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“First Things First”

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The Taxonomy of Deistic Argument

Traditional arguments in favor of the existence of God can be broken down into specific categories. The following categorization represents my own understanding of that taxonomy. Many of these arguments have been refuted throughout history and I would be happy to review those refutations during the question and answer period at the end of my talk. I contend that it is necessary to adopt at least one of these arguments to support a belief in God, and that all of these arguments can be demonstrated to fail except for possible versions of those based on Physical Cosmology. I will be presenting a novel version of that argument tonight.

1) The Argument from Usefulness:

The advantages of believing in God outweigh the disadvantages, even if God's existence cannot be proven logically. Advantages may include the possibility for reward in an afterlife, emotional satisfaction or psychological stability.

1) The Ontological Argument:

The concept of God contains the concept of existence within itself. It is, therefore, impossible to conceive of a non-existent God. Therefore, if we can conceive of God, God must exist.

2) The Cosmological Argument:

Recognition of observable phenomena in the universe indicates the existence of God.

A) Non-physical Cosmology:

The existence of morality and consciousness demonstrate that God exists

B) Perception, direct and implied

i) We can directly perceive God

ii) We cannot directly perceive God but we can witness miracles that show that God exists.

iii) The design of the universe is proof that an intentional creator must exist.

C) Physical Cosmology

Observable phenomena can best be explained by a God hypothesis.

3) LOFA (The Leap Of Faith Argument)

No argument is sufficient; a leap of faith is necessary.

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SPHEX Club Presentation

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In 2004 I presented a paper on the Ethical Implications of Implanting Life on Lifeless Planets. In 2007 I presented a paper on the Ethics of Torturing Terrorist Prisoners. Tonight, I want to discuss a topic that pushes me out of my area of expertise, which is ethics, and deals with a topic neither as seemingly trivial as tampering with far-off worlds, nor as pressing as responding to terrorist attack. So, in order to find a topic of middling interest and urgency, I turned nowhere else than to God. This paper is a radically truncated version of an original work that now stretches over 100 pages. Although some SPHEX meetings have been lengthier than others, I have decided that a full recitation of my theory would tax the patience of even the most interested members. The complete version of my argument defends the view that a unique outside cause exists that acts intentionally with contextual omniscience and omnipotence, on the basis of a relationship with all perceiving beings, to maintain the persistence of our universe. In the interest of time, however, I will restrict myself tonight only to a defense of the claims that the fact of the big bang, combined with the open nature of the universe, proves that a single consciously acting extra-universal cause of our universe exists. This seems like a reasonable goal for a 45 minute talk. In the spirit of intellectual exchange, I would be happy to furnish a complete copy of my effort to any member with sufficient interest and a willingness to provide critical feedback to help me refine the argument.

Part I: Sharp Enough To Shave With

William of Ockham was a 14th Century friar who refined a long standing concept of argumentation and developed the “law of parsimony” by stating that “entities should not be multiplied beyond necessity”. Ockham’s Razor, as this concept is now termed, should

be understood as a commitment to ontological economy. According to this view, given two theories of equal explanatory power, it is rational to adopt the simpler of the two theories. Ockham's Razor does not assert that the simpler explanation must always be true, but only that, given multiple theories with EQUAL EXPLANATORY POWER, there is no metaphysical justification for adopting the explanation that forces us to accept unproven and unnecessary premises.

Consider the following example. Imagine that I am found, drenched in blood and holding a large knife in one hand and an insurance policy in the other, standing over the body of my dead wife (no offense to present company intended). The insurance policy is for my wife and it names me as the beneficiary. Furthermore, neighbors heard me and my wife arguing about money just before they called the police, and I have now been caught, both figuratively and literally, red-handed. I am arrested and brought to trial. At my trial, however, I tell the jury that the murderer wasn't me. I explain that I had been working on a top secret project that revealed an extra-terrestrial plot to overthrow our world. In order to eliminate the risk that I posed to the alien coupe, visitors from another planet beamed me out of my kitchen and replaced me with an exact replica. It was that replica who killed my wife and was captured by law enforcement. After the arrest, I was beamed back to earth, exchanged with my surrogate and left to stand trial.

Note that nothing that I have said in my version of the story is logically impossible. The story is possible, but not probable. In order for the jury to accept my claims, however, it would also have to accept a number of new beliefs about the nature of our universe and the presence of technologically advanced invaders whom only I could threaten. On the other hand, the jury could accept a very common story about greed and murder, and not be forced to believe in alien intervention and abduction. While both theories about my wife's murder have equal explanatory power, one of them is far simpler than the other. The jury should, without doubt, accept the greed hypothesis to explain the empirical data. Only if I can show how simple murder fails to explain the observed phenomena should they begin to entertain alternative explanations.

