too: our universe is a software process running on a divine hardware substratum. Physical software runs on divine hardware. This hardware God is like the Stoic God. Just as the structure of the universe is part of the structure of the Stoic God, so the structure of the universe is part of the structure of the hardware God. And just as the Stoic God ordains the laws of the universe, so the hardware God ordains the laws of the universe. It provides those laws through its programming. Just as Stoic physics is deterministic, so the hardware physics is deterministic.

The Ranks of Universes

1. The Forms of Universes

A universe is a maximal physical whole. It is a physically closed system. It is closed under all spatial, temporal, and causal relations. Just like organisms have genotypes, so universes have forms. These are cosmic genotypes. The form of any universe involves the definition of its basic structures, its natural laws, and its initial conditions. Consider cellular automata. As a species, the game of life is defined by its two spatial dimensions, its one temporal dimensions, its discrete field of energy, and its causal law. Any particular game of life is also defined by adding some initial conditions. These are the initial distributions of energy to the earliest points in space.

You can also think of a universe as being defined by a book which completely describes it, or describes enough of it so that the rest can be exactly calculated. The totality of cosmic books is the Leibniz Library. There are infinitely many books in the Leibniz Library. These books can be compared in various ways. One way to compare them is by their intrinsic values. Each cosmic book has a number, which indicates its intrinsic value. More valuable books are also more complex.

2. An Ancient Ranking of Universes

There are many ways to think about the value of any universe. One way comes from the Great Chain of Being. Thinking about cosmic value this way links the arguments about universe-design back to earlier degrees of perfection arguments. According to this way, the value of any universe is proportional to the value of its most valuable things. An example of universes ranked using the old great chain is shown in Table 17.

Rank	Most Excellent Thing
6	God.
5	Gods and goddesses.
4	Human animals.
3	Non-human animals
2	Plants
1	Rocks
0	Chaos; no internal structure.

Table 17. An ancient ranking of universes.

3. The Extended Kardashev Scale

Simpler things bond together to make more complex things: particles bond to make atoms; atoms bond to make molecules; molecules bond to make organisms; organisms bond to make societies and ecosystems. So one way to think about the values of universes is to think about the complexities of their civilizations. Kardashev (1964) ranks possible civilizations on the basis of their energy consumption. He outlines three ranks.

> Type I includes planetary civilizations that consume almost all the energy provided by their planetary resources (about 10^{19} ergs/sec). Our present civilization is in Type I.
>
> Type II includes civilizations that consume almost all of the energy of their central star (about 10^{33} ergs/sec.). Such civilizations may build *megastructures* – like Niven Rings or Dyson Spheres.
>
> Type III includes civilizations able to harness almost all the energy of an entire galaxy (about 10^{44} erg/sec.).

Barrow (1999: 133) expands on Kardashev in two ways. The first way continues to rank civilizations by their abilities to manipulate *larger and larger* parts of our local cosmic bubble. Thus Barrow defines a Type IV civilization that can manipulate galactic clusters. Ultimately, a Type Ω civilization can manipulate our entire universe.

4. A More Modern Ranking of Universes

These are ranked according to some scientific version of the Great Chain. Since more valuable things in universes are the products of longer evolution, this idea corresponds to the maximum height reached by physical evolution inside of the universe. A universe which is more valuable is also one which has more intense internal evolution.

Table 18 shows one possible way of ranking the forms of universes based on their values, which correspond to their internal evolved complexities. It resembles the old Great Chain used in the Medieval henological arguments. But instead of angels, this chain has super-human organisms. Perhaps these are cyborgs or robots. They are like natural versions of the old Medieval angels, or natural versions of the old Olympic deities. Some universes contain godlike organisms, as powerful as Zeus or Athena.

Rank	Most Complex Thing
∞	Infinitely powerful minds. These are as powerful as the Medieval infinite God. Or as Tipler's Omega Point.
9	Animals with even greater god-like powers. These animals can build civilizations spanning galactic clusters (Type IV on the extended Kardashev scale).
8	Animals with powers like the Olympian deities; like Dr. Manhattan in the *Watchmen*. These animals can build civilizations at the galactic (Type III) scale.
7	Super-human animals (physical angels). These are like superheroes, like Superman. These animals can build civilizations at the solar system (Type II) scale.
6	Rational animals (like humans). These animals can build civilizations at the planetary (Type I) scale.
5	Complex animal life.
4	Simple life (like bacteria)
3	Molecules
2	Atoms
1	Simple stable patterns (like material particles)
0	Chaos; no internal structure.

Table 18. A more modern ranking of universes.

The Fine Tuning Argument

1. Our Universe is Like the Game of Life

Our universe is like the game of life. The basic physics of the game of life is defined by setting the values of 18 variables. The basic physics of our universe is also defined by setting the values of about 25 variables. These are the fundamental physical constants. Each variable in the game of life is either 0 or 1. But each variable in our universe ranges over infinitely many possible settings. So while there are only 262144 different versions of the physics of the game of life (different life-like universes), there are infinitely many

different versions of the physics of our universe. Our universe is like a point in a logical space of possible universes. It is surrounded by a cloud of similar universes. Just as life-like universes can be sorted into ranks based on complexity, so can variants of our universe. Table 19 shows one way to rank them.

Rank	Most Complex Pattern
9	Rational intelligent life (such as humans).
8	Intelligent life (such as animals).
7	Complex life (such as multicellular life).
6	Simple life (such as unicellular life)
5	Simple molecular machines.
4	Molecules.
3	Atoms.
2	Complex particles like neutrons and protons.
1	Simple particles like quarks and electrons.
0	Chaos; just pure radiation.

Table 19. Ranking variants of our universe by complexity.

2. The Sacredness of Our Universe

Just as life like universes can be ranked by their degrees of sacredness, so can variants of our universe. The sacredness of any universe depends on its preciousness, its fragility, and its rarity. Preciousness is intrinsic value, which is complexity. Our universe is very precious: it contains rational intelligent life, which is extremely complex, and thus extremely intrinsically valuable. But our universe is also very fragile: even the slightest changes in the values of the fundamental constants (and other physical features of our universe) would utterly destroy its value. If the basic features of our universe were even slightly altered, it would almost certainly crash down to rank zero – pure radiation. Our universe does have some nearby neighbors which probably support life; but they are few and far between. They are rare too. Our universe is like an oasis of precious life in the midst of a vast desert of sterility and chaos. It is a tiny island of complexity in the midst of an infinite ocean of simplicity and random waste.

Since our universe is sacred, it has a special kind of improbability. It is rare not merely because it is unique (every possible universe is equally rare in that sense); rather, it is rare because it is precious and fragile. Because it is sacred, it is not likely to appear by chance. It is not likely to be an accident. The probability of our universe appearing by chance is vanishingly small – it is infinitesimal. Another way to put this is to say that the *self-probability* of our universe is infinitesimal. This self-probability is the probability that the universe appears spontaneously, without any simpler antecedents. Some other explanation, one involving more than mere chance, is required. Once more, our universe looks like it resembles the game of life: just as the game of life was intelligently designed by Conway, so our universe was intelligently designed by God.

3. The Fine Tuning Argument for God

The *Fine Tuning Argument* goes like this: (1) Our universe has an extremely high degree of sacredness. It is precious, fragile, and rare. The sacredness of our universe raises the Leibnizian question: why is the universe the way that it is? (2) Since our universe is sacred, it cannot be explained by mere chance. It requires an explanation involving something besides chance. (3) The best explanation for the sacredness of our universe is that its features were intelligently designed by some Tuner. This Tuner purposively selected the features of our universe because it wants to maximize intrinsic value. It very carefully adjusted the features of our universe to satisfy its preferences. It prefers rational intelligent life to merely intelligent life; it prefers intelligent life to mere life; and so on. To say that this Tuner very carefully adjusted those features means that it finely tuned them to satisfy its preferences. It finely tuned them so that rational intelligent life would appear in our universe. (4) By inference to the best explanation, there exists such a Tuner. It has intelligence and preferences. But what is it, exactly?

The *God Hypothesis* says that something like the God of traditional Abrahamic theism finely tuned our universe. The Tuner is the Abrahamic God. This God is a super-cosmic intelligence; it is a divine mind. But God has other crucial features. God is ultimate, in the sense that God is not the product of some deeper process. God is not the child of some older god and goddess; God did not evolve. Of course, there are many general objections to the God Hypothesis. One big general objection to the God Hypothesis is the argument from evil. God is supposed to be perfectly good; but the existence of evil in our universe contradicts that goodness. But some objections come from the concept of fine tuning itself: if the universe is finely tuned by the theistic God, then that God is also finely tuned. Specifically, the *preferences* of that God are finely tuned. God is finely tuned to highly value rational intelligent life (or perhaps even human life). And since most Abrahamists believe that God gave us very detailed moral commands (about things like eating and having sex), it seems like the preferences of God are extremely finely tuned so that God values only a very narrow range of human possibilities. After all, God could have been finely tuned to value something else.

The sacredness of our universe raises many issues. But saying that God is the Tuner just pushes those issues back onto God. If the universe needs a Tuner, then so does God. So who, or what, tuned God? Since many people think the God Hypothesis fails to explain the apparent fine tuning, they have developed alternatives. These are ways to explain the apparent fine tuning of our universe without God.

4. Alternatives to the God Hypothesis

The Necessity Hypothesis. The Necessity Hypothesis says that there is only one way that a universe can be. Necessity is not a Tuner; necessity does not purposively select the features of our universe; necessity does not want anything nor does it have goals. It is a blind power. The basic features of the universe are like variables in a big equation. There is only one solution to this equation. It is therefore not surprising that our universe has the basic features that it does have.

Objection to the Necessity Hypothesis: It is not the case that there is only one possible universe (so that if any universe is actualized, it must be that universe). On the contrary,

there are many possible universes. And many of them can be actualized. Hence the Necessity Hypothesis is rejected.

The Plenitude Hypothesis. The Plenitude Hypothesis says that all possible universes are actual. Plenitude is not a Tuner. This is the hypothesis of David Lewis. The library of possible universe blueprints is complete. For every way a universe can be, there is some blueprint in the library. So there is a blueprint in the library that describes our universe. Every blueprint in the library is actualized. There is no selection. So for every way a universe can be, there is some universe that actually is that way. Since our universe is one of the ways a universe can be, our universe is actual.

Objections to the Plenitude Hypothesis: The Plenitude Hypothesis seems to be unable to account for the regularity of our universe. Our universe exhibits regular patterns up to the present time – it's like a novel that makes sense up to the current page. But in the library of all possible novels, there are infinitely many other novels that are like our novel up to the present page, but then diverge into random nonsense. So, the Plenitude Hypothesis seems to undermine one of the things it is supposed to explain: the regularity of the universe. All universes may indeed be possible; but there must be a selection of the ones that are actual.

The Optimization Hypothesis. This hypothesis says that the laws of our universe were produced by some optimization process. This process is ultimate, in the sense that it does not depend on any deeper process. It can't be an improbable or complex process; it has to start out simple and advance through simple steps. It has to be self-bootstrapping, self-sustaining, self-enhancing. It has to imply its own self-optimization. It has to get better at making itself get better at producing ever more finely tuned things. It might produce a divine mind that performs some local optimization. Or it might produce some physical process (like Smolin's process) that performs local optimization. But those entities are themselves the products of the ultimate and deepest optimization process.

Objection to the Optimization Hypothesis. This hypothesis avoids all the problems with the earlier hypotheses. The only objection would be to argue that it's not possible: such a super-cosmic optimization process cannot exist, or cannot be strong enough to produce our universe. But that seems unlikely. The Optimization Hypothesis is the best hypothesis so far.

Tipler: The Omega Point

1. The Final Anthropic Principle

Tipler begins by proposing an ultimate natural law. This natural law is the *Final Anthropic Principle* (the FAP). The FAP says: "Intelligent information-processing must come into existence in the Universe, and, once it comes into existence, it will never die out" (Barrow & Tipler, 1986: 23). Tipler gives two arguments for the FAP.

The first is the *Argument from Beauty for the FAP*. It goes like this: (1) the FAP is a beautiful principle; and (2) "We physicists know that a beautiful postulate is more likely to be correct than an ugly one" (Tipler, 1988: 32; see Tipler, 1995: 11); therefore (3) the FAP is more likely to be true than false. The second argument for the FAP is a *Fine-Tuning Argument for the FAP*. It goes like this: (1) The basic physical features of our

universe appear to be precisely calibrated for the emergence of life (see Leslie, 1989). If they were even slightly different, our universe would be sterile. Our universe is thus said to be *finely tuned* for intelligent life. (2) This fine tuning requires an explanation. (3) The best explanation is the Final Anthropic Principle. So, by inference to the best explanation (4) the FAP is more likely to be true than false. Although one might raise many objections to these arguments for the FAP, we are not evaluating them here. We'll evaluate them later. At present, we're just working through Tipler's logic. So we'll assume (for the sake of argument) that the FAP is true.

The FAP is a strong principle; but the FAP is too abstract. We need to show how it can be applied. We show how to apply the FAP by arguing for a practical version of the FAP. Our argument goes like this: (1) The FAP is true. (2) Suppose T is any task that life must do in order to survive. (3) Either life will do T or life will not do T. (4) If life does not do T, then life will not survive. Life will die out. But the FAP says life cannot die out. Therefore, (5) life will do T. And thus we obtain the practical version of the FAP: (6) for any task T, if life *must* do T to survive, then life *will* do T.

2. Progress to the Omega Point

The practical version of the FAP motivates a *Progress Argument* for the resurrection. Versions of it are developed by Barrow & Tipler (1986), Tipler (1988), Moravec (1988), Tipler (1995) and Kurzweil (2005). Tipler's version of the Progress Argument starts with the premise that the only present source of intelligent life in the universe is human life on earth. This assumption is neither likely nor crucial. However, for the sake of argument, we accept it. We now use the practical version of the FAP to show how intelligent life will eventually resurrect the dead. We give some arguments from Tipler.

The first argument sends us into outer space. It entails that life will spread from earth to fill the universe. It goes like this: (1) The expansion of the sun will eventually destroy the earth and all life on it. (2) If life remains on earth, then it will be destroyed. (3) Hence life must leave earth and colonize the universe in order to survive. (4) The practical version of the FAP says that for any task T, if life must do T to survive, then life will do T. Therefore (5) Since life must leave earth and spread throughout the whole universe in order to survive, life will leave earth and will spread throughout the whole universe. We will colonize all the planets in the universe.

The second argument transforms the human into the trans-human and the trans-human into the super-human. It goes like this: (1) Humans are only finitely complex machines. (2) As time goes on, the challenges facing life become more and more difficult. If life remains human, then life will be too simple to overcome these challenges. Thus if life remains human, then life will die out. (3) Hence life must become trans-human and post-human. It must evolve into super-human species. (4) The practical version of the FAP says that for any task T, if life must do T, then life will do T. It follows that (5) life will evolve into super-human species. And since any particular super-human species is only finite, it will have to evolve into an even more powerful super-human species. The result is an infinitely long evolutionary chain of species that converges to an infinitely intense point at the end. Tipler refers to it as the Omega Point:

> Our species is an intermediate step in the infinitely long temporal Chain of Being that comprises the whole of life in space-time. An essential step, but still only a step. In fact, *it is a logically necessary consequence of eternal progress that our species become extinct*. For we are finite beings, we have definite limits. Our brains can code only so much information, we can understand only rather simple arguments. If the ascent of life into the Omega Point is to occur, one day the most advanced minds must be non-*Homo Sapiens*. The heirs of our civilization must be another species, and their heirs yet another, *ad infinitum* into the Omega Point. (1995: 218; italics are Tipler's).

The third argument takes us to the Omega Point. It goes like this: (1) The universe will eventually collapse into a Big Crunch. (2) If life does not convert the collapsing universe into a Cosmic Computer (into the Omega Point), then life will die out. (3) Hence life must convert the collapsing universe into an infinite computer in order to survive. And (4) for any task T, if life must do T to survive, then life will do T. Hence (5) life will convert the collapsing universe into an infinite computer.

At the end of time, as the universe becomes compressed into a tiny superhot dot, it will evolve into an infinite computer. This Tipler refers to this infinite computer as *the Omega Point:* "the Omega Point in Its transcendence is in essence a self-programming universal Turing machine, with a literal infinity of memory" (1995: 249-50). The Omega Point is an omniscient and omnipotent living thinking machine. It has perfect information about the entire past history of our whole universe. But Tipler also argues that the Omega Point is an accelerating machine (1995: 265, 462, 505). It computes faster and faster. Suppose there is one minute of time left before the universe collapses into a Big Crunch. The Omega Point performs its first operation in 1/2 second; its next operation in 1/4 second; its next operation in 1/8 second. It always doubles its speed. If it can do that, then it can perform infinitely many computations in the last minute before the Big Crunch. This definition of God as an infinite computer meets the Epicurean Challenge. Tipler provides a concrete and intelligible example of an infinite mind. There is nothing mysterious or obscure about the definition of an accelerating Turing machine with an infinite memory. It is defined with mathematical precision.

Tipler tries hard to argue that his Omega Point Computer satisfies the traditional Christian definition of God. But Tipler's Omega Point is not the Christian God. The Christian God is transcendental – it is above and beyond the physical universe. And it is the creator of the physical universe. The Christian God, whatever it may be, is not just some thing that exists inside of the universe. Tipler's God is just some thing that exists inside of the universe. It did not create the universe. And it does not transcend the universe. It is a pagan god, much like Chronos or Zeus.

3. The Simulation of the Past

According to Tipler, information flows from every object in the whole history of the universe to the Omega Point. For example, information flows from Original to the Omega Point. Tipler says that as the universe is compressed into the Omega Point, all the information in the entire history of the universe is focused on the Omega Point: "*all* the information from the past [= all of universal history] remains in the physical universe and

is available for analysis by the Omega Point" (1995: 158; italics and brackets are Tipler's). Tipler says further that "the Omega Point is omniscient; it knows whatever it is possible to know about the physical universe" (1995: 154).[17] Hence the Omega Point knows all there is to know about the life of Original on earth.

Tipler argues that the Omega Point will simulate all past lives. It goes like this: (1) The Omega Point is of powerful that it can simulate all finitely complex civilizations. (2) The Omega Point is obligated both by ethics and its desire for omniscience to simulate all finitely complex civilizations (see Tipler, 1988: 44, 245-50). (3) The Omega Point acts according to its ethical and epistemic obligations. Therefore (4) The Omega Point *will* simulate all finitely complex civilizations. As a further consequence of its benevolence, the Omega Point will also guide our civilization to perfection. Since our present human civilization is only finitely complex, it follows that (5) the Omega Point will simulate our human civilization and will guide it evolution to perfection. But these simulated lives are resurrected versions of our past lives. So this entails the resurrection and perfection of every individual earthly human person. We thus conclude that "the physical mechanism of individual resurrection is the emulation of each and every long-dead person – and their worlds – in the computers of the far future" (1995: 14).

The Omega Point exactly simulates (emulates) the life of every earthly human. Tipler says: "the physical mechanism of individual resurrection is the emulation of each and every long-dead person – and their worlds – in the computers of the far future"(1995: 14). Hence it emulates the life of Original. The emulation is a process in a novel physical medium (not carbon chemistry). The simulated version of Original is *Double*. Thus Double is a software object in the energy flows in the Omega Point. Tipler describes resurrection by simulation in more detail like this:

> all the information contained in the whole of human history, including every detail of every human life, will be available for analysis by the [Omega Point]. . . . it is possible for it to construct, using this information, a perfectly accurate simulation of these past lives: in fact, this simulation is just what a sufficiently close scrutiny of our present lives would amount to. . . . a sufficiently perfect simulation of a living being would *be* alive. . . . I shall argue that the drive for total knowledge – which life in the future must seek if it is to survive at all, and which will be achieved only at the Omega Point – would seem to require that such an analysis of the past, and hence such a simulation, would be carried out. If so, then the resurrection of the dead . . . would be inevitable in the *eschaton* (last times). . . . This, then, is the physical mechanism of individual resurrection: *we shall be emulated in the computers of the far future* (1995: 219-20).

