

EVIDENCE FOR GOD'S EXISTENCE APART FROM THE BIBLE

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I. Introduction

A. Unbelievers and skeptics often say that the only reason Christians have for believing God exists is their prior belief that the Bible is true. They say to Christians, "Why do you believe there *is* a God?" and some Christians say, "Because the Bible says so." They then ask, "And why do you believe the Bible is true?" And the Christians say, "Because it is inspired by God." And they rightly object that the person is reasoning in a circle. He is assuming God exists in claiming that God inspired the Bible, but whether God exists is the very point in dispute. One cannot simply assume the answer to a dispute and then build an argument on that assumption.

B. I believe the Bible is true, that it is the inspired and inerrant word of God, but in this series, I am presenting reasons to believe God exists that do not depend on the Bible being true. I will be giving *reasons* to believe he exists, not absolute, definitive proof he exists. The skeptic is

not claiming that Christians lack absolute, definitive proof of God's existence; rather, they claim we lack any *reasons*, any rational basis, for believing he exists.

C. For example, Sam Harris said in this 2001 book titled *The End of Faith* (p. 17) that religion is the one area of life in which we have convinced ourselves that "our beliefs about the world can float entirely free of reason and evidence." Later in that same book he writes (p. 72), "We have names for people who have many beliefs for which there is no rational justification. When their beliefs are extremely common we call them 'religious'; otherwise they are likely to be called 'mad,' 'psychotic,' or 'delusional.'" I want you to understand that Harris's charge is complete nonsense. There are rational, and I would say compelling, reasons to believe God exists.

D. I am trying to fit each of the reasons into a single class period, which means I am going to have to trim my normal presentation of the material. That may be a good thing.¹

II. Evidence for God's Existence

A. It is more reasonable to believe the universe was brought into existence by something than to believe it was not, and it is more reasonable to believe that this cause, this something, was a timeless, nonphysical, and immensely powerful personal being than to believe it was not.

1. The first part of this contention is that it is more reasonable to believe the universe was brought into existence by something than to believe it was not. This is supported by what is called the Kalam cosmological argument, an argument that today is most closely associated with the philosopher and theologian William Lane Craig.

2. The Kalam cosmological argument is a simple deductive argument consisting of only two premises and a conclusion: (a) Everything that begins to exist has a cause for its existence; it is brought into existence by something, (b) The universe began to exist, (c) Therefore, the universe has a cause for its existence; it was brought into existence by something.

3. The logic of the argument is valid, so if the premises of the argument are true, its conclusion necessarily is true. What I want you to see is that it is more reasonable to believe the premises of the argument are true than to believe they are not, and thus it is more reasonable to accept the conclusion than to reject it. We are not the people swimming against reason; they are. We have the better case.

4. The first premise is: Everything that begins to exist has a cause for its existence; it is brought into existence by something.

a. As expressed in the ancient Latin adage *ex nihilo nihil fit*, out of nothing nothing comes. That should be obvious. If you start with nothing you'll never get anything. The

¹ Most of this material is also available in the notes on the classes titled "Answering the New Atheism."

reason you'll never get anything is that something can only come into existence if there is something to cause it to do so. Nothing, being the absence of anything, has no properties and thus has no causal capacity, no potential to bring anything into being. As put by the noted 17th-century British philosopher John Locke, "Man knows by intuitive certainty, that bare nothing can no more produce any real being, than it can be equal to two right angles" (quoted in Groothuis, *Christian Apologetics*, 215).

b. If things can just pop into existence from nothing, there is no reason that would not happen all the time. If things don't need a cause for coming into existence, what's to stop anything and everything from popping into existence? But the uniform experience of humanity is that this does not happen. None of us fear a tiger will appear out of nothing in the chair next to us.

c. The claim that on the subatomic level quantum physics shows that so-called "virtual particles" blink into being spontaneously, in a way not determined or necessitated by a prior state, does not prove that something can come into existence out of nothing, without something causing it to do so. It fails as a counterexample for several reasons. I cannot take the time to delve into these reasons, so I'm just going to state them for you.

(1) First, it is far from certain that virtual particles really exist. They are undetectable and are argued by many to be only theoretical constructs, "instruments to give an intuition of mathematical rules."

(2) Second, even if they do really exist, there are deterministic interpretations of quantum physics under which their appearance is not random or spontaneous but only seems that way, being in fact determined or necessitated by prior conditions.

(3) And finally, even if virtual particles really exist and their appearance is random or spontaneous, the particles do not come into being out of nothing. Their appearance requires, is conditioned on, the prior existence of an energy-laden subatomic "vacuum," a quantum field, which is not nothing.

5. The second premise of the Kalam cosmological argument is: The universe began to exist. It is more reasonable to believe this is true than to deny it because, Scripture aside, there are strong philosophical and scientific reasons for believing it.

a. The philosophical argument for the universe having a beginning is that *past* time cannot be infinite because an infinite amount of time cannot already have been exhausted so as to arrive at the present. Infinite time is limitless, inexhaustible, and thus cannot have been exhausted.

(1) Put differently, one could never traverse an infinite sequence of time units, an infinite number of seconds, minutes, hours, etc., to arrive at now. There always would be more time units to traverse before now. If one begins counting down from minus infinity, one cannot count to the present. An infinite amount of time can never pass because it is limitless; it can only be in process, never complete. To quote the *New Dictionary of Christian*

Apologetics, (p. 700), "One can neither count from one to infinity nor count down from infinity to one. There is always an infinite distance to travel, so one never arrives."

(2) Sean McDowell and Jonathan Morrow make the point this way in *Is God Just a Human Invention?* (Grand Rapids: Kregel Publications, 2010), 75-76:

Imagine you went for a walk in the park and stumbled across someone proclaiming aloud, "... five, four, three, two, one—there, I finally finished! I just counted down from infinity!" What would be your initial thought? Would you wonder how long the person had been counting? Probably not. More likely, you would be in utter disbelief. Why? Because you know that such a task cannot be done. Just as it's impossible to count up to infinity from the present moment, it's equally impossible to count down from ... infinity to the present moment. Counting to infinity is impossible because there is always (at least) one more number to count. In fact, every time you count a number, you still have infinite more to go, and thus get no closer to your goal. Similarly, counting down from infinity to the present moment is equally impossible. Such a task can't even get started! Any point you pick in the past to begin, no matter how remote, would always require (at least) one more number to count before you could start there. Any beginning point would require an infinite number of previous points. Here's the bottom line: we could never get to the present moment if we had to cross an actual infinite number of moments in the past. Yet, since the present moment is real, it must have been preceded by a finite past that includes a beginning or first event. Therefore, the universe had a beginning.

(3) The impossibility of infinite past time, of having already traversed an infinite timespan, does not mean that future time will not go on forever. Future time is potentially not actually infinite. In other words, it is infinity in progress, something that will move toward infinity but never arrive; you'll never get to the end of it. So it poses no problem like the claim of having already traversed an infinite timespan.

(4) The impossibility of traversing an infinite timespan, an infinite sequence of time units, need not mean that God has not always existed. There are ways of dealing with God's relationship to time so that he does not exist (or has not always existed) in a sequence of individuated moments, a sequence of time units. His eternity is not one of infinite time but one of either timelessness or a different kind of time that has no measure or metric. For example, William Lane Craig's view is that "God is timeless without creation and temporal since creation." Philosophers Alan Padgett and Richard Swinburne refer to time before creation as "metrically amorphous time," meaning it differs from our "measured time" (see, e.g., [Eternity in Christian Thought](#)).

(5) This philosophical claim that the universe cannot always have existed makes sense to me and to many philosophers, but there are others who continue to kick against the goads. In any event, the philosophical claim dovetails nicely with the scientific acceptance of the universe having a beginning. That is the subject to which I now turn.

b. The scientific arguments for the universe having a beginning often involve the second law of thermodynamics which establishes without exception that processes taking place in a closed physical system, which for the atheist the universe is – in Carl Sagan's famous words, "The universe is all there is, or was, or ever will be" – always tend toward a state of equilibrium. In other words, every such system eventually will run down and cease having energy available for work. That is why there can be no perpetual motion machines.

(1) The internationally known theoretical physicist Paul Davies put it this way in an interview in 1995 online [here](#):

There are many physical processes occurring in the universe that proceed at a finite rate, and are irreversible. For example, the formation and death of stars, and the emission of starlight into space. You can't run these processes backwards. But if the universe is infinitely old, then these irreversible processes would have all run their course by now, and the entire universe would have reached its final state. But that hasn't happened yet, so the universe can't have existed for ever. We know there must have been an absolute beginning a finite time ago.

(2) The attempts to get around this scientific conclusion of an absolute beginning have not been persuasive. On January 8, 2012 there was a meeting of world-class cosmologists at Cambridge University in honor of physicist Stephen Hawking's 70th birthday. It was called "The State of the Universe." The report of the event in *New Scientist* magazine by Lisa Grossman on January 11, 2012 was titled "Why physicists can't avoid a creation event." Ms. Grossman reported:

While many of us may be OK with the idea of the big bang simply starting everything, physicists, including Hawking, tend to shy away from cosmic genesis. "A point of creation would be a place where science broke down. One would have to appeal to religion and the hand of God," Hawking told the meeting, at the University of Cambridge, in a pre-recorded speech.

For a while it looked like it might be possible to dodge this problem, by relying on models such as an eternally inflating or cyclic universe, both of which seemed to continue infinitely in the past as well as the future. . . . However, as cosmologist Alexander Vilenkin of Tufts University in Boston explained last week, that hope has been gradually fading and may now be dead. **He showed that all these theories still demand a beginning.** [Note: Vilenkin is a theoretical physicist, cosmologist, and professor of Physics and Director of the Institute of Cosmology at Tufts University; he is not a theist.]