The jury's preference for the simpler theory is not merely aesthetic. The power of Ockham's Razor rests on the view that, given equal explanatory power, we have no reason to adopt otherwise unnecessary beliefs. In other words, we need reasons to believe that things are true, and we have no reason to believe in new concepts as long as simpler concepts succeed in generating explanatory success. It is only appropriate to accept counter-intuitive assumptions when they are necessary to generate explanatory efficacy.

In The Physics, Aristotle introduces the notion of a 'first mover', 'prime mover', or 'unmoved mover'. According to Aristotle, since all events have causes, the universe must have a cause as well. Of course, if all moved things have movers, then the cause of the universe must also have a cause. At some point, however, no matter how far back we trace causation, we will find an unmoved mover; we will find a first cause that is itself infinite -- without beginning -- and responsible for all other beginnings. This assertion, that there must be a prime mover, is defended in complicated ways in The Physics and rests on the notion that there had to have been a start, and that as THE start, the start has no start of its own. People cannot fathom that the universe has always existed and, according to Aristotle, an infinite regress of causes is impossible. Therefore, there must be a first mover.¹ This line of reasoning represents one type of 'cosmological argument' for the existence of a creator, and thus the beginning of a God concept.

Although Aristotle is, without doubt, the most impressive philosopher ever to have lived, I find his argument in this regard unconvincing. The argument is unconvincing primarily because it ignores the force of Ockham's Razor.

If I am asked to believe that the universe exists, and that it was created by a first cause that is itself uncaused, then I must be willing to accept the fact that three things exist: one- the universe, two- the cause of the universe, and three- infinity. If I believe that the universe exists infinitely then I only need to believe in two things: one- the universe, and two- infinity. The second view is much simpler than the first. I have to swallow the

¹ Aristotle, Physics Book 8 and Metaphysics Book 12

concept of infinity, which some find difficult, but that is only one strange concept that I have to be willing to accept. Under the first theory I have to believe in two strange concepts, infinity and God.

It should be painfully obvious how weak the argument from infinity is as an attempt to support a belief in a creator. The entire reason for adopting the existence of an unmoved mover is to avoid having to accept the difficult concept of the infinite; in this case in the form of an infinite regress of causation. In order to avoid adoption of such a difficult concept, however, it is necessary to posit the existence of a creator that is itself infinite. How inefficient! The belief that an infinite first cause must exist seems utterly baseless and irrational.

To complete this refutation of the argument from causes we need only look to modern physics. According to the cosmological view that I held since I was a child, and which I believe was based upon sound empirical data, the universe began billions of years ago at the moment of the big bang. For the longest time I believed that the universe would eventually be crushed under its own mass in a gravitationally induced big crunch, to be followed again by another big bang. It was no less explanatory and far more elegant and simple to believe in an infinite series of universes each one of which lasted from a bang to a crunch than it was to believe in an infinite uncaused mover. In fact, the infinite series hypothesis is more than equal to the God hypothesis since it is simpler, and it does not force me give up on the one principal that seems intuitively obvious - that all effects have causes. To believe in God one must suspend belief in cause and effect at least for the one uncaused effect that is the deity. To believe in an infinite series of universes, one need only accept infinity (which would be necessary anyway) without having to suspend belief in causality. As a result, the most rational world view was one that did not include a first unmoved mover.

So what has changed? Why would I now re-examine this line of reasoning and how could I come to an opposite conclusion? The answer is that the latest empirical findings in astronomy have forced me to reconsider my view.

Part II: Booms and Crunches

The popular press contains many excellent texts on astronomy and physics for those of us who do not have formal training in those fields, and I am personally ill-equipped to do justice to these areas of study. Nevertheless, for tonight's purposes I must briefly explain two important concepts: 1) the big bang, and 2) the "openness" of the universe.

Although the journey of scientific discovery that leads to the answers regarding the origins of our universe can be traced back quite a ways and includes the fields of geology as well as astronomy and physics, we can begin our explanation with Edwin Hubble, who first discovered the fact that our universe is expanding. Proof of the expansion of the universe came after we learned to map the emission spectra of particular elements. Knowing that certain elements emit energy at specified wavelengths when energized (i.e. that they glow with specific colors when heated), it is possible to identify the constituent matter of stars in far off galaxies by studying their spectral emissions. When Hubble peered into the distant expanse of outer space, however, he noticed a persistent shift in the wavelength of stars' emitted light toward the red end of the spectrum. This 'red shift' is caused when the source of the spectral emission is moving away from the observer. It is a form of Doppler shift with which we are all familiar. When a train travels toward us, the sound that it makes strikes our ears as being at a higher pitch because the wavelength of the sound is compressed as the train moves towards us. Once the train passes, the pitch of the sound drops because the wavelength of the sound is stretched out as the train moves off into the distance. The cause of that characteristic and familiar 'train-sound' also effects light waves if the source of light emissions is moving quickly enough either toward or away from an observer. If the source is moving toward us, the wavelength will be increased by compression and the light will appear more blue. If the source is moving away from us, the wavelength will be decreased by expansion and the light will appear more red. By examining how much 'red shift' a source has, we can determine how fast it is receding into the distance. When Hubble examined the universe through his powerful telescope, he noticed a pervasive red shift in all stars, indicating that all stars are moving