According to Tipler, the Omega Point simulates its own past. This simulation will resurrect us. But since the past history of our universe generated the Omega Point, the simulation of this past will also produce the emergence of another Omega Point. The Omega Point contains an exact copy of itself; its simulations are nested to infinity. They are like Royce's perfect self-map of England (Royce, 1927: 506-7). Every simulation contains a deeper simulation. These simulations are progressive. Each next simulation is better than the previous simulation. Since the Omega Point revises your body in many ways on each simulation, Tipler's theory justifies the existence of a branching tree of

resurrection counterparts. For every way you can be improved, there is some simulation in which you are improved in that way. The improvements are iterated. As the Omega Point nests its self-simulations to infinity, you are perfected. The self-nesting of simulations within simulations is a kind of cosmic loop. Of course, this logic implies that we are already almost certainly living in a simulated reality.

4. The Glorified Resurrection Body

A great advantage of Tipler's theory is that the resurrection body is not realized in carbon-based chemistry. It is realized in some different physical substrate. For example, while our earthly bodies are realized in carbon chemistry, our resurrection bodies are realized in pure flows of energy at the most basic level of physical existence. Tipler says:

> The simulated body could be one that has been vastly improved over the one we currently have; the laws of the simulated world could be modified to prevent a second physical death. Borrowing the terminology of St. Paul, we can call the simulated, improved, and undying body a "spiritual body." . . . The spiritual body is thus just the present body (with improvements!) at a higher level of implementation. . . . Only as a spiritual body, only as a computer emulation, is resurrection possible without a second death: our current bodies, implemented in matter, could not possibly survive the extreme heat near the final singularity [the Big Crunch at the end of the universe]. (1995: 242)

Since the Omega Point honors its ethical obligations, the Omega Point heals all resurrection bodies. Since this body is realized in software, healing it is a matter of correcting logical defects (software bugs). Tipler says: "the resurrection body could be vastly improved over our current bodies. The obvious improvements would be the repair of all bodily defects, such as missing limbs, youth for old age, etc." (1995: 242-3). He argues that the repair of defects must be gradual to preserve the personality of the resurrection body. For example, if someone was blind from birth, then the Omega Point would repair the eyes and supervise the gradual psychological adjustment of the formerly blind person to sight (1995: 243). Gradual improvement can also be carried out for bodies with genetic defects like Down's Syndrome.

According to Tipler, the resurrection body is an exact simulation of the earthly body at some stage of its life (1995: 241). Since an earthly body is only finitely complex at every stage of its life, the resurrection body is only finitely complex. Tipler says that the human brain can only store about 10^{15} bits and that this corresponds to about 1000 years of life (1995: 244). Once this memory space is filled, the person can no longer grow psychologically. His or her future is the endless repetition of previously lived mental states. Such a life is devoid of meaning, purpose, and value. It is not a desirable immortality. Tipler therefore argues that the Omega Point can "increase our memory storage capacity indefinitely beyond 10^{15} bits while retaining our individuality"(1995: 244). He argues that the Omega Point can "perfect" our finite natures. He also argues that for every way to perfect our finite natures, the Omega Point can make a simulation that is perfected in that way:

> the Omega Point could guide us to a 'perfection' of our finite natures. Whatever 'perfection' means – depending on the definition, there could be many 'perfections'. With sufficient computer power, it should be possible to calculate what a human action would result in without the simulation actually experiencing the action, so the Omega Point would be able to advise us on the possible perfections without our having to go through the trial and error procedure characteristic of this life. If more than one simulation of the same individual is made, then *all* of these options could be realized simultaneously. (1995: 244-5)

Any natural production of the resurrection body must begin and proceed naturally. The resurrection body must start with conception. It must be born of a woman. Your resurrection simulation is an improved version of your earthly life. The Omega Point is aware of your earthly biography. It computes some or all of the ways that your earthly biography can be improved. It therefore writes a library of new and improved biographies. For each biography in this library, it makes a simulated world in which one of your resurrection counterparts lives out that improved biography.

Since the simulation is carried out in our universe, one might object that it will eventually come to an end. Tipler in fact argues that the universe will end in a Big Crunch. But Tipler also argues that the Omega Point is an accelerating machine (1995: 265, 462, 505). It computes faster and faster. Suppose there is one minute of time left before the universe collapses into a Big Crunch. The Omega Point performs its first operation in 1/2 second; its next operation in 1/4 second; its next operation in 1/8 second. It always doubles its speed. If it can do that, then it can perform infinitely many computations in the last minute before the Big Crunch. If each computation simulates a physiological (and thus mental) event in Double, then Double experiences an infinitely long life in the last minute. Tipler says that Double has a subjective immortality (1995: 128-8, 266).

5. Fatal Problems with Resurrection by Simulation

A first problem with the Tipler theory of resurrection by simulation is that it depends on the premise that the universe is closed – that is will collapse in a Big Crunch. Although cosmology is currently in a chaotic state, with many competing theories, the probability is very high that our universe is not closed. On the contrary, it appears to be expanding at an accelerated pace. It is therefore open. But if the universe is not closed, then Tipler's Omega Point Theory cannot be realized (Oppy, 2000). The future history of life and intelligence in our universe does not converge to an omnipotent and omniscient universal Turing machine. It does not converge to the Tiplerian Omega Point. Our universe will end as frozen waste. It will end in heat death. Consequently, there will be no resurrection of the dead by exact simulation (or at least not in the way that Tipler says).

Although the resurrection by exactly simulation is not physically incoherent, it is almost certainly physically false. Of course, one might reply that the Big Crunch is merely one way that Tipler's theory might be worked out. The Omega Point might emerge in other ways. Kurzweil (1999: 258-60) argues that the emergence of something like the Omega Point does not depend on the details of physics. He argues that intelligent

life in the far future will be so powerful that it will be able to bend the laws of physics (whatever they are) to its will. So there may be some small hope for the Omega Point.

A second problem with the Tipler theory of resurrection concerns the flow of information from Original to Double. Original is an ordinary earthly human life from birth to death. As Original lives, he or she cause changes in his or her environment. These changes are traces of the life of Original. They are clues that reveal facts about Original. As Original lives, he or she is radiating information. After Original dies, the information about Original's life spreads through the universe. The information about Original's life is not stored in any organized structure. This information just consists of the physical traces that Original left behind. Since the information about Original spreads out from Original like the wake of a boat spreads out in the water behind the boat, we refer to this information as *Wake*. Wake eventually reaches the Omega Point. It does not reach the Omega Point as a unified data structure. The Omega Point has to search through all the radiation in the universe to discover Wake. It runs a big pattern recognition algorithm to find the traces of intelligent organisms in the past history of the universe. After it finds Wake, the Omega Point then uses Wake to form an exact description of Original's life. The Omega Point then uses this biography to make Double.

We want to know whether Original survives in Double. Does Double inherit the nature of Wake? Our thesis is that there is no flow of information from Original to Double. Specifically, the nature of Original does not flow from Original to Double. There is no channel that carries that nature. Hence Original does not survive in Double. Hence Double is not a resurrection counterpart of Original. Tipler might reply that the whole universe is the channel that carries the nature of Original. We object that the nature of Original is not maintained in any coherent or unified form. Hence the whole universe is not the channel. Tipler might reply again that the Omega Point is so smart that it can recover the nature of Original. We object that any signal radiated by Original has long since been entirely corrupted. All that is left is noise. At times, Tipler appears to concede this point (1995: 158, 237-8). But Tipler has yet another reply: the Omega Point is smart enough to run a brute force simulation of all possible past humans (1995: 220 – 225). But such a brute force simulation does not carry information from Original to Double. The brute force simulation would be the same whether or not Original had ever lived. Hence the simulation of all possible past humans does not recover the nature of Original. There is no way out. All the exits are blocked. It follows that Original does not *survive* in Double. Double is neither a replica, nor a duplicate, nor a copy, nor an avatar. Double is an imposter. Original is not resurrected in Double. If we want any hope for bodily survival, we need to look at another resurrection theory.

Kurzweil: The Cosmic Computer

1. Modernizing the Great Chain

The ancient Stoics developed the great chain of being. The Stoic great chain was taken up by medieval Christian thinkers like Augustine, Anselm, and Aquinas. According to the doctrine of the great chain, the physical universe is stratified into ranks

ordered by excellence or perfection. Although the great chain is a very old idea, it continues to shape contemporary thought. As the ideas behind the great chain move into modern thought, they undergo two changes. While the old great chain used the vague concept of perfection, the new great chain uses the more scientific concept of complexity. If one thing is on a higher rank than some other thing, then the one thing is more complex than the other thing. While the old great chain was static, the new great chain is dynamic. It replaces the static ordering of things with evolutionary transformation: things on lower ranks evolve into things on higher ranks. At the top of the old great chain, there was a divine king. At the top of the new great chain, there is a divine Omega Point. This Omega Point is thought of as a perfect mind; but now minds are computers.

2. The Epochs of Evolution

Peirce's theory of physical evolution can be modernized. The universe does not go back infinitely far into the past. The Alpha Point is the Big Bang, which happened about fourteen billion years ago. At that time, the universe is simple. The Alpha Point, that is, the Big Bang singularity, is the closest thing in our universe to the Neoplatonic One. But this simplicity evolves into greater complexity. The futurist Ray Kurzweil describes six epochs of evolution, in which complexity increases from epoch to epoch. The epochs are shown in Table 20. The final goal of this evolutionary process is the fully self-aware universe. The whole universe is a self-conscious computer. This endpoint is listed in Table 1 as a separate epoch. Of course, this is a modernized version of the old Great Chain of Being, in which history climbs up the chain.

Level (Epoch)	Types	Properties
7	The Awakened Universe	The whole universe is a self-aware computer.
6	Super-computers	Matter becomes saturated with intelligence. Computers the size of stars and galaxies.
5	Super-biological technology	Information in super-biological technical patterns.
4	Technology	Information in hardware and software designs.
3	Brains	Information in neural patterns
2	Biology	Information in DNA
1	Chemistry Physics	Information in atomic structures

Table 20. Kurzweil's Epochs of Evolution.

3. The Argument for Endless Evolution

Many futurists make something like this *Argument for Endless Evolution:* (1) The complexities of the most complex things have been exponentially growing from the Big Bang up to the present time. (2) Since such growth is extremely improbable, it is almost certainly not accidental. (3) Since it is almost certainly not accidental, it is almost certainly based on some *driving principle*. (4) Many writers have given many versions of this principle. The most basic way to formulate the driving principle has two parts. The first part states that every thing strives to surpass itself in every possible way. It strives to become more perfect and to climb the Great Chain. The second part states that at least one of these strivings always succeeds. Of course, most of these strivings may fail. (5) On the basis of this principle, or some other principle like it, evolution will continue to ascend exponentially. It will rise towards divine complexity. It will end in a maximally perfect *Omega Point*. On the one hand, it may actually reach this Omega Point; on the other hand, it may converge to it without ever actually reaching it.

The Argument from Endless Evolution entails that everything strives for greater perfection and that some of these strivings always succeed. While this concept of striving is very strong, it is too abstract. To make this concept of striving more concrete, it helps to focus on the ways that life strives to surpass itself. The result is a natural law known as the *Final Anthropic Principle*. One version of the Final Anthropic Principle says: "Intelligent information-processing must come into existence in the Universe, and, once it comes into existence, it will never die out" (Barrow & Tipler, 1986: 23). But this principle is still to abstract. Consider the following argument: (1) Suppose T is any task that life must do in order to survive. (2) Either life will do T or life will not do T. (3) If life does not do T, then life will not survive. Life will die out. But the Final Anthropic Principle says life cannot die out. Therefore, (5) life will do T. This reasoning gives us the practical version of the Final Anthropic Principle: (6) for any task T, if life *must* do T to survive, then life *will* do T. *Life will do what it must do to survive*.

4. The Universe Wakes Up

At the end of time, as the universe becomes compressed into a tiny superhot dot, it will evolve into an godlike computer. The Omega Point is an omniscient and omnipotent living thinking machine. It has perfect information about the entire past history of our whole universe. A similar idea has been developed by Ray Kurzweil (2005). He argues that evolution will transform the entire universe into a computer:

> Evolution moves toward greater complexity, greater elegance, greater knowledge, greater intelligence, greater beauty, greater creativity, and greater levels of subtle attributes such as love. In every monotheistic tradition God is likewise described as all of these qualities, only without any limitation: infinite knowledge, infinite intelligence, infinite beauty, infinite creativity, infinite love, and so on. Of course, even the accelerating growth of evolution never achieves an infinite level, but as it explodes exponentially, it certainly moves rapidly in that direction. So evolution moves inexorably toward this conception of God, although never quite reaching this ideal. (2005: 389)

The progress from the Big Bang (the Alpha) to the godlike computer (the Omega) is a process that climbs up the old Stoic Great Chain. It is also a process that climbs up something like the Anselmian Great Chain. When we evolve into more perfect biological species (transhuman and then posthuman species), we will be evolving into angels. And the angels will evolve into the godlike computer. This godlike computer will be extremely complex. It will also be maximally powerful, intelligent, and benevolent. It will be as close as possible to the Anselmian God in our universe.

We did two things to repair Anselm's henological argument. The first repair was to separate the Neoplatonic One from the Stoic God. The Neoplatonic One becomes the Alpha Point, the Big Bang at the beginning of time. The Stoic God becomes the Omega Point, the godlike computer at the end of time. The second repair involved turning the Great Chain into an evolutionary process.

Pastafarianism

1. The Flying Spaghetti Monster

Pastafarians worship the *Flying Spaghetti Monster* (the FSM). The Monster itself consists of two eyes perched above two meatballs surrounded by a mass of pasta noodles. Thus Pastafarianism is also known as the *Church of the Flying Spaghetti Monster*. The FSM plays much the same role in Pastafarianism as God does in the Abrahamic religions. Pastafarianism began with a protest against teaching the theory of intelligent design in public high schools in Kansas. Intelligent design is the idea that living things were made by some divine mind. As an alternative to intelligent design, Bobby Henderson wrote a letter to the Kansas State School Board, proposing that students should be taught about the Flying Spaghetti Monster: "I and many others around the world are of the strong belief that the universe was created by a Flying Spaghetti Monster. It was He who created all that we see and all that we feel" (Henderson, 2006: 111).

After his letter to the Kansas Board garnered great media attention, Henderson continued his development of Pastafarianism by writing *The Gospel of the Flying Spaghetti Monster* (2006; hereafter, *The Gospel*). While some of *The Gospel* involves a humorous parody of Christian intelligent design, most of it does not.[18] Most of *The Gospel* involves serious discussion of practices and ideas which appear to be religious rather than merely secular. *The Gospel* frequently and seriously refers to Pastafarianism as a religion.[19] It likewise frequently and seriously refers to the FSM as a god or deity.[20] Besides *The Gospel,* Pastafarianism is propagated via the official church internet site *venganza.org* as well as many other internet sites, Facebook groups, meet-ups, and so on.

Although it is a very recent cultural development, Pastafarianism has grown with great rapidity.[21] It claims members in many nations around the globe. It has evolved far beyond *The Gospel* and has spawned a wide ranging system of practices and beliefs. Its adherents insist that it is not a joke, satire, parody, or thought experiment (Henderson, 2016a).[22] They insist that Pastafarianism is a genuine religion. Pastafarians insist that its legitimacy as a religion is equivalent to that of every other religion. Thus if Christianity is a religion, then so is Pastafarianism. They claim that Pastafarians deserve the same

legal rights as any other religions (Henderson, 2006: 165). Thus if Christians have special legal rights, then Pastafarians deserve those same rights.

2. Pastafarianism Parodies Christianity

Pastafarianism began as a parody of Christianity. The New Testament gospel of John describes the creation of the world like this: "In the beginning was the Word, and the Word was with God, and the Word was God' (John 1:1-4). Pastafarians say "In the beginning was the Word, and the Word was 'Arrrgh'" (Henderson, 2006: v). The Word was 'Arrrgh' because legend has it that pirates love to say "Arrrgh", and Pastafarians believe that the FSM loves pirates. Since ramen noodles are a popular form of pasta, Pastafarians say "RAmen" rather than "Amen". Pastafarians have their own version of the Christian Lords Prayer. It goes like this:

Our Pasta, who art in colander,
draining be your noodles.
Thy noodle come, thy sauce be yum,
on to some grated parmesan.
Give us this day our garlic bread, and
forgive us our trespasses, as we
forgive those who trample on our lawn.
Lead us not into low-carb diets,
but deliver us some pizza,
for thine is the meatball, the noodle
and the sauce, forever and ever.
RAmen.

Pastafarians have made a parody version of the Catholic "Hail Mary" prayer. They have made stained glass images of the Flying Spaghetti Monster. They have FSM prayer candles. For pretty much any Christian belief or practice, you can find a Pastafarian parody. But the Pastafarians also parody the philosophical arguments for God. They have parody versions of the design and cosmological arguments. Henderson's letter to the Kansas School Board offers an Ontological Argument for the FSM:

P1. The Flying Spaghetti Monster is a being that has every perfection.
P2. Existence is a perfection.
C. Therefore, the Flying Spaghetti Monster exists.

3. Pastafarian Religious Practices

Many religions involve communal meals. The Christian communion meal recalls the last supper of Christ. Christian communion involves bread and wine. Pastafarians also have communion. Their communion involves eating lots of spaghetti with meatballs.

Many religious groups wear special headgear. Jews wear *kippah* skullcaps and Muslims wear *taqiya* skullcaps. Pastafarians believe that the FSM boiled for your sins.

To remind themselves of this sacrifice, they wear colanders. Pastafarians insist on the right to wear colanders for their drivers license photos in the United States. The states of California, Massachusetts, Oklahoma, Texas, Utah, and Wisconsin permit residents to wear colanders as religious headgear in drivers license photos. A Pastafarian member of the town council in Pomfret, New York, wore a colander while taking the oath of office.[23] Just as Christians wear crucifixes, so Pastafarians wear FSM necklaces.

Many religious groups wear special clothing. Mormons wear temple garments (special underwear) and members of other religions wear robes or other special garments. Pastafarians believe that pirates are the chosen people of the FMS. To gain good favor from the FSM, they dress up like pirates: "We'd love to see you in His chosen garb, full Pirate regalia" (Henderson, 2006: *xiii*). Just as Christians use the symbol of the fish, so Pastafarians use the symbol of fish skeleton wearing a pirate eyepatch.

Many religious groups have ordained ministers. Pastafarians can become ordained via the Pastafarian website. Many religions have celebrants who perform weddings. Likewise Pastafarians have celebrants who perform weddings. The first Pastafarian wedding in the world was performed in New Zealand in April 2016 (Zauzmer, 2016). The wedding participants were sincere (e.g. those in the wedding sincerely intended to be married by a Pastafarian celebrant, and they were in fact legally so married).

Many religions perform charitable and philanthropic work. Pastafarians also perform such work. The Kiva organization makes interest-free loans to people in impoverished regions which lack financial institutions. One Pastafarian Kiva fund has raised over three million dollars.[24] The First Pastafarian Church of Norman Oklahoma meets in its own building in that city (Mayer, 2016). Pastafarians have holidays such as Pastover and Talk Like a Pirate day. They meet for special communion meals. They ordain ministers. Pastafarians have used their religious symbols in political contexts.

