

THE TELEOLOGICAL ARGUMENT OR ARGUMENT FROM DESIGN

“Now whatever lacks intelligence cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is shot to its mark by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.” (St. Thomas Aquinas, *Summa Theologiae* I.2.3)

Distinguished Proponents: Every major theistic philosopher has held some version of this argument

There are many versions of the design argument. The most famous is Paley’s watchmaker argument, an argument from analogy. We will not look at Paley’s argument here, but instead look at three other types of design argument, one old and two contemporary. The argument from the regularity and order of the universe, the “fine tuning” argument, and the argument from specified complexity.

THE ARGUMENT FROM THE REGULARITY AND ORDER OF THE UNIVERSE

Some design arguments point out features of **regularity** and **order**, that is, the behavior of objects follow an ordered temporal sequence (such as the development of organic bodies follows occurs in accordance with a certain path, heavenly bodies move according to the laws of physics, etc.) **WHAT IS MEANT BY DESIGN AS REGULARITY AND ORDER IS THAT ALL THESE TEMPORAL SEQUENCES ACT FOR AN END** and follow a certain **REGULARITY OF SUCCESSION**. **Some regularities may be explained in terms of other regularities, but the most fundamental regularities in nature call for an explanation.**

WE LIVE IN A LAW-GOVERNED UNIVERSE. THE ORDER IS WIDESPREAD THROUGHOUT BOTH THE PHYSICAL UNIVERSE AND THROUGH TIME. THE SAME LAWS THAT GOVERN OUR GALAXY ALSO GOVERN THE MOST DISTANT GALAXIES WE CAN OBSERVE. The electrons and protons here operate the same way that the electrons and protons do billions of light years away, EXHIBITING AN EXTENSIVE SPATIAL AND CHRONOLOGICAL CONSISTENCY. WE SEE REGULARITY OF SUCCESSION EVERYWHERE.

Since design is equivalent to order then **WHEREVER THERE IS ORDER AND REGULARITY THERE YOU WILL FIND DESIGN**. Ordering comes only from an intellect, and universal ordering points to an intellect capable of causing that universal order.

This notion of design is the reasoning behind Aquinas’ fifth way. Aquinas’ argument can be formally summarized:

Major premise: Things that lack intelligence cannot tend towards an end, unless they are directed by an intelligent being which knows the end.

Minor premise: The universe contains a vast amount of things lacking intelligence which act for an end

Conclusion: The universe contains a vast amount of things that are directed by an intelligent being which knows the end

Support for the Minor: Certain causes produce particular effects. In other words, all causes act for a certain goal (regardless if the cause is conscious of the end or not). This acting for an end is what Aristotle called “final causality”. Final causality explains why a cause produces a certain effect and not some other. Why does heating water make it boil rather than freeze, or turn into popcorn, or anything else? Efficient causes act for ends. If an efficient cause is not determined to produce certain effects and not others, there would be no reason why any particular cause would produce any one effect over anything else. The effect is a real being, and *every real being needs a sufficient reason for its existence*. It is clear that certain causes are inherently predetermined to produce certain effects and not others. Fire heats and does not freeze.

Pouring water on something does not make it dry, etc. If nothing determines one possible option over another, then no option can possibly be realized; for *ex nihilo nihil fit*.¹

Support for the Major: This acting for an end is a predetermination in a thing and an orientation towards the future. The end is contained in the cause not actually but only virtually. A *tendency* to fall, heat, join, etc. is real but not actual. The end is future effect a real possibility, that is somehow real and present now. HOW CAN THAT “NOT YET PRESENT” EXIST NOW? In other words, HOW CAN AN UNINTELLIGENT BEING HAVE A PREEXISTING ORIENTATION TOWARDS A GOAL? This seems to be a case of *INTENTIONALITY*, being *for* or *about* something else, but intentionality is difficult to understand without a mind. WHY DOES THE HYDROGEN ATOM TEND TO BOND WITH OXYGEN IN A RATION OF TWO TO ONE, WHILE THE OXYGEN ATOM “AGREE” AND TEND TO BOND WITH HYDROGEN AT A RATIO OF ONE TO TWO? **These atoms cannot “think” but yet they “know” about their complementary ratios.** Non-mental beings cannot have any concept of “future” or “goal orientedness”. **It seems that the only being that can be presently relating to the future is a mental being. Intelligence makes goals exist now.** Only an intelligent mental being can order means to ends and aim at goals. So Aquinas’ position is that it is impossible for these ends to be merely a “brute fact”. So while every agent acts for an end, agents can do so in two ways, either in themselves or by another. Intelligent beings can move themselves towards ends, or they can project goal orientedness into non-intelligent things (as in our common experience by creating things like machines). WITH THIS LAST, *THE FINAL CAUSALITY OF A DESIGNER IS IMPARTED INTO THE UNINTELLIGENT PARTS, ENABLING THEM TO BE ORDERED AND ACT FOR A FUTURE END THAT THEY THEMSELVES ARE UNAWARE.* A DESIGNER IMBEDS PURPOSE INTO NATURE. THESE ARE IDEAS AT WORK WITHIN MATTER ITSELF.

Chance?

Aquinas - Can pure chance be the explanation for this? No, we cannot explain *everything* by chance. Aquinas argues pure chance is *IMPOSSIBLE*. All chance necessarily presupposes causality and determination. *Chance is an intersection between two otherwise independent and determined lines of causality.* For any chance event, there must be at least two lines of causality that intersect one another and *what happens by chance is the convergence of the two lines.* **If neither line of causality were acting for a determinate end, they couldn’t be acting at all!** There could be no calculation of the probability of chance events if there were not first some determinate cause to calculate. If you happen to run into an old friend on a trip to the Bahamas, the meeting is by chance. You did not go to the Bahamas to meet your friend and neither did they go there to meet you, yet your being there itself is not by chance and neither is your friends reason for being there by chance (perhaps you went for work while your friend happened to be there on vacation). **To use another example, three blades of grass blown together making a triangle in the driveway come together by chance, but the motion of each one is not by chance, because this motion proceeds according to determined laws of nature. Chance has to “piggyback” off of determination.** Without the fundamental constants and underlying physical-chemical laws describing things acting for particular ends and not others, there is no foundation upon which chance can operate.