away from one another. This is proof that our universe is actually expanding at a distinctly measurable rate.

If we can determine the distance between our own location and that of our distant neighbors, which can be done both on the basis of parallax measurement and by measuring the apparent magnitude of stars with known absolute magnitudes², and we combine that information with the measured rate of increasing separation, which we know by examination of the red shift, then we can calculate backward in time to the moment at which the objects being measured were co-located. In other words, if we can now observe objects moving apart from one another at a measurable rate, we can trace back the path of each object and find the place and time at which they were contiguous. To push the argument to its logical conclusion, we might deduce that if the universe is currently moving in the direction of greater and greater rarification, it must have begun at a point of extraordinary condensation. The universe must have begun with all matter congregated in a super massive, infinitely small point. This small point is known as a singularity, and although singularities exist in the center of black holes today, the singularity that was the source of our universe would have been the mother of all singularities. In fact, our universe and all of the relationships between matter and energy that currently exist must have originated at the very instant that the pent-up energy in the original singularity burst forth. That moment has been dubbed the 'big bang'.

Much of what we now know of physical law was created either at the point of the big bang or shortly thereafter when energy levels began to dissipate and the density and temperature of the universe dropped. Nevertheless, the core concept about which we should be interested is the existence of a big bang that marks the beginning of our universe.

² Parallax measurement utilizes geometric relationships to measure distance. If I place two observing stations at a fixed distance from one another and then measure the angle from each to an object at an unknown distance, I will create a triangle for which I know one side and two angles. It is then simple geometry to calculate the distance of the remaining two sides of the triangle. Magnitude measurements are based on the fact that certain objects in the universe are known to emit light in very well defined amounts. If I know how brightly a star shines, and I can measure how much dimmer it appears from my location, I should be able to determine how far away the star is.

Reasoning inductively about the existence of a big bang based solely on the basis of current rates of expansion is somewhat dangerous. It is possible, for instance, that rates of expansion or the fact of expansion itself could have changed throughout time. In fact, physicists have shown that early in the history of our universe, before the universe cooled and the four basic forces (the strong nuclear force, the electromagnetic force, the weak nuclear force and gravity) were fully decoupled, the universe went through a rate of extraordinary expansion termed 'inflation'. If it is possible that rates of expansion change, one might argue, then it is possible that the expansion did not progress from an initial infinitely small point. However, if the big bang really happened, it should be possible to measure the latent energy that it left behind. Any explosion will emit energy into space and that energy will continue to ripple out infinitely, like waves in a pond. The more time that goes by, the weaker the ripples will be, but with the right instruments, we should be able to observe the left over bang of the big bang itself, and this fact was predicted in 1948 by George Gamow and Ralph Alpher. Just as Gamow and Alpher predicted, the faint relic of the big bang was, in fact, discoverable.

While working for Bell Labs in 1965 on a radio astronomy project, Arno Penzias and Robert Woodrow Wilson inadvertently measured a radio signal that emanated from all directions at a very specific frequency. This pervasive signal turned out to be the cosmic microwave background radiation and was extremely convincing evidence of the big bang.

Once it was discovered that the universe had a discrete beginning, it was rational to ask about its end. All mass exerts gravitational force against other mass. All mass is mutually attractive. Gravitation not only keeps us on this planet, this planet revolving around our sun, and all stars revolving around the galactic center, but it also causes galaxies to attract to one another and, at times, swallow each other whole. Will our universe end when the slow and steady force of gravity causes matter to cease its outward motion, reverse the process of expansion, and condense again until it finally comes together in a super-massive, infinitely small singularity? If so, it is entirely possible that gravity will retard and reverse expansion so that our universe will ultimately end in a "big crunch". This crunch might then be followed by a subsequent big bang when the total

energy of the universe cannot be contained within an infinitely small space, and a new universe will be born.