Many religions make evangelical efforts to propagate their religions. Pastafarians make efforts to propagate Pastafarianism. They have websites. They have set up displays at statehouses in Florida, Michigan, and Wisconsin.[25] They have set up a display at a courthouse in Tennessee.[26] Pastafarians build large mobile statues (floats) of the Flying Spaghetti Monster and march with these floats in public parades.

4. Pastafarianism and Religious Fictionalism

Pastafarianism began as a parody of Christianity; but over the years it has turned into its own form of independent religious practice. Pastafarians spend time, energy, and money to participate in these practices. Pastafarianism looks like a religion in its own right. Pastafarianism incorporates a well-developed philosophical position regarding religious practice. This position is known as *religious fictionalism* (Deng, 2015; Eshleman, 2005, 2016; Wettstein, 1997). On this view, religions are analogous to mathematical systems. The axioms of mathematical systems assert the existence of mathematical things, and they define mathematical operations on those things. For example, the axioms for the natural numbers assert that the existence of 0, 1, 2, 3, and so on. The axioms are *literally stated* as if they were factual truths. But should they be *literally accepted* as factual truths? Do numbers actually exist in objective reality? Or are they just concepts in our heads or symbols we write on paper? These metaphysical questions are studied in philosophy of mathematics. Although they are important, there

is no need for mathematicians to wait for the answers. Mathematicians proceed *as if* the numbers objectively exist. They proceed *as if* the axioms are factual truths.

Mathematical fictionalism says that mathematical practice is done *according to mathematical stories,* which are precisely expressed as axiom systems. Although we may have differing positions about the objective existence of the natural numbers, we can all agree that *according to the story of the natural numbers,* there are infinitely many natural numbers, there is no largest prime number, and so on. We can even apply mathematical stories to the real world without worrying about whether or not they are literally true stories. And, when applied to the real world, those stories enable us to do science and to build technologies. Mathematical stories are *extremely useful* and *extremely valuable* stories, whether or not they are literally true or literally false. Fictionalism says that practical utility and practical value do not depend on theoretical truth.

On these points religion resembles mathematics (Wettstein, 1997). To practice our religions, we don't need to wait for confirmation that theological objects (like gods) objectively exist. We can proceed *as if* they do. Atheists and theists can agree that according to the story of Christianity, God exists. And people of all religions can agree that, according to the story of Christianity, Jesus is the messiah. Religious fictionalists say that, in the absence of certain proof, it is a mistake to go any further. Religious stories, like mathematical stories, are extremely useful and extremely valuable. But they are fictions. This does not mean that they are literally false. It means they are *neither* literally true *nor* literally false. They are neither literally true nor literally false because they are *not factual*. As religious fictionalists, Pastafarians are peaceful.[27] Just as there is no point in fighting over the ultimate truth of *Harry Potter* or *The Lord of the Rings,* there is no point in fighting over the ultimate truth of any religion.

Mathematical fictionalism can be practiced sincerely. You can sincerely act as if the axioms of set theory are true; you demonstrate your sincere belief in those actions by proving theorems in set theory. Likewise religious fictionalism can be practiced sincerely. Pastafarians are religious fictionalists. Since Pastafarians do not have certain knowledge about the existence of the FSM, they proceed *as if* He does exist. Beliefs about the FSM are true only *according to the story* of the Church of the FSM. Religious fictionalism entails that all religious activity is *live-action role-playing* (also known as *larping*). All Pastafarian practice is larping. Pastafarians are larping when they dress up as pirates. But Pastafarians regard all religious activity as larping.

5. Avoiding Idolatry through Parody

Pastafarianism regards all religion as fictional. To practice any religion is to enter into a shared imaginative world through live-action role-playing. But there are two ways to participate in religious larping. The first way is playful disbelief. On this way, religious larping is a fun activity like any other kind of play. It can teach valuable moral lessons and serve as the basis for communal bonding. Religious larping requires the temporary and shallow suspension of disbelief. It's like larping at a science fiction convention: you dress up like characters from Star Trek or Star Wars or Harry Potter. But you don't take the mythic narratives to be truths about ultimate reality. Playful disbelief is an easily reversible form of self-deception. It is self-deception which remains

under higher-order self-control. It can be reversed at will. Playful disbelief does not reify the characters in the mythic narratives. They do not become *personal gods*.

The second way to participate in religious larping involves existential commitment. The mythic narratives become so emotionally engaging that people become mentally trapped in the fictional world. Their entrapment becomes socially enforced. Since everybody around you insists that Harry Potter was a real boy, social forces compel you to agree. Existential commitment involves an irrational insistence on the truth of the fiction. It turns into *faith*. Faith is a socially enforced belief in fiction. This faith can become violent when challenged. Existential commitment is a form of self-deception which is extremely difficult to reverse. It does not remain under higher-order self-control. Existential commitment does reify the characters in the mythic narratives. It regards them as real. They become personal gods and therefore objects of worship.

Pastafarians recognize that religious larping is dangerous. The cognitive science of religion backs ups the idea that playful disbelief in mythic narratives tends to turn into existential commitment (Atran & Norenzayan, 2004; Barrett, 2000; Bloom, 2007; Boyer, 2008; Johnson, 2016). Voluntary entry into a shared imaginary world becomes an involuntary entrapment. Joyful play turns into violent faith. Easily reversible self-deception turns into irreversible self-deception. Besides mental dangers, religious larping involves moral dangers. The irreversible self-deception becomes morally wicked: it leads people to become committed to falsehoods. But it also involves theologically dangerous reification of the characters in the mythic narratives. Many writers have argued that all personal gods are *idols* (Feuerbach, 1841; Johnston, 2009; Raymo, 2008). So a more theological danger of religious larping is that it leads to idolatry.

Pastafarians avoid the dangers of religious larping through humor. By making the characters of their mythic narratives absurd, it becomes impossible to take them seriously. If your god is a Flying Spaghetti Monster, it becomes impossible, or at least extremely difficult, to shift from playful disbelief to existential commitment. The absurdity of the FSM makes Pastafarian faith equally absurd. The shared imaginative world of Pastafarianism is one in which you cannot remain for long. You'll start laughing, and when you start to laugh, the spell is broken. By making faith in the FSM impossible, Pastafarians remain religiously honest. This is morally good: they do not become permanently self-deceived; so they do not become dishonest. The FSM does not become an idol; on the contrary, it protests against all idolatry. Pastafarianism meets the Epicurean Challenge by embracing the second option: religious fictionalism.

The New Stoicism

1. Stoicism Old and New

Stoicism was an ancient way of life developed by Greek and Roman philosophers. The ancient Stoic philosophy had many religious aspects. The Stoics argued for the existence of a divine mind. Their divine mind is a cosmic organizer-god. It gives rational order to the universe by producing and enforcing the laws of nature. But this organizer-god is purely rational (indeed, it is pure reason itself). The ancient Stoics were concerned with relations between humans and the god. On the one hand, since their

organizer-god plays a role in Stoic practices, Stoicism might seem like a religion. On the other hand, since the Stoic practices do not involve worship, it does look like a religion. Perhaps it is best to think of Stoicism as a quasi-religion; it is a spiritual way of life.

Stoicism is currently undergoing a surprisingly strong revival. Ancient Stoic ideas and practices have been translated into modern psychotherapies. Books on modernized Stoicism are widely read. These include *Stoicism and the Art of Happiness* (Roberson, 2015), *Philosophy for Life and Other Dangerous Situations* (Evans, 2013), and *A Guide to the Good Life* (Irvine, 2009). The University of Wyoming runs a week-long *Stoic Camp*. The University of Exeter runs an annual *Stoic Week*, which involves an intensive seven-day course in practical Stoicism. There are annual popular *StoicCons* in London and New York attended by hundreds of people. This revival of Stoicism may provide religious naturalists with an enduring metaphysical and ethical system.

2. Human Self-Realization

Stoic practices aim at full human self-realization. Stoics are materialists about human persons: you are strictly identical with your body. The Stoic care for the self starts with care for the body. Full human self-realization requires you to strive to be as healthy as you can. The ancient Stoics aimed at bodily health through practices like vigorous exercise and proper diet. Here Stoic practices can be combined with naturalized versions of yoga. Hence physiological self-realization includes psychological self-realization. Many Stoic practices aimed at psychological self-realization. The Stoics aimed to replace unhealthy emotionality with healthy emotionality. To cultivate this replacement, they developed many psychological exercises (Irving, 2009).

The Stoics were deeply concerned with ethical self-realization. Their practices aimed to transform an ordinary human animal into an ethically perfected Sage. The Sage is a fully rational and virtuous person. The Sages preserve their serenity through all possible adversities (including death). Stoic serenity resembles Buddhist enlightenment, and Sages resemble Buddhas. All Stoic practices aim at ethical self-realization.

Modern Stoics have developed a large system of psycho-physiological practices. They are described in detail in Robertson (2015). These include the *Morning Meditation*, the *Evening Meditation*, *Acting with a Reserve Clause,* and the *Premeditation of Adversity*. They include exercises for cognitive distancing, decatastrophizing, and decentering. These Stoic exercises inspired modern *cognitive behavioral therapy* as well as *acceptance and commitment therapy*. These exercises are effective against learned helplessness and depression. They can reduce fear and arouse hope in the midst of suffering. They are easily integrated into natural religions.

3. The Stoic Spiritual Practices

The Morning Meditation. You should start each day with a *Morning Meditation* exercise (D 1.4.20; 4.6.34). You reflect on the fact that you'll face many adversities during the day. But you do not have to respond badly to these adversities. There is always a good way to respond to them. You can maintain your emotional equilibrium.

The Evening Meditation. You should end each day with an *Evening Meditation* exercise (D 3.10.1-3, 4.6.32-35). Before you go to bed, you reflect on your successes and failures during the day. You think about how you need to improve. You may use a diary or journal to record the thoughts of your Evening Meditation.

The Stoic exercise known as the *Circles of Hierocles* involves expanding your concern beyond your body (Robertson, 2015: 107-9). You start with your self-concern, expand your concern to include your family, your country, and the whole of humanity. So far this is an ethical exercise which helps you to build an ethically ideal self. But you can continue to expand your circle of concern to include the whole earthly ecosystem. This exercise helps breed compassion for all living things. This outlook is consistent with the religious naturalist valuing of all life on earth. It may inspire ecological activism.

The View from Above. For the Stoics, nature is rationally organized, and the unity of nature is pure reason. As an intellectual anticipation of spiritual self-realization, you can imagine expanding your circle of concern to include all natural things. A related Stoic exercise is the *View from Above* (Robertson, 2015: 220-5). This exercise involves adopting a cosmic perspective. You endeavor to cognitively grasp the whole universe. Although your life is only a small part of this great whole, the whole has had enough concern for you to bring your life into existence. You can identify with this cosmic concern. This can help you with spiritual self-realization.

4. The Stoic Workout

The Stoics aimed at spiritual strength. A spiritually strong person can maintain their mental and emotional well-being in the face of adversity. When you are faced with some adversity (some loss), the Stoics recommended an ideal behavior pattern. This is the *Wand of Hermes*. The mythological Wand of Hermes could change any material into gold. The spiritual Wand of Hermes changes adversity into benefit.

Suppose something bad happens to you. (1) Tell yourself that the event is not the same as your reaction to it. You have no control over the event; but you do have control over how you react to it. You have to experience the bad event; but you do not have to suffer. As Epictetus said: "You must die; you do not have to die complaining." (2) Tell yourself there is always a good way to respond to any adversity. (3) Begin with gratitude for having enjoyed what you had. Remind yourself that many people were never as fortunate as yourself. (4) Remind yourself that all the good things you have were never really yours; they are only temporary; they are on loan from the god. Just as fate gave them to you, so fate has the right to take them away. (5) The adversity offers you an opportunity to display your virtues. It gives you an opportunity to display your problem-solving skills. Your emotional response is always up to you. No matter how difficult your situation, you can choose positive emotions instead of negative emotions. You can live in such a way that your life can serve as a good example to others.

The Stoic sage is invincible; he or she can remain happiness even in the face of death. But nobody starts out as a Stoic sage. We all start out spiritually weak. Just as an athlete needs to train to gain physical strength, so you need to train to gain spiritual strength. So the Stoics recommended doing spiritual workouts. By regularly doing spiritual workouts, you train yourself to be a sage. You learn the behavioral patterns of the sage. You make these behavior patterns into habits. You train yourself by applying the Wand of Hermes

to small adversities. You train yourself (1) on daily adversities; (2) on voluntary adversities; (3) on historical adversities; (4) on possible future adversities. Bear in mind that Stoicism does not imply passive suffering. Many of the Stoics were warriors who faced death on the battlefield, or were political officials who faced serious dangers (like exile, imprisonment, or death) in political struggle.

Training on Daily Adversities. You can train yourself by applying the Wand of Hermes to small daily adversities. These are the little challenges you encounter everyday in ordinary life (EN 12). For example, you run through the steps of the Wand when you are insulted (D 3.20.9-10; EN 20); you run through the Wand when you have a minor illness like an earache or headache or when you lose some small thing like your keys or phone (D 1.18.15-19). You do not have to get upset. You can practice the Wand when driving: if somebody behaves badly to you in traffic, you don't need to respond with road rage; you can remind yourself to stay calm and wish the other driver well. Road rage is a negative emotion that solves no problems; on the contrary, it may lead you to act rashly rather than prudently. The Stoics advocate courage, not blind rage.

Training on Voluntary Adversities. Epictetus said you can increase your spiritual strength by deliberately exposing yourself to stress (D 3.12.16-7; Frag. 47). Seneca recommended voluntary adversity (*Letters*, 28). Musonius Rufus likewise advocated voluntary adversity (Rufus, *Lectures*, 6.4-5, 19.2-3). Voluntary adversities include *physiological asceticisms* like sleep restriction; calorie restriction or fasting; water restriction; temperature exposure. Physiological asceticisms include athletic training for a competition or just to stay in shape. They include *social asceticisms* like vows of silence; temporary withdrawal from social life; abstaining from sex. They include *psychological asceticisms* like exposure to situations you find threatening or frightening. Or exposure to situations which deliberately arouse frustration or anger.

Training on Historical Adversities. You can increase your spiritual strength by studying historical figures who reacted well to adversity. For any type of loss, you can find some example of a person who responded well to it. And this means that you, too, can respond well to it. Consider the American climber and engineer Hugh Herr (1991). During a climbing expedition, he suffered frostbite; as the result of the frostbite, his legs were amputated. The loss of his legs was beyond his control. But he did not respond with grief, self-pity and depression. He responded heroically. He resolved to use his intelligence to overcome his loss. So he studied mechanical engineering. He developed bionic legs to replace his lost legs. There are many examples of people who suffered other types of losses, but who responded well to it. The Stoics recommend that you regularly study the lives of people who overcame adversity.

Training on Possible Future Adversities. The application of the Wand of Hermes to possible future adversities is sometimes called *Negative Visualization* (Irvine, 2009: ch. 4) or the *Premeditation of Adversity* (Roberston, 2015: 152-4). Possible adversities include challenging events which may happen in the future. Thus you may lose your health; you may lose your wealth; you may lose your job and your social status; you might lose parts of your body; you may lose your friends and family. When you practice the Premeditation of Adversity, you should start small and work up (D 4.1.111). You should start with the loss of small things and work up to the loss of your family. You practice on these possible future adversities by imagining them happening to you: imagine going to the doctor and getting the bad news that you have a terminal illness. Or

when you embrace your lover or child, you apply the Wand of Hermes. You remind yourself that they will die; you tell yourself how lucky you are to have a spouse or child; you give thanks for your good fortune; you remind yourself that these good people do not belong to you but are only yours for a little while. When I lose you, I will not grieve; I will give thanks for having been blessed with your company.

5. Burning the Man

Epictetus often compares human civilization to a festival (D 2.14.23-7). We should be grateful for having been given the opportunity to attend this festival it (D 1.12.18-22; 3.6.10; 4.1.105-9). The deity has set up this festival for our common happiness (D 4.4.24-28). When you participate in any festival, you will experience adversity; you will be faced with loss and hardship. But you should not complain; on the contrary, you ought to rejoice in your good fortune. Many possible human lives are never actualized at all; they remain mere possibilities; but you have been selected to attend the festival of life. And while many festivals aim only to entertain, others have spiritual purposes. So spiritual stoics endorse participation in *transformative festivals*.

One transformative festival which illustrates many Stoic ideas is known as *Burning Man*. The Burning Man festival does not advertise itself as a Stoic festival; on the contrary, it allows and encouraged people to interpret it any way they like. It is open to many different interpretations. But one of those interpretations is clearly Stoic. There is nothing wrong with providing a Stoic interpretation of Burning Man. It can help make the festival more meaningful. The main Burning Man festival takes place in the Black Rock Desert in Nevada for a week at the end of August (Doherty, 2004). The Black Rock Desert is very tough environment. The desert can be a furnace during the day and a freezer at night. Violent dust storms are common. Burning Man involves about 50,000 participants who build a temporary town, known as Black Rock City, in the desert wilderness. Living in Black Rock City requires the Stoic virtues of self-reliance. It presents many challenges and adversities to practice your Stoicism.

Burning Man is an arts festival. During the year, burners construct individual or group art installations. But they also build the *Man* and the *Temple*. They take these out to the playa, where they are assembled. The Man is a large wooden structure which outlines an indefinite male figure. The Temple is an elaborate wooden structure, whose form is taken from sacred architecture world-wide. The Temple serves a special ceremonial purpose: burners decorate the Temple with inscriptions, texts, photos, or other mementos. These are expressions of grief, loss, or triumph over adversity (Pike, 2005). After a festival of many days, the arms of the Man are raised and he is lit on fire. Burning the Man is accompanied by shouting. On the last night of the festival, the Temple is lit on fire and burned in silence. Burners have built and burned Temples around the globe. They have been burned for peace and reconciliation in Derry, Ireland.

Burning Man is not just an arts festival. Many people have provided spiritual or religious interpretations of Burning Man (Pike, 2001; Gilmore, 2010). It can be understood in terms of the evolution of spiritual energy. Black Rock City is an island of human creativity in a vast hostile landscape. It resembles the earth, which is an oasis of life in endless inhospitable space. The pilgrimage to the Black Rock Desert resembles the evolution of rare oases of aesthetic value in a vast desert of valuelessness. The beauty

gathered in the desert is precious, fragile, and rare; it is like life itself, and human life especially. Since it is precious, fragile, and rare, this concentrated beauty is sacred. Burning Man is a holy site. The Man is both personal and indefinite; he is faceless. He has no identity; he symbolizes the rationality inherent in nature; he is the Stoic *logos* made visible. He is the full self-realization of the ultimate power of nature. He is both human and transhuman; he is the anonymous god of Stoic theology.

The Man has often been lit by a fire which is kindled from the sun. The power of the sun is the Stoic *pneuma*; it is the all-pervading spiritual energy which actualizes all possibilities. This power, in an endless process of self-surpassing, both creates value and destroys it. The history of the Man represents the history of the Stoic deity. Just as the Stoic deity goes through a cycle of death and rebirth, so the Man goes through a cycle of death and rebirth. When the Man burns, he dies. When he burns, the Man's arms are raised in victory. He will be victorious over death; he will rise in the next annual cycle; he will reappear next year. The *wheel of the year*, in which the sun turns around the earth and the desert, symbolizes the vast cycle in which universes are created, destroyed, and recreated. The wheel of the earthly year symbolizes the Stoic Great Year. The burning of the Man symbolizes the Stoic *ekpyrosis*, the universal conflagration.