Swinburne – Chance and coincidence? Oxford philosopher Richard Swinburne argues this is *UNREASONABLE* because it is *not simple*. REASON SEEMS TO DEMAND THAT WE POSTULATE THE LEAST NUMBER OF “BRUTE FACTS” AND LOOK FOR AN EXPLANATION IN TERMS OF A COMMON SOURCE. THERE ARE ULTIMATELY ONLY TWO KINDS OF EXPLANATION; SCIENTIFIC EXPLANATION (in terms of scientific laws) and PERSONAL EXPLANATION (in terms of the free choices of a conscious person). But there cannot be a scientific explanation of the order and regularity of the universe because all scientific explanation is done in terms of being in accord with scientific laws, and we explain the operation of some scientific laws by appealing to higher scientific laws, BUT THE VERY NATURE OF SCIENCE CANNOT EXPLAIN THE HIGHEST LEVEL LAWS OF

¹ “To an agent that did not tend to any definite effect, all effects would be indifferent. But what is indifferent to many things, does not do one of them rather than another: hence from an agent open to both sides of an alternative there does not follow any effect, unless by some means it comes to be determined to one above the rest: otherwise it could not act at all. Every agent therefore tends to some definite effect, and that is called its end” Aquinas, *Summa Contra Gentiles* III, ii.

EVERYTHING; I.E., LAWS OF BIOLOGY CAN BE EXPLAINED IN TERMS OF LAWS OF CHEMISTRY, AND LAWS OF CHEMISTRY IN TURN ARE EXPLAINED BY THE MORE FUNDAMENTAL LAWS OF PHYSICS, BUT WHAT EXPLAINS THESE MOST FUNDAMENTAL PHYSICAL LAWS? One designer is a simpler and more preferable explanation than a large number of “brute facts”.²

Cosmic wide order calls for a cosmic wide ordering Mind. Thus this argument’s conclusion is that an Intelligent Designer is behind all of nature.

FORMAL SUMMARY OF THE ARGUMENT:

Whatever exhibits regularity and order indicates that it is designed.

The universe exhibits regularity and order

The universe indicates that it is designed

A NOTE ON CONTEMPORARY DESIGN ARGUMENTS

We look at two types of contemporary design arguments – the “fine tuning argument and the argument from specified complexity (intelligent design). The contemporary design arguments differ from Paley’s argument in that they are not arguments from analogy but instead are probabilistic arguments via an *inference to the best explanation*.

What is an “inference to the best explanation”?

An inference to the best explanation, sometimes called “abduction”, is a type of inference used all the time in everyday life and science. The inference involves the selection of the best explanation for a particular event or phenomenon, given all the available evidence. It is a method of reasoning in which scientists choose that hypothesis which would, if true, best explain the relevant evidence. Philosophers of science argue that those hypotheses that qualify as “best” typically provide *simple, coherent, and causally adequate* explanations for the phenomena in question.

An “inference to the best explanation” could also be called “Sherlock Holmes” reasoning and typically proceeds as follows:

- 1) A singular event has occurred, e.g. someone dies.
- 2) Several possible explanations are offered. Is it accidental death, natural death or some form of homicide?
- 3) Given all the available evidence, the single competing explanation that best explains the evidence (covers it all, shows underlying connections, is coherent, agrees with other explanations we would accept, etc.) should be preferred.

This type of reasoning is “competitive” in that a “best explanation” implies that at least one competitor is conceivable and accessible for comparison. Since there is always going to be a chance that further evidence, discovered in the future, will undermine a past inference in favor of some other explanation, this method of reasoning is always provisional and available for revision in the face of new evidence.

This method differs from induction in two important ways:

1. Abduction can be concerned with singular events and the evidence for those singular events, while induction is usually aimed at forming generalizations from a large number of token instances.
2. Abduction has to often employ “unobservables” in its explanations (e.g. the murderer who is long gone), while induction generalizes over a class of potential observables based wholly on token observables.

² It is a widely accepted principle of reason, called “Ockham’s razor”, that one should not multiply possible causes without a good reason for doing so. If positing one entity as an explanation is sufficient for explaining a certain event, then that explanation is more probable and preferable than positing say seven entities to account for the same event.

What do we mean by “probability”?

Equipossibility – A logical conception of probability. When different outcomes are equally possible, if an event x can occur within a total possible number of outcomes y, the probability of x is x/y. (The probability of getting heads on a coin toss is 1/2 and the probability of rolling a six with a die is 1/6) Fine tuning arguments use this notion of probability.

Frequency – statistical summaries related to past known events. This notion is not used in design arguments.

Evidential (Qualitative) – A non-numerical or a non-quantitative view of probability. Example - My wife probably loves me because of A, B and C. This notion of probability is used in Paley type arguments by analogy and intelligent design arguments.

THE “FINE TUNING” OF THE UNIVERSE ARGUMENT

This argument makes us of a new episode in 21st century science and plays into the question of chance and purpose.³

There was a time when there was a very anthropocentric conception of the universe. (“Anthropic” – humanity, and connected to the concept of purpose) This was true before the 16th and 17th century when the Aristotelian view of the universe was dominant. With Aristotle everything had a purpose, everything was a result of four causes, one of which was the final cause – the purpose of an animals’ teeth was to eat. The purpose of stars was to move in circular motion. The reason why something falls to the ground is because it is part of its teleology.

Earth at the center of the universe with the sun and everything else revolving around it, the only stars they new of are those visible with the naked eye, the universe was not that large, and the universe was nice and cozy, we are right in the center and it looks like the point of the whole thing has something to do with us, after all we are right there on center stage!

Chance vs. purpose: Aristotle defined an accident or something happening by chance as an intersection between two or more unrelated and independent lines of causality (Aristotle’s example of digging a ditch and finding treasure). There is no one purpose that brings about the intersection of causes. With chance there is no teleological connection, that is, even though there is a causal connection there is not teleological connection. So with this later scientific revolution, the purpose was taken out of the universe. Prior to the scientific revolution, almost everyone had a Greek conception of the universe.

This cozy world and anthropocentric view of the universe got blown away however. Copernicus and Galileo showed that the Earth is not the center, and with a telescope showing there are a whole lot more stars – this universe is a whole lot bigger place than we thought before and we are not even in the center at all! Suddenly we no longer have an anthropocentric conception of the universe. Moreover, the age of the Earth and the universe seemed now to be infinitely old and we just came along at some stage for no particular reason.

Everything has a purpose with Aristotle, but with the 16th and 17th century there is no purpose, everything is just explained mechanically – everything is just matter and motion. **Biology held out against this for a while but then Darwin did away with that too. Thus we end up with a universe that is non-anthropocentric, there is no purpose built into the universe.**

However, recent science may be suggesting otherwise. There are certain features of the universe that some say reintroduce purpose back into the universe and, so to speak, **puts us back on center stage**

³ I am indebted to Phil Dowe’s lectures (University of Queensland) for some of the initial information here.