(3) The editorial in *New Scientist* was titled "The Genesis problem." It included:

The big bang is now part of the furniture of modern cosmology, but Hoyle's unease has not gone away. Many physicists have been fighting a rearguard action against it for decades, largely because of its theological overtones. If you have an

instant of creation, don't you need a creator? Cosmologists thought they had a workaround. Over the years, they have tried on several different models of the universe that dodge the need for a beginning while still requiring a big bang. **But recent research has shot them full of holes. It now seems certain that the universe did have a beginning.**

(4) In October 2015 Vilenkin wrote in the online journal *Inference*: "The answer to the question, 'Did the universe have a beginning?' is, 'It probably did.' We have no viable models of an eternal universe. The BGV [Borde-Guth-Vilenkin] theorem [published in 2003] gives us reason to believe that such models simply cannot be constructed."

(5) Now some are convinced it remains possible to construct mathematically valid models of an eternal universe. However, those models are highly speculative, wind up with mysteries of their own, and have what Vilenkin and others say is a kind of beginning. They amount to atheistic wishful thinking, models that have no observational support, and thus they provide no scientific reason for thinking they describe something that actually happened. They are tantamount to saying, "You cannot prove my imaginary scenario is impossible," though as I indicated, Vilenkin says there is good reason to believe all such efforts necessarily are flawed.

(6) After a lengthy discussion of the issues and claims, here is how Robert J. Spitzer summarized the current state of scientific evidence on whether the universe had a beginning in his 2010 book *New Proofs for the Existence of God: Contributions of Contemporary Physics and Philosophy* (p. 43-44):

The discussions in the foregoing sections show that the preponderance of the cosmological evidence favors a beginning of the universe (prior to which there was no physical reality whatsoever). The beginning of physical reality marks the point at which our universe came into existence. There are currently no truly satisfactory alternatives to this beginning of physical reality. . . .

(7) Now I don't believe the Standard Big Bang model or any of the proposed eternal models of the universe are true because I'm convinced they all are inconsistent with Scripture. *The point, however, is that one need not depend on religious convictions or on believing the Bible to rationally and reasonably believe that the universe began to exist.* Indeed, that is the dominant view of secular science, the very discipline the atheist trumpets as the supreme, if not the only, means of knowing truth.

c. So even if one rejects the philosophical argument that the universe *necessarily* had a beginning based on the impossibility of traversing an infinite timespan, it still is reasonable to believe the universe had a beginning. And since everything that begins to exist has a cause for its existence, there are reasonable grounds for concluding the universe had a cause for its existence; it was brought into existence by something.

6. Just to remind you of where we are, my contention in this class is: *It is more reasonable to believe the universe was brought into existence by something than to believe it was*

not, and it is more reasonable to believe that this cause, this something, was a timeless, nonphysical (i.e., immaterial and spaceless), and immensely powerful personal being than to believe it was not. I have just argued for the first part of that contention, that it is more reasonable to believe the universe was brought into existence by something than to believe it was not. I now want to argue for the second part, the claim that it is more reasonable to believe that this cause, this something, was a timeless, nonphysical, and immensely powerful personal being than to believe it was not.

7. Whatever caused the universe to come into existence could not be part of the universe. Since it caused the universe it necessarily is *independent* of the universe; it exists separately from the universe. And as we think about such a cause, certain qualities are suggested.

8. A cause that is independent of the universe and which brings the universe into existence is a cause that is nonphysical, powerful, and in some sense timeless. It is nonphysical because matter/energy and space are part of the created universe and thus came into existence with it; there is no matter/energy and space apart from the universe. The cause is powerful because it created the entire universe from nothing. And it is beyond or outside of time because time, as we know and experience it, is itself a property of the created universe. That is why the universe is often called "the space-time universe."

9. Moreover, this nonphysical, timeless, and amazingly powerful cause is most reasonably understood to be personal rather than some kind of impersonal force or set of conditions.

a. If the cause of the universe were an impersonal force or set of conditions, it would be impossible for that cause to exist without its effect, the universe, also existing. Whenever you had that cause the universe would come into existence. Since the cause of the universe is timeless (whether relatively per Alan Padgett or absolutely per William Lane Craig), is permanent, then the universe would also be permanent; it could not have come into being a finite time ago. Craig states the problem this way:

If the cause is sufficient to produce its effect, then if the cause is there, the effect must be there, too. For example, water freezes when the temperature is below 0 degrees centigrade; the cause of the freezing is the temperature's falling to 0 degrees. If the temperature has always been below 0 degrees, then any water around would be frozen from eternity. It would be impossible for the water to *begin* to freeze just a finite time ago. Now the cause of the universe is permanently there since it is timeless. So why isn't the universe permanently there as well? Why did the universe come into being only 13.7 billion years ago? Why isn't it as permanent as its cause?

b. But if the cause is a personal being rather than a mindless state, an impersonal set of conditions, that being could *choose* not to create the universe until a finite time ago. All of this fits squarely with traditional concepts of God as an eternal, nonphysical, and powerful personal being.

10. So I conclude from the universe's existence that it is more reasonable to believe the universe was brought into existence by something than to believe it was not, and it is more reasonable to believe that this cause, this something, was a timeless, nonphysical, and immensely powerful personal being than to believe it was not.

11. Note that it is only that *which begins to exist* that must have a cause for coming into existence. That which has no beginning, which has always existed, like the God envisioned by the great religions, requires no cause for being. (God's eternity does not conflict with the second law of thermodynamics because that law applies to the behavior of matter and energy within the universe not to a nonphysical being that transcends the universe.)

a. So the assertion that God has no cause of existence (is self-existent) does not justify the assertion that the universe has no cause of existence. There is a crucial distinction between the two. The universe *must* have a cause of existence because it had a beginning. To ask "What caused God?" is to commit the category fallacy in that one is incorrectly assigning God to the category of things requiring a cause. It is to ask what caused the uncaused, which is nonsensical. It is like asking what time tastes like or how tall Tuesday is.

b. Atheist philosopher Michael Ruse has little patience for his fellow atheists who cannot grasp this distinction. He wrote in *The Guardian* on November 2, 2009:

I have written that [Richard Dawkins's] *The God Delusion* made me ashamed to be an atheist and I meant it. Trying to understand how God could need no cause, Christians claim that God exists necessarily. I have taken the effort to try to understand what that means. Dawkins and company are ignorant of such claims and positively contemptuous of those who even try to understand them, let alone believe them. Thus, like a first-year undergraduate, he can happily go around asking loudly, "What caused God?" as though he had made some momentous philosophical discovery.

B. It is more reasonable to believe there is an objective moral standard than to believe there is not, and it is more reasonable to believe that an objective moral standard cannot exist without God than to believe that it can.

1. Are moral standards objective or subjective?

a. When you say it is wrong to slit a baby's throat for fun do you mean it is inherently wrong, wrong no matter who says otherwise? In that case, you mean it is *objectively* wrong. The wrongness inheres in the object, the conduct itself. Or by calling that conduct wrong do you mean that it is merely contrary to current human opinion on the matter, something that is subject to change like clothing styles? In that case, you mean it is *subjectively* wrong. The conduct is not wrong in itself but is wrong only in the sense it presently is viewed by people as wrong; its wrongness is dependent on the beholder's opinion of it rather than being a property of the act itself.

b. To help focus the distinction, if the Nazis had succeeded in conquering the world and convincing the masses that slaughtering Jewish children was the moral equivalent of exterminating cockroaches, would killing them still be wrong? If it became accepted that a father had absolute authority over his family such that he had a right to sexually abuse his children or kill them for enjoyment, would his doing so still be wrong? The question is whether right and wrong is whatever people decide it is or whether it exists transcendently, independently of what people think. Do we make it up, or do we discover it?

2. With many others (see [Moral Realism](#)), I claim it is more reasonable to believe that slitting a baby's throat for fun is objectively wrong than to believe it merely goes against current human opinion, merely violates a personal taste or a social convention. It is more reasonable to believe it is objectively wrong because our moral sense, our moral experience, tells us it is objectively wrong, and we have reason to trust that moral sense.

a. Virtually everyone has a powerful sense that this conduct is objectively wrong; indeed, that strikes us as self-evident, a truth that needs no demonstration. We perceive intuitively and from interacting with others that there are *moral facts*, not just subjective tastes and opinions, and that the wrongness of slitting a baby's throat for fun is an example of such a fact; nothing can make it okay. One must suppress this perception, be in denial, to claim otherwise.

(1) The depth and power of this sense that morality is objective is illustrated beautifully by Bertrand Russell, perhaps the most renowned atheist philosopher of the twentieth century. He wrote: "I cannot see how to refute the arguments for the subjectivity of ethical values, but I find myself *incapable of believing* that all that is wrong with wanton cruelty is that I don't like it" (*Nonsense of a High Order*, p. 172). He knew in his heart that there was more to the wrongness of wanton cruelty than his personal opinion, but his atheism gave him no way to justify objective morality.

(2) It is our sense that morality is objective that explains the disgust, anger, and indignation we feel over something like child molestation. If I can't stand the taste of sushi and someone else enjoys it, I don't get outraged or indignant toward them because it is a subjective matter, a matter of taste. It is completely different if they rape a child. One has the inescapable conviction that a child rapist has not simply disagreed with one's personal preference but has violated a transcendent, objective norm. He did wrong – capital W – regardless of who may disagree.