The construction of the Man during the year symbolizes the evolutionary process in which holy power concentrates itself into sacred beauty. During this self-concentration, much value is destroyed; the emerging Man has accumulated many errors and sins; he has overcome many obstacles. These are recorded in the Temple. The Temple is burned after the Man. Thus his spirit is cleansed. But we all participate in this: the spirits of all burners are ritually cleansed. They are purified, to begin the cycle again.

Entheogenic Religions

1. Introduction

An entheogen is a drug which can be used for religious or spiritual purposes. The name *entheogen* means "arousing the god within". Many entheogens have been used in different religious traditions over the course of history and around the globe. But we will focus on entheogens used recently or currently in the Americas. And, among these entheogens, we will focus on the *serotonergic psychedelics*.[28] These include peyote, ayahuasca, psilocybe mushrooms, and LSD. Peyote contains the psychedelic molecule mescaline along with other psychoactive molecules; ayauhasca contains DMT and other psychoactive molecules; psilocybe mushrooms contain psilocybin; and LSD is a semi-synthetic molecule derived from ergot fungus.

Psychedelics can be extremely dangerous. Improper use of these drugs can lead to serious illness, injury, and death. The serotonergic psychedelics can interact in lethal ways with many modern medicines. People who have used these drugs have become psychotic. They have harmed themselves and others. When psychedelics are used for religious purposes, they are usually used in highly regulated ways. If they are used by solitary individuals, then those individuals have special training (they are shamans or priests). But they are not usually used by solitary individuals; on the contrary, they are usually used in religious groups. Those groups have elaborate procedures to ensure safety. Drugs obtained illegally are often impure. They may be contaminated with

dangerous or fatal substances. The internet lists many retreats or seminars which involve psychedelics. Those retreats and seminars are often illegal. The people who organize them have little or no training in the safe use of psychedelics. They seek only money. No philosopher can condone the unethical or illegal use of drugs. These drugs should be used only in legally approved and medically supervised contexts.

2. The Peyote Churches

Peyote is a cactus which contains mescaline and other psychoactive molecules. Mescaline is a serotonergic psychedelic (it stimulates the serotonin 2A receptors on nerve cells in the brain). The religious use of peyote in the Americas is known as *peyotism*. The Native American Church (NAC) and American Indian Church are religious organizations in the United States and Canada which use peyote in their rituals. NAC healers conceive of life as a journey along the *peyote road*. A non-native group, the Peyote Way Church of God, which split from the NAC, also practices peyotism.

Mescaline is classified as a highly illegal Schedule 1 drug in the United States. However, it is legal under the Religious Freedom Restoration Act (RFRA) for members of native American religions in the United States to use peyote. The RFRA does not add any racial or ethnic requirement for legal protection. A person whose ancestry is not native American may legally use peyote as a member of a native American religious group (*United States v. Boyll,* 774 F. Supp. 1333 - Dist. Court, D. New Mexico 1991). Members of the Peyote Way Church of God are non-native Americans who use peyote religiously on an isolated ranch in Arizona (Tsetsi, 2014). They are legally protected under Arizona state law (Arizona Revised Statute Title 13-3402 (2016)).

Native American groups which use peyote primarily identify as Christian. They explicitly affirm Christian theology and ethics (Jones, 2005; Jones, 2007). They appeal to the Bible to justify the use of peyote. Peyote contains the spirit of the Christian God. Peyotists interpret their psychedelic experiences in terms of previously established Christian metaphysics. Peyote helps them communicate with God. The ritual use of peyote enables them to have "personal revelations that can lead to forgiveness of one's sins, alleviation of both bodily and spiritual ills, a greater sense of community, and to leading a moral and ethical life" (Jones, 2005: 280). However, it has been argued that some Navajo groups affiliated with the Native American Church are also turning to pre-Christian Navajo Traditionalist religions (Garrity, 2000: 527).

Native Americans suffer from high rates of alcoholism. One reason for the growth of the NAC is its strong focus on treating alcoholism: "The NAC code embodied in 'the peyote road' explicitly stresses, among other things, abstinence from alcohol and drugs, self-reliance, and devotion to one's family" (Garrity, 2000: 529). The natural abilities of serotonergic psychedelics to reduce cravings for alcohol and other abused drugs are well-documented (Ross, 2012; Bogenschutz & Johnson, 2016). But the fact that these abilities are entirely natural is consistent with the idea that they originate with God. The design argument can be used to justify the thesis that God placed peyote (and thus mescaline) on the earth for the purpose of serving as a medicine to treat alcoholism. It is consistent with that argument to say that peyote treats alcoholism and other diseases by entirely natural means. Hence it is consistent with belief in a providential God to say that the curative powers of peyote do not depend on any miracles. On this view, the ability of peyote to

combat alcoholism arises entirely naturally from its interactions with receptors on nerve cells. But that naturalness itself arises from divine providence.

3. Syncretic Brazilian Ayahuasca Religions

Ayahuasca originated in the Amazonian rainforest. Ayahuasca is an herbal tea or brew composed of primarily of two plants: the *psychotria viridis* leaf and the *banisteriopsis caapi* vine. The leaf contains the serotonergic psychedelic DMT while the vine contains monoamine oxidase (MAO) inhibitors. The MAO inhibitors prevent the body from breaking down the DMT before it enters the brain. Hence the MAO inhibitors are necessary for the psychedelic experience. Ayahuasca is used today by modern syncretic religious groups. These groups originated in Brazil. These syncretic groups includes the Christian *ayahuasca churches*. These include *Santo Daime* (SD) and *Uniao de Vegetal* (UDV). The use of ayahuasca by these churches is legal in Brazil. These churches have spread into North America. US courts have ruled that the use of ayahuasca by the UDV and SD churches is legal in the United States under the RFRA.

Santo Daime. Santo Daime (SD) is a syncretic religion which began in Brazil in the 1930s. Many SD churches currently exist in Brazil. But SD has expanded beyond Brazil and now has churches around the world. SD churches exist in the United States. A Federal District Court ruled in 2009 that the religious use of ayahuasca by SD churches is legal in the United States under the RFRA (*Church of the Holy Light of the Queen v. Mukasey,* 615 F. Supp. 2d 1210 - Dist. Court, D. Oregon 2009). Daimists consume ayahuasca in complex nighttime rituals. These rituals are governed by ethical codes. The rituals resemble Christian communions and involve considerable singing.

Santo Daime incorporates four earlier traditions. SD includes elements of rainforest animism. Animists believe that natural things are animated by spiritual powers. SD incorporates Christianity. SD incorporates spiritism. Spiritism originated in the 1800s in Europe (Kardec, 1857). Spiritists believe God constantly gives birth to spirits. Spirits are first born at the lowest level of maturity; the goal of every spirit is to grow in maturity and thereby return to God. Spirits are reincarnated, and over the course of their many lives they may move up or down on the ladder of spiritual maturity. SD also incorporates elements of the Yoruba-Christian religion known as *Umbanda*. Umbanda involves veneration of African orishas and equates them with Catholic saints. Hence SD involves a complex spirit world. Daimists believe in reincarnation. The psychedelic experiences are intepreted as confirmations of their beliefs in a spirit world. Daimists do not appear to use their ayahuasca visions to justify novel theological beliefs or practices.

Uniao de Vegetal. The Uniao de Vegetal (UDV) is probably the largest ayahuasca church (with about 17000 members). They have many churches in Brazil; but they have expanded into North America. UDV churches exist in the United States. The Supreme Court of the United States ruled in 2006 that the religious use of ayahuasca by UDV is legal under the Religious Freedom Restoration Act (*Gonzales v. O Centro Espírita Beneficente União do Vegetal,* 546 US 418 - Supreme Court 2006). The UDV combines has four major influences (Goulart, 2010). They are strongly influenced by Christianity and the spiritism of Kardec. They are somewhat influenced by Free Masonry and Umbanda. They believe in the spiritist idea of reincarnation.

Ayahuasca is used by the SD and UDV for healing and therapy. It is said to help cure mental illnesses and to produce more ethical behaviors. These claims are open to verification. The use of ayahuasca in the religious context of the UDV produces mental health benefits among adolescents (Da Silveira et al., 2005). The use of ayahuasca in the UDV produces positive emotions (Barbosa et al., 2005). It correlates with reductions if physical pain and greater personal independence (Ribeiro Barbosa et al., 2009). The use of ayahuasca in SD decreases feelings of panic and hopelessness (Santos et al., 2007). It decreases feelings of anxiety (Halpern et al., 2008). It correlates with improved mental health and produces greater optimism and confidence (Ribeiro Barbosa et al., 2009). Ayahuasca has been used to inhibit the use of alcohol and illicit drugs. The use of ayahuasca in the religious context of the UDV inhibits the use of alcohol and illicit drugs among adolescents (Da Silveira et al., 2005). Its use in SD in Oregon has been shown to reduce the abuse of alcohol (Halpern et al., 2008).

Ayahuasca produces its antidepressant effects through entirely natural means. The antidepressant effects of the molecules in ayahuasca are well-known. Ayahuasca has produced antidepressant effects in purely secular medical settings (Sanches et al., 2016). The ability of ayahuasca to alleviate depression does not depend on the miraculous interventions of spirits. It is entirely the result of physical changes in the brain produced by the physical actions of the molecules in ayahuasca. Ayahuasca helps reduce drug abuse and alcoholism through entirely natural means. It produces these benefits in purely secular medical settings (Ross, 2012; Sanches et al., 2016). The ability of ayahuasca to reduce substance abuse does not depend on the miraculous interventions of spirits. It is entirely the result of physical changes in the brain produced by the physical actions of the molecules in ayahuasca. Nevertheless, advocates of the design argument can use it to infer that these natural abilities of ayahuasca were intended by God. Divine providence provided us with natural remedies (such as ayahuasca) for illness.

4. The First Wave of American Psychedelic Religions

Many drug-based sects were founded in the United States during the latter half of the twentieth century (Lyttle, 1988; Stuart, 2002; Lander, 2011). These were mostly founded after the popularization of psychedelics during the 1960s. Stuart (2002) lists thirty seven different drug-based sects. Only a handful of those sects made any serious effort to become religions. One of these sects was the *Neo-American Church* (the NeoAC). It was founded by Arthur Kleps in Millbrook New York in 1965. Since several other groups independently used the title "Neo American Church", the religion founded by Kleps is sometimes called *The Original Kleptonian Neo-American Church*. Although the NeoAC used many drugs, they were primarily inspired by LSD. Their use of LSD led to an important court case regarding religion and psychedelic drugs (*United States v. Kuch,* 288 F. Supp. 439 - Dist. Court, Dist. of Columbia 1968).

The NeoAC thought of psychedelics as analogous to the host (the bread and wine) used in Christian communion. Testifying about the NeoAC before the United States Senate, Kleps said the church believed that "the sacred biochemicals such as peyote, mescaline, LSD, and cannabis are the true host of God" (Kleps, 1966). The second basic principle of the NeoAC was that psychedelic drugs "are sacramental foods, manifestations of the Grace of God, of the infinite imagination of the Self" (*United States*

v. Kuch, 443). Kleps said psychedelic drugs are "a gift of God" (1966). He based his theology on his LSD experiences: "LSD puts you in the mind of God" (1966). He wrote:

> these psychedelic substances give you a vision, and entry, a ticket, a trip ticket in a sense, to a higher level of awareness, of an expanded consciousness. . . . When you are in the mind of God you are beyond everything that you ordinarily experience. Everything that you ordinarily consider to be real. There are higher levels of reality than this one, and I believe it is very important for people to see this. It gives them an entirely new outlook on everything, a better outlook, a much improved outlook. (Kleps, 1966)

But neither Kleps nor anyone else in the NeoAC ever offered any evidence or arguments that LSD puts you into the mind of God. Their theological claims were based on their drug experiences rather than on sober evidence or reasoning. They tried to build their religion on the foundation of their drug-induced experiences. They did not try to incorporate their LSD experiences into some already existing religion. So they never offered any sober evidence for their thesis that LSD enables you to enter the mind of God. Why not the mind of the devil? Why not the mind of your own insanity? By 1973, the NeoAC said the psychedelics "are religious sacraments since their ingestion encourages Enlightenment, which is the recognition that life is a dream and the externality of relations an illusion (solipsistic nihilism)" (Kleps, 1973). Solipsism is the theory that reality is generated entirely by your own mind and nihilism is the theory that reality is valueless and meaningless. Solipsistic nihilism cannot be *true*, since truth is a value shared across multiple minds. If it reveals that solipsistic nihilism is the truth, then LSD merely takes you on a trip into the nonsense of your own insane mind.

But before developing his theory of solipsistic nihilism in 1973, Kleps had already produced plenty of absurdity. His document *The Boo Hoo Bible* is mostly filled with nonsense and practical jokes. The official church seal of the NeoAC contains a three-eyed toad in the center. Their motto on the seal is "Victory over horseshit". The absurdity of the NeoAC led the judge in the US v. Kuch case to deny "that the Church is a religion within the meaning of the First Amendment" (1968: 445).

The *Dog Commune* was a short lived religious group founded in the 1960s in Los Angeles. The theology of this group was based on LSD experiences: "LSD visions revealed that God existed on earth incarnate in dogs" (Stuart, 2002: 19). Hence the group worshipped dogs. They "raided animal shelters to liberate their canine deities" (Stuart, 2002: 19). They believed that all the ills in human society were derived from the mistreatment of dogs. So they made efforts to stop the use of dogs in scientific experiments. LSD also revealed to the group that "all life had equal value". So they became "fruitarians who only ate fruit that had fallen to the ground" (Stuart, 2002: 19). It is difficult to avoid the conclusion that this group was insane. On the basis of their psychedelic experiences, they formed false beliefs and harmful practices.

5. The Ayahuasca Pantheistic Society

The *Ayahuasca Pantheistic Society* (APS) is a small and new ayahuasca group in Brazil. It was founded in Brazil in 2001 by Dr. Regis Alain Barbier. Dr. Barbier tried

ayahuasca as a member of the UDV. But he split from the UDV over theological doctrine. The APS ayahuasca rituals evolved from those of UDV (Escobar et al., 2015). They aim to "increase the possibilities of spiritual / mystical experiences, personal growth, and collective enhancement" (Escobar et al., 2015). The APS explicitly declares that it "is not just a philosophical movement; it's also a religion" (APS, 2016). The APS contrasts philosophical discussions about the divinity of the natural universe with actually having "mystical experiences of union with nature through the use of a 'teaching plant'" (APS, 2016). Hence the APS is "a religion dedicated to the search for mystical experiences – that is, by definition, religious experiences of union, of immersion in the 'divine', which is understood as being simply the universe itself" (APS, 2016).

The APS has a pantheistic metaphysics. They do not believe in mind-body dualism or supernatural spirits. They believe that the universe is God (Escobar et al., 2015). Since the universe is God, the APS cultivates reverence for nature as a whole and for living nature on earth especially. Pantheism has a long history prior to the foundation of the APS. Thus the psychedelic experiences brought on by ayahuasca are integrated into a previously existing metaphysical system. Ayahuasca seems well-suited for use as a sacrament in pantheistic religions. Shanon writes that ideas and feelings inspired by taking ayahuasca "usually converge upon a coherent metaphysical outlook, one which is monistic, idealistic, pantheistic, imbued with religiosity and tainted with optimism, joy, and love" (2010: 269). Shanon also indicates that the worldview inspired by taking ayahuasca closely resembles the Neoplatonic metaphysics of Plotinus (2010: 269). Pantheistic ideas were also expressed by North American users of ayahuasca. They learned that "everything is connected and alive, that a divine force is working for us, that it's a great joy to love and to serve" (Harris & Gurel, 2012: 213).

Two ayahuasca religions, namely, Santo Daime and Uniao de Vegetal, have moved into the United States and have been legally recognized. The APS is a small new religion in Brazil. It has not established branches in the United States. It is unclear whether APS would receive legal recognition. For the sake of granting conscientious objector status on the basis of religion, a religion does not need to worship any personal god (*United States v. Jakobson,* 325 F. 2d 409 - Court of Appeals, 2nd Circuit 1963; *United States v. Seeger,* 380 US 163 - Supreme Court 1965). The courts explicitly recognized that belief in pantheism was sufficient to provide religious reasons for conscientious objector status (*United States v. St. Clair,* 293 F. Supp. 337 - Dist. Court, ED New York 1968). The reasoning in *United States v. St. Clair* does seem to provide legal precedent for the claim that the APS would be protected by the RFRA, just as UDV and SD have been protected by it. So perhaps pantheism would provide a religious reason for the courts to allow the legal ritual use of ayahuasca by the APS in the United States.

6. Lessons from the First Wave of Psychedelic Religions

After decades of repression, scientific interest in psychedelics has returned. Many laboratories are doing serious research into the potential medical uses of psychedelics. It may turn out that they are useful for treating alcoholism, opiate addiction, depression, and other types of mental illness and distress. But popular interest in psychedelics has also returned. Many people, outside of scientific or medical contexts, have begun to experiment with psychedelics. Some of this experimentation is recreational. But much

of it aims at cognitive enhancement. As North Americans have encountered ayahuasca, some of this interest is religious. New psychedelic religions are starting to sprout up. The result is a *second wave* of medical, scientific, and religious interest in psychedelics. This second wave of interest in psychedelics makes it imperative for philosophers to see what lessons can be learned from the first wave of psychedelics.

Psychedelics can be used in ways that are *ethically wrong* or they can be used in ways that are *ethically right*. To avoid ethically wrong use, and to ensure ethically right use, it is necessary to appeal to ethical rules. The ethical rules which govern the right use of psychedelics parallel the rules for the right use of other drugs. Comprehensive lists of rules for giving people drugs can be found in medical ethics textbooks. But researchers who study psychedelics have developed more specific ethical guidelines (Johnson et al., 2008). Ethical principles demand that people taking psychedelics need to be observed by sober monitors. Guidelines for monitors have been proposed (Council on Spiritual Practices, 2001). The International Center for Ethnobotanical Education Research and Service has developed ethical guidelines for the use of ayahuasca (ICEERS, 2013). The Plantaforma group has also developed ethical guidelines for ayahuasca (Plantaforma, 2009). Any ethically right religious use of psychedelics needs to at least follow the same ethical rules as ethically right medical use of psychedelics. The first lesson from the first wave of psychedelic religions is that *the ethically wrong use of psychedelics is doomed to failure*. It produces harmful personal and social outcomes. But the second lesson is that the ethically right use of psychedelics *might* lead to success.

Psychedelics can be used in ways that are *cognitively wrong*. Psychedelics alter the brain in ways that prevent it from acquiring factual knowledge. It is cognitively wrong to treat psychedelic experiences as if they were perceptions. When you are hallucinating, you are *not* perceiving. Psychedelic experiences *do not* provide you with any *evidence* for any belief. You cannot *learn* from psychedelics. The cognitively wrong use of psychedelics is illustrated by the Neo-American Church and the Dog Commune. Listening to LSD, the Dog Commune tried to live on fruit alone; but a diet composed only of fruit is harmful and potentially fatal. The methods of Huxley (1954), McKenna (1991), and Strassman (2001) are cognitively wrong. The cognitively wrong use of psychedelics inspires *false beliefs and harmful practices*. The lesson from the first wave is that *the cognitively wrong use of psychedelics is doomed to failure*. It produces unstable communities with unjustifiable beliefs and antisocial practices.

Psychedelics can be used in ways that are *cognitively right*. When you are hallucinating, you are imagining. Imagination can provide new insights and fresh perspectives; but those must be validated through sober methods. Psychedelic experiences are aesthetic and emotional. It is cognitively right to use psychedelics to provide emotionally intense and aesthetically rich experiences of independently validated ideas. Music and painting can be used to help us experience the emotional significance of logically justified abstract concepts. If you already have a well-validated system of religious concepts, then music and painting (and the other arts) can help you experience their meanings in emotionally intense and aesthetically rich ways. You may logically understand the Christian concept of salvation; but listening to Handel's Messiah helps you emotionally experience the meaning of salvation. So, if you already have a well-validated system of religious concepts, then it is cognitively right to use psychedelics to help you experience their meanings in emotionally intense and aesthetically rich ways.