Big Bang Cosmology and Initial Conditions

The steady state model of the universe (the universe is in an infinitely old state) held through the 19th and early 20th century, it wasn't until our lifetimes that Big bang model has taken over and showed that the universe is not infinitely old.

Big bang does away with the steady state model – the universe is expanding and even space itself is expanding. And if you extrapolate back from that you reach a singularity infinitely small and the Big Bang explosion is the first moment of time. The result is *very hot* – after 10^{-36} of a second the universe is at the size of centimeter and 10^{27} degrees Celsius. It expands rapidly after about 1 second it cooled down a lot. After it cools hydrogen atoms forms while the whole thing is expanding – one could see that there might be a universe of just hydrogen atoms, a fairly boring or dead universe, but it didn't develop like that – gravity makes the matter clump together and forms stars and galaxies

But we aren't just made of hydrogen, stars are very important. Plus we are made of carbon and need oxygen, and nitrogen, etc. Inside stars like the sun (a ball of hydrogen burning itself into helium that gives energy through nuclear fusion where we get 4 hydrogen atoms coming together at the right time to make a helium atom which gives off energy and that gives us warmth from the sun. This only happen inside a star because a certain temperature is needed to create the right velocities. Energy levels have to be right with the speed of these atoms – nuclear fusion needs a certain level of energy from a star to make helium to be produced from nuclear fusion.

But we need more than that, the good news for us is that there are other elements that get formed in stars. In particular, **carbon!** Beryllium helps make carbon but it is very short lived but when clashed with helium atoms at just the right time and speed we can have Beryllium and then we can have carbon – which we need for carbon-based life. **Take away carbon and evolution cannot get off the ground.**

The time span here is very tight – we need all the time we had and even that is a tight fit, so maybe we can think the universe is a bit more cozy – the universe needs all the time that it had to form these things.

Cambridge astronomer Fred Hoyle looked at these processes within stars and the very tight time frame (10^{-17} of a second) is the time span for the right helium atom to collide with Beryllium in order to create the carbon - how can we ever get carbon and we got a lot of it???

It seems that the universe is “just right” or “finely tuned” for our existence.

“Anthropic reasoning” starts with “we are here”, so the universe took on values that allowed human life to occur. Now this does make it rather look like things like stars and carbon were almost designed with us in mind.

The physics needed for all this to arise are actually very improbable. These **“fundamental constants”** could have taken on any other value and if they did, we would be in a dead universe – no carbon means no carbon based life and you are going to have the same sorts of problems with silicon or anything else you want to think you can make life out of.

These fundamental conditions are “fine tuned” and exhibit a tremendous amount of *complexity* and *purpose* in that these parts interact to achieve certain goals. These fundamental conditions also exhibit *regularity*, the universe is based on laws by which things behave and enable us to predict the future.

Let us list a few of these fundamental laws that combine and cooperate for a cosmic wide order. There are actually about 50 of these and they can be combined to make an impressive cumulative case:

Meticulous Balance Between the Number of Electrons and Protons

Astrophysicist Hugh Ross notes that for the existence of life there needs to be a balance between electrons and protons because without it the force of gravity would be overwhelmed by the electromagnetic force. If this were the case, the formation of stars and planets would have been impossible. *This balance must be*

within an incredible accuracy of 10^{37} . Ross gives us an analogy to visualize this astronomical improbability:

Cover the entire North American Continent in dimes all the way up to the moon, a height of about 239,000 miles. (In comparison, the money to pay for the U.S. federal government debt would cover one square mile less than two feet deep with dimes.) Next, pile dimes from here to the moon on a billion other continents the same size as North America. Paint one dime red and mix it into the billion piles of dimes. Blindfold a friend and ask him to pick out one dime. The odds that he will pick the red dime are one in 10^{37} . And this is only one of the parameters that is so delicately balanced to allow life to form.⁴

Initial Rate of Expansion of the Universe

If this initial explosion varied in only 1 part in 10^{60} , the universe compossible with life would not exist. Commenting on the precision of the initial condition of the expansion rate of the universe relative to its density, Paul Davies writes:

To give some meaning to these numbers, suppose you wanted to fire a bullet at a one-inch target on the other side of the observable universe, twenty billion light years away. Your aim would have to be accurate to that same part in 10^{60} .⁵

Balance in the strength of the fundamental forces

The “strong force” holds the nucleus of the atom together and is 100 times stronger than the electromagnetic force, which in turn is 10 thousand times stronger than the weak nuclear force, which in turn is ten thousand billion billion billion times stronger than gravity.

It takes extraordinary precision to balance these fundamental forces. If the strong force were slightly weakened, the nuclei of atoms could not hold together. Slightly stronger and there could be no hydrogen in the universe, and hence no water or hydrogen burning stars desperately needed for life on planets.⁶ Astrophysicist John Leslie calculates that the precision required to balance these forces must be to a degree of 1 part to 10^{60} .⁷

The same is true for balancing the gravitational force with the electromagnetic force. The precise strength of gravity is what maintains the stability of stars. Dean Overman notes that “If the force of gravity, however, was changed by only one part in 10^{40} , all stars would be either blue giants or red dwarfs. Stars, like the sun, would not exist nor would any life dependent on such a star. If the electromagnetic force were only slightly stronger, all stars would be red and too cold for the emergence of life.”⁸ Paul Davies concurs:

Nature has evidently picked the values of the fundamental constants in such a way that typical stars lie very close indeed to the boundary of convective stability...If gravity were very slightly weaker, or electromagnetism very slightly stronger (or the electron slightly less massive relative to the proton), all stars would be red dwarfs. A correspondingly tiny change the other way, and they would all be blue giants...a star’s convection plays an important role in planetary formation, so that a world where gravity was very slightly less weak might have no planets. In either case, stronger or weaker, the nature of the universe would be radically different.⁹

Even the vast age and size of the universe may have human relevance. Some have thought that the age and size of the universe indicates that humans are unimportant and insignificant in the whole scheme of things.