It is possible to calculate the amount of mass necessary to exert a gravitational force strong enough to result in a big crunch, and that is what physicists have done. Astronomers have calculated the rate of expansion, the size of the universe and the effect of gravity. Even once they factor in the existence of strange material called dark matter and dark energy, the latest evidence strongly suggests that our universe does not contain enough matter to create enough gravitational force to result in a condensing universe. The latest scientific evidence indicates that our universe will continue to expand forever. A universe that crunches is termed closed, and a universe that expands forever is called open. Our universe appears to be open. Our universe does not contain sufficient mass to halt expansion, and it will not come to an end. It will continue to expand forever, and it will not cease to be.

Part III: Like a Ton of Bricks

For quite some time I have known both about the philosophical and scientific ideas that I have just outlined. On the evening of May 29th, 2007 just before bed, I casually re-read excerpts from St. Thomas Aquinas' "Five Proofs" almost on a whim. The connection between his argument from motion and the fact of an open universe with a discrete beginning rolled around in my head as I fell asleep, only to coalesce the next morning while I was driving on a business trip between Lynchburg and Williamsburg, VA. The essential inter-relatedness of the concepts hit me in a monumental realization that felt very much like the proverbial 'ton of bricks'. What follows now is an excerpt from the philosophical argument that evolved from that exciting epiphany.

Part IV: The Argument

1. An open universe breaks the infinite cycle of bangs and crunches and reintroduces the possibility of an outside cause. The universe is no longer self-sufficient.

My previous commitment to the idea that a first mover (i.e. a cause for this universe that is beyond this universe) is not logically necessary was based on the idea that an infinite regress of recurrently expanding and contracting universes is not logically impossible. In order for a universe to be self-sufficient, it is necessary that it contain all the forces necessary not only for its own destruction, but also for the creation of the next universe in the cycle. If, as the best current evidence suggests, our current universe does not contain sufficient mass to cause its own destructive crunch, then that must mean that it did not inherit sufficient mass for a big crunch from the previous universe. Whether that quantity of mass never existed or was somehow lost, it remains true that the universe does not contain a force sufficient to explain its own existence. This calls into question the ability to dispense with a first mover, or at least an extra-universal mover. Some force must exist outside of the current universe that either singly, or in combination with the matter currently in our universe, was sufficient to produce the current universe. Since that force exists separately from our universe it must be true that something exists beyond our universe that is necessary for our universe's existence. I can no longer believe that all that exists is our universe.

It is possible to counter-argue that although my conclusions may be accurate, the argument is unnecessarily complicated. One could argue that the existence of a singularity at the moment preceding the big bang is by itself proof that something beyond our universe exists. Our laws of physics fail to apply in a singularity. Therefore, the universe as we know it, complete with the properties of time and space, actually began at the moment of the big bang. If no time or space existed prior to the big bang, then our time and space had a cause outside of time and space and thus outside of itself.

While this argument moves in the correct direction, it fails to move far enough for my purposes. Even if we believe that time and space and the laws of physics that we know began at the moment of the big bang, it is still possible that based on whatever laws of nature that exist within a singularity, the singularity contained within itself sufficient force to create its own existence within an infinite series of singularities. The laws of physics might fluctuate through 'super time' even if they are constant in our local time,

but the process of bangs and crunches would still exist infinitely in that super time and thus be self-sufficient. For my argument to work, I need to show that it is necessary for some force to exist outside of an infinite regress either within the time created at the moment of the big bang or in some super time that measures change across universal creation episodes.

The fact that our current universe, even if it is the latest in a long line of universe creations in a super-universal series, is the last of that series indicates that the force necessary for the creation of universes is no longer available even in a super-universal way. The force exists not only outside of this universe, it exists outside of the series of universes and is thus truly separate. Not only our own universe, but a grand series of universes is not self-sufficient.

2. Ockham's razor no longer argues against an extra-universal cause if the universe no longer contains sufficient force to explain its own existence.

The previously stated argument indicates that the current universe does not contain sufficient information, matter or force to explain its own existence, even if it is part of a long series of creation epochs. Given the loss of explanatory power of an infinite regress and the demonstrated falsehood of a steady state universe, our reliance on Ockham's Razor can no longer rule out the existence of an exterior cause of reality. We must accept the existence of a cause of the universe that stands outside of the universe itself, and outside of any possible series of universes.

3. A series with an infinite regress and a finite future defines this universe as fundamentally different from all others and demands an explanation for this difference. Whether we define that difference as a distinct type of cause, leakage of mass, or the conversion of some mass and energy to dark mass and dark energy that has properties insufficient to force a collapse of the universe, the force involved will, by definition, either be or require an outside cause. That means that there is more to reality than this universe.

Two possible responses emerge to the previous point in this argument. One possibility is that an entirely distinct type of cause of our universe exists, the other is that our universe exists as the result of an historically infinite set of causes but that it has changed in a way that makes it the last possible universe and thus fundamentally different from all others. I believe that while these two possible interpretations sound different, they are actually identical.