The cognitively right use of psychedelics is illustrated by the peyote churches and the ayahuasca churches (like Santo Daime and Uniao de Vegetal). These churches start with an independently validated Christian theology. They did not make up their theologies on the basis of the drugs. The psychedelics provide the members of those religions with aesthetic and emotional ways of experiencing the meanings of their religious ideas. The members of the Native American Church already have an independently validated concept of God. They use peyote to more intensely experience the meaning of that content and to focus their imagination on its object. The lesson from the first wave is that the cognitively right use of psychedelics *might* succeed. It might produce stable religious communities with justifiable beliefs and prosocial practices.

7. The Second Wave of Psychedelic Religions

People travel from North America and Europe to Central and South Americas to use ayahuasca in retreat centers. This usage is known as *drug tourism* (Dobkin de Rios, 1994; Winkelman, 2005; Davidov, 2010). Many of these retreat centers are shams. They administer psychedelic drugs in ways that are both ethically and cognitively wrong. People have been assaulted, robbed, and raped. According to Levi (2016), the use of ayahuasca in New Age contexts is popular in North American cities. As described by Levi, these uses are both ethically and cognitively wrong. They lack protocols for medical and psychological safety. People suffer serious harms. Writers like Barnard (2014) and Richards (2014) offer New Age interpretations of psychedelic experiences which are scientifically unjustified, philosophically and theologically incorrect, and ethically questionable. Focusing only on the positive, these researchers fail to acknowledge the ethical and cognitive dangers of psychedelics. Trichter (2010) points out that the benefits of these new uses of ayahuasca also come with significant risks.

The religious and spiritual effects of psychedelics are now being studied in controlled conditions in medical laboratories. Since medical studies must meet rigorous ethical requirements for safety, these studies are done in ethically right ways. Many of these studies are taking place at the Johns Hopkins University (Jesse & Griffiths, 2014). Most of these studies use psilocybin. Several studies have used psilocybin to produce mystical experiences (Griffiths et al., 2006; Griffiths et al., 2011). One researcher involved in these studies has declared that these mystical experiences are genuinely religious experiences (Richards, 2008). Other studies have given psilocybin to patients suffering from terminal cancer (Grob et al., 2011). When administered to these cancer patients, it appears to alleviate anxiety concerning death. Relief of such anxiety is one of the main traditional functions of religion. If psilocybin really does produce mystical experiences, and if it really does relieve anxiety about death, then these laboratories are in fact just as religious as churches or temples. They are developing a new psilocybin religion.

8. Conclusion

Psychedelics are potentially very dangerous drugs. It is never right to use them outside of legally permitted contexts. If psychedelics are used in ways that are ethically and cognitively right, and if they are used in well-structured religious communities, then

they might lead to valuable insights. But the arguments against all religious uses of these drugs are very strong. Most major religions reject the use of intoxicants, including psychedelics. Even the most intensely spiritual psychedelic experience may be nothing more than a semi-psychotic delusion. There are no independent reasons to believe that psychedelic experiences can teach you anything about anything.

Atheistic Mysticism

1. The Ontic

Beings are ontic. These beings are things, they are objects. They are self-identical and different from each other. They are bounded by their own substantiality. They exist in space and time, they regulate themselves according to patterns. They have properties and participate in relations. They can be ranked on the Great Chain of Being.

According to the traditional conception of God, God is the supreme being; God is the highest being. But even the highest or supreme being is just another thing among things. And God is a person. But every person is a being among beings; every person is a thing among things. The standard theistic position is that God is a concrete particular thing. van Inwagen writes: "If there are such things as the following, they are concrete: cabbages, kings, bits of sealing wax, electrons, tables and chairs, angels, ghosts, and God" (2007: 199). Hence God is ontic. No doubt there are non-traditional ways to think about the divine; but the use of the term "God" belongs to theism. The term "God" refers to the supreme person. It refers to the highest being, a thing among things.

2. Ontic Awareness

Ontic awareness is the awareness of a thing by a thing. It is the awareness of an object by a subject. It is the awareness of a thing by ego. During ontic awareness, the mind contains mental representations. The ego represents its object. It contains some images or some proposition. These images or propositions are about things; they have aboutness. They also have truth-values. If true, they correspond to things, they truthfully represent beings. Since ontic awareness implies a distinction between subject and object, it also implies a distinction between being-itself and beings. Both subject and object are beings. They are distinct from each other and from all other beings.

Ontic awareness is the awareness of the self-surpassing of some particular thing; it is an awareness of striving of that thing for its own particular good. But every particular striving comes into conflict with other particular strivings. Things compete, so the goodness of this thing conflicts with the goodness of that thing. And, in any conflict, there are winners and losers. Ontic strivings either succeed or fail. For individual things, success is not inevitable. Every ontic striving is accompanied by the possibility of failure. Consequently, every ontic striving is accompanied by the fear of failure. The affective tone of all ontic awareness contains anxiety. The cognitive tone of all ontic awareness contains doubt. The aesthetic tone of all ontic awareness contains ugliness.

3. The Ontological

Being-itself is ontological. Beings are manifestations of being. Being-itself is behind and within all beings; but it is not beyond them or above them. On the contrary, being is within every being, it is within every thing. It is immanent rather than transcendent. Being-itself is the ground of being. It is the power of being which is spread through all beings and which animates them. It is a simplicity which divides itself up into multiplicity. It is the deepest essence or universal; it is that which all things have in common, namely, their being, their existence. It is ineffable and mysterious. But being-itself is pure self-surpassing, which is pure goodness, pure positivity, pure success. The power of being is the power of goodness. Since God is the highest being, God is not being-itself. The concept of a personal ground of being is self-contradictory. Being-itself does not belong to the category of personality or to any other category. The ontological excludes God as much as it excludes cabbages and kings.

4. Ontological Awareness

Ontological awareness is the awareness of being-itself. It is not the awareness of anything, Nor is it the awareness by anything. It is an awareness without the distinction between subject and object. It is both objectless awareness, and subjectless awareness. In ontological awareness, there does not exist any subject which is aware, nor does there exist any object of which it would be aware.

Ontological awareness requires the dissolution of the distinction between subject and object, self and other, ego and world. It requires the dissolution of the ego; when the ego dissolves, then the distinction between subjects and objects dissolves, and the distinction between beings and being-itself likewise dissolves. When the ego dissolves into pure consciousness, then beings dissolve into pure being. Comte-Sponville writes that when the ego dissolves "all that remains is everything, and the unity of all things" (168-9). As the distinction between subject and object dissolves, the distinction between the self and the world dissolves. You become unified with the rest of reality. When egocentric awareness dissolves into awareness itself, then beings dissolve into being-itself. Freud referred to this pure awareness as the *oceanic feeling*. Comte-Sponville writes that when the ego dissolves "Nothing remains but the enormous thereness of being" (149). He says "This is what the Greeks called *ataraxia* (the absence of disturbance) and what the Romans called *pax* (peace, serenity)" (149). This is bliss.

Ontological awareness is pure awareness. Is an egoless awareness; it is an awareness in which there is no ego. During ontological awareness, the mind is conscious, but it is not conscious of anything. The mind is aware, but it is not aware of anything. The mind is pure consciousness. It is consciousness which has not organized itself into an ego. It is consciousness without any perspective or point of view. Since it is an awareness without any ego, it is an awareness without any mental representation. There is no representation; nor is there any *presentation*; rather, there is only *presence*. When the distinction between subject and object dissolves, the result is non-propositional awareness. Propositions dissolve into propositionality. The truth of this or that proposition dissolves into truth itself. This truth is luminous self-evidence, pure presence.

Comte-Sponville refers to this presence as "self-evidence." He writes: "What is mysterious? Being is mysterious – everything is mysterious." (142) He writes: "Being is mystery, not because it is hidden or because it hides something but, on the contrary, because self-evidence and mystery are the same thing, because the mystery is *being* itself." (143) He says that, during ontological awareness, "All that remains is being, reality, what I have called self evidence." (162) And he says: "Mystery and self-evidence are one and the same thing that is, the world. The mystery of being is the light of being." (163) Self-evidence is luminous truth without words.

Since ontological awareness is the awareness of being-itself, it is the awareness of the pure self-surpassing. Since this self-surpassing is prior to the self-sundering of being-itself into beings, prior to the emergence of beings from being-itself, it is prior to all multiplicity and therefore to all competition. The striving of being-itself for its good, which is the good itself, does not conflict with any other striving. It is not possible for the self-surpassing of being-itself to fail. The self-surpassing of being-itself is pure success. Therefore, ontological awareness is the awareness of pure success or pure positivity. It is the awareness of universal goodness. Hence the affective tone of this awareness is pure happiness or pure joy. The cognitive tone of this awareness is pure truth. And the aesthetic tone of this awareness is pure beauty.

Comte-Sponville says that, during ontological awareness there is "only everything – the beauty, truth and presence of everything. . . . A sense of joyous acceptance. A sense of dynamic quietude – yes, like an unlimited courage. . . . Perfection. Plenitude. Bliss. Such joy! Such happiness! Such intensity!" (157) He says there is "no more frustration, hatred, fear, anger or anxiety; only joy and peace. No more make-believe, illusions, lies; only the truth" (157). There is only serenity and tranquility.

5. Mystical Experience

One way to achieve ontological awareness is through mystical experience. Many atheists have had profound mystical experiences. The atheist philosopher Nietzsche frequently reported mystical experiences. These were tremendous moments of ecstasy in which he experienced the absolute affirmation of all existence. The atheist philosopher John McTaggart had mystical experiences. For McTaggart, mystical experience showed that all spirits were unified by love (Mander, 1996). Thus "In mystic vision McTaggart seemed to *see* that the world is nothing but love, nothing but persons loving each other" (Geach, 1995: 569). The atheist Bertrand Russell also felt this deep love during his mystical experience (1967: 146-7). The atheist writer Sam Harris describes one of his mystical experiences like this:

> I once spent an afternoon on the northwestern shore of the Sea of Galilee, atop the mount where Jesus is believed to have preached his most famous sermon. . . . As I gazed at the surrounding hills, a feeling of peace came over me. It soon grew to a blissful stillness that silenced my thoughts. In an instant, the sense of being a separate self – an "I" or a "me" – vanished. Everything was as it had been . . . but I no longer felt separate from the scene, peering out at the world from behind my eyes. Only the world remained. (Harris, 2014: 81).

All these atheists denied that they were having experiences of God. God is a person. As such, God is a thing among things. To experience God is to be a human person experiencing a distinct divine person. Any experience of God, at least God in the standard theistic sense, involves a human subject being conscious of a divine object. It is ontic awareness rather than ontological awareness. Of course, you can easily redefine God as being-itself. The theologian Paul Tillich said that God as being-itself (that is, as the ground of being). But by doing that, Tillich was abandoning Christianity. The ground of being is not a person and it is not personal. Tillich was articulating a form of atheism dressed up in extremely abstract theological clothing.

The clearest way to think about atheistic mystical experience is to say that it is the experience of being-itself. It is ontological awareness. This is confirmed by Comte-Sponville. When you have a mystical experience, Comte-Sponville says: "What fulfills you then is not a particular state of being but being itself. . . . All that remains is being; all that remains is joy. Anguish is the perception of nothingness; joy is the perception of being." (165) Comte-Sponville describes his first mystical experience like this:

> My mind empty of thought, I was simply registering the world around me – the darkness of the underbrush, the incredible luminosity of the sky, the faint sounds of the forest. . . And then, all of a sudden. . . . What? Nothing: everything! No words, no meanings, no questions, only – a surprise. Only – this. A seemingly infinite happiness. A seemingly eternal sense of peace. Above me, the starry sky was immense, luminous and unfathomable, and within me there was nothing but the sky, of which I was a part, and the silence, and the light, like a warm hum, and a sense of joy with neither subject nor object (no object other than everything, no subject other than itself). Yes, in the darkness of the night, I contained only the dazzling presence of the All. Peace. Infinite peace! Simplicity, serenity, delight. . . . The ego had vanished: no more separation or representation, only the silent *presentation* of everything. No more value judgment; only reality. No more time; only the present. No more nothingness; only being. There was only self-evidence. And silence. And the truth – but without words. (156-7)

For the atheist, mystical experience is the presence of pure being. Comte-Sponville says that the emotionality of this experience is joy. But this joy is also love. We experience the dissolution of our separate personalities in love. The distinct selves of two lovers dissolve into each other. They merge or fuse. In love, we experience unity. Since all things are unified by being-itself, it should come as no surprise that ontological awareness is experienced emotionally as love. On this interpretation, when McTaggart and Russell experienced reality as pure love, they were experiencing being-itself.

6. Meditation

Mystical experiences are not reliable. Some people have them, others do not. And they come when they will. A more reliable way to achieve ontological awareness is through quieting the mind, through silencing the chatter of the ego. Comte-Sponville advocates the realization of inner silence (169-71). This can be achieved through

mindfulness meditation or Zen meditation (143, 147, 167). He writes that mindfulness means

> being at one with yourself, so much so that the self vanishes, and all that remains is oneness – the act itself, awareness itself. You were taking a walk? All that remains is the walk. You were making love? All that remains is desire or love. You were meditating? All the remains is meditation. You were acting? All the remains is action – such is the secret of martial arts, which is why they involve spirituality. You were being? All that remains is being itself. (168)

When the mind becomes quiet during meditation, the focus of the consciousness on this or that dissolves. As this focus dissolves, the ego dissolves. This is not a dissolution or cessation of awareness; on the contrary, it is a cessation of awareness on this rather than that. It is a cessation of the exclusive attentional focus on this or that. The mind no longer focuses on the differences which distinguish things from one another. The mind becomes equally conscious of all the things in its field of awareness; all things in that field shine equally; all those things are equally present to the mind. But this equality means that what they all have in common becomes present to the mind; their shared essence or unity presents itself to the mind. And what all these things share is being-itself. The distinctness of each thing, its particularity or thisness, dissolves into being-itself. So, when the mind becomes quiet during meditation, the being of every thing presents itself to the mind; being-itself presents itself to the mind. But the mind no longer has any separateness. All things, including the mind itself, dissolve into an ocean of consciousness, an ocean of light, an ocean of bliss.

Atheistic Spirituality

1. Western Buddhism

Sam Harris is an atheist writer. His first book, *The End of Faith,* was extremely critical of religions, especially the Abrahamic religions. However, unlike many atheists, Harris is interested in spirituality. The last chapter of *The End of Faith* argued that religion should be replaced with spirituality. Harris later expanded on that chapter in his book *Waking Up: A Guide to Spirituality without Religion* (cited here as WU). His argument for the distinction between spirituality and religion is based on spiritual experiences. He says that people in many different religions report the same sorts of spiritual experiences (WU 9). They do not show that all religions are true (WU 20-2); on the contrary, they show that all religions are false. But these experiences are extremely important. They show that humans can achieve profound states of well-being (WU 12-3).

Spiritual experiences do not point to the existence of God or to any other truths about the universe. They point only to truths about the human mind. Harris thinks about spirituality in purely scientific terms: spirituality is a part of the psychology of well-being. Harris believes that Buddhism went very far in developing this science (WU 28-31). Harris rejects all the supernatural and superstitious aspects of Buddhism. He thus

develops a naturalized form of Buddhism. As he naturalizes Buddhism, Harris rejects almost all of the religious doctrines that developed in Eastern versions of Buddhism. This is a highly Westernized form of Buddhism. It ends up being a system of spiritual practices. These are practices for training the self.

The ancient Greek and Roman Stoics developed a system of spiritual practices aimed at producing a profound state of well-being. These spiritual practices were absorbed into the monastic practices of Medieval Christianity. The ancient Stoic spirituality inspired St. Ignatius Loyola, the founder of the Jesuit order of Catholic monks. Loyola used the old Stoic ideas to develop a Christian system of spiritual exercises. Spirituality became a kind of ethical self-discipline (involving practices of contemplative prayer, meditation, fasting, monastic retreats, and so on). The Westernized Buddhism developed by Harris fits very well into the spirituality that started with the Stoics.

2. Ordinary Life is Suffering

Harris is a materialist about the mind (WU 204-5). The activity of the brain produces consciousness. But here Harris makes a great distinction between the scientific description of how the brain produces the mind and your own experience of your mind (WU 78-9, 204-5). Harris is concerned with conscious experience. He starts with introspection, which involves looking into your own consciousness.

According to Harris, if you study your own consciousness, you will find that life is not satisfactory. You are perpetually moving towards pleasures and away from pains (WU 12-6). He says "We crave experiences, objects, relationships, only to grow bored with them. And yet the craving persists" (WU 34). He says "Our feelings of fulfillment do not last. And the stress of life continues" (WU 45). Because of this ceaseless change, our lives cannot be fully satisfying. We remain perpetually unfulfilled (WU 12). This is the *First Noble Truth* of Buddhism, namely, that ordinary life is ultimately unsatisfactory. All positive experiences fade away. All that you value will vanish. Life involves constant exposure to negative emotions like anxiety, worry, fear, grief, anger, and so on.

The fact that all things are constantly changing implies that any good thing you have now will soon be destroyed. As the goodness you have now vanishes, you crave more. You desire more breath, water, food, money, status, power, love, and so on. Whenever you get some good thing, you try to hold on to it – you cling to it. You become attached to it. You become attached to your life, your family members, your job, your money, your power, your health. Worse, you know that you will lose them. These things are impermanent. Your knowledge of their impermanence generates the negative emotions. Since you are attached to impermanent things, you fear their loss, you are angry if others try to take them, and you constantly desire more of them. So the *Second Noble Truth* of Buddhism teaches that the unsatisfactoriness of life emerges from your inability to accept impermanence. This failure drives your craving and clinging.

3. The Illusion of the Self Creates Suffering

According to Harris, most of us typically believe that we have a unified permanent self. It is a "a center of consciousness that exists somehow interior to the body, behind

the eyes, inside the head" (WU 83) For Westerners, the unified permanent self is usually said to be the *soul*. Harris writes that "The idea of a soul arises from a feeling that our subjectivity has a unity, simplicity, and integrity that must somehow transcend the biochemical wheelworks of the body" (WU 69-70). But he says "There is no place for a soul inside your head" (WU 205). The Abrahamic religions are deluded when they posit souls (WU 91). One of the main themes of *Waking Up* is that the self is an illusion (WU 9, 82-3). You are not a unified permanent self. Selves do not exist.

Harris gives two arguments against the stable self. The first is the *Argument from Scrutiny* (WU 92, 116). It goes like this: (1) If you look closely at the self, you will discover that it vanishes. (2) But if something vanishes when you look closely at it, then it must be an illusion. (3) Therefore, the self is an illusion. The second is the Argument from Neural Distribution (WU 116, 205-6). It goes like this: (1) Brain science teaches us that the self is distributed over many parts of the brain. (2) But anything that is distributed over many distinct parts cannot be a unified whole. (3) Hence the self is not a unified whole. The appearance of a unified self is an illusion. Harris writes that "The feeling that we call "I" is an illusion. There is no discrete self or ego living like a Minotaur in the labyrinth of the brain" (WU 9). The rejection of a unified permanent self is one of the hallmarks of Buddhism. The Buddhists teach that "there is no stable self that is carried along from one moment to the next" (WU 87).