⁴ Hugh Ross, *The Creator and the Cosmos* (Colorado Springs; Nav Press, 1993), 115

⁵ Paul Davies, *God and the New Physics* (London: J.M. Dent and Sons, Ltd., 1983), 179

⁶ John Polkinghorne “A Potent Universe”, in John Templeton ed. *Evidence of Purpose* (New York: Continuum, 1996) 111

⁷ John Leslie, *Universes* (London: Routledge, 1989) 6

⁸ Overman, 135

⁹ Quoted in Overman, *ibid*

But far from the age and size of the universe showing the irrelevancy and unimportance of human life, Barrow and Tipler point out that the immense size of the universe is required for the natural production of human life:

Hence for there to be enough time to construct the constituents of living things, the Universe must be about at least ten billion years old and therefore, as a consequence of its expansion, at least ten billion light years in extent... the Universe needs to be as big as it is in order to evolve just a single carbon based life-form... This remains true even if non-carbon based life forms abound in the cosmos. Non-carbon based life forms are not necessarily restricted to seeing a minimum size to the universe but *we* are.¹⁰

There are numerous other examples of these finely tuned conditions that could be offered here. The point is that a life existing universe is vastly more improbable than just any universe that would not permit life. ***THE UNIVERSE IS BALANCED ON A RAZORS EDGE OF HIGHLY TUNED LAWS. Moreover, these fundamental constants build upon one another, giving us one improbability, founded upon another improbability, which is founded upon another improbability, etc.*** So exacerbating the chance hypothesis is the fact that these enormous improbabilities are reliant upon each other. Achieving one of these astronomically improbable constants by sheer chance is not enough; it must be done *again and again* for each finely tuned constant. ***If there were no overarching cause for these constants it would be a most astonishing coincidence, too astonishing for any unbiased rational person honestly and coolly examining the evidence. The general point here is that it seems that these values are all causally unrelated to one another, could have easily been quite different than they are, and have values that fall into a very narrow range in order for life to be possible. Since these constants are CAUSALLY UNRELATED, its not really like getting one big improbable number on a roulette wheel, but more like all the wheels in Las Vegas simultaneously pulling up the same number.***

This is why this set of facts are sometimes referred to as the “fine tuning” of the universe – if any of these values slightly different there would be no life in the universe.

Also these conditions are *necessary conditions* for human life. This fine-tuning is extremely sensitive. If any of these features were even very slightly different, there would be no human life.

This long string of “coincidences” has the obvious appearance of what struggling atheist and astrophysicist Fred Hoyle says the universe looks like a “put-up job” and remarking on the improbability of the formation of carbon writes:

A common sense interpretation of the facts suggests that a superintellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature. The numbers one calculates from the facts seem to me to be so overwhelming as to put this conclusion almost beyond question.¹¹

Such a long chain of “lucky accidents” impresses even the agnostic Stephen Hawking who writes:

The laws of science, as we know them at present, contain many fundamental numbers, like the size of the electric charge of the electron and the ratio of the masses of the proton and the electron...*The remarkable fact is that the values of these numbers seem to have been finely adjusted to make possible the development of life.* For example, if the electric charge of the electron had been only slightly different, stars wither would have been unable to burn hydrogen and helium, or else they would not have exploded...it seems clear that there are relatively few ranges of values for the numbers that would allow the development of any form of intelligent life. Most sets of values would give rise to

¹⁰ Barrow and Tipler *The Anthropic Cosmological Principle* (Oxford: Oxford University Press 1996) p.3

¹¹ Quoted in Overman, 129 -130

universes that, although they might be very beautiful, would contain no one able to wonder at that beauty.¹²

According to the most recent science, these constants have been present since Planck time (10^{-43} sec.) after the Big Bang and cannot be a result of law or chance. The agnostic astronomer Robert Jastrow quips:

For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.¹³

So Paley did what he could do in his time, he looked at the complexity of a part of the world. **But Paley's watchmaker argument can now be applied to the whole universe itself.** Cosmologist Edward Harrison:

Here is the cosmological proof for the existence of God – the design argument from Paley- updated and refurbished. The fine-tuning of the universe provides prima facie evidence of deistic design. Take your choice: blind chance that requires multitudes of universes or design that requires only one... many scientists, when they admit their views, incline toward the teleological or design argument.¹⁴

Former atheist astronomer Paul Davies:

[There] is for me powerful evidence that there is something going on behind it all... It seems as though somebody has fine-tuned nature's numbers to make the Universe... The impression of design is overwhelming.¹⁵

"Through my scientific work I have come to believe more and more strongly that the physical universe is put together with an ingenuity so astonishing that I cannot accept it as merely a brute fact. I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in a great cosmic drama." --Paul Davies

So the fine-tuning reasoning restores what was lost with the geocentric conception of the universe. It seems that the universe was finely tuned for carbon-based life from its very beginning, THAT THE UNIVERSE IN SOME WAY "HAD US IN MIND" AND SO IN A SENSE PUTS US BACK ON CENTER STAGE.

FORMAL SUMMARY OF THE ARGUMENT (an inference to the best explanation):

Premise 1: The "finely tuned" laws of the universe is due to either necessity, chance, or design

Premise 2: It is not due to necessity or chance

- Not necessity - The values of physical laws and constants could have been otherwise (i.e., chaotic)

- Not chance – Chance" is enormously improbable

Conclusion: Therefore the "finely tuned" laws of the universe is due to design

¹² Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1996), 129 – 130 emphasis added

¹³ Robert Jastrow, *God and the Astronomers* (New York: Harper and Row, 1979), 250

¹⁴ Edward Harrison *Masks of the Universe* (New York: Collier Books, Macmillan, 1985) p. 252, 263

¹⁵ Paul Davies *The Cosmic Blueprint* (New York: Simon and Schuster 1988) p. 243

THE ARGUMENT FROM SPECIFIED COMPLEXITY IN THE UNIVERSE¹⁶

This is a recent concept of design used in information theory and intelligent design theorists. Proponents of *intelligent design* (ID) argue that the “designedness” of things can be identified in scientifically acceptable ways.

ID examines the distinction between three modes of explanation; necessity, chance, and design. In other words;

1. Did it have to happen? (Necessity)
2. Did it happen by accident? (Chance)
3. Did an intelligent agent cause it to happen? (Design)

How do we distinguish between these three? Much of contemporary science acknowledges only 1 and 2. ID theorists argue that those scientists are wrong to eliminate that 3rd mode of explanation.

Why was design eliminated from modern science? Historically it can be traced back to Francis Bacon (a philosopher who championed the scientific cause) who argued that two of Aristotle’s 4 causes, final and formal, be eliminated from science. Science according to Bacon should deal with only efficient and material causes.

Why Rule Out Design?