(3) And it is our sense that morality is objective that allows us to judge some human laws and accepted cultural practices as unjust or immoral. As Martin Luther King, Jr. wrote in his "Letter from a Birmingham Jail," "A just law is a man-made code that squares with the moral law or the law of God. An unjust law is a code that is out of harmony with the moral law" (Groothuis, 377). Likewise, an unjust cultural practice is one that is out of harmony with the moral law. If a culture approves abandoning unwanted newborns to die, as did ancient Roman society, we don't take their approval of the practice as the last word on whether it is moral. We appeal to a transcendent standard, something beyond human opinion and culture, to judge the practice.

b. You say, "Okay, I get that there is a ubiquitous sense that slitting a baby's throat for fun is objectively wrong, but is there any reason to believe that sense is accurate?" There is. It is reasonable to believe that perception is accurate because, in the absence of sufficient evidence to the contrary, it is reasonable to believe our perceptions of reality are trustworthy. In other words, it is reasonable to assume that our grasp of reality is accurate until we have adequate reason to think otherwise. The rational default position is that our perception corresponds to reality.

(1) For example, I am justified in accepting that the world I perceive to exist through my senses does in fact exist until I am given sufficient evidence to the contrary, perhaps evidence showing I am really just a brain in a vat that is being caused to hallucinate the perception of a world around me. And I am justified in accepting that the minds I perceive to exist in other people do in fact exist – that they don't just *act* like they have minds – until I am given sufficient reason to deny it. Without such contrary evidence, it is reasonable for me to assume my apprehension of reality is true.

(2) In the same way, it is reasonable for me to assume my overwhelming perception that morality is objective is true until I am given sufficient evidence to believe otherwise. But as Louise Antony, Professor of Philosophy at the University of Massachusetts-Amherst, acknowledged in her debate with William Lane Craig, "Any argument for moral skepticism is going to be based upon premises which are *less obvious than the reality of moral values and duties themselves*, and therefore [it] can never be rational to accept moral skepticism." There *is* no sufficient evidence for me to deny my moral experience.

3. Now, the fact it is reasonable to believe that it is objectively wrong to slit a baby's throat for fun creates a problem for the atheist because he has no reasonable way to account for objective morality. He has no good way to claim that any conduct, however egregious, is *inherently* wrong, wrong in a sense independent of human opinion.

a. After all, in the atheist's view all of existence is necessarily the product of blind, purposeless, natural forces. How could such forces generate a moral standard? If blind, purposeless forces, such as wind or dripping water, carved marks in sandstone in the shape "Do not eat grapes," that would not create a moral obligation not to eat grapes. Anyone who appealed to those marks to condemn those eating grapes would be ridiculed and taught that mankind is not obligated to obey the fortuities of nature. Mindless phenomena like wind and rain cannot create moral obligation. But if the prohibition against slitting a baby's throat for fun is the product of the same mindless forces as created the marks "Do not eat grapes," it could be no more binding. Any contrary sense necessarily would be an illusion, a fact many atheist philosophers admit.

b. Atheist philosopher Richard Taylor, who taught at Brown, Columbia, and the University of Rochester, wrote in 1985, "The concept of moral obligation [is] unintelligible apart from the idea of God. The words remain but their meaning is gone."

c. Though Dawkins, like other atheists, often appeals to moral absolutes, in November 1995 he wrote in *Scientific American*: "The universe that we observe has precisely the

properties we should expect if there is, at bottom, no design, no purpose, *no evil, no good*, nothing but pitiless indifference." He said the following in his interview with Justin Brierley on October 21, 2008:

Brierley: "But if we had evolved into a society in which rape was considered fine, would that mean that rape is fine?"

Dawkins: "I don't want to answer that question...it's enough for me to say that we live in a society where it's not considered fine. . . ."

Brierley: "OK, but ultimately, your belief that rape is wrong is as arbitrary as the fact that we evolved five fingers rather than six."

Dawkins: "You could say that, yes."

d. Atheist philosopher Michael Ruse wrote in an online article in the *UK Guardian* in March 2010:

God is dead, so why should I be good? The answer is that there are no grounds whatsoever for being good. There is no celestial headmaster who is going to give you six (or six billion, billion, billion) of the best if you are bad. Morality is flimflam. . . .

Now you know that morality is an illusion put in place by your genes to make you a social cooperator, what's to stop you behaving like an ancient Roman [grabbing Sabine women]? Well, nothing in an objective sense.

e. Atheist Joel Marks, Professor Emeritus of Philosophy at the University of New Haven, put it this way in his 2010 article in *Philosophy Now*:

I have given up morality altogether! . . . [T]his philosopher has long been laboring under an unexamined assumption, namely, that there is such a thing as right and wrong. I now believe there isn't.

How I arrived at this conclusion is the subject of a book I have written . . . The long and the short of it is that I became convinced that atheism implies amorality; and since I am an atheist, I must therefore embrace amorality. . . . I experienced my shocking epiphany that the religious fundamentalists are correct: without God, there is no morality. But they are incorrect, I still believe, about there being a God. Hence, I believe, there is no morality. . . .

Even though words like 'sinful' and 'evil' come naturally to the tongue as a description of, say, child-molesting, they do not describe any actual properties of anything. There are no literal sins in the world because there is no literal God and hence the whole religious superstructure that would include such categories as sin and evil. Just so, I now maintain, nothing is literally right or wrong because there is no Morality.

f. Alex Rosenberg is the R. Taylor Cole Professor of Philosophy at Duke University. He wrote in *The Atheist's Guide to Reality: Enjoying Life Without Illusions* (New York: W. W. Norton & Company, 2011), 1-3:

Everyone seems to know what life's persistent questions are. . . .
This book aims to provide the correct answers to most of the persistent questions. . . .
Here is a list of some of the questions and their short answers. . . .
Is there a God? No.
What is the nature of reality? What physics says it is. . . .
What is the difference between right and wrong, good and bad? There is no moral difference between them.

g. In his April 2013 debate with Frank Turek, David Silverman, who was president of American Atheists, made the following statements (Turek, *Stealing from God*, 93-95): "there is no such thing as objective morality," "all morality is relative," and "There is no objective moral standard." He also said that his preferring a culture that *cares for* babies over one that *eats them* and his condemnation of Nazi atrocities was just "an opinion," and he agreed that people "have every right to do" what in his opinion is wrong. And yet, he still insisted on labeling what they did as "immoral." Moral relativism and confused thinking is where his atheist philosophy has driven him.

4. Atheists who attempt to find a basis for objective morality are driven to incoherence. A prime example is the philosopher Michael Ruse.

a. On the one hand, he insists, "The man who says it is morally acceptable to rape little children is just as mistaken as the man who says $2+2 = 5$ " (*Darwinism Defended* [London: Addison-Wesley, 1982], 275) and "I want to say that what Jerry Sandusky was reportedly doing to kids in the showers was morally wrong, and that this was not just an opinion or something based on subjective value judgments. The truth of its wrongness is as well taken as the truth of the heliocentric solar system" ("Scientism Continued," *The Chronicle of Higher Education*, Dec. 19, 2011).

b. On the other hand, he says this sense of morality being objective is an illusion. He writes, "So morality has to come across as something that is more than emotion. It has to *appear* to be objective, even though *really it is subjective*" ("God is dead, long live morality," *The Guardian*, March 15, 2010). He claims that evolution has fooled us into thinking certain behavior is objectively wrong. The atheist philosopher Alex Rosenberg concurs with that assessment. He writes in *The Atheist's Guide to Reality* (p. 109), "Our core morality isn't true, right, correct, and neither is any other. Nature just seduced us into thinking it's right. It did that because that made core morality work better; our believing in its truth increases our individual genetic fitness."

c. So Ruse and many other atheists ask us to deny our innate sense that morality is objective on the basis of their dubious assertions that all that exists is matter and physics and that naturalistic evolution not only has created human minds but also has commandeered them to generate false impressions of reality. That is a big pill to swallow, one they stuff down only because their naturalistic worldview demands it. To echo philosopher Louise Antony, certainly these claims are less obvious than the reality of moral values and duties themselves!

(1) Moreover, if that is the case, now that we have pierced the evolutionary illusion, now that we have realized the truth that there are no objective moral standards but only personal tastes or social conventions, why perpetuate the falsehood with doubletalk? Why not free people from this false perception our genes have fobbed off on us, liberate them from the guilt they carry for having committed what they falsely believed were objective moral wrongs? After all, if someone was racked with guilt because of a mistaken belief that stepping on a crack in the sidewalk was immoral, we would seek to enlighten him.

(2) And, of course, one cannot stop at thinking evolution has tricked us into believing morality is objective. If we must deny our sense of objective morality on the fantastic theory it is a genetically-induced mirage, we have no less reason to deny that the love we are certain we experience with our spouse and children is also a mirage. Atheists' charges notwithstanding, it is perfectly rational and reasonable to hold to the reality of these perceptions rather than think we are the deluded pawns of a blind and random process that shows no capacity to achieve such a fantastic effect.

d. I submit to you that Ruse's incoherence reflects his inability to believe that all that is wrong with child molestation is that he personally has been programmed by his genes not to like it, to perceive it as wrong. He knows by intuition and experience there is more to it than that, but his atheism gives him no way to explain how there *can be* more to it. So he speaks out of both sides of his mouth, claiming it is *not* an opinion or a subjective value judgment and yet insisting it *is* a subjective judgment that we have been fooled into believing is objective.