On the first view, we simply accept that something which we cannot currently define exists which stands outside of our laws of physics and caused our reality. If we assume that, then the argument is over and we must accept that which I have hitherto believed to be false- that an entirely naturalistic understanding of our universe is insufficient to explain its existence.

On the second view, we must either wonder what caused the change in this universe as compared to all others and posit an outside cause, or we must believe that the change was accidental and did not admit to any super-natural cause. On the first interpretation of the second view, we are back once again to a unique outside cause, so this interpretation is identical to the previous one. The second interpretation of the second view is slightly different. I could believe, for instance, that sufficient mass existed in all previous universes both to cause a big bang and a big crunch. Since all matter and energy (reduced to a single state at the moment of the big bang) would be included in the big crunch, it follows that sufficient matter and energy would be released into the next universe to repeat the process. If our current universe lacks that amount of mass and energy then this is either proof that it never existed and there was no infinite regress, or that at the moment of the big bang, some of that mass and energy either leaked out to an alternate plane of existence or was converted into a different type with different properties. If the leakage hypothesis is correct, then the alternate universe into which the mass and energy leaked would be a reality outside of our universe, and that alternate universe would contain the force sufficient, in combination with the mass of this universe, to create our universe. That is an outside cause, although clearly not a

teleological or intelligent one. If the dark matter/dark energy hypothesis is correct, then we are back to having to find a reason for why this universe is fundamentally different from an infinite number of others, and an outside cause is necessary. If there were an infinite number of universes prior to this one, and the odds of one of them developing in a way that involves sufficient amounts of dark matter/dark energy to prevent a collapse is finite and random, then it is impossible that this should be the first universe in which such an event took place. The fact that it is indicates that this difference must be caused and not random.

The argument from dark matter can be refined, however. Perhaps the reduction in normal matter in our universe by way of conversion to dark matter is neither unique to our universe nor random. To begin the argument, we must identify the current amount of normal mass in our universe as M and assume that the previous universe had mass $M+1$. The universe before that had mass $M+2$, preceded by a universe with $M+3$, etc... continuing backwards infinitely in time. If we assume that the difference in normal mass in each universe is a natural progression from one universe to the next via the big bang, then it is mathematically correct to conclude that even though the string of universes goes back infinitely, the mass in any given universe will never be infinite and that the cross over point from crunchable universes to non-crunchable universes will take place at one specific point in the series. Now if this is true, while it may still seem unlikely that we would exist in this one particular universe and not in any other, it is no longer mathematically impossible that this universe is the first in an infinite series to reach the non-crunching state. Furthermore, if we weren't in the universe that fell below the critical mass necessary to cause a big crunch, we would not be asking the questions that we are now asking. It follows, therefore, that our ability to ask these questions requires that we are in this universe.

Although this argument is the strongest counter argument yet, it also fails. According to this argument, a certain amount of dark matter is inherited by each successive universe from its predecessor. Or to state the argument more precisely, the total amount of mass (non-dark) that each universe starts with will be a function of the reduction experienced

in the previous universe. On this argument, each previous universe is more massive than its successor, and the chain of increasing mass goes back infinitely.

The weakness of this argument, however is that it does not accept the big bang as a true beginning premise. This argument does not, in reality, describe a set of successive but separate universes, but rather, one oscillating universe with an infinite history. In other words, it posits the fact that either information or actual mass of some sort survives the big crunch and big bang such that all subsequent universe cycles bear its signature. But this conceives of the big bang as just a super-massive black hole existing in some time-space context that survives each oscillation. Modern physicists do not argue that this is the nature of the big bang, however. They explicitly argue that time, space, the nature of physical law and all information actually begins with the big bang -- nothing is inherited from anything previous. On this view, the creative aspect of the big bang is complete, so a dark-matter or lack-of-normal-matter signature cannot survive a big crunch/big bang cycle. To accept this counter argument to my theory, we would have to posit an oscillating, but permanently existing single universe, which is inconsistent with physical findings. If the big bang is a true beginning of our universe, such that time and space itself is created at the moment of the big bang, then any information or matter/energy that existed in a previous universe is completely destroyed by its big crunch and is unavailable to be inherited. If the matter dark matter ratio cannot be inherited by one universe from a previous universe, any progression of that ratio that transcends the big bang would have to find its source in an extra-universal reality that constitutes an outside force.