This aside, what exactly is wrong with explaining something as designed by an agent? We do this all the time in our daily lives, and on very important issues. Did she fall or was she pushed? Did a man die accidentally or was it murder or suicide? Was this song written independently or was it plagiarized? Did someone get “lucky” on the stock market or was there insider trading? Did the building that houses the struggling business burn down accidentally or was it the result of arson?

Not only do we look for answers to these questions but there are whole industries built on finding out these answers; forensic science, insurance claims investigation, cryptanalysis (code-cracking) and intellectual property law are just a few examples.¹⁷

But if we can detect design in these fields, why not in other areas as well? The worry is that we may make a false inference to design, attributing something falsely to design which might turn out otherwise. But what if we had a reliable standard for detecting design? ID theorists claim we do, and its called the *complexity-specification criterion*.

The Complexity-Specification Criterion

The complexity-specification criterion is based on the notion that intelligent agency leaves traces of itself, a trademark of sorts. A fictional example is how the radio astronomers in the movie *Contact* discovered a series of radio signals from outer space that consisted of the series of prime numbers from 2 to 101, which they took to be a decisive confirmation of extraterrestrial intelligence. What is it about this and other real examples that leads us to infer design? The answer ID theorists give is that they consist of *contingency*, *complexity*, and *specification*. The presence of these three factors rationally justify that an event was brought about through intelligent intention:¹⁸

- 1) **Contingency** – Given the natural laws that produced it, contingency means an event or object could have been otherwise. In other words, the event is irreducible to merely the physical law that produced it (i.e. a splotch of ink that fell on the paper did not have to be the shape that it is)
- 2) **Complexity** – A complex event or object is improbable. Complexity and probability are inversely related (the more complex the less probable the event is). For example, the more complex a combination is on a combination lock, the less likely it is to be opened by chance).

¹⁶ It should be mentioned that not all intelligent design proponents use ID theory to argue for God’s existence, but nevertheless others have argued, correctly in many cases, that their criteria can be used precisely for such a task.

¹⁷ See William Dembski, *Signs of Intelligence: Understanding Intelligent Design* (Brazos Press 2001) 175

¹⁸ For example, William Dembski *Intelligent Design* (Downer’s Grove: Intervarsity Press, 1999)

- 3) **Specification** - The event or object is capable of being independently specified as special, meaningful, or valuable. IN OTHER WORDS, SOME PATTERNS OR ARRANGEMENTS HAVE A MEANING OR VALUE OVER AND ABOVE THEIR MERE CONTINGENT AND COMPLEX ARRANGEMENT. THE POINT HERE IS THAT IT IS NOT MERE IMPROBABILITY THAT IS BEHIND OUR EVERYDAY INFERENCES TO DESIGN, BUT THE FACT THAT THE IMPROBABLE EVENT ALSO CONFORMS TO SOME INDEPENDENTLY GIVEN PATTERN. **IT IS THIS SPECIFIED COMPLEXITY THAT TIPS US OFF TO INFERRING DESIGN.**

For example, “afjlkaf apenf pjgg” is complex and contingent, but *lacks specification* in that there is no value or meaning in this arrangement of letters. We would not infer design if these letters fell out of a scrabble box. There is no specification here.

Neither does a specification have to be given *prior* to an event to imply design. For example, take this text:

Sghr hr a bncdc ndrrafd

This may look as meaningless and as lacking in specification as the earlier garble. But suppose a cryptologist now comes along and tells you to treat this as a **Caesar cipher** (moving each letter down a notch in the alphabet except for “a”), which makes it now read:

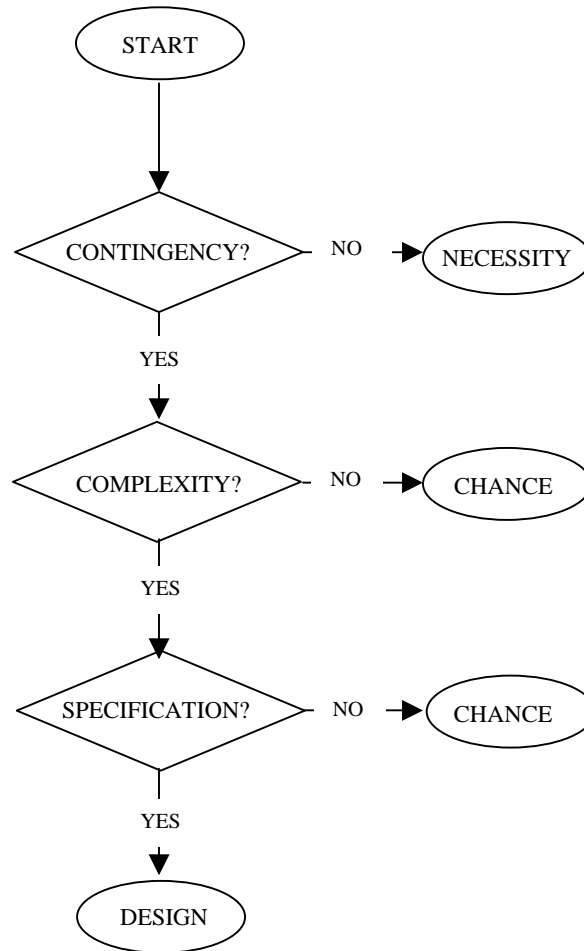
This is a coded message

THE POINT HERE IS THAT WE CAN INFER DESIGN (SEE A SPECIFIED MEANING IN CERTAIN CONTINGENT AND COMPLEX PATTERNS) EVEN WHEN THE MEANINGFUL PATTERN IS DISCOVERED *AFTER* THE EVENT IN QUESTION.

Finally, to count as a specification, a pattern needs to be “detachable” that is, the meaning must be independent of the event that it describes.

Thus, it is the combination of *contingency*, *high improbability*, and *independent specifiability* that justifies one in inferring design. The complexity-specification criterion detects design by establishing these three elements. So if we are called to explain an event or object as necessity, chance, or design, we simply ask three questions, is it contingent? – if yes then is it complex? – if yes then is it specified? These questions can be represented in what Dembski calls an *explanatory filter*:¹⁹

¹⁹ Dembski, *Signs of Intelligence*, 182



The key to recognizing intelligent agency is the recognition of choice. Intelligent agents can choose from a series of possibilities. How then do we recognize that an intelligent agent has made a choice? Take an ink spill vs. a written message. Both are contingent and have complex (improbable) arrangements, but we ascribe chance to one and intelligent agency to the other. What's the difference? In the writing we see a contingency that is specified. In other words, that contingency conforms to an independently recognizable pattern (it relays information) and we can independently construct that pattern. The random inkblot does not do this, it is unspecified and relays no information.