5. It is almost funny watching atheists express moral indignation and outrage over certain conduct, especially when they think they can blame it on religion.

a. In his May 2007 debate with Christopher Hitchens in *Christianity Today*, the Christian theist Douglas Wilson kept pressing Hitchens to provide a rational basis for labeling any conduct good or bad. If existence consists solely of matter acting according to various laws of nature, it is meaningless to speak of conduct as either good or bad. It simply is. We might as well say it is *good* for a flower to be yellow but *bad* for it to be red. All such declarations are necessarily arbitrary and meaningless.

b. The best Hitchens could muster in answer to Wilson's persistent inquiry was to say that "our morality evolved." As I've indicated, that is the standard tack taken by atheists who want to keep their atheism and also feel justified in their moral condemnation of others. I think Wilson did a beautiful job of exposing the fatal defect of that claim. He said:

On the question of morality, you again attempt an answer: "My answer is the same as it was all along: Our morality evolved." There are two points to be made about this reply. The first concerns evolved morality and the *future*, and is a variation on my previous questions. If our morality evolved, then that means our morality *changes*. If evolution isn't done yet (and why should it be?), then that means our morality is involved in this on-going flux as well. And that means that

everything we consider to be "moral" is really up for grabs. Our "vague yet grand conception of human rights" might flat disappear just like our gills did.

Our current "morals" are therefore just a way station on the road. No sense getting really attached to them, right? When I am traveling, I don't get attached to motel rooms. I don't weep when I have to part from them. So, in the future, after every ferocious moral denunciation you choose to offer your reading public, you really need to add something like, "But this is just a provisional judgment. Our perspective may evolve to an entirely different one some years hence," or "Provisional opinions only. Morality changes over time"—POOMCOT for short. It would look like this: "The Rev. Snoutworthy is an odious little toad, not to mention a waste of skin, and his proposal that we prosecute the brassiere editors of the Sears catalog on pornography and racketeering charges is an outrage against civilized humanity. But ... POOMCOT."

This relates to the second point, which concerns evolved morality and the *past*. When dealing with people whose moral judgments have differed from yours, do you regard them as "immoral" or as "less evolved?" The rhetoric of your book, your tone in these exchanges, and your recent dancing on the grave of the late Jerry Falwell would all seem to indicate the former. In your choice of words, the people you denounce are to be *blamed*. The word *fulminations* comes to mind. You write like a witty but acerbic tenth-century archbishop with a bad case of the gout. But this is truly an odd thing to do if "morality" is a simple derivative of evolution. Are you filled with fierce indignation that the koala bear hasn't evolved ears that stick flat to the side of his head like they are supposed to? Are you wroth over the fact that clams don't have legs yet? When you notice that the bears at the zoo continue to suck on their paws, do you stop to remonstrate with them?

6. Because atheism is incompatible with the existence of objective morality, our moral sense bears witness to the falsity of atheism. It is telling us at a profound experiential level that atheism is not true. In the atheist's insistence that one is to reject that clear moral sense as an illusion, I hear the old line, "Who you gonna believe, me or your lying eyes?"

7. The question is not whether atheists can be good people, whether they can know moral standards and seek to live by them. Certainly they can; after all, they have been made in God's image and have a certain moral awareness or sensitivity as a result (this is the law of the heart to which Paul refers in Rom. 2:14-15). The question is whether they can have any rational basis for affirming that morality is objective, and they cannot. They are left to view the enforcement of any behavioral standard as the imposition of one person or group's personal preference on another. In that scheme, there are no wrongdoers in a true sense, only *political* minorities, those whose opinions are in a minority. It really is a world of might makes right.

8. Atheists, including some of the new breed, sometimes try to undermine the claim that God explains the existence of objective morality by raising what is known as the Euthyphro Dilemma. For example, Sam Harris raised this argument in his April 7, 2011 debate with William Lane Craig and Jerry Coyne raised it in an online article on August 1, 2011.

a. That name comes from a question asked by Socrates in Plato's early fourth-century BC work titled *Euthyphro*, the essence of which was: Do the gods will something because it is good, or is something good *because* the gods will it? (Euthyphro was a polytheist, and their gods were merely somewhat more powerful and knowledgeable than humans but were still flawed.) Put in terms of Judeo-Christian monotheism, the question is: Is something good because God commands it or does God command something because it is good?

b. It is seen as a dilemma because if God commands something because it is good then the good is independent of him; it is something that exists outside and above him so he is not necessary for its explanation. If, on the other the other hand, God's act of commanding it is what makes it good, then he could make anything good by commanding it. That makes good and evil arbitrary; something is neither good nor evil until he makes it so by commanding or prohibiting it so commanding one thing would be no different from commanding another.

c. The classic response when this is pressed upon Christians (or others who believe in the God of Scripture) is that it is a false dilemma; there is a third alternative. It is not the case that God wills something because it is good as determined by a standard that is outside and above him, nor is it the case that something becomes good only when he commands it. Rather, God himself is good by nature and that goodness necessarily is reflected in what he commands and prohibits; what he wills can never conflict with who he is. His will is neither grounded in anything external to himself nor arbitrary.

d. Some atheists object to this response to the Euthyphro dilemma by saying God's nature cannot be known to be good unless there is a standard to which it can be compared to establish that it is good. In other words, they assert that to say God is good is necessarily to refer to a standard of goodness above and beyond God which means God is not the source or grounding of that standard, in which case the theist's response does not get around the Euthyphro problem; it appeals implicitly to a standard of good outside of God. To this I say, "Not so fast."

(1) If one accepts that there is indeed an objective moral standard, as we recognize innately or intuitively, that standard must originate, must be grounded somewhere. Otherwise there would be an infinite regress of standards needed to justify the prior standard. In other words, if a standard is needed to judge whether God's nature is good, then a standard is needed to judge whether that standard itself conforms to the good, and then a standard is needed to judge that next standard and so on *ad infinitum*, which would mean that objective morality could never originate and thus could not exist.

(2) So if objective morality exists – if it is objectively wrong to slit a baby's throat for fun – it *necessarily* is grounded somewhere, but the atheist's only option is to insist it derives from matter. I contend there is no reasonable basis for claiming that inanimate matter can generate moral obligations, so the atheist is left without an explanation for the grounding of objective morality, whereas the theist is not. God's nature is the foundation of good.

e. Of course, the consistent atheist says there is no objective morality; it's an illusion, so there is nothing that needs to be grounded. *But that is the point.* To hold to their atheism they must deny that objective morality exists, which is less reasonable than accepting its existence. And not only is it more reasonable to believe an objective moral standard exists, it is more reasonable to believe God is its source and grounding than to think we are obligated to obey the fortuities of nature.

f. Being made in God's image (Gen. 1:26-28) and having an innate moral sense (Rom. 2:14-15), we are to some extent tuned to what is moral and right. But being fallen creatures, our sense in that regard is fallible (e.g., our consciences can be 'seared' – Tit. 2:4). We must inform our conscience by studying God's revelation.

C. It is more reasonable to believe that free will exists than to believe it does not, and it is more reasonable to believe that free will cannot exist without God than to believe it can.

1. Humans are able to think and act in a genuinely nondetermined manner. We can choose to write a letter, eat an apple, or sing a song, and we can choose not to do those things.

a. If there is no God, then the universe and everything in it is the result of physical laws (gravitational, electromagnetic, chemical, mechanical, thermodynamic, and radiation) acting on matter/energy over time, which is an exclusively deterministic process. In other words, things occur solely because the laws of nature dictate that they occur. The question is how this strictly deterministic process could give rise to beings that act in a nondetermined manner. What evidence is there that physical laws can create free will, can create a state in which beings act in a way not determined by those laws?

b. Philosopher J. P. Moreland observes (as quoted by Lee Strobel in *The Case for the Creator*, 263-264):

...you can't get something from nothing...It's as simple as that. If there were no God, then the history of the entire universe, up until the appearance of living creatures, would be a history of dead matter with no consciousness. You would not have any thoughts, beliefs, feelings, sensations, free actions, choices, or purposes. There would be simply one physical event after another physical event, behaving according to the laws of physics and chemistry...How then, do you get something totally different – conscious, living, thinking, feeling, believing creatures – from materials that don't have that? That's getting something from nothing! And that's the main problem...However...if you begin with an infinite mind, then you can explain how finite minds could come into existence. That makes sense. What doesn't make sense – and which many atheistic evolutionists are conceding – is the idea of getting a mind to squirt into existence by starting with brute, dead, mindless matter.

2. Recognizing the problem, many atheists insist that free will is an illusion, that human choices and conduct are in fact determined by physical laws the effects of which are just too complex to be traced with any certainty.

a. In his 1994 book *The Astonishing Hypothesis: The Scientific Search for the Soul* (New York: Charles Scribner's Sons, 1994), 3, Francis Crick, the co-discoverer of DNA proclaimed, "The Astonishing Hypothesis is that 'You,' your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules."

b. Anthony Cashmore, a biologist at the University of Pennsylvania, argued in an article titled "The Lucretian Swerve: The Biological Basis of Human Behavior and the Criminal Justice System," *PNAS*, 107:10 (January 2010) that free will does not exist. He declared, "The reality is, not only do we have no more free will than a fly or a bacterium, in actuality we have no more free will than a bowl of sugar. The laws of nature are uniform throughout, and these laws do not accommodate the concept of free will."

c. The late theoretical physicist Stephen Hawking wrote (with L. Mlodinow) in *The Grand Design* (London, Bantam Press, 2010), 45, "It is hard to imagine how free will can operate if our behavior is determined by physical law, so it seems we are no more than biological machines and that free will is just an illusion."

d. Alex Rosenberg is the R. Taylor Cole Professor of Philosophy at Duke University. He wrote in *The Atheist's Guide to Reality: Enjoying Life Without Illusions* (New York: W. W. Norton & Company, 2011), 1-3:

Everyone seems to know what life's persistent questions are. . . .
This book aims to provide the correct answers to most of the persistent questions. . . .
Here is a list of some of the questions and their short answers. . . .
Is there a God? No.
What is the nature of reality? What physics says it is. . . .
Is there free will? Not a chance.

e. Jerry Coyne wrote in January 2012:

Perhaps you've chosen to read this essay after scanning other articles on this website. Or, if you're in a hotel, maybe you've decided what to order for breakfast, or what clothes you'll wear today.