Ultimately, we must either accept that A) the ratio of matter to dark matter is randomly assigned to each universe, in which case it is mathematically impossible that our universe would be the first to fail to experience a big crunch given an infinite number of previous universes and a finite probability of each universe failing to collapse, or B) the big bang was not a true beginning of our universe, which conflicts with physical findings, or C) a certain amount of matter leaks out into an extra-universal reality as part of any big bang, in which case we accept extra-universal reality as a given and the argument goes through,

or D) some extra-universal cause (outside cause) exists that is capable of influencing the ratio of matter to dark matter and has done so in such a way that this universe is unique among a string of universes. Options (A) and (B) have been disproved which leaves only options (C) and (D), either one of which supports the conclusion that an Outside Cause exists.

4. It is rational to accept the proposition that the Outside Cause is a first cause (unmoved mover).

Throughout this inquiry we have been driven by the idea that when determining which beliefs it is rational to adopt, those that allow for ontological economy are preferable. Prior to the empirical findings of astronomy that demonstrated a discrete beginning to our universe, it would have been rational to accept that our universe exists in an infinite steady state. Once the steady state view of the universe was disproved, it was rational to believe in an infinite string of universes that oscillates between creation and destruction. Only once that infinite cycle was disproved was it then necessary to posit an Outside Cause. At each step along the way, we generated a new and slightly more complicated view of reality only when the simpler view lost its explanatory power. We rejected the simpler explanation when compelled by empirical data.

In considering the Outside Cause, we can again consider the alternatives of its properties. The Outside Cause could exist in a steady state, exist within an infinite string of outside causes, or be nested in a reality such that it is caused by a force that is outside of its own existence. To use religious language in a loose and original way, we could be monotheists (one god exists eternally), temporal polytheists (multiple gods exist in succession), or radical polytheists (multiple gods exist simultaneously and some gods may have gods of their own). Since we have no physical access to the reality of the Outside Cause, we may not be able to demonstrate empirically which of these views is necessarily correct. Nevertheless, if Ockham's Razor has been our guide all along, it would be intellectually dishonest to reject it now. Based on the principle of ontological

economy, it is rational to accept the view, for its simplicity, that the Outside Cause exists in an infinite steady state and is an unmoved mover.

5. Ockham's Razor supports belief in a single Outside Cause rather than multiple separate causes.

Although the previous step in the argument supports the view that the Outside Cause is uncaused, it did not demonstrate that the Outside Cause is unique. It is possible that multiple, cooperating but independent outside causes of our universe exist. However, once we realize how radically distinct from our own experience the Outside Cause is, and how independent from previous causes It must be, the more rational it is to assume a solitary nature for the Outside Cause. As stated in the previous step, the simplest explanation of the Outside Cause is that it exists as an unmoved first cause. Since the Outside Cause must not have a previous cause in order to maintain Its independent existence, it is more rational to assume that the Outside Cause is solitary than part of a more complex causal system.

6. Since all events have causes, the Outside Cause must also be caused. If the Outside Cause has a cause that is not a previous cause, it must be a post facto cause, which is a final cause (lack of infinite regress leads to teleology)

Aristotle argued millennia ago that four types of causes exist in the universe. They are the material cause, formal cause, efficient cause and final cause.³ The material cause is just the stuff of which an object is made and should be considered a necessary condition rather than a cause in our normal language usage. As a necessary condition for an object to exist, the material cause does not explain why an object exists as it does. The formal cause is also a necessary condition. This cause refers to the organization of the substrate material (material cause) that differentiates the object from other objects consisting of similar material. The formal cause is the plan or blueprint of an object. The efficient cause is the actual energy that impresses the formal cause into the material cause. This is

³ Aristotle, Posterior Analytics Book II, Chapter 10 and Physics Book II, Chapter 3

the closest analog to what we normally think of as a cause. The final cause is the goal toward which the efficient cause strives; the 'why' of the efficient cause. This is a teleological concept. If I have been successful in showing that the Outside Cause exists independently of other causes outside of itself, then it cannot be the result of a previous cause. Since all events have causes, and the Outside Cause cannot have an external and previous cause, Its cause must be internal and post-facto. Such a cause is a final cause, and is by definition teleological.

7. All teleology is intentional, so the Outside Cause creates this universe intentionally, by force of will.

It is not possible for a teleological system to exist without consciousness at some level. The arrow of efficient causation moves from past to future, so there can be no purely efficient cause that works from future to past. In order for an efficient cause to relate to a final cause, the entity embodying that force must have a concept of that toward which it is aiming. Aristotle disagreed and noted in response to this point that an Art does not deliberate, yet it acts on the basis of final ends, so lack of conscious deliberation does not entail a lack of teleology.⁴ Aristotle argued, for instance, that craftsmen of great skill are able to produce their products without consciously considering each action in an intentional way. We might then extrapolate that the perfect craftsman would have a perfect intuitive grasp of the reason for each action and would thus be entirely unconscious of his own intent.