The illusion of the self is the source of suffering (WU 100-1). The illusory self is the ego. The ego imagines itself to be a unified permanent thing. Believing itself to be unified, it identifies itself with the content of its experience. The ego loves some other person. Since the ego believes itself to be unified, it identifies itself with this love. Since it believes itself to be permanent, and since it identifies itself with its love, it believes its love to be permanent. Since it identifies itself with its love, it identifies itself with the object of its love. It believes the object of its love is permanent too. Hence the twin illusions of self-unity and self-permanence engender the *illusion of possession*. This is the illusion that your present goods permanently belong to you. Because it believes in its unity and permanence, the ego *attaches* itself to its present goods.

Because it identifies itself with the contents of its experience, the ego suffers. It says: I *am* in love. It identifies itself with its experience of love and with the object of its love. It clings to that object. But its experience and its object are both impermanent. As it clings, it feels the experience and the object both dissolving. It becomes bored with love and it watches the attractiveness of its beloved fade. Or it watches as its beloved gets sick or dies or is stolen by somebody else. Because I *am* in love, and any object of love is impermanent, it follows that I *am* afraid, I *am* jealous, I *am* angry, I *am* grieving, I *am* depressed. Because it identifies itself with its experiences, the ego struggles and suffers. It cannot detach itself from those thoughts and feelings. So it ruminates (WU 119). It remains trapped in negative feedback loops. Above all, the ego fears its own degradation and dissolution. It fears its own impermanence. It fears illness, old age, and death. So the very being of the ego is emotional negativity.

Because it believes itself to be unified and permanent, the ego believes itself to be complete. So, when it loses its goods, it is shocked; since it identified itself with those goods, it believes it is losing part of itself; hence it desperately seeks completeness. It craves. Craving is desire motivated by despair. Its healthy desires become perverted by the fear of loss. The desire to eat becomes gluttony; the desire for sex becomes lust; the

desire for money becomes greed; the desire for power becomes ambition. It will never have enough. So the very being of the ego is dissatisfaction. Another side of this craving produces a desire to extinguish it through stupefaction. This leads to the abuse of narcotics or pain-killers and to addiction to alcohol or opiates.

4. A Better Way of Life is Possible

It is not clear why the ego normally emerges in most people. But Buddhists, and Harris, believe that if you look into your own mind closely, you can see that "*Consciousness does not feel like a self*" (WU 103, italics Harris). You can see the "intrinsic selflessness of consciousness" (WU 82). If you look closely into your own mind, you will see that the ego is "a feeling that arises among the contents of consciousness. Consciousness is prior to it, a mere witness of it, and, therefore, free of it in principle" (WU 104). Again, if you turn your consciousness back on itself in a deliberately concentrated way, then you will discover that "the feeling of being a separate self will disappear; what remains, as a matter of experience, is a field of consciousness – free, undivided, and intrinsically uncontaminated by its ever-changing contents" (WU 129).

The ego is not necessary. It is possible to live without an ego. You can free yourself from the illusion that you are an ego (WU 9, 14, 17, 116). You can see that "a condition of selfless well-being is there to be glimpsed in each moment" (WU 17). You can therefore see that a better kind of mental life is possible. This is the *Third Noble Truth* of Buddhism, namely, that it is possible to become liberated from clinging and craving, it is possible to become liberated from the illusion of the ego. For Harris, this liberation is the goal of spirituality. He writes that "the deepest goal of spirituality is freedom from the illusion of the self" (WU 123). This is self-transcendence (WU 17). Harris says that this self-transcendence will also allow us to live more ethically in the world (WU 14).

To be free from clinging and craving is to have a kind of life described in Buddhism as nirvana. This is a way of being rather than some heavenly place. Nirvana is true peace. It is the cessation of craving and clinging. It is egoless consciousness. It is an imperturbable serenity. To live in this way is to be immune to negative emotions. It is possible for any person to achieve this egolessness. According to Buddhism, there is also a somewhat reliable way to achieve it. The Fourth Noble Truth of Buddhism says that the path to egolessness is the Eightfold Way. One of the parts of the Eightfold Way involves the practice of mental hygiene. This is often called meditation.

Harris discusses several techniques of meditation. But he focuses on the Buddhist technique known as *vipassana* (WU 34-8). This is also called mindfulness. It involves focusing on breathing. Harris introduces it early in *Waking UP* (39-40) and then devotes an entire chapter to it (Chapter 4). The basic idea is easy to understand. You sit in a comfortable position with your spine erect. You close your eyes and start breathing. As you breathe, you concentrate on your breath. You allow thoughts and feelings and sensations to emerge, pass, and fade away. If you find yourself getting distracted, you return your focus to your breathing. This can be very hard to do at first. But over time, with practice, you can get better at it. By focusing on your breath, your mind begins to free itself from the constant inner turmoil. It becomes clear. And the experience of having a unified permanent self starts to disappear. The ego fades away.

5. Mindfulness Meditation Helps Overcome Suffering

Meditation undermines and ultimately extinguishes the ego (WU 31, 37, 82). It destroys the illusion of the unified permanent self. It enables you to awaken from the dream in which you experienced yourself as an ego. You no longer identify yourself with your thoughts, emotions, or sensations (WU 45, 101, 102, 140). You are no longer in bondage to them (WU 123). Through meditation it is possible to become pure selfless consciousness (WU 37, 102, 123, 125). It is possible to "experience a kind of boundless, open awareness – to feel, in other words, at one with the cosmos" (WU 43). Through meditation you can experience "a blissful expanse of conscious peace" (WU 127). Harris says that "Once one recognizes the selflessness of consciousness, the practice of meditation becomes just a means of getting more familiar with it" (WU 199).

Meditation offers profound relief from suffering (WU 123, 171). By meditating we destroy the illusion of the ego; by destroying that illusion, we see things as they really are; and "by seeing things as they are, we cease to suffer in the usual ways" (WU 45, 48, 123). Through meditation you can "enjoy a mind undisturbed by worry" (WU 39). You can "reduce pain, anxiety, and depression" (WU 35, 121-2). The goal of meditation is the "capacity to be free in this moment, in the midst of whatever is happening. If you can do that, you have already solved most of the problems you will encounter in life" (WU 49). As an illustration, Harris says "If you are injured and in pain, the path to mental peace can be traversed in a single step: simply accept the pain as it arises, while doing whatever you need to do to help your body heal" (WU 149).

By weakening the illusion of the ego, mindfulness helps you become detached from negative emotions. It introduces cognitive distance. You no longer identify yourself with impermanent things. You no longer cling to them nor do you crave them. You can be in love without identifying yourself with the love or clinging to your beloved. So you no longer experience your love as contaminated with the negative emotions of anxiety, fear, jealousy, anger, grief, and depression. Hence those emotions become weaker and do not last as long (WU 98). Harris says that "with mindfulness, you can discover that negative states of mind vanish all by themselves" (WU 100). Through mindfulness, you can learn to respond better to adversity (WU 149). Mindfulness "reduces both the unpleasantness and intensity of noxious stimuli" (WU 121). And mindfulness has shown promise in treating eating disorders and addiction (WU 122).

Besides merely relieving the negative effects of suffering, meditation can produce positive effects: "our minds can open to states of well-being that are intrinsic to the nature of consciousness" (WU 48, 124). You can enjoy a mind that is "open like the sky, and effortlessly aware of the flow of experience in the present" (WU 39). Through meditation you can ultimately "arrive at a state of well-being that is imperturbable" (WU 44). Harris says that "Mindfulness is a technique for achieving equanimity amid the flux" (WU 38). It "can be a powerful tool for self-regulation and self-awareness" (WU 47). It can improve cognitive functions like learning and memory (WU 35). It can help with emotional self-regulation (WU 35). Harris says that meditation "fosters many components of physical and mental health: It improves immune function, blood pressure, and cortisol levels" (WU 122). And Harris frequently points out that you do not have to take these claims on faith. They have been verified by scientific studies.

Finally, some types of meditation can produce ethical benefits: "Training in compassion meditation increases empathy, as measured by the ability to accurately judge the emotions of others, as well as positive affect in the presence of suffering. The practice of mindfulness has been shown to have similar pro-social effects" (WU 122). The practice of mindfulness might be criticized as self-centered: you're spending lots of time sitting alone just concentrating on your breathing. But Harris reminds us that Buddhism values ethical living with others (WU 30). Harris says that if we awaken from the illusion of our self-centered egos, then we will become more ethical; we will "become better able to contribute to the well-being of others" (WU 206).

Notes

[1]Makin (1988: 85) writes that "If F is an exemplified concept, and G is not, then Fs are a greater kind of thing than Gs". Makin prefers to say that "If F is a necessarily exemplified concept, and G is not, then Fs are a greater kind of thing than Gs" (1988: 85). However, adding necessity makes no difference here.

[2]Kiteley offers an ontological argument using properties: "Divinity is perfect; Were nothing divine, divinity would not be perfect; Therefore, something is divine" (1958: 534). More formally: P(D); $\sim(\exists x)(D(x))$ then $\sim P(D)$; therefore, $(\exists x)(D(x))$.

[3]As an illustration of support for the first step, here is an argument which concludes that natures are pure sets: (1) The success of mathematics in science supports the hypothesis that purely mathematical objects exist (Colyvan, 2001). (2) That success also supports the hypothesis that the natures of things are purely mathematical objects (Steiner, 1998: 4-5). (3) The success of set theory in mathematics supports the hypothesis that all purely mathematical objects are pure sets. (4) Therefore, these successes support the hypothesis that the natures of things are pure sets. Every step of this argument can be challenged. Other approaches to natures can be developed.

[4]Augustine (*The City of God*, bk. XI, ch. 16) distinguishes five levels of greatness: (1) merely existing things (rocks); (2) living existing things (plants); (3) sentient living existing things (animals); (4) intelligent sentient living things (humans); (5) immortal sentient intelligent living things (angels). Similar rankings are found in Anselm (*Monologion*, ch. 4) and in Aquinas (*Summa Theologica*, Part 1, Q. 4, Art. 2).

[5]Biologists have developed ways to rank biological natures (species) according to their genetic complexities; these ways closely resemble the great chain (Taft et al., 2007). At least one physicist has developed a way to rank physical natures according to their energetic complexities; this way also closely resembles the great chain (Chaisson, 2006).

[6]Computer scientists have developed ways to rank many kinds of things by a kind of complexity known as logical depth (Bennett, 1988).

[7]Many writers have defined intrinsic value as historically accumulated organization (Soule, 1985: 731; Dworkin, 1993: ch. 3; Dennett, 1995: 511-13; Agar, 2001). But logical depth measures historically accumulated organization.

[8]Plantinga writes "If the concept of A is instantiated and the concept of B is not, then A is greater than B" (1966: 544). Makin writes that "If F is an exemplified concept, and G is not, then Fs are a greater kind of thing than Gs" (1988: 85). Makin prefers to say that "If F is a necessarily exemplified concept, and G is not, then Fs are a greater kind of thing than Gs" (1988: 85). However, adding necessity makes no difference here.

[9]Kiteley writes that "it seems not implausible to argue that a character [property] which does not characterize is less perfect than one that does characterize, that the unexemplified property must concede the higher notch in the hierarchy of excellence to the exemplified" (1958: 534). However, while he says it is not implausible to argue for this, he provides no argument. Makin counters that "It is not clear that there is any sense of 'greater' in which grains of sand are a greater kind of thing than unicorns just in virtue of the fact that there are grains of sand while there are not any unicorns" (1988: 85).

[10]A partial list of verses referring to the revival of corpses includes: Isaiah 26:19; Ezekiel 37:12-13; Daniel 12:2; Matthew 27: 52-53; Mark 5:38-42; John 5: 28-29; John 11:1 –

12:2; 1 Corinthians 15:52; 1 Thessalonians 4:16. The New Testament contains many references to the revival of Jesus from his tomb and the general raising of the dead.

[11]The revival of Lazarus is in John 11:1 – 12:2; the revival of the daughter of Jairus is in Matthew 9: 18-25 and Mark 5: 22-42.

[12]Ezekiel is taken by God to a valley full of dry bones. He commands them to come to life. The bones reassemble to make skeletons. The skeletons are clothed with flesh. God causes the breath of life to enter the reassembled corpses, and they are reanimated.

[13]According to Hick (1976: 279 – 280, 285), the resurrection replica is made in a second space. This second space is geometrically isolated from earthly space (there is no continuous spatial path from any point in earthly space to the resurrection space). There are no natural causal connections from our earthly space to the resurrection space (though of course divine causality can connect them). The earthly space and the resurrection space share a common time. Hick's resurrection world is not a Lewisian world. But it satisfies the criteria given in Leslie (1989: ch. 4) for being a distinct universe.

[14]According to Hick, our actual universe is partitioned into a plurality of geometrically closed spaces. These closed spaces are known as *Hubble volumes* in current cosmology (Tegmark, 2003). Due to spatial isolation, we can neither travel to nor observe other Hubble volumes. These Hubble volumes share a common time and are linked by non-local causal laws. Our resurrection replicas are created in a distinct Hubble volume.

[15]The original says "efficient causality" instead of physical causality. The "efficient" cause is an Aristotelian notion that corresponds to our idea of physical causality.

[16]Leibniz identifies perfection with *quantity of essence* (Leibniz, 1697; Rutherford, 1995: 23). But the quantity of essence of some thing is the quantity of *harmony* in that thing (Rutherford, 1995: 35). Harmony is proportional to both order and variety (Rutherford, 1995: 13). Thus Leibniz writes that God has "chosen the best possible plan in producing the universe, a plan which combines the greatest variety together with the greatest order" (PNG, sec. 10; see DM, secs. 5-6). Again he writes that perfection is "the greatest possible variety, together with the greatest possible order" (*Monadology*, sec 58). Thus perfection is proportional to both order and variety (Rescher, 1979: 28-31). As order and variety increase together, so does perfection.

[17]And yet, despite the alleged omniscience of the Omega Point, Tipler says that much of the original information about the past may be degraded by noise (1995: 158, 219). Since information about the past may be corrupted and therefore useless, Tipler proposes that the Omega Point may reconstruct every human life by brute force simulation of all finite machines. Since earthly humans are finite (1995: 20 – 44), an infinitely powerful computer can easily simulate all logically possible humans by brute force (1995: 220). However, if information about some Original person does not flow to the Omega Point, then the simulation that corresponds to that Original is not even a copy. It is not even a replica. A copy or replica requires the flow of information. Since resurrection requires survival, and survival requires the flow of information, no brute force simulation is the resurrection of any earthly Original. There can be no resurrection by brute force.

[18]Although *The Gospel* has 166 pages, only page 1-37 and 108-12 explicitly deal with Christian intelligent design. Most of *The Gospel* is concerned with defining and defending the Church of the Flying Spaghetti Monster.

[19]Pastafarianism is explicitly referred to as a religion in Henderson (2006) xi, xiv, 26, 27, 28, 64, 65, 94, 98, 99, 122, 165, 166.
[20]The FSM is explicitly referred to as a god, as God, or as the Creator in *The Gospel,* xiv, 30, 79, 140-3, 155. The story of the FSM as the Creator is given in 40-3, 51-6, 70-9. The FSM is treated as a divine designer-creator in 127-64.
[21]Pastafarianism has seen almost no scholarly discussion. Cusack (2010: 132-9) discusses it briefly. Apart from Cusack, searches of JSTOR, Google Scholar, and the Dartmouth Library collective database system reveal no substantive literature on it.
[22]The Church of the Flying Spaghetti Monster was founded by Bobby Henderson. He writes: "Some claim that the church is purely a thought experiment or satire, illustrating that Intelligent Design is not science, just a pseudoscience manufactured by Christians to push Creationism into public schools. These people are mistaken — The Church of FSM is legit, and backed by hard science. Anything that comes across as humor or satire is purely coincidental" (Henderson, 2016a). And he also writes: "It's not a joke. Elements of our religion are sometimes described as satire and there are many members who do not literally believe our scripture, but this isn't unusual in religion" (Henderson, 2016a).
[23]Christopher Shaeffer was sworn into office on the Town Board of Pomfret, New York, wearing a colander, on 2 January 2014. See <http://www.nydailynews.com/news/politics/pastafarian-politician-takes-oath-office-wearing-colander-head-article-1.1568877>. Accessed 17 August 2016.
[24]The Pastafarian Kiva fund raised 3.1 million dollars. See <http://www.venganza.org/2016/04/kiva-3-million/>. Accessed 16 August 2016.
[25]For the 2015 Michigan display in 2015, see <http://www.washingtontimes.com/news/2015/dec/19/flying-spaghetti-monster-followers-erect-holiday-d/>. For the 2015 Florida display, see <https://www.rt.com/usa/325680-flying-spaghetti-monster-florida/>. For the 2015 Wisconsin display, see <http://www.ahauwmadison.org/2015/04/flying-spaghetti-monster-back-in.html>. All accessed 17 August 2016.
[26]For the Tennessee courthouse display in 2008, see <http://www.cnet.com/news/flying-spaghetti-monster-statue-at-tennessee-courthouse/>. Accessed 17 August 2016.
[27]For the peacefulness of FSM, see *The Gospel,* 27, 28, 65, 94, 166.
[28]The serotonergic psychedelics are so-named because they closely resemble serotonin, one of the major neurotransimitters. Due their structural resemblance to serotonin, they bind tightly to serotonin receptors (the 5-HT receptors) at the synapses of nerve cells. They appear to cause their psychedelic effects by binding to and activating serotonin 2A receptors (Carhart-Harris et al., 2014); but they may also produce those effects by activating serotonin 2C and 1A receptors (Reissig et al., 2005).

References

Albert, D. (2012) On the Origin of Everything. Review of L. Krauss "A Universe from Nothing." *New York Times, Sunday Book Review* (25 March 2012), BR20.

Anselm (1076/1998) *Monologion*. In B. Davies & G. Evans (eds.) (1998) *Anselm of Canterbury: The Major Works*. New York: Oxford University Press.

Anselm. (1903) *Proslogium; Monologium: An Appendix In Behalf Of The Fool By Gaunilo; And Cur Deus Homo*. Trans. S. N. Deane. Chicago: The Open Court Publishing Company.

Aquinas, T. (1920) *Summa Theologica*. Translated by the Fathers of the English Dominican Province. Second and Revised Edition. New York: Benziger Brothers. Text is public domain. Quotes have been edited for modern readability.

Aquinas, T. (1952-4) Quaestiones Disputate de Veritate (Disputed Questions on Truth). Trans. R. Mulligan, J. McGlynn, and R. Schmidt. Three volumes. Library of Living Catholic Thought. Chicago: Regnery. Text is public domain. Freely available on the open web at <http://www.dhspriory.org/thomas/english/QDdeVer.htm>.

Aristotle (1908) *Metaphysics*. Translated by W. D. Ross. Oxford, UK: Clarendon Press.

Aronson, R. (2010) *Living without God*. Berkeley, CA: Counterpoint Press.

Asimov, I. (1956/1990) The last question. In *The Complete Stories, Vol. 1*. New York: Doubleday, 290-300.

Atran, S. & Norenzayan, A. (2004) Religion's evolutionary landscape: counterintuition, commitment, compassion, communion. *Behavioral and Brain Sciences 27* (6), 713-70.

Augustine (1993) *On the Free Choice of the Will*. Trans. T. Williams. Indianapolis: Hackett.

Ayahuasca Pantheistic Society (2016) The culture of oneness. Online at <http://www.panhuasca.org.br/ingles/unicidade.htm>. Accessed 20 February 2017.

Barbosa, P., Giglio, J. & Dalgalarrondo, P. (2005) Altered states of consciousness and short-term psychological after-effects induced by the first time ritual use of ayahuasca in an urban context in Brazil. *Journal of Psychoactive Drugs 37* (2), 193-201.

Barnard, G. W. (2014) Entheogens in a religious context: The case of the Santo Daime religious tradition. *Zygon 49* (3), 666-84.