Suppose you wake up one Christmas morning and notice the frost that has formed on the window. By these criteria above, just any old frost arrangement would not be all that interesting (no matter how complex it is), *however a frost arrangement depicting a very detailed nativity scene would be*. This is because a complex but unspecified frost arrangement only satisfies the first two criteria and so can reasonably be written off as chance, while the nativity scene arrangement meets all three. Such a scene is specified as meaningful independent of the chance arrangement of the freezing of water.

Another example: archaeologists can distinguish cave paintings from just random marks on a cave wall, or arrowheads and tools from just a random irregularly shaped rock.

Another example: a woman is found dead in a very unlikely manner the day after her and her husband took out a large life insurance policy on her.

PROponents of this sort of design argument point to things like the fine tuning of the fundamental constants of the universe and the biological information within the DNA of living organisms, all of which underlie a highly

improbable (taking a possibility theory of probability) life permitting universe, to infer an intelligent designer.

IN OTHER WORDS, ONE LEARNS THAT THERE ARE VALUES OF FUNDAMENTAL CONSTANTS IN THE INCEPTION OF THE UNIVERSE, THEY ARE NOT NECESSARY BUT CONTINGENT, THE VALUES OF THESE CONSTANTS ARE HIGHLY IMPROBABLE, THESE CONSTANTS ARE FINE TUNED FOR THE EXISTENCE OF INTELLIGENT CARBON BASED LIFE (SPECIFICATION) THUS ONE IS WARRANTED IN INFERRING THAT THE PHYSICAL CONSTANTS ARE NOT THE RESULT OF CHANCE BUT DESIGN.

What is the explanation for things like the fundamental constants of the universe, DNA of living organisms, etc? Chance is an improbable explanation when faced with an event of specified complexity, namely, that such features in the universe are contingent, complex, and independently specified.²⁰

FORMAL SUMMARY OF THE ARGUMENT (an inference to the best explanation):

Whatever exhibits specified complexity is due to design

The fundamental constants of the universe and some things within biological systems exhibit specified complexity

The fundamental constants of the universe and some things within biological systems are due to design

OBJECTIONS TO DESIGN ARGUMENTS

“All the design argument would call for is a designer, not God.”²¹

The design argument does not attempt to show all of God’s attributes by design, but there is enough here to disprove atheism. A designer of the whole universe would have to be a very powerful, intelligent (personal), and immaterial being (after all, all material things obey the laws of physics and therefore could not account for the origin of those laws). This is an inference showing God *at least* has these attributes, and the design argument should not be faulted for what it does not intend to establish. If I come home and my house has been neatly arranged and everything put in its proper place, and suppose on the table is a note with my wife’s handwriting saying “I cleaned the house before running to the store, Love, wife”. I can reasonably infer that the order in the house is explained by the work of my wife. But if a skeptic comes along and says my inference is unreasonable because the evidence does nothing to prove my wife has red hair or was born in Indiana, I of course would reasonably reject his argument. I do not need to infer all of my wife’s attributes from this event in order to infer just some. The evidence I do have still points to the house being cleaned by my wife, even if it doesn’t prove everything I know about her. In the same way, the design argument does not propose to demonstrate all of the divine attributes, but deduces enough to conclude that the order comes from God’s design.

“All inferences come from experience, and the universe is unique. So you cannot infer design for the universe”

First, this objection seems to be an arbitrary jamming of the wheels of philosophical investigation. The universe has properties in common with things that are not unique. The universe is composed of parts, it changes, it obeys the same physical laws as do the parts that make it up, etc., so the universe shares in the same common characteristics as its parts, and since we inquire about the origin of parts there seems to be no good reason to do so about the whole. Secondly, while the fine tuned constants that govern this universe are unique, they are still not self-explanatory. There is no necessity in them being the way they are, they could have had an infinite number of other values, and this calls for an explanation. Thirdly, science investigates the causes of unique things all the time (i.e., the origin of the human race, the universe, etc.) and there is no reason why a man or philosopher cannot do the same. Finally, to some degree *all* events and things are unique (i.e., *that* auto accident that happened on *that* corner at *that* time, the fattest man in Houston, Bill Clinton, etc.) but that doesn’t mean we cannot inquire about their origins.

²⁰ The fine tuning argument makes use of an *equipossible* notion of probability while the ID specified complexity criterion seems to rely more on a *qualitative* notion of probability.

²¹ This is the objection of both David Hume and Immanuel Kant.

“The design argument implies an infinite regress. A designer needs a designer.”

The design argument begins with unintelligent things acting for order and based on a contingent specified complexity. An immaterial designing mind need not be made of unintelligent parts acting out of order with specified complexity. In other words, a absolutely simple mind would not need a cause or designer. Secondly, additional argumentation could be introduced to show that there cannot be an infinite regress of designers anyway (as in the cosmological argument).

“The designer could be a body, or a plurality of gods.”

The design argument shows that there is an immaterial intelligent designer of the universe, a conclusion sufficient to refute atheism. It does not attempt to show that the designer is one, or that the designer itself could not be the product of design. It is the cosmological argument that demonstrates God as the Independent Being which is uncaused and unlimited – therefore only one God can exist. But even here, Ockham’s razor holds that we should not multiply entities beyond necessity, and there is no necessity of inferring many designers if one answer suffices. The Designer of the universe cannot be corporeal without being a part of that very corporeal universe which would mean that the Designer designs itself – which is impossible.

Bad Design - “The disorder in the universe counts against a designer”

Intelligent design does not conclude that the design has to be good for all, only that the complexity involved calls for an intelligent designer. If you were walking on an uninhabited island and discovered a cave with numerous torture devices; i.e., a rack, guillotine, barbed whips, etc. you would immediately infer that intelligence designed these devices even if they do not work for good purposes.

The “We shouldn’t be surprised because we wouldn’t be here otherwise” objection.