We must, however, distinguish between the unconscious and the subconscious. I do not believe that the craftsman whose trade has become second nature actually can act without consciousness. His muscle memory may drive the thought process from his conscious mind such that he loses, at least for that moment, a unity of apperception (i.e. an awareness of his own consciousness). Nevertheless, being unaware of what you are aware of is different from being unaware altogether. A conscious mind engages in craft and practices that craft until each productive step enters the subconscious. We may drive

⁴ Aristotle, Physics, Book II section 8

our cars from work to home, lost in the music, until we arrive at our destination without the slightest conscious memory of operating the vehicle and obeying traffic ordinances, but it hardly follows that we were unconscious during the drive and that we made each turn without true intent. So too, the goal directed unmoved mover must possess a consciousness that apprehends the goal of Its actions.

The Argument Concluded

I have not, to this point, created anything like an argument for conventional religion, although this argument does save conventional religion from being intrinsically irrational. All that I have thus far accomplished is the production of an argument that there must be more to reality than our universe and that our universe must depend, for its existence, on something outside of itself. I have also demonstrated that the Outside Cause must be a conscious entity that acts on the basis of intent. This is only the beginning of the discussion, but if it is reasonable, it constitutes a change in world view of indescribably immense proportions. In my more complete argument, which requires a discussion of quantum uncertainty, I move the argument further, demonstrating that the Outside Cause has full knowledge of the nature of our universe and that it exercises full control of that reality in response to the needs of perceiving beings. While these conclusions are of great interest, and allow for the introduction of ethical as well as metaphysical properties of the Outside Cause, I do not have time tonight to present and defend them.

Part V: My Branes Hurt

The bulk of the argument from which tonight's discussion is an excerpt was laid down in a brief span of time during the month of June, 2007. Further revisions were ongoing until late fall, 2007, but the basic outline changed very little during that time. In the spring of 2008, however, I became somewhat agitated upon reading two interesting articles. One was entitled "Alternatives to Cosmological Inflation"⁵ and the other was "The Day Before Genesis"⁶. Both of these arguments, one more technical and the other

⁵ Brandenberger, Robert "Alternatives to Cosmological Inflation" in Physics Today, March 2008, pp.44-49

⁶ Frank, Adam "The Day Before Genesis" in Discover, April 2008, pp.55-60

written for the popular press, explained how the introduction of string theory might change our attitudes about the genesis of our universe.

I had previously read several books on string theory⁷ and I was very intrigued by the proposition that all sub-atomic particles might be described as strings vibrating at different frequencies in many dimensional space. According to all versions of string theory, the three dimensions that we perceive are but a fraction of the total number of existing dimensions. By examining how vibrating sub-atomic particles would appear in three dimensional space, we might be able to explain the properties of particles and why the basic physical forces seem to be de-coupled in our universe.⁸ One of the great promises of string theory is that, if correct, it would explain many hitherto inexplicable aspects of physical law and provide the holy grail of all physics, a grand unified theory of physics (a GUT); a theory that explains the relationship of all of the basic forces of nature. Furthermore, string theory predicts phenomenon that we should be able to test for within the next couple of decades, so we may be able to develop empirical data to prove or disprove the view. But, I digress.

I do not want to take the time here to even attempt to explain string theory – a task for which I am entirely unequipped. The relevant point, however, is that according to the articles cited above, string theory may also explain the creation of our universe in a way that destroys much of the substance of my extended argument. According to the theory, our universe can be conceived of as a three dimensional membrane that is imbedded in higher dimensional space. This higher dimensional space has been termed “the bulk”, and it may house any number of other, separate, three dimensional universes. As these universes, described as membranes and termed ‘branes’ for short, expand and move throughout the bulk, they sometimes come into contact with one another in ways that result in extraordinarily energetic collisions. The energy released by these collisions would appear, from the perspective of an observer within one of the branes, as a big bang.

⁷ [Beyond Einstein and Hyperspace](#) by Michio Kaku, [The Elegant Universe](#) by Brian Greene and [The Search for Superstrings, Symmetry and the Theory of Everything](#) by John Gribbin

⁸ Recall my cursory overview of the big bang theory of the creation of our universe back in Part One.

If this view of cosmology is correct, then much of my argument will immediately collapse. I have argued that my form of the cosmological argument only works if we accept both that our universe, complete with time and space, began with a big bang and that our universe is open, meaning that there will be no future crunch leading to a subsequent big bang. According to the brane hypothesis, the fact that our universe appears open from our perspective does not indicate that there will not be a future big bang, nor that all of our reality began with a previous big bang. The primary basis for my view will be eliminated if the brane aspect of string theory is confirmed. Scientists indicate that predictions made by the brane cosmology will be testable within the next twenty years. We should know by then whether or not my argument holds up.