Barrett, J. (2000) Exploring the natural foundations of religion. *Trends in Cognitive Science 4,* 29-34.

Barrow, J. (1999) *Impossibility: The Limits of Science and the Science of Limits*. New York: Oxford University Press.

Barrow, J. & Silk, J. (1980) The structure of the early universe. *Scientific American 242* (4) (April), 118-28.

Barrow, J. & Tipler, F. (1986) *The Anthropic Cosmological Principle*. New York: Oxford University Press.

Basalla, G. (1988) *The Evolution of Technology*. New York: Cambridge University Press.

Bedau, M. (1998) Philosophical content and method of artificial life. In T. Bynum & J. Moor (Eds.) (1998) *The Digital Phoenix: How Computers are Changing Philosophy*. Malden, MA: Basil Blackwell, 135-52.

Bennett, C. (1988) Logical depth and physical complexity. In Herken, R. (1988) *The Universal Turing Machine: A Half-Century Survey*. New York: Oxford University Press, 227-57.

Bennett, C. (1990) How to define complexity in physics, and why. In W. Zurek (Ed.) (1990) *Complexity, Entropy, and the Physics of Information*. Reading, MA: Addison-Wesley, 137-48.

Bennett, J. (1984) *A Study of Spinoza's Ethics*. New York: Cambridge University Press.

Benson, H. et al. (2006) Study of the therapeutic effects of intercessory prayer (STEP) in cardiac bypass patients. *American Heart Journal 151* (4), 934-42.

Bertz, S. (1981) The first general index of molecular complexity. *Journal of the American Chemical Society 103,* 3599-601.

Bishop, J. (2010) Secular spirituality and the logic of giving thanks. *Sophia 49,* 523-34.

Bishop, S. (2002) What do we really know about Mindfulness-Based Stress Reduction? *Psychosomatic Medicine 64,* 71-84.

Bloom, P. (2007) Religion is natural. *Developmental Science 10* (1), 147-51.

Blumenfeld, D. (1981) Leibniz's theory of the striving possibles. In R. S. Woolhouse (Ed.) (1981), *Leibniz: Metaphysics and Philosophy of Science*. New York: Oxford University Press, 77-88.

Bogenschutz, M. & Johnson, M. (2016) Classic hallucinogens in the treatment of addictions. *Progress in Neuro-Psychopharmacology & Biological Psychiatry 64*, 250-8.

Bostrom, N. (2003) Are you living in a computer simulation? *Philosophical Quarterly 53* (211), 243-55.

Boyer, P. (2008) Religion: Bound to believe? *Nature 455* (23 October), 1038-9.

Broad, C. D. (1953) Arguments for the existence of God. *Religion, Philosophy and Psychical Research*. New York: Routledge, 175-201.

Buckland, R. (1986) *Complete Book of Witch Craft*. Second Edition Revised and Expanded. St. Paul, MI: Llewellyn Publications.

Bynum, C. (1995) *The Resurrection of the Body in Western Christianity, 200 – 1336*. New York: Columbia University Press.

Cady, H. E. (1919) *Lessons in Truth: A Course of Twelve Lessons in Practical Christianity*. Kansas City, MI: Unity School of Christianity.

Cannon, L. (2015) What is Mormon Transhumanism? *Theology and Science 13* (2), 202-18.

Cassan, A. et al. (2012) One or more bound planets per Milky Way star from microlensing observations. *Nature 481* (12 January), 167-9.

Chaisson, E. (2001) *Cosmic Evolution: The Rise of Complexity in Nature*. Cambridge, MA: Harvard University Press.

Chaisson, E. (2006) *The Epic of Evolution: The Seven Ages of our Cosmos*. New York: Columbia University Press.

Chalmers, D. (2010) The Singularity: A philosophical analysis. *Journal of Consciousness Studies* 17:7-65.

Cicero, M. T. (1877) *On the Nature of the Gods*. Trans C. D. Yonge. New York: Harper & Brothers.

Clawson, R. (1910) Our Mother in Heaven. *Millennial Star 72* (29 September 1910), 619–20.

Colyvan, M. (2001) *The Indispensability of Mathematics*. New York: Oxford University Press.

Comte-Sponville, A. (2006) *The Little Book of Atheist Spirituality*. Trans. N. Huston. New York: Viking.

Corcoran, K. (2001) Physical persons and postmortem survival without temporal gaps. In K. Corcoran (ed.) *Soul, Body, and Survival*. Ithaca, NY: Cornell University Press, 201-17.

Council on Spiritual Practices (2001) Code of ethics for spiritual guides. Online at <http://www.csp.org/code.html>. Accessed 25 February 2017.

Craig, W. L. (1991) The existence of God and the beginning of the universe. *Truth: A Journal of Modern Thought 3,* 85-96.

Craig, W. L. (2009) Richard Dawkins on arguments for God. In W. L. Craig & C. Meister (Eds.) (2009) *God is Great, God is Good: Why Believing in God is Reasonable and Responsible*. Downers Grove, IL: InterVarsity Press, 13-31.

Crosby, D. (2002) *A Religion of Nature*. Albany, NY: SUNY Press.

Cuhulain, K. (2011) *Pagan Religions: A Handbook for Diversity Training*. Portland, OR: Acorn Guild Press.

Cunningham, S. (2004) *Wicca: A Guide for the Solitary Practitioner*. St. Paul, MI: Llewellyn Publications.

Cusack, C. (2010) *Invented Religions: Imagination, Fiction and Faith*. Burlington, VT: Ashgate.

Da Silveira, D., et al. (2005) Ayahuasca in adolescence: A preliminary psychiatric assessment. *Journal of Psychoactive Drugs 37* (2), 129-39.

Davidov, V. (2010) Shamans and shams: The discursive effects of ethnotourism in Ecuador. *The Journal of Latin American and Caribbean Anthropology 15* (2), 387-410.

Dawkins, R. (1986) *The Blind Watchmaker*. New York: W. W. Norton.

Dawkins, R. (1995) *River out of Eden*. New York: Basic Books.

Dawkins, R. (1996) *Climbing Mount Improbable*. New York: W. W. Norton.

Dawkins, R. (2008) *The God Delusion*. New York: Houghton-Mifflin.

Dawkins, R. (2016) *Brief Candle in the Dark*. New York: HarperCollins.

Day, J. (1986) Asherah in the Hebrew Bible and Northwest Semitic Literature. *Journal of Biblical Literature 105* (3), 385-408.

Deamer, D. & Evans, J. (2006) Numerical analysis of biocomplexity. In J. Seckbach (Ed.) *Life as We Know It*. New York: Springer, 199-212.

Deaner, R., Isler, K., Burkart, J. & van Schaik, C. (2007) Overall brain size, and not encephalization quotient, best predicts cognitive ability across non-human primates. *Brain Behavior and Evolution 70,* 115-24.

Demorest, P. et al. (2010) A two-solar-mass neutron star measured using Shapiro delay. *Nature 467* (28 October 2010), 1081-3.

Deng, N. (2015) Religion for naturalists. *International Journal for Philosophy of Religion 78,* 195-214.

Dennett, D. (1995) *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. New York: Simon & Schuster.

Dennett, D. (2004) Could there be a Darwinian account of human creativity? In A. Moya & E. Font (eds.) *Evolution: From Molecules to Ecosystems*. New York: Oxford University Press, 273-9.

Descartes, R. (1979) *Meditations*. Trans. D. Cress. Indianapolis, IN: Hackett.

Deutsch, D. (1985) 'Quantum theory, the Church-Turing principle and the universal quantum computer', *Proceedings of the Royal Society,* Series A, 400, 97-117.

Dever, W. (2005) *Did God Have a Wife? Archaeology and Folk Religion in Ancient Israel*. Grand Rapids, MI: Eerdmans.

Di Muzio, G. (2013) Reincarnation and infinite punishment in hell. *International Journal for Philosophy of Religion 74,* 167-80.

Dobkin de Rios, M. (1994) Drug tourism in the Amazon. *Anthropology of Consciousness 5* (1), 16-19.

Drake, F. (1974) *Set Theory: An Introduction to Large Cardinals*. New York: American Elsevier.

Edwards, J. (circa 1718) Of Being. In S. E. Dwight (ed.) (1830) *The Life of President Edwards*. New York: Carvil.

Edwards, R, Edwards, E., and Edwards, A. (2003) Observations of Theotima Minutissimus (Araneae, Ochyroceratidae), a parthenogenetic spider. *Journal of Arachnology 31,* 274-7.

Epictetus (1904) *Discourses of Epictetus*. Translated by G. Long. New York: D. Appleton & Company.

Epicurus (1901) Letter to Herodotus. In Diogenes Laertius, *The Lives and Opinions of Eminent Philosophers*. Trans. C. D. Yonge. New York: George Bell & Sons.

Escobar, J., Roazzi, A., Lira, W. (2015) Ayahuasca Religions in Pernambuco, Brazil: Followers' Profiles and First Presentation of a Monistic Segment. Conference proceedings *V Reunião Equatorial de Antropologia & XIV ABANNE*. Online at <http://eventos.livera.com.br/trabalho/98-1019968_23_06_2015_01-45-19_6650.PDF>. Accessed 20 February 2017.

Eshleman, A. (2005). Can an atheist believe in God? *Religious Studies 41*(2), 183-99.

Eshleman, A. (2016) The afterlife: Beyond belief. *International Journal for Philosophy of Religion*.

Evans, F. W. (1859) *Shakers*. New York: D. Appleton and Company.

Farrar, J. & Farrar, S. (1981) *A Witches Bible*. Blaine, WA: Phoenix Publishing.

Filice, C. (2006) The moral case for reincarnation. *Religious Studies 42* (1), 45-61.

Forrest, P. (1995) *God without the Supernatural: A Defense of Scientific Theism*.

Forrest, P. (2007) *Developmental Theism: From Pure Will to Unbounded Love*. New York: Oxford University Press.

Fredkin, E. (1991) Digital mechanics: An informational process based on reversible universal cellular automata. In Gutowitz, H. (1991) (Ed.) *Cellular Automata: Theory and Experiment*. Cambridge, MA: MIT Press, 254-70.

Fredkin, E., Landauer, R., & Toffoli, T. (1982) (Eds.) Physics of computation. (Conference Proceedings). *International Journal of Theoretical Physics*. Part I: Vol. 21, Nos. 3 & 4 (April 1982); Part II: Vol. 21, Nos. 6 & 7 (June 1982); Part III: Vol. 21, No. 12 (December 1982).

Ganssle, G. (2008) Dawkin's best argument: The case against God in *The God Delusion*. *Philosophia Christi 10* (1), 247-64.

Gardner, G. (1959/2004) *The Meaning of Witchcraft*. Boston: Weiser Books.

Garrity, J. (2000) Jesus, peyote, and the holy people: Alcohol abuse and the ethos of power in Navajo healing. *Medical Anthropology Quarterly 14* (4), 521-42.

Garrod, R., Widicus Weaver, S. & Herbst, E. (2008) Complex chemistry in star-forming regions: An expanded gas-grain warm-up chemical model. *The Astrophysical Journal 682,* 283-302.

Gates, S. Y. (1920) The Vision Beautiful. *Improvement Era 23* (April 1920), 542.

Gattringer, C. & Lang, C. (2009) *Quantum Chromodynamics on the Lattice*. New York: Springer.

Geach, P. (1995) Cambridge philosophers III: McTaggart. *Philosophy 70* (274), 567-79.

Genel, S. et al. (2014) Introducing the Illustris project: the evolution of galaxy populations across cosmic time. *Monthly Notices of the Royal Astronomical Society 445,* 175-200.

Gilmour, G. (2009) An Iron Age II pictorial inscription from Jerusalem illustrating Yahweh and Asherah. *Palestine Exploration Quarterly 141* (2), 87-103.

Givens, T. (2015) *Wrestling the Angel: The Foundations of Mormon Thought: Cosmos, God, and Humanity*. New York: Oxford University Press.

Good, I. (1965) Speculations concerning the first ultraintelligent machine. In Alt, F. & Rubinoff, M. (Eds.) *Advances in Computers, Vol. 6*. New York: Academic Press.

Goodenough, U. (1998) *The Sacred Depths of Nature*. New York: Oxford University Press.

Goulart, S. (2010) Religious matrices of the Uniao do Vegetal. In B. Labate and E. MacRae (Eds.) (2010) *Ayahuasca, Ritual and Religion in Brazil*. New York: Routledge, 107-34.

Green, C. & Wells, S. (1823) *A Summary View of the Millennial Church or United Society of Believers (Commonly Called Shakers)*. Albany, NY: Packard & van Benthuysen.

Griffiths, R. et al. (2006) Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance. *Psychopharmacology 187,* 268-83.

Griffiths, R. et al. (2011) Psilocybin occasioned mystical-type experiences: Immediate and persisting dose-related effects. *Psychopharmacology 218* (4), 649-65.

Grob, C. et al. (2011) Pilot study of psilocybin treatment for anxiety in patients with advanced-stage cancer. *Archives for General Psychiatry 68* (1), 71-8.

Hadley, J. (2000) *The Cult of Asherah in Ancient Israel and Judah: Evidence for a Hebrew Goddess*. New York: Cambridge University Press.

Hagen, K. (2006) Eternal progression in a multiverse: An explorative Mormon cosmology. *Dialogue: A Journal of Mormon Thought 39* (2), 1-45.

Halpern, J. et al. (2008) Evidence of health and safety in American members of a religion who use a hallucinogenic sacrament. *Medical Science Monitor 14* (8), 15-22.

Harris, R. & Gurel, L. (2012) A study of ayahuasca use in North America. *Journal of Psychoactive Drugs 44* (3), 209-15.

Harris, S. (2005) *The End of Faith*. New York: W. W. Norton.

Harris, S. (2014) *Waking Up: A Guide to Spirituality without Religion*. New York: Simon & Schuster.

Harrison, P. (1999) *Pantheism: Understanding the Divinity in Nature and the Universe*. Boston, MA: Element Books.

Hartshorne, C. (1941) *Man's Vision of God*. Chicago: Willett, Clark, & Co.

Hartshorne, C. (1948) *Divine Relativity: A Social Conception of God*. New Haven, CT: Yale University Press.

Hartshorne, C. (1962) *The Logic of Perfection and Other Essays in Neoclassical Metaphysics*. LaSalle, IL: Open Court Publishing.

Hartshorne, C. (1965) *Anselm's Discovery: A Re-Examination of the Ontological Argument for God's Existence*. LaSalle, IL: Open Court Publishing.

Hartshorne, C. (1967) *A Natural Theology for Our Time*. La Salle, IL: Open Court.

Hartshorne, C. (1984) *Omnipotence and Other Theological Mistakes*. Albany, NY: State University of New York Press.

Hasker, W. (1999) *The Emergent Self*. Ithaca, NY: Cornell University Press.

Hawley, K. (2001) *How Things Persist*. New York: Oxford University Press.

Henderson, B. (2006) *The Gospel of the Flying Spaghetti Monster*. New York: Villard.

Henderson, B. (2016a) Church of the Flying Spaghetti Monster: About. Online at <http://www.venganza.org/about/>. Accessed 15 August 2016.

Henderson, B. (2016b) Nebraska's Federal Court Says We're Not a Legit Religion. Online at <http://www.venganza.org/2016/04/nebraska-court/>. Accessed 16 August 2016.

Hershenov, D. (2002) Van Inwagen, Zimmerman, and the materialist conception of resurrection. *Religious Studies 38,* 451-69.

Hershenov, D. (2003) The metaphysical problem of intermittent existence and the possibility of resurrection. *Faith & Philosophy 20* (1), 24-36.

Hesiod (1914) *Homeric Hymns, Epic Cycle, Homerica*. Translated by Evelyn-White, H G. Loeb Classical Library Volume 57. London: William Heinemann. This work is believed to be in the public domain. Edited for modern readability.

Hick, J. (1976) *Death and Eternal Life*. New York: Harper & Row.

Hinckley, G. B. (1991) Daughters of God. *Ensign* (November), 97.

Hinckley, G. B. (1995) The family: A proclamation to the world. *Ensign* (23 September 1995), 102.

Homer (1898) *Iliad*. Translated by Samuel Butler. New York: Longmans. Edited for modern readability.

Hudson, H. (2001) *A Materialist Metaphysics of the Human Person*. Ithaca, NY: Cornell University Press.

Hume, D. (1779) *Dialogues Concerning Natural Religion*. Text is public domain. Freely available from Project Gutenberg. Ebook 4583.

Huxley, A. (1954) *The Doors of Perception*. New York: Harper & Brothers.

ICEERS (2013) Ayahuasca: Good practice guide. Online at <http://iceers.org>. Accessed 23 February 2017.

Jesse, R. & Griffiths, R. (2014). Psilocybin research at Johns Hopkins: A 2014 report. In J. Ellens (Ed.), *Seeking the Sacred with Psychoactive Substances* (Vol. 2). Santa Barbara, CA: Praeger, 29-43.

Johnson, D. (2016) *God is Watching You: How the Fear of God Makes Us Human*. New York: Oxford University Press.

Johnson, M., Richards, W., Griffiths, R. (2008) Human hallucinogen research: Guidelines for safety. *Journal of Psychopharmacology 22* (6), 603-20.

Johnston, I., Ahnert, S., Doye, J., & Louis, A. (2011) Evolutionary dynamics in a simple model of self-assembly. *Physical Review 83* (6), 066105.

Johnston, M. (2009) *Saving God: Religion after Idolatry*. Princeton, NJ: Princeton University Press.

Jones, P. (2005) The American Indian Church and its sacramental use of peyote: A review for professionals in the mental-health arena. *Mental Health, Religion & Culture 8* (4), 277-90.

Jones, P. (2007) The Native American Church, peyote, and health: Expanding consciousness for healing purposes. *Contemporary Justice Review 10* (4), 411-25.

Jorgensen, D. (2001) The Mormon gender-inclusive image of God. *Journal of Mormon History 27* (1), 95-126.

Kant, I. (1790/1951) *Critique of Judgment*. Tr. J. Bernard. New York: Macmillan.

Kardashev, N. (1964) Transmission of information by extraterrestrial civilizations. *Soviet Astronomy – AJ 8* (2), 217-21.

Kardec, A. (1857) *The Spirits' Book*. Miami, FL: Edicei of America.

Kaufman, W. (2005) Karma, rebirth, and the problem of evil. *Philosophy East and West 55* (1), 15-32.

Khovanova, T. (2012) The sexual side of life. By John H. Conway as told to Tanya Khovanova. Online at <blog.tanyakhovanova.com/?p=260>. Accessed 28 September 2012.

Kiteley, M. (1958) Existence and the ontological argument. *Philosophy and Phenomenological Research 18* (4), 533-5.

Kleps, A. (1966) Testimony before the Senate Subcommittee on Juvenile Delinquency. 25 May 1966.

Kleps, A. (1973) A change in the wording of the Second Principle, stimulated by a rereading of "Tibetan Yoga and Secret Doctrines" by W.Y. Evans-Wentz. In *Divine Toad Sweat*. Online at <http://okneoac.org/dts/change-in-the-wording>. Accessed 23 February 2017.

Krauss, L. (2012) *A Universe from Nothing: Why there is Something rather than Nothing*. New York: Free Press.

Kundera, M. (1999) *The Unbearable Lightness of Being*. Trans. M. Heim. New York: Harper Perennial Classics.

Kurzweil, R. (2005) *The Singularity is Near: When Humans Transcend Biology*. New York: Viking.

Lander, D. (2011) Start your own religion: New York state's acid churches. *Nova Religio: The Journal of Alternative and Emergent Religions 14* (3), 64-80.

Langer, E. (1975) The illusion of control. *Journal of Personality and Social Psychology 32* (2), 311-328.