Sometimes this objection goes by the name of the *Weak Anthropic Principle* (WAP) which says that given that we are here, the values of the fundamental constants had to be the values that they were in order for us to be here (So we shouldn’t be surprised to see this).²²

But in response, it is the existence of these conditions in the first place that are remarkable, not our observance of them. To use philosopher John Leslie’s example: Imagine if you were sentenced to execution by 100 of the world’s best sharpshooters at close range, they fire on command, but you then realize they all missed! Then the commander then says, “Don’t be surprised, if they hadn’t missed you wouldn’t be here to see it.” Clearly you are right and the commander is wrong, there is something amazing about them missing in the first place, it seems the miss is rigged or planned in spite of your observance of it. As Swinburne argues from a similar analogy:

Suppose that a madman kidnaps a victim and shuts him in a room with a card-shuffling machine. The machine shuffles ten packs of cards simultaneously and then draws a card from each pack and exhibits simultaneously the ten cards. The kidnapper tells the victim that he will shortly set the machine to work and it will exhibit the first draw, but that, unless the draw consists of an ace of hearts from each pack, the machine will simultaneously set off an explosion which will kill the victim, in consequence of which he will not see which cards the machine drew. The machine is then set to work, and to the amazement and relief of the victim the machine exhibits an ace of hearts drawn from each pack. The victim thinks that this extraordinary fact needs an explanation in terms of the machine having been rigged in some way. But the kidnapper, who now reappears, casts doubt on this suggestion. ‘It is hardly surprising’, he says, ‘that the machine draws only aces of hearts. You could not possibly see anything else at all, if any other cards had

²² There are two other versions of the “anthropic principle”. There is also the *Strong Anthropic Principle* (SAP), which says that the universe necessarily must have had only these values and they couldn’t be otherwise. Unproven speculation. Then there is the *Participatory Anthropic Principle* (PAP), which actually says that observers are necessary to bring the universe into existence (in response to which one writer, Martin Gardner, quipped that this sounds like the “completely ridiculous anthropic principle” or CRAP). This seems impossible because it entails a contradiction.

been drawn.’ But of course the victim is right and the kidnapper is wrong. There is indeed something extraordinary in need of explanation in ten aces of hearts being drawn. The fact that this peculiar order is a necessary condition of the draw being perceived at all makes what is perceived no less extraordinary and in need of explanation... Maybe only if order is there can we know what is there, but that makes what is there no less extraordinary and in need of explanation²³

The “Somebody’s gotta win the lottery” objection

The objection does not consider that one must be careful about what they are attaching probabilities to. The probability does not just refer to any outcome; yes it is true that “somebody” must win the lottery. But it is overwhelmingly improbable that John Smith will win the lottery. So here it is the *specified* improbability of a life-permitting universe or an ordered universe over all of the other possibilities that is at issue. A classic example is one of being dealt a perfect bridge hand. Naturally being dealt a perfect bridge hand is contingent and highly improbable (the odds of being dealt a perfect bridge hand are 1,635,013,559,600 to 1). So if a dealer deals himself two or three perfect bridge hands in a night of card playing, the other players will be entirely justified in suspecting him of cheating. But if the dealer defends himself by saying that they shouldn’t be surprised about the outcome since every hand is equally improbable and after all, some hand had to be dealt, the other players will be well within their reasonable rights to reject this claim. Why? What justifies their natural intuition is that the perfect bridge hand can be specified as valuable independent of the fact that it was just the one that happened to come about. The rules of the game of bridge specify that particular hand as valuable independent of the draw. In the same way, a life-permitting universe is specified as meaningful independent of the fact that it happened to be the one drawn.

The “Many Worlds” Hypothesis

Some atheists find it more acceptable to think that multiple universes exhausting possibilities can account for the complexity in our universe. In other words, given enough chances, many universes can take on a different set of laws and ours just happens to be the one that took on life-permitting laws. This can be explained analogically by saying that if enough tornadoes pass through a junkyard, then they could perhaps make a Boeing 747 jet.

However the many worlds hypothesis has its drawbacks. Granting that it could happen, it would take a tremendous amount of actualized universes to overcome the improbabilities involved in coming up with a life-permitting universe by chance. Now these universes are metaphysical entities in that they are speculative entities outside of our 4 dimensional space-time universe and in this way are no more “natural” than a theistic explanation. Astrophysicist John Polkinghorne writes:

People try to trick out a “many universe” account in sort of pseudo scientific terms, but that is pseudo-science. It is a metaphysical guess that there might be many universes with different laws and circumstances.²⁴

As a matter of fact, Ockham’s razor says that all things being equal, the explanation with the fewer amount of entities is preferable, and a theory that posits only one metaphysical entity, a Designer, is much simpler and better than a theory that posits trillions and trillions of metaphysical entities. The simpler theory is always to be preferred over the more complex:

To postulate a trillion trillion other universes, rather than one God in order to explain the orderliness of our universe, seems the height of irrationality.²⁵

Moreover, William Lane Craig also argues that violating Ockham’s razor in order to multiply probabilistic resources without warrant is such an irrational move that it could justify almost *any* occurrence:

²³ Richard Swinburne, *The Existence of God* (Oxford: Oxford University Press, 1991) 138

²⁴ John Polkinghorne, *Serious Talk: Science and Religion in Dialogue* (London: SCM Press, 1996) p. 6

²⁵ Richard Swinburne, *Is There a God?* (New York: Oxford University Press, 1996) 68

If we are allowed to do that, then it seems that anything can be explained away. For example, a card player who gets four aces every time he deals could explain this away by saying, “there are an infinite number of universes with poker games going on in them, and therefore in some of them someone always by chance gets four aces every time he deals and - lucky me! – I just happen to be in one of those universes.” This sort of arbitrary multiplying of one’s probabilistic resources would render rational conduct impossible.²⁶

Additionally, design argument proponents argue that there is no evidence for the existence of these other universes other than the fine-tuning itself, which equally suggests a Designer, yet the Designer hypothesis can be considered the better explanation because it has other independent lines of evidence like other arguments for the existence of God such as the cosmological argument and the moral argument.

Finally, it is likely that those other alleged universes, if they have laws anything like the kind our universe has (i.e. gravitation, electromagnetism, the strong force, etc.) *would themselves* call for design just as much as ours and so the design inference is not escaped. Adding more and more universes that are themselves in need of design only adds to the problem, not the solution.

“Intelligent Design is not Falsifiable”

Then what are all the arguments criticizing it about? Behe writes:

Now, one can’t have it both ways. One can’t say both that ID is unfalsifiable (or untestable) and that there is evidence against it. Either it is unfalsifiable and floats serenely beyond experimental reproach, or it can be criticized on the basis of our observations and is therefore testable. The fact that critical reviewers advance scientific arguments against ID (whether successfully or not) shows that they think ID is indeed falsifiable.²⁷

“Well maybe we just impose design onto the universe and so it doesn’t really have it in itself.”