So why should I be agitated by the introduction of branes? Primarily because if that theory turns out to be true, my theory will turn out to be false. I had hoped for a solid argument in favor of belief in the existence of God, but now I find that my view can at best be considered provisional, awaiting final destruction or support on the basis of future scientific experimentation. How disconcerting!

But is it?

Upon reflection I realize that my argument now stands on equal footing in terms of evidence and believability as does the theory of the big bang itself. We cannot say with logical certainty that the view is complete, unshakable and true. Then again, based on all that we know, it is justifiable, firm and defensible. New information may defeat the view, but if such information develops, it would be dishonest to ignore it. Furthermore, new information may bolster the claims outlined in this paper, and strengthen the basis for belief. As a matter of structure, my argument is just that; an argument. As an argument it is open to counter argument. The view is falsifiable, and thus 'scientific' in nature. String theory could be its demise, but potential demise is not a weakness. To the contrary, falsifiability and the open mindedness necessary to recognize a potential lethal alternative view is the strength of rational inquiry. I have not set out in this paper to

replace one dogma for another. I have set out to be guided by reason to rational conclusions. My view places me in the good company of those great minds that have developed modern physics, and those minds must also recognize the potential downfall of their views based on the collection of invalidating data. I should not be alarmed by the possible downfall of my argument, I should be excited by the fact that my view is a living argument that will require a lifetime of effort and struggle to understand, defend, revise or reject. Rather than being agitated, I should be “philosophical”. Or, perhaps what amounts to the same thing, I should be “scientific” when it comes to my “religion”. Avoiding the ongoing struggle of argument is unreasonable, inhuman, and anti-spiritual. I should revel in the prospect of a life-long struggle with spiritual matters, because the philosophy, science and religion of my view are inextricably linked.

What a conclusion! When taken seriously, philosophy, religion and science all converge. Perhaps I have found the Grand Unifying Theory of thought, a philosophical GUT that should make physicists green with envy and dogmatic religionists red with anger. But then, isn't that what good philosophy always does?

The Argument in Outline Form

1. An open universe breaks the infinite cycle of bangs and crunches and reintroduces the possibility of an outside cause. The universe is no longer self-sufficient.
2. Ockham's razor no longer argues against an extra-universal cause if the universe no longer contains sufficient force to explain its own existence.
3. A series with an infinite regress and a finite future defines this universe as fundamentally different from all others and demands an explanation for this difference. Whether we define that difference as a distinct type of cause, leakage of mass, or the conversion of some mass and energy to dark mass and dark energy that has properties insufficient to force a collapse of the universe, the force involved will, by definition, either be or require an outside cause. That means that there is more to reality than this universe.
4. It is rational to accept the proposition that the Outside Cause is a first cause (unmoved mover).
5. Ockham's Razor supports belief in a single Outside Cause rather than multiple separate causes.
6. Since all events have causes, the Outside Cause must also be caused. If the Outside Cause has a cause that is not a previous cause, it must be a post facto cause, which is a final cause (lack of infinite regress leads to teleology)
7. All teleology is intentional, so the Outside Cause creates this universe intentionally, by force of will.

The Taxonomy of Deistic Argument

Traditional arguments in favor of the existence of God can be broken down into specific categories. The following categorization represents my own understanding of that taxonomy. Many of these arguments have been refuted throughout history and I would be happy to review those refutations during the question and answer period at the end of my talk. I contend that it is necessary to adopt at least one of these arguments to support a belief in God, and that all of these arguments can be demonstrated to fail except for possible versions of those based on Physical Cosmology. I will be presenting a novel version of that argument tonight.

1) The Argument from Usefulness:

The advantages of believing in God outweigh the disadvantages, even if God's existence cannot be proven logically. Advantages may include the possibility for reward in an afterlife, emotional satisfaction or psychological stability.

1) The Ontological Argument:

The concept of God contains the concept of existence within itself. It is, therefore, impossible to conceive of a non-existent God. Therefore, if we can conceive of God, God must exist.

2) The Cosmological Argument:

Recognition of observable phenomena in the universe indicates the existence of God.

A) Non-physical Cosmology:

The existence of morality and consciousness demonstrate that God exists

B) Perception, direct and implied

i) We can directly perceive God

ii) We cannot directly perceive God but we can witness miracles that show that God exists.

iii) The design of the universe is proof that an intentional creator must exist.

C) Physical Cosmology

Observable phenomena can best be explained by a God hypothesis.

3) LOFA (The Leap Of Faith Argument)

No argument is sufficient; a leap of faith is necessary.