Larson, S. (1978) The King Follett Discourse: A Newly Amalgamated Text. *Brigham Young Studies 18* (2), 1-18.

Lee, J. (2006) A *g* beyond Homo sapiens? Some hints and suggestions. *Intelligence 35,* 253-65.

Leibniz, G. W. (1697) On the ultimate origination of the universe. In P. Schrecker & A. Schrecker (Eds.) (1988) *Leibniz: Monadology and Other Essays*. New York: Macmillan Publishing, 84-94.

Leibniz, G. W. (1703) Explication de l'arithmetique binaire, qui se sert des seuls caracteres 0 et 1, avec des remarques sur son utilite, et sur ce qu'elle donne le sens des anciennes figures Chinoises de Fohy. *Memoires de l'Academie Royale des Sciences 3*, 85-9.

Leibniz, G. W. (1991) *G. W. Leibniz's Monadology: An Edition for Students*. Ed. N. Rescher. Pittsburgh, PA: University of Pittsburgh Press.

Le Poidevin, R. (1996) *Arguing for Atheism*. New York: Routledge.

Leslie, J. (1970) The theory that the world exists because it should. *American Philosophical Quarterly 7* (4), 286-298.

Leslie, J. (1979) *Value and Existence*. Totowa, NJ: Rowman & Littlefield.

Leslie, J. (1989) *Universes*. New York: Routledge.

Leslie, J. (2001) *Infinite Minds: A Philosophical Cosmology*. New York: Oxford.

Levi, A. (2016) The secret life of plants. *The New Yorker 92* (28) (12 September), 30.

Lincoln, T. & Joyce, G. (2009) Self-sustained replication of an RNA enzyme. *Science 323* (5918) (27 February), 1229-32.

Linde, A. D. (1986) Eternally existing self-reproducing chaotic inflationary universe. *Physics Letters B 175* (4) (14 August), 387-502.

Linde, A. D. (1994) The self-reproducing inflationary universe. *Scientific American 271* (5), 48-55.

Lloyd, A. (1976) The principle that the cause is greater than its effect. *Phronesis 21* (2), 146-56.

Lloyd, S. (2002) Computational capacity of the universe. *Physical Review Letters 88* (23) (May), 237901-5.

Locke, J. (1690/1959) *An Essay Concerning Human Understanding*. New York: Dover Publications.

Lovejoy, A. (1936) *The Great Chain of Being*. Cambridge, MA: Harvard University Press.

Lyttle, T. (1988) Drug based religions and contemporary drug taking. *The Journal of Drug Issues 18* (2), 271-84.

Machta, J. (2011) Natural complexity, computational complexity, and depth. *Chaos 21,* 0371111-8.

Mackay, D. (1997) Computer software and life after death. In P. Edwards (Ed.) *Immortality*. Amherst, NY: Prometheus Books, 248-9.

Mackie, J. L. (1982) *The Miracle of Theism*. New York: Oxford University Press.

Makin, S. (1988) The ontological argument. *Philosophy 63* (243), 83-91.

Mander, W. (1996) On McTaggart on love. *History of Philosophy Quarterly 13* (1), 133-47.

Mayer, A. (2016) New believers bubble up at First Pastafarian Church of Norman. *OU Daily* (28 April 2016). Online at <http://www.oudaily.com/news/new-believers-bubble-up-at-first-pastafarian-church-of-norman/article_5271677a-0cca-11e6-9ced-db2963638b96.html>. Accessed 17 August 2016.

McHenry, L. (2011) The multiverse conjecture: Whitehead's cosmic epochs and contemporary cosmology. *Process Studies 40* (1), 5-25.

McKenna, T. (1991) *Archaic Revival*. San Francisco: Harper Collins.

Millican, P. (2004) The one fatal flaw in Anselm's argument. *Mind 113,* 451-67.

Modis, T. (2002) Forecasting the growth of complexity and change. *Technological Forecasting and Social Change 69,* 377-404.

Montague, R. (2008) Dawkins' infinite regress. *Philosophy 83*, 113-5.

Moravec, H. (1988) *Mind Children: The Future of Robot and Human Intelligence*. Cambridge, MA: Harvard University Press.

Moravec, H. (2000) *Robot: Mere Machine to Transcendent Mind*. New York: Oxford University Press.

More, H. (1655) *An Antidote against Atheism*. London: Flesher.

Nagasawa, Y. (2007) Millican on the ontological argument. *Mind 116*, 1027-39.

Oppy, G. (2000) Colonizing the galaxies. *Sophia 39* (2), 117-42.

Ostafin, B. et al. (2006) Intensive mindefulness training and the reduction of psychological distress. *Cognitive and Behavioral Practice,* 191-197.

Paine, T. (1794) *The Age of Reason*.

Parfit, D. (1971) On 'The importance of self-identity'. *Journal of Philosophy 68* (20), 683-90.

Parfit, D. (1998) Why Anything? Why This? Part 1: *London Review of Books 20* (2) (22 January), 24-27. Part 2: *London Review of Books 20* (3) (5 February), 22-5. Reprinted in J. Leslie & R. Kuhn (2013) *The Mystery of Existence: Why is There Anything at All?* New York: Wiley-Blackwell, 220-37.

Paul, G. (2005) Cross-national correlations of quantifiable societal health with popular religiousity and secularism in the prosperous democracies: a first look. *Journal of Religion & Society 7,* 1-17.

Paulsen, D. & Pulido, M. (2011) "A Mother there": A survey of historical teachings about Mother in Heaven. *Brigham Young University Studies 50* (1), 70-97.

Peirce, C. S. (1965) *Collected Papers of Charles Sanders Peirce*. Edited by C. Hartshorne & P. Weiss. Cambridge, MA: Harvard University Press.

Petigura, E. (2013) Prevalence of Earth-size planets orbiting Sun-like stars. *Proceedings of the National Academy of Sciences 110* (48), 19273-8.

Phelps, W. W. (1844) The answer. *Times and Seasons 5* (24) (25 December 1844), 758.

Plantinga, A. (1966) Kant's objection to the ontological argument. *Journal of Philosophy 63* (19), 537-46.

Plantinga, A. (1980) *Does God Have a Nature?* Milwaukee, WI: Marquette University Press.

Plantinga, A. (2011) *Where the Conflict Really Lies: Science, Religion, and Naturalism*. New York: Oxford University Press.

Plantaforma para la Defensa de la Ayahuasca (2009) Ethical code for organizations which use ayahuasca in Spain. Online at <http://www.plantaforma.org/codigo-etico-eng/>. Accessed 23 February 2017.

Plato (1871) *Timaeus*. In B. Jowett (trans.) *The Dialogues of Plato*. Oxford, UK: Clarendon Press.

Plato (1871) *Laws*. In B. Jowett (trans.) *The Dialogues of Plato*. Oxford, UK: Clarendon Press.

Polkinghorne, J. C. (1985) The scientific worldview and a destiny beyond death. In G. MacGregor (Ed.) *Immortality and Human Destiny: A Variety of Views*. New York: Paragon House, 180-3.

Polkinghorne, J. C. (2002) Eschatological credibility. In T. Peters, R. J. Russell, and M. Welker, (2002) *Resurrection: Theological and Scientific Assessments*. Grand Rapids, MI: Eerdmans Publishing, 43-55.

Poundstone, W. (1985) *The Recursive Universe: Cosmic Complexity and the Limits of Scientific Knowledge*. Chicago: Contemporary Books Inc.

Puccetti, R. (1993) Does the universe exist because it ought to? A critique of extreme axiarchism. *Dialog 32* (4), 651-7.

Quine, W. V. O. (1969) *Ontological Relativity and Other Essays*. New York: Columbia University Press.

Raymo, C. (2008) *When God is Gone Everything is Holy*. Notre Dame, IN: Sorin Books.

Reichenbach, B. (1978) Monism and the possibility of life after death. *Religious Studies 14* (1), 27-34.

Rendell, P. (2002) Turing universality of the game of life. In A. Adamatzky (Ed.) (2002), *Collision-based Computation*. New York: Springer, 513-39.

Rescher, N. (1979) *Leibniz: An Introduction to his Philosophy*. Totowa, NJ: Rowman & Littlefield.

Rescher, N. (1984) *The Riddle of Existence: An Essay in Idealistic Metaphysics*. New York: University Press of America.

Rescher, N. (1991) *G. W. Leibniz's Monadology: An Edition for Students*. Pittsburgh, PA: University of Pittsburgh Press.

Rescher, N. (2000) Optimalism and axiological metaphysics. *The Review of Metaphysics 53* (4), 807-35.

Rescher, N. (2010) *Axiogenesis: An Essay in Metaphysical Optimalism*. New York: Lexington Books.

Ribeiro Barbosa, P. et al. (2009) A six-month prospective evaluation of personality traits, psychiatric symptons and quality of life in ayahuasca-naïve subjects. *Journal of Psychoactive Drugs 41* (3), 205-12.

Richards, W. (2008) The phenomenology and potential religious import of states of consciousness facilitated by psilocybin. *Archive for the Psychology of Religion 30,* 189-99.

Richards, W. A. (2014) Here and now: Discovering the sacred with entheogens. *Zygon 49* (3), 652-65.

Richmond, P. (2007) Richard Dawkin's Darwinian objection to unexplained complexity in God. *Science and Christian Belief 19,* 99-116.

Romer, T. (2013). Yhwh, the Goddess and Evil: Is "monotheism" an adequate concept to describe the Hebrew Bible's discourses about the God of Israel?', *Verbum et Ecclesia 34* (2), Art. #841, 1-5.

Ross, H. (2006) Why I believe in the miracle of divine creation. In N. Geisler & P. Hoffman (Eds.) *Why I am a Christian: Leading Thinkers Explain Why They Believe*. Grand Rapids, MI: Baker Books, 135-57.

Ross, S. (2012) Serotonergic hallucinogens and emerging targets for addiction pharmacotherapies. *Psychiatric Clinics of North America 35,* 357-74.

Roth, G. & Dicke, U. (2005) Evolution of the brain and intelligence. *TRENDS in Cognitive Science 9* (5), 250-7.

Rothman, T. & Ellis, G. (1993) Smolin's natural selection hypothesis. *Quarterly Journal of the Royal Astronomical Society 34,* 201-12.

Russell, B. (1967) *The Autobiography of Bertrand Russell*. Volume 1. London: George Allen & Unwin.

Rutherford, D. (1995) *Leibniz and the Rational Order of Nature*. New York: Cambridge University Press.

Ryan, J. (1996) Leibniz' binary system and Shao Yong's "Yijing." *Philosophy East and West 46* (1), 59-90.

Sabin, T. (2011) *Wicca for Beginners: Fundamentals of Philosophy and Practice*. Woodbury, MI: Llewellyn Publications.

Sagan, C. (1977) *The Dragons of Eden*. New York: Random House.

Sagan, C. (1980) *Cosmos*. New York: Random House.

Sallustius. (circa 363) On the gods and the world. In Thomas Taylor (trans.) (1793) *Sallust: On the Gods and the World*. London: Edward Jeffery & Pall Mall.

Sanches, R. et al. (2016) Antidepressant effects of a single dose of ayahuasca in patients with recurrent depression. *Journal of Clinical Psychopharmacology 36* (1), 1-5.

Sandberg, A. (1999) 'The physics of information processing superobjects: Daily life among the Jupiter brains', *Journal of Evolution and Technology 5* (1), 1-34.

Santos, R. et al. (2007) Effects of ayahuasca on psychometric measures of anxiety, panic-like and hopelessness in Santo Daime members. *Journal of Ethnopharmacology 112*, 507-13.

Scham, S. (2005) The lost goddess of Israel. *Archaeology 58* (2), 36-40.

Schmidhuber, J. (1997) 'A computer scientist's view of life, the universe, and everything', in C. Freksa (ed.) (1997) *Foundations of Computer Science: Potential – Theory – Cognition*. New York: Springer, 201-8.

Schmidhuber, J. (2007) Godel machines: Fully self-referential optimal universal self-improvers. In B. Goertzel & C. Pennachin (Eds.) (2007) *Artificial General Intelligence*. Berlin: Springer-Verlag, 199-226.

Shade, P. (1995) Does Kant's ethics imply reincarnation? *Southern Journal of Philosophy 33* (3), 347-60.

Shanon, B. (2010) The epistemics of ayahuasca visions. *Phenomenology and Cognitive Science 9,* 263-80.

Sheikh, A. & Korn, E. (Eds.) (1994) *Imagery in Sports and Physical Performance*. Amityville, NY: Baywood Publishing.

Shorter, J. (1962) More about bodily continuity and personal identity. *Analysis 22* (4), 79-85.

Sider, T. (2001) *Four-Dimensionalism: An Ontology of Persistence and Time*. New York: Oxford University Press.

Silk, J. (1997) Holistic cosmology. *Science 277* (5326), 644.

Silver Elder (2011) *Wiccan Celebrations: Inspiration for Living by Nature's Cycle*. Winchester, UK: Moon Books.

Simonton, D. (2010) Creative thought as blind-variation and selective retention. *Physics of Life Reviews 7,* 156-79.

Smith, J. F., Winder, J., Lund, A. (1909) The origin and destiny of man. *Improvement Era 12* (November 1909): 75-81.

Smith, M. (1987) God male and female in the Old Testament: Yahweh and his "Asherah." *Theological Studies 48,* 333-40.

Smolin, L. (1992) Did the universe evolve? *Classical and Quantum Gravity* 9, 173-91.

Smolin, L. (1997) *The Life of the Cosmos*. New York: Oxford University Press.

Smolin, L. (2004) Cosmological natural selection as the explanation for the complexity of the universe. *Physica A 340,* 705-13.

Snow, Eliza (1845) My Father in Heaven. *Times and Seasons 6* (17) (15 November 1845), 1039.

Snow, Erastus. (1878) There is a God, etc. *Journal of Discourses 19*. (3 March 1878).

Snow, Erastus (1884) Discourse by Apostle Erastus Snow. *Deseret News* (22 October 1884), 2.

Snow, Erastus. (1885) The creation male and female, etc. *Journal of Discourses 26* (31 May 1885), 214.

Springel, V., et al. (2005) 'Simulations of the formation, evolution and clustering of galaxies and quasars', *Nature 435* (June 2), 629-36.

Steiner, M. (1998) *The Applicability of Mathematics as a Philosophical Problem*. Cambridge, MA: Harvard University Press.

Steinhart, E. (1998) Digital metaphysics. In T. Bynum & J. Moor (Eds.), *The Digital Phoenix*. New York: Basil Blackwell, 117-34.

Steinhart, E. (2003) Supermachines and superminds. *Minds and Machines 13*, 155-86.

Steinhart, E. (2012) 'On the number of gods', *International Journal for the Philosophy of Religion 72* (2), 75-83.

Steinhart, E. (2013) On the plurality of gods. *Religious Studies 49* (3), 289-312.

Steinhart, E. (2014) *Your Digital Afterlives: Computational Theories of Life after Death*. New York: Palgrave Macmillan.

Stenger, V. (2007) *God: The Failed Hypothesis. How Science Shows that God does not Exist*. Amherst, NY: Prometheus Books.

Strassman, R. (2001) DMT: *The Spirit Molecule*. Rochester, VT: Inner Traditions.

Strickland, L. (2006) *Leibniz Reinterpreted*. New York: Continuum Press.

Stuart, R. (2002) Entheogenic sects and psychedelic religions. *Multidisciplinary Association for Psychedelic Studies 12* (1), 17-24.

Sutherland, S. (1964) Immortality and resurrection. *Religious Studies 3*, 377 – 389.

Swenson, R. (1997) Evolutionary theory developing: The problem(s) with *Darwin's Dangerous Idea*. *Ecological Psychology 9* (1), 47-96.

Swimme, B. & Berry, T. (1992) *The Universe Story*. New York: Harper Collins.

Swinburne, R. (1968a) Miracles. *The Philosophical Quarterly 18* (73), 320-8.

Swinburne, R. (1968b) The argument from design. *Philosophy 43* (165), 199-212.

Swinburne, R. (1970) *The Concept of Miracle*. London: Macmillan.

Swinburne, R. (2007) *The Christian God*. New York, NY: Oxford University Press.

Temkin, I. & Eldredge, N. (2007) Phylogenetics and material cultural evolution. *Current Anthropology 48* (1), 146-53.

Tillich, P. (1951) *Systematic Theology*. Vol. 1. Chicago: University of Chicago Press.

Tipler, F. (1988) The anthropic principle: A primer for philosophers. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association 2*, 27-48.

Tipler, F. (1995) *The Physics of Immortality: Modern Cosmology, God and the Resurrection of the Dead*. New York: Anchor Books.

Toffoli, T. & Margolus, N. (1987) *Cellular Automata Machines: A New Environment for Modeling*. Cambridge, MA: MIT Press.

Trichter, S. (2010) Ayahuasca beyond the Amazon: The benefits and risks of a spreading tradition. *The Journal of Transpersonal Psychology 42* (2), 131-48.

Tsetsi, E. (2014) A remote Arizona church offers followers peyote-induced psychedelic trips. *Village Voice 59* (2) (8 January).

Vasquez, N. & Buehler, R. (2007) Seeing future success: Does imagery perspective influence achievement motivation? *Personality and Social Psychology Bulletin 33* (10), 1392-405.

Visser, S. & Williams, T. (2009) *Anselm*. New York: Oxford University Press.

Walter, K. (2010) *Atheism: A Guide for the Perplexed*. New York: Continuum.

Wettstein, H. (1997) Awe and the religious life: A naturalistic perspective. *Midwestern Studies in Philosophy 21,* 257-80.

Whelan, J., Mahoney, M., Meyers, A. (1991) Performance enhancement in sport: A cognitive behavioral domain. *Behavior Therapy 22,* 307-27.

Widtsoe, J. (1928) Everlasting Motherhood. *Millennial Star 90* (10 May 1928), 298.

Widtsoe, J. (1915) *A Rational Theology: As Taught by the Church of Jesus Christ of Latter-day Saints*. Salt Lake City: Deseret Book. Public Domain (freely available through Project Gutenberg).

Wielenberg, E. (2009) Dawkin's Gambit, Hume's aroma, and God's simplicity. *Philosophia Christi 11* (1), 113-27.

Winkelman, M. (2005) Drug tourism or spiritual healing? Ayahuasca seekers in Amazonia. *Journal of Psychoactive Drugs 37* (2), 209-18.

Wolfram, S. (2002) *A New Kind of Science*. Champaign, IL: Wolfram Media.

Xenophon (1897) The Memorabilia. In *The Works of Xenophon*. Trans. H. G. Dakyns. New York: Macmillan & Co.

Young, B. (1856), A discourse by President Brigham Young, Delivered in the Bowery, Great Salt Lake City, 22 June 1856. In J. Widtsoe (ed.) (1954) *Discourses of Brigham Young*. Salt Lake City: Deseret Books.

Young, D. (2005) Being grateful for being: Being, reverence, and finitude. *Sophia 44* (2), 31-53.

Zauzmer, J. (2016). In New Zealand, the church of the flying spaghetti monster is an approved religion now. Here's its first wedding. Washington, DC: The Washington Post. Online at <https://www.washingtonpost.com/news/acts-of-faith/wp/2016/04/19/you-may-now-canoodle-the-bride-new-zealand-couple-weds-in-first-legal-flying-spaghetti-monster-ceremony/>. Accessed 15 August 2016.

Zeilinger, A. (1999) A foundational principle for quantum mechanics. *Foundations of Physics 29* (4), 631-43.

Zuckerman, P. (2009) Atheism, secularity, and well-being. *Sociology Compass 3* (6), 949-71.

Zurek, W. (2009) Quantum Darwinism. *Nature Physics 15,* 181-8.