You haven't. You may *feel* like you've made choices, but in reality your decision to read this piece, and whether to have eggs or pancakes, was determined long before you were aware of it — perhaps even before you woke up today. And your "will" had no part in that decision. So it is with all of our other choices: not one of them results from a free and conscious decision on our part. There is no freedom of choice, no free will. And those New Year's resolutions you made? You had no

choice about making them, and you'll have no choice about whether you keep them. . . .

True "free will," then, would require us to somehow step outside of our brain's structure and modify how it works. Science hasn't shown any way we can do this because "we" are simply constructs of our brain. We can't impose a nebulous "will" on the inputs to our brain that can affect its output of decisions and actions, any more than a programmed computer can somehow reach inside itself and change its program. . . .

The ineluctable scientific conclusion is that although we *feel* that we're characters in the play of our lives, rewriting our parts as we go along, in reality we're puppets performing scripted parts written by the laws of physics.

f. Sam Harris states in his 2012 book *Free Will* (p. 5): "Free will *is* an illusion. Our wills are simply not of our own making. Thoughts and intentions emerge from background causes of which we are unaware and over which we have no conscious control. We do not have the freedom we think we have." He says later (p. 44), "You will do whatever it is you do, and it is meaningless to assert that you could have done otherwise." No wonder he has described human beings as "biochemical puppets."

3. This leads naturally to the claim that humans are not responsible for their actions, being in essence sophisticated robots. The reason a man who is hurled from a cliff is not condemned for crushing someone when he lands is that gravity compelled him to fall; he could do nothing else. If some other physical laws, however complex and difficult to identify, compel a person to rob, rape, or murder, he is no more culpable than the man tossed off the cliff.

a. For example, in September 2004, Tamler Sommers, associate professor of philosophy at the University of Houston, [wrote](#):

Indignation, outrage, resentment, and hatred [of criminals] are everywhere, and all of these attitudes are grounded in an unjustifiable philosophical premise: that people can be ultimately responsible for their actions. . . .

Why is it so difficult to abandon the deeply problematic concept of free will and ultimate moral responsibility? . . . The decisive theoretical reasons for rejecting free will and moral responsibility fail to persuade, because we *feel* free. We *feel* responsible. . . .

Admittedly, the idea that criminals do not morally *deserve* punishment is tough to accept. But no more so than was the claim that the earth revolves around the sun.

b. In 2006 Dawkins wrote in *Edge* magazine:

But doesn't a truly scientific, mechanistic view of the nervous system make nonsense of the very idea of responsibility, whether diminished or not? Any

crime, however heinous, is in principle to be blamed on antecedent conditions acting through the accused's physiology, heredity and environment. Don't judicial hearings to decide questions of blame or diminished responsibility make as little sense for a faulty man as for a Fawltly car? ["Fawltly car" refers to a skit on the British show *Fawltly Towers* in which a man beats his car for not working properly.]

Why is it that we humans find it almost impossible to accept such conclusions? Why do we vent such visceral hatred on child murderers, or on thuggish vandals, when we should simply regard them as faulty units that need fixing or replacing? . . . My dangerous idea is that we shall eventually grow out of all this and even learn to laugh at it, just as we laugh at Basil Fawltly when he beats his car. But I fear it is unlikely that I shall ever reach that level of enlightenment.

c. Bruce Waller, a professor of philosophy at Youngstown State University, states in the preface to his 2011 book *Against Moral Responsibility* (Cambridge, MA: MIT Press, 2011), vii:

The basic claim of this book is that – all the extraordinary and creative efforts of contemporary philosophers notwithstanding – moral responsibility cannot survive in our naturalistic-scientific system. Moral responsibility was a comfortable fit among gods and miracles and mysteries, but the deeper scientific understanding of human behavior and the causes shaping human character leaves no room for moral responsibility.

4. In the last sentence of the Dawkins quote ("But I fear it is unlikely that I shall ever reach that level of enlightenment"), he acknowledges that he cannot live consistently with the logical consequence of his position. He knows that he holds people responsible for their actions despite the fact his atheism gives him no basis for doing so.

a. Nancy Pearcey reported in her 2010 book, *Saving Leonardo: A Call to Resist the Secular Assault on Mind, Morals, & Meaning*, that Dawkins was pressed on this inconsistency during a book signing event. A young man asked Dawkins, "If humans are machines and it is inappropriate to blame or praise them for their actions, then should we be giving you credit for the book you are promoting?" Dawkins responded, "I can't bring myself to *do* that. I actually do respond in an emotional way and I blame people, I give people credit." The man said, "But don't you see that as an inconsistency in your views?" Dawkins replied, "I sort of do, yes. But it is an inconsistency that we sort of have to live with -- *otherwise life would be intolerable.*"

b. This inconsistency is widely recognized and accepted. The MIT cognitive scientist Marvin Minsky wrote in his 1988 book *The Society of Mind* (New York: Simon & Schuster, 1988), 307:

Does this mean we must embrace the modern scientific view and put aside the ancient myth of voluntary choice? No. We *can't* do that: too much of what we

think and do revolves around those old beliefs. Consider how our social lives depend upon the notion of *responsibility* and how little that idea would mean without our belief that personal actions are voluntary. . . .

No matter that the physical world provides no room for free will . . . We're virtually forced to maintain that belief even though we know it's false . . .

c. The British philosopher Galen Strawson was asked in an [interview](#) in March 2003, "If it's a fact that there's no free will, why do philosophers have such a hard time accepting it?" He answered in part:

I think the impossibility of free will and ultimate moral responsibility can be proved with complete certainty. It's just that I can't really live with this fact from day to day. Can you, really? As for the scientists, they may accept it in their white coats, but I'm sure they're just like the rest of us when they're out in the world—convinced of the reality of radical free will.

d. Rodney Brooks, director of the Artificial Intelligence Lab at MIT, states in his 2003 book *Flesh and Machines: How Robots Will Change Us* (New York: First Vintage Books, 2003), 174:

On the one hand, I believe myself and my children all to be mere machines. Automata at large in the universe. Every person I meet is also a machine—a big bag of skin full of biomolecules interacting according to describable and knowable rules. When I look at my children, I can, when I force myself, understand them in this way. I can see that they are machines interacting with the world.

But this is not how I treat them. I treat them in a very special way, and I interact with them on an entirely different level. They have my unconditional love, the furthest one might be able to get from rational analysis. . . . I maintain two sets of inconsistent beliefs and act on each of them in different circumstances.

e. Edward Slingerland states in his 2008 book *What Science Offers the Humanities* (New York: Cambridge University Press, 2008), 289:

As neuroscientists, we might believe that the brain is a deterministic, physical system, like everything else in the universe, and recognize that the weight of empirical evidence suggests that free will is a cognitive illusion (Wegner 2002). Nonetheless, no cognitively undamaged human being can help *acting* like and at some level really *feeling* that he or she is free.

f. He says in his 2012 book *Creating Consilience: Integrating the Sciences and the Humanities* (New York: Oxford University Press, 2012), 84, that though he is convinced intellectually his daughter is "merely a complex robot carrying my genes into the next generation," he admits that "at an important and ineradicable level, . . . the idea . . . is both bizarre and repugnant to me."

g. Steven Novella, a clinical neurologist at Yale University, declared on his blog *Neurologica* (June 29, 2018), "even though I am highly aware of what neuroscience has to say about the illusion of free will and decision making, I also recognize that we have to live our life as if we have free will."

5. The fact atheists cannot live consistently with the implications of their view is an indication that atheism is false. It clashes with reality and requires "doublethink," employment of a useful fiction, to function in the real world. Nancy Pearcey [says](#) of Slingerland's claims, "What can we say when someone urges us to adopt a view of humanity that he himself admits is bizarre and repugnant? . . . There is a severe clash between what his Darwinian materialism is telling him and what his lived experience is telling him. Which one will he accept as true?"

D. It is more reasonable to believe human thinking and reasoning are not determined solely by mechanical, physical processes than to believe they are, and it is more reasonable to believe that such nondetermined thinking and reasoning cannot exist without God than to believe it can.

1. As you may have picked up from some of the quotes of atheists, this problem of physical determinism goes deeper than simply a denial of free will regarding behavior. *Everything* is determined by physics, including one's thoughts and beliefs. Indeed, how could it be otherwise in an atheistic, naturalistic view in which all of reality must be reducible to natural processes acting over time?

a. In Bertrand Russell's words, "[Man's] *hopes and fears, his loves and his beliefs* are but the outcome of accidental collocations [arrangements] of atoms."

b. Francis Crick asserts that one's joys, sorrows, memories, and ambitions are no more than the behavior of nerve cells and associated molecules.

c. Atheist philosopher Alex Rosenberg states in his 2011 book (p. 21), "All the processes in the universe, from atomic to bodily *to mental*, are purely physical processes involving fermions and bosons interacting with one another."

2. If it were true that one's thoughts and beliefs are merely the products of physics and chemistry, the results of deterministic natural processes, it would be pointless to seek to change another's beliefs through argument and rational discourse. The fact atheists seek to persuade others that belief in God and belief in free will, for example, are false, and take pride in what they write and say is just another example of how they cannot live consistently with their position. It is self-refuting. In an interview posted online [here](#), Rupert Sheldrake, Cambridge-trained biochemist and plant physiologist, explains:

But materialists cannot possibly be consistent. They believe that minds are nothing but the activity of brains and the activity of brains can ultimately be completely explained in terms of physical and chemical causation, together with blind chance. In other words, free will is an illusion.