Paul Davies:

I believe this is arrant nonsense. You’d be hard pressed to convince a physicist that Newton’s inverse square law of gravitation is a purely cultural concoction. The laws of physics, I submit, *really exist* in the world out there, and the job of the scientist is to uncover them, not to invent them.²⁸

What about Evolution?

Intelligent design is not incompatible with the notion that humans developed by gradual processes. An intelligent designer does not have to make thing in one basic act on one particular day in history. The only type of evolution then that would be ruled out by intelligent design is *atheistic evolution*, where there is no intelligent purpose, but there is no evidence for this kind of evolution. In other words, none of the data that supports evolutionary processes shows that there is no designer of the universe. In fact, the design inference can be made well before evolution of animal life on earth even gets going in the fundamental constants of the universe. In this case, evolution on earth has nothing to say about the question of intelligent design.

So evolution on earth, while it may be a *partial* explanation, cannot be the *ultimate* explanation, as Swinburne points out:

This explanation [evolution] is surely a correct explanation, but it is not the ultimate explanation of that fact. For an ultimate explanation we need an explanation at the highest level of why those laws rather than other ones operated. The laws of evolution are no doubt consequences of laws of chemistry governing the organic matter of which

²⁶ William Lane Craig “Fine Tuning of the Universe” in *God and Design: The Teleological Argument and Modern Science* ed. Neil Manson (New York: Routledge 2003) 173

²⁷ Michael Behe “The Intelligent Design Hypothesis” in Manson, 288

²⁸ Paul Davies “Design in Physics and Cosmology” in Manson, 148-9

animals are made. And the laws of chemistry hold because the fundamental laws of physics hold. **But why just those fundamental laws of physics rather than any others?** If the laws of physics did not have the consequence that some chemical arrangement would give rise to life or that there would be random variation by offspring from characteristics of parents, and so on, there would be no evolution by natural selection... The primitive soup existed because the earth was formed in the way it was; and the earth was formed in the way it was because the galaxy was formed the way it was, and so on... until we come right back to the Big Bang.²⁹

“Science will discover a “theory of everything” that will show the necessity of everything.”

First, any “theory of everything” that is itself finite cannot be the ultimate explanation, since any finite thing could have been other than it is. As Aquinas argued, whatever is finite is only one possibility actualized amongst others and there must be a reason why one was actualized and not others.

Secondly there is no evidence that there is going to be a naturalistic theory of everything. Paul Davies:

I think this [theory of everything] is demonstrably wrong. There is not a shred of evidence that the Universe is logically necessary. Indeed, as a theoretical physicist I find it rather easy to imagine alternative universes that are logically consistent, and therefore equal contenders for reality.³⁰

Thirdly, the best anyone can do now is to go on the evidence at hand, not on speculations about what *might* happen in the future. If what speculations about what might happen were a good basis to reject a scientific theory, then one could not accept Darwinian evolution either, since that “might” be shown inadequate sometime in the future.

Finally, if this “theory of everything” were not a thing but a law, then it could not of itself account for anything since mere “laws” don’t really do any causing. Laws aren’t things; they do not exist as beings *per se* and are nothing over and above being a property of the real beings they govern. Gravity for example exists because there is a being with mass. “Gravity” by itself never does anything because it cannot exist save only as a property of an already existing thing. C.S. Lewis eloquently made this point with the example of billiard balls:

And here comes the snag. The *law* won’t set it [a billiards ball] in motion. It is usually a man with a cue who does that. But a man with a cue would send us back to free will, so let us assume that it was lying on a table in a liner and that what set it in motion was the lurch of the ship. In that case it was not the law which produced the movement; it was the wave. And that wave, though it certainly moved *according* to the laws of physics, was not moved by them. It was shoved by other waves, and by winds, and so forth. And however far you traced the story back you would never find the *laws* of Nature causing anything. The dazzling obvious conclusion now arose in my mind: *in the whole history of the universe the laws of Nature have never produced a single event...*Up until now I had had a vague idea that the laws of Nature could make things happen. I now saw that this was exactly like thinking that you could increase your income by doing sums about it. The *laws* are the pattern to which events conform: the source of events must be sought elsewhere.³¹

CREATIO CONTINUA (CONTINUAL CREATION OR “DIVINE CONSERVATION” & GOD’S IMMEDIATE PRESENCE IN THE WORLD

²⁹ Richard Swinburne, *Is There a God?* 60-1

³⁰ Paul Davies, “Design in Physics and Cosmology” in Manson, 148

³¹ C.S. Lewis, “The Laws of Nature” in *The Collected Works of C.S. Lewis* (New York, Inspirational Press, 1996) 351 -352

A proponent of the design argument can make one further point about the consistency and steadiness of universal order and its finely tuned conditions. Why do they *not* fluctuate? The question here is why do we *continue* in being here and now. A physicist may cite the local operation of certain conservation laws: mass-energy, momentum, balance of the four forces, etc. - which refers to our best understanding of discoverable tendencies in nature. But note that this immediately moves us from the material to the intentional realm, as these laws are not constituted of matter, but rather bespeak of certain intentions or tendencies in matter's operation. We would need recourse to a "meta-conservation law", which holds that the normal conservation laws of physics *continue to operate as they do* -in other words, *a law that conserves the conservation laws*. At this stage we have a being which is properly immaterial, as neither it nor its realm of operation is constituted of matter. If we then iterate and ask why does the meta-law continue in operation, then we come to a series of metaⁿ-laws with n tending to infinity. It is obvious that such a series has no explanatory value, but merely multiplies entities without necessity. Furthermore, it is patent that such a series fails in its purpose of giving necessity to the contingent fact of continued being. Hence, there must be some termination to the series which is *per se* necessary, and which is the source of on-going necessitation.

CONSEQUENTLY, THIS LAST ARGUMENT WOULD SHOW THAT IT IS ATTRIBUTABLE TO GOD'S CHOICE NOT ONLY THAT THESE FINE TUNED CONDITIONS EXIST, BUT ALSO THAT THESE CONSTANTS EXIST MOMENT BY MOMENT THE WAY THAT THEY DO. WITHOUT THE CONTINUAL PRESENCE OF THE FUNDAMENTAL CONDITIONS OF THE UNIVERSE, EVERYTHING WOULD DISINTEGRATE INTO NOTHINGNESS.³²

³² Aquinas argued for similar reasons that, "In this manner all creatures need to be preserved by God. For the being of every creature depends on God, so that not for a moment could it subsist, but would fall into nothingness were it not kept in being by the operation of the Divine power". ST I.104.1