This must mean that the materialist belief-system is self-refuting. If a materialist were consistent, he or she would have to believe that his or her own beliefs were caused by brain activity alone. Materialists' brains make them believe in materialism. But, then, how can they try to persuade others to adopt this belief on the basis of science, reason, and evidence, if no one has free choice?

By their own account, materialists cannot have adopted their materialist belief system by rational choice—their brains make them believe it. And they cannot persuade others to believe it by science and reason—they can only pass on an infection.

3. In addition to having no basis for seeking to change others' beliefs through argument and rational discourse, the atheist has no basis for thinking that any particular beliefs are *true*. After all, if thoughts and beliefs are merely electrical and chemical processes, brain secretions, that have been selected and shaped through evolutionary history for their ability to enhance survival and reproduction, there is no reason to trust that those beliefs correspond to reality.

a. As Eric Baum noted in *What Is Thought?* (Cambridge, MA: MIT Press, 2003), 226, "Sometimes you are more likely to survive and propagate if you believe a falsehood than if you believe the truth." Harvard psychologist Steven Pinker likewise acknowledged in his book *How the Mind Works* (New York: W. W. Norton and Company, 1997), 305, "our brains were shaped for fitness, not for truth. Sometimes the truth is adaptive, but sometimes it is not."

b. For example, believing that getting near a lion will turn you into a stone will enhance survival despite being false. And believing that practicing birth control will cause you to be struck by lightning will enhance reproduction despite being false. One can imagine countless false beliefs that would have a selective advantage, would enhance survival and reproduction.

c. Now, even if one assumes for the sake of argument that true beliefs, beliefs that correspond to reality, are more *likely* to enhance survival and reproduction and thus that evolution would *disproportionately* favor the development of true beliefs, ample room remains for selectively advantageous *false* beliefs, as I just illustrated. But beyond that, there is an unlimited number of false beliefs about abstract matters of philosophy, theology, history, science, and mathematics that would not affect behavior or would affect it in ways that are irrelevant to survival or reproduction. For example, one's belief that stars are giant balls of gas would not alter one's behavior so as to make one more or less likely to reproduce. Those kinds of beliefs are detached from survival and procreation. They are invisible to natural selection and thus would not have even that weak constraint on deviating from truth.

d. After all, atheists insist that evolution has produced within the human population an overwhelming number of brains that believe falsely in the existence of objective morality, free will, and spiritual beings. We are assured that these particular beliefs are illusions fobbed off on us by our genes, things we are programmed to believe are true – *and* to believe are based on adequate grounds – but actually are false.

e. But in that case, who is to say that *any belief*, including atheism and belief in naturalistic evolution, is not a false belief fobbed off on us by our genes? We can have no reason to be confident that any of our beliefs are true. Once reason is denied any independence from natural processes the entire edifice crashes; naturalism ends up committing intellectual suicide.

f. What I am claiming here certainly is not new or original with me.

(1) Darwin himself saw and alluded to this problem in his letter dated July 3, 1881 to the philosopher and political economist William Graham.

(2) The British geneticist and evolutionary biologist J. B. S. Haldane wrote in 1927:

"It seems to me immensely unlikely that mind is a mere by-product of matter.

For if my mental processes are determined wholly by the motions of atoms in my brain I have no reason to suppose that my beliefs are true. They may be sound chemically, but that does not make them sound logically. . . .

In order to escape from this necessity of sawing away the branch on which I am sitting, so to speak, I am compelled to believe that mind is not wholly conditioned by matter." [*Possible Worlds* (1927), reprint New York: Routledge, 2017, 209.]

(3) Alvin Plantinga is a world-class Christian philosopher. He retired in 2010 from the University of Notre Dame and now serves as the William Harry Jellema Professor of Christian Philosophy at Calvin College. He is recognized as one of the most important and influential philosophers of the twentieth and early twenty-first centuries. The central thesis of his 2011 book *Where the Conflict Really Lies: Science, Religion, and Naturalism* (New York: Oxford University Press, 2011) is that those who believe humans evolved through a purely naturalistic evolutionary process have no reason to trust the reliability of their cognitive faculties, to trust that their beliefs correspond to truth.

g. To put a bow on the point:

(1) Imagine you find an electronic device that has a keyboard with numbers and symbols and a screen that changes its display when the keyboard is poked. You learn that this device was pieced together incrementally over time based solely on how each addition enhanced the device's attractiveness to infants. In that case, you would have no reason to believe the device would function as a calculator, no reason to trust it would produce accurate mathematical computations. You would have no reason to believe that because its development was directed by a criterion unrelated to mathematical computation.

(2) Well, if our brain developed incrementally over time based solely on how each addition enhanced our ability to survive and reproduce, we have no reason to believe it would function as a generator of true beliefs, no reason to trust it would produce beliefs

that conform to reality. We would have no reason to believe that because its development was directed by a criterion unrelated to (or at best marginally related to) the generation of true beliefs.

4. Because atheism clashes with the more reasonable understanding of the nature of free will and the nature of human thinking and reasoning, it is rational and reasonable to reject it.

E. It is more reasonable to believe that no living organism arose by purely natural processes from nonliving matter than to believe that it did, and it is more reasonable to believe that the origin of living organisms involved input from an intelligence than to believe it did not.

1. According to the atheist, the first living cell arose by purely natural processes from nonliving matter and then all subsequent lifeforms descended from that first cell. In other words, that first cell is the great, great, great, great . . . grandparent of everything that has ever lived on Earth.

2. The vast differences between lifeforms – say between a sponge, an apple tree, a bumblebee, and a whale – are allegedly due to the gradual accumulation of small changes in the branching lines of descent over vast numbers of generations. This claim about how life *diversified* after the arrival of the first living cell is its own fairytale, but right now my focus is on the origin of that first cell.

3. From as early as Aristotle in the 4th century B.C. people believed in the spontaneous formation of living organisms. In other words, they thought living things could arise out of nonliving matter. Belief in the spontaneous generation of insects continued until 1688 when the Italian physician and biologist Francesco Redi showed that maggots did not appear in rotting flesh if the jar containing the meat was covered with gauze. But people still believed *microscopic life* would arise spontaneously.

4. In the mid-19th century the French Academy of Sciences offered a prize to anyone who could prove experimentally that microscopic life did or did not arise spontaneously from nonliving matter. Louis Pasteur designed an experiment that showed not even microscopic life would arise in a bottle of boiled meat broth if it was protected from particles entering from the air. This simple experiment seemed to close the door on the possibility of spontaneous generation of life; life only comes from life.

5. The atheist, however, has no choice but to believe that life on at least one occasion arose spontaneously from nonliving matter to get that first cell that is necessary to kickstart their alleged evolutionary process of diversification. So they have convinced themselves that is what happened, but the scientific evidence is overwhelmingly against that claim. Everything we know about life says it cannot have arisen spontaneously from nonliving matter by natural processes.

6. The living world contains two fundamentally different types of cells: prokaryotes and eukaryotes. Prokaryotes, of which common bacteria are the prime example, are

simpler in that they do not have a nucleus or other organelles, but they are far from simple. On the contrary, they have an insane degree of integrated complexity. They are like a microscopic factory operating in accordance with a sophisticated computer program. Let me back that up with some quotes from scientists.

a. Michael Denton, a developmental biologist and genetics researcher, observed decades ago in *Evolution: A Theory in Crisis* (Bethesda, MD: Adler & Adler, 1986), 250:

Molecular biology has shown that even the simplest of all living systems on the earth today, bacterial cells, are exceedingly complex objects. Although the tiniest bacterial cells are incredibly small, weighing less than 10^{-12} gms, each is in effect a veritable micro-miniaturized factory containing thousands of exquisitely designed pieces of intricate molecular machinery, made up altogether of one hundred thousand million atoms, far more complicated than any machine built by man and absolutely without parallel in the nonliving world. . . .

b. James A. Shapiro, a Cambridge educated professor of biochemistry and molecular biology at the University of Chicago, wrote in "Bacteria as Multicellular Organisms," *Scientific American*, Vol. 258, No. 6 (June 1988), p. 82: "Although bacteria are tiny, they display biochemical, structural and behavioral complexities that outstrip scientific description. In keeping with the current microelectronics revolution, it may make more sense to equate their size with sophistication rather than with simplicity."

c. Harold Klein, chairman of the National Academy of Sciences committee that reviewed origin-of-life research, in John Horgan, "In the Beginning," *Scientific American* (February 1991), 120: "The simplest bacterium is so [darn] complicated from the point of a chemist that it is almost impossible to imagine how it happened."

d. Alonso Ricardo, biochemist, and Jack W. Szostak, geneticist, "The Origin of Life on Earth," *Scientific American* (August 19, 2009), 54:

Every living cell, even the simplest bacterium, teems with molecular contraptions that would be the envy of any nanotechnologist. As they incessantly shake or spin or crawl around the cell, these machines cut, paste and copy genetic molecules, shuttle nutrients around or turn them into energy, build and repair cellular membranes, relay mechanical, chemical or electrical messages—the list goes on and on, and new discoveries add to it all the time.

7. The simplest conceivable cell requires a cell membrane, which separates and protects it from the surrounding environment. This membrane is a sophisticated and complex structure that has channels and pumps that move selected molecules into and out of the cell. They are like portals on a spaceship. In addition to the membrane, the simplest conceivable cell must have hundreds of different proteins, a variety of nanomachines that carry out all kinds of essential functions within the cell, and instructions for replicating and for carrying on all the operations in the cell. It truly is staggering.

8. In thinking about the difficulty of a cell arising spontaneously from nonliving matter, coming into being by purely natural processes, the starting point is that we do not even know how the basic chemical building blocks for life could have arisen on a prebiotic Earth, let alone be organized into a living cell.

a. The simplest conceivable cell requires four classes of molecules: nucleic acids, amino acids, carbohydrates, and lipids. These molecules come in both lefthanded and righthanded forms, like gloves (nonsuperimposable mirror images), but since only lefthanded forms work in living things, the righthanded forms somehow would have to be filtered out for the molecules to be used in the construction of a cell.

b. James Tour is a synthetic organic chemist and the T. T. and W. F. Chao Professor of Chemistry at Rice University. He has over 700 research publications and over 140 patents. He [says](#) about the origin of life:

Remember, we need four classes of molecules. We need the nucleic acids and then the homochiral systems for the amino acids, which then need to be built up into protein structures. We need the carbohydrates which have to be built up into the polycarbohydrate structures. And then we need the lipids, which also are chiral. All of these we need in homochiral form. We don't know how to do this in any prebiotic type scenario, at all. These have not been made.

9. Setting aside the massive problem of these chemical building blocks arising spontaneously in the wild and collecting in the same place, I want to focus on just one piece of the origin-of-life puzzle, the need for hundreds of different proteins. Proteins are the workhorse molecules of life and take part in virtually every cell structure and activity. They are the building material of the cell and do all sorts of work within the cell. As zoologist Ann Gauger explained [here](#) in 2012: "Proteins are the building blocks of life. They are the structural parts that give cells shape, the enzymes that build or break down the molecules of life, the motors that transport things, the agents that send signals and regulate the activity of other proteins and genes, and the morphogens that help determine the development of the organism."

10. We know that hundreds of different proteins are necessary for the simplest conceivable cell because of experiments on the tiny bacterium *Mycoplasma genitalium*, which has the fewest genes of any organism we know of that is able to perform the standard functions of life on its own. (Though it is a parasite, it only uses other organisms for food and housing.) It was determined by knocking out (disabling) genes that 382 of its *protein-coding genes* were essential for its survival (and 43 RNA-coding genes), so at least those 382 proteins are necessary. That number is too low because it does not account for the fact a gene that is not lethal when knocked out may be lethal if knocked out in combination with another nonessential gene (synthetic lethality). Nevertheless, some speculate that the number could be reduced further in a hypothetical organism, but in nobody's imagination are fewer than two or three hundred needed.

11. To appreciate the difficulty that this requirement of hundreds of proteins poses for the spontaneous generation of life, you need to have some idea of what proteins are and how

they are manufactured. So bear with my brief explanation. (It takes nerve to do this with a cell biologist sitting right in front of me! If Dr. Glenn starts throwing things, you know I've gone off course.)

a. Proteins are made up of small molecules called amino acids that are linked together like beads on a long necklace. I say a *long* necklace because a protein can have anywhere from fifty to thousands of beads, most having several hundred.

b. With rare exception, there are twenty different amino acids used by living things, and the specific order or sequence of those different amino acids on the necklace determines the protein that you have. So it is like there is an alphabet of twenty letters, the twenty different amino acids, and those twenty letters, depending on how they are arranged, can "spell out" different proteins. If the letters, the different amino acids, are not arranged to "spell" a protein correctly, you don't get a functioning protein. And remember we're talking about spelling correctly something that is fifty to thousands of characters long!

c. Well if the twenty different amino acids must be arranged in different precise ways to spell out the hundreds of different proteins necessary for the simplest life, how does that happen? Put differently, how do the beads get strung in the right order on the hundreds of different protein necklaces?

d. In a cell, the ordering of the amino acids into the right sequences to make functional proteins is determined by the cell's genetic material called deoxyribonucleic acid, or DNA for short. DNA is made up of molecules called nucleotides (not amino acids as in the case of proteins) that are linked together like beads on a *super-long* necklace. There are actually two parallel necklaces that connect to form the rungs of a ladder-like structure that is twisted – the famous double helix structure – but for this purpose just think of it as a single beaded necklace. There are four different nucleotides used in DNA (adenine, guanine, cytosine, and thymine [uracil in RNA]), and the specific sequence of these different nucleotides on the DNA necklace determines the sequences of the amino acids on the various protein necklaces.

(1) Well, how do you get from the sequence of the nucleotides on the DNA necklace to the sequences of the amino acids on the various protein necklaces? Think of each of the nucleotides as being a bead with a number that identifies it. Since there are four different nucleotides, the nucleotide beads are all numbered with a 1, a 2, a 3, or a 4. And think of these beads being arranged on the DNA necklace in triplets, groups of three, like area codes: 114, 131, 212, etc.

(2) To construct a particular protein, the order of numbered beads on a certain stretch of the DNA necklace gets copied by a nanomachine and transported by other nanomachines to yet another nanomachine that builds the needed protein necklace based on the order of the numbered beads in the groups of three. For example, triplet 111 tells the machine to add amino acid "t" to the protein necklace it is building; the triplet 112 tells it to add amino acid "h" to the protein necklace; the triplet 113 tells it to add amino acid "i" and so on. Each triplet of nucleotides codes for a specific amino acid depending on the sequence of the nucleotides in that triplet (ignoring the three that code for "stops"). Just like a three-digit area code corresponds to a

specific geographical area, so nucleotide "area codes" correspond to one of the twenty amino acids.

Protein illustration: string of 48 amino acids
thisisveryshortforaproteinbutitisjustanexampleok

DNA nucleotide codes for amino acids
133=a 142=b 122=e 132=f 112=h 113=i 144=j
214=k 213=l 212=m 141=n 131=o 134=p 123=r
114=s 111=t 143=u 121=v 211=x 124=y

**111112113114113114121122123124114112131123
11113213112313313412313111122113141142143
111113111113114144143114111133141122211133
213134213122131214**

12. Now, since the amino acids on the protein necklace have to be in a precise sequence for the protein to function, and since the order of those amino acids is determined by the order of the nucleotides on the DNA necklace, you see that the nucleotides on the DNA necklace have to be in a very specific order. If they are not, then the DNA will be unable to serve as a template for the manufacture of the necessary proteins. It's like each of the many proteins has a gigantic PIN number and can only be manufactured if the nucleotides on the DNA necklace are arranged in the order of that PIN number.

13. Ignoring the immense problem of actually forming nucleotides on earth and getting them collected in the same place, how could the nucleotides of the DNA in the first cell have been properly arranged so as to be able to serve as a template for the manufacture of the hundreds of necessary proteins? The nucleotides in the DNA would have to be in the right sequence for all those proteins – 250 proteins of an average 300 amino acids = 75,000 amino acids in a correct sequence; since there are 3 nucleotides to code for each amino acid, this requires 225,000 nucleotides in the correct sequence (75,000 X 3)! How did they happen to be arranged in the sequence of all those gigantic PIN numbers?

a. In answering that, it is crucial to note that the sequence, the order, of nucleotides on the DNA necklace is not determined by chemistry. As far as chemistry goes, the number on the nucleotide bead is not relevant. There is no chemical reason why they would be in the proper order to enable a protein to be constructed from them.

b. Chance certainly cannot explain the order, and no one thinks it can.

(1) The Cambridge educated philosopher of science Stephen Meyer states (*Signature in the Cell*, p. 203):

[T]he probability that a particular gene would arise by chance is roughly the same as the probability that its corresponding gene product (the protein that the gene encodes) would do so.

For that reason, the relevant probability calculation can be made either by analyzing the odds of arranging amino acids into a functional protein or by analyzing the odds of arranging nucleotide bases into a gene that encodes that protein. Because it turns out to be simpler to make the calculation using proteins, that's what most origin-of-life scientists have done.

(2) The odds of randomly assembling a particular protein of only 100 specific amino acids are approximately one in 10^{130} ($20^{100} = 1.267 \times 10^{130}$). Since in some slots more than one amino acid would work, these odds can be reduced but still remain absurdly high. Based on the work of MIT biochemist Robert Sauer and Douglas Axe, who has a Ph.D. in chemical engineering from Cal. Tech., when one takes into account the possible variation in amino acid order the odds of randomly assembling a single functional protein of 100 amino acids remains considerably smaller than 1 in 10^{65} (*How To Be An Intellectually Fulfilled Atheist [Or Not]*, p. 47-48). This estimate of improbability is extremely conservative because it excludes amino acids other than the twenty used in proteins (over 200) and ignores the fact amino acids come in left-handed and right-handed versions (isomers) and only the left-handed version is used in proteins.

(3) To give you an idea of how large 10^{65} is, it is estimated there are only 10^{65} atoms in our galaxy (*How To Be An Intellectually Fulfilled Atheist [Or Not]*, p. 48) and 10^{80} atoms in the observable universe (*Signature in the Cell*, p. 212). And this is just one small protein, whereas hundreds of specific proteins are needed for a living cell.

(4) And just in case you're wondering, it is a super rare for a sequence of amino acids to produce *any kind* of functional protein, just like there are countless ways you can string letters together but very few make an English sentence. Douglas Axe has determined that for a modest protein of 150 amino acids, only one in every 10^{74} sequences of amino acids would be able to fold into stable "function-ready" structures and thus have the possibility of functioning as a protein (*Signature in the Cell*, p. 210). The odds that the protein would actually perform a useful function in the cell are even lower.

14. As for the claim it is more reasonable to believe that the origin of living organisms involved input from an intelligence, you can see that the coding regions of DNA, the nucleotide sequences, function much the same way as a computer program. They direct operations within a complex material system through long and specific sequences of characters that give precise instructions. As Dawkins noted in 1995, "The machine code of the gene is uncannily computer-like." Similarly the famous software developer Bill Gates wrote in 1995, "Human DNA is like a computer program, but far, far more advanced than any software ever created." Hubert Yockey, a physicist and information theorist, wrote in 2000, "It is highly relevant to the origin of life that the genetic code is constructed to confront and solve the problems of communication and recording by the same principles found both in the genetic information system and in modern computer and communication codes."

15. In every case where the cause of this kind of specified complexity is known, it is an intelligent agent. Computer programs like Windows and Word cannot assemble on their own; they require an intelligent determination of the coding sequences to achieve their intended function. That is the entire premise of the SETI program (Search for ExtraTerrestrial Intelligence). It takes for granted that an intelligence must be behind any radio signal that exhibits specified complexity. That's why in the movie *Contact* they freaked out when they received radio signals that were a long sequence of prime numbers (a whole number greater than 1 that can be divided evenly only by itself and by 1).

16. Since the only cause that is known to be able to produce specified complexity is intelligence, the most reasonable inference is that an intelligence was involved in producing the specified complexity that is found in DNA. As the renowned philosopher Anthony Flew acknowledged in 2004, after having spent a career arguing for atheism, "the findings of more than fifty years of DNA research have provided materials for a new and enormously powerful argument to design."

17. Before leaving the atheist's origin-of-life problem, let me point out the mother of all vicious circles. Proteins are essential for a living cell and proteins are produced within the cell from the DNA template. The kicker, however, is that many proteins are necessary to produce proteins from the DNA template! If DNA is necessary to make proteins but there have to be proteins for DNA to be able to make proteins, how could the process ever get started? It's like you have to have steel before you can make steel. How would you ever get steel in the first place?

a. In the 1970s the famous philosopher of science Karl Popper wrote, "What makes the origin of life and the genetic code a disturbing riddle is this: the code cannot be translated except by using certain products of its translation. This constitutes a really baffling circle: a vicious circle, it seems for any attempt to form a model, or a theory, of the genesis of the genetic code" (*Signature in the Cell*, 134).

b. Biochemist David Goodsell wrote in 1998, this "is one of the unanswered riddles of biochemistry: which came first, proteins or protein synthesis? If proteins are needed to make proteins, how did the whole thing get started?"

c. Robert Shapiro, who was professor emeritus of chemistry at NYU (died 2011), wrote in *Scientific American* in 2007 ("A Simpler Origin of Life"):

DNA replication cannot proceed without the assistance of a number of proteins--members of a family of large molecules that are chemically very different from DNA. . . .

The above account brings to mind the old riddle: Which came first, the chicken or the egg? DNA holds the recipe for protein construction. Yet that information cannot be retrieved or copied without the assistance of proteins. Which large molecule, then, appeared first in getting life started--proteins (the chicken) or DNA (the egg)?

18. I will end with two assessments of origin-of-life research.

a. The first is by the Nobel Prize-winning chemist Harold Urey. In 1952 Urey had collaborated with Stanley Miller in a famous origin-of-life experiment. Ten years later, he declared: "[A]ll of us who study the origin of life find that the more we look into it, the more we feel it is too complex to have evolved anywhere. We all believe as an article of faith that life evolved from dead matter on this planet. It is just that its complexity is so great, it is hard for us to imagine that it did."

b. The second is from the noted molecular biologist Eugene Koonin in 2011, almost 60 years from the Miller-Urey experiment. He declared (*The Logic of Chance: The Nature and Origin of Biological Evolution* [Upper Saddle River, NJ: FT Press, 2011], 391):

The origin of life is one of the hardest problems in all of science, but it is also one of the most important. Origin-of-life research has evolved into a lively, interdisciplinary field, but other scientists often view it with skepticism and even derision. This attitude is understandable and, in a sense, perhaps justified, given the "dirty" rarely mentioned secret: Despite many interesting results to its credit, when judged by the straightforward criterion of reaching (or even approaching) the ultimate goal, the origin of life field is a failure – we still do not have even a plausible coherent model, let alone a validated scenario, for the emergence of life on Earth. Certainly, this is due not to a lack of experimental and theoretical effort, but to the extraordinary intrinsic difficulty and complexity of the problem. A succession of exceedingly unlikely steps is essential for the origin of life, from the synthesis and accumulation of nucleotides to the origin of translation; through the multiplication of probabilities, these make the final outcome seem almost like a miracle.

F. It is more reasonable to believe that purposeless natural processes are not sufficient to explain the alleged transformation of the first cell into every organism that has ever existed on Earth than to believe that they are, and it is more reasonable to believe that the diversity of life requires intelligent input than to believe it does not.

1. According to the atheistic, naturalistic scenario, after the first cell arose spontaneously from nonliving matter, all forms of life that have ever existed descended from that first cell through blind, undirected processes. More specifically, the standard claim is that natural selection acting on random mutations of DNA, random changes in the sequence of the nucleotides in DNA that code for the production of cellular materials, gradually over many generations morphed the first cell into a mind-boggling array of radically different organisms.

2. All the new innovations in the history of life allegedly were produced by this process. This is modern western culture's creation story, which has completely displaced the biblical narrative. Though allowance is made for contributions from some other less important undirected processes, random mutation and natural selection are accepted as the driving force of diversification.

3. This claim has major problems. Our current knowledge suggests there is not enough time under any atheistic scenario for the large number of different proteins (and other essential biological products) present in those countless life forms to have been generated, let alone integrated into new functioning systems, without some kind of intelligent input or programming.

4. The Cambridge educated philosopher of science Stephen Meyer noted in a 2018 [presentation](#) at Biola University that "Major figures in evolutionary biology are now expressing profound doubts precisely about the creative power of the mutation-natural selection mechanism, the alleged cause of the major biological change over the history of life."

5. A conference in November 2016 hosted by the Royal Society of London, the oldest scientific society in the world (began in 1660), was called by leading evolutionary theorists largely to address the adequacy of neo-Darwinian orthodoxy for explaining the major innovations in the history of life.

a. Meyer states, "Many of [these theorists] have acknowledged in their own scientific writings that the mutation-natural selection mechanism lacks creative power. It explains the small-scale variations very well; it doesn't explain where major new forms of life come from. It explains the minor changes in the shape and size of the finch beaks, but it doesn't explain where birds come from in the first place."

b. For example, the Austrian evolutionary biologist Gerd Müller, who opened the conference, previously had written with his coauthor cell biologist Stuart Newman:

The neo-Darwinian paradigm still represents the central explanatory framework of evolution, as exemplified by recent textbooks (e.g., Mayr, 1998; Futuyma, 1998; Stearns and Hoekstra, 2000). This refined and canonical theory concerns the variational dynamics and adaptation of existing forms. It is a gene-centered, gradualistic, and externalistic theory, according to which all evolutionary modification is a result of external selection acting on incremental genetic variation. The resulting adaptations lead to successive replacement of phenotypes and hence to evolution.

Although this theory can account for the phenomena it concentrates on, namely, **variation of traits in populations . . . it completely avoids the origination of phenotypic traits and of organismal form.** In other words, **neo-Darwinism has no theory of the generative.** As a consequence, current evolutionary theory can predict what will be **maintained**, but not what will **appear**. . . . [W]hat is still lacking is an evolutionary theory that specifically addresses the **morphological aspects of evolution** and integrates the interactional-epigenetic aspects with the genetic.²

² Gerd Müller and Stuart A. Newman, "Origination of Organismal Form: The Forgotten Cause in Evolutionary Theory" in Gerd B. Müller and Stuart A. Newman, eds., *Origination of Organismal Form Beyond the Gene in Developmental and Evolutionary Biology* (Cambridge, MA: MIT Press, 2003), 7.

c. The 2016 conference was titled "New Trends in Evolutionary Biology." In his opening talk at the conference, Müller outlined "the explanatory deficits" of neo-Darwinism, including its inability to explain the "origin of phenotypic complexity" and the "origin of phenotypic novelties." (Phenotype refers to the observable characteristics or traits of an organism.)

6. One of the problems is that to change one organism into a fundamentally different organism requires the creation of many new and different types of cells. "Functionally more complex animals require more cell types to perform their more diverse functions" (DD, 162).

a. There must be cells dedicated to specific functions. Different cell types are organized to form tissues and different tissues are organized to form organs and different organs are organized to form systems and high-level body plans.

b. For example, sponges have 5 types of cells, flatworms have 20, and crabs (arthropods) have 50 (DD, 162). Humans have hundreds of different cell types (e.g., stem cells, red blood cells, various types of white blood cells, nerve cells, various types of muscle cells, cartilage cells, various types of bone cells, skin cells, fat cells, sex cells, and on and on).

7. Remember that proteins are the workhorses of cells; they are the building material of the cell and do all sorts of work within it. Each new cell type requires the production of new and specialized proteins. This, in turn, means that the instructions for manufacturing those specific proteins, the fabrication code, must somehow get put into the DNA that serves as the template for manufacturing the proteins. In other words, the nucleotides must get rearranged into new sequences that will instruct the ribosome to make the new proteins. Meyer writes (DD, 162):

An epithelial cell lining a gut or intestine, for example, secretes a specific digestive enzyme. This enzyme requires structural proteins to modify its shape and regulatory enzymes to control the secretion of the digestive enzyme itself. Thus, building novel cell types typically requires building novel proteins, which requires assembly instructions for building proteins – that is, genetic information. Thus, an increase in the number of cell types implies an increase in the amount of genetic information.

8. The problem is that randomly changing the nucleotide sequence has no chance of landing on the sequences necessary to build the required new proteins. The odds against randomly hitting on a nucleotide sequence that would code for only ONE new protein of only 100 amino acids are prohibitively low.

a. As I explained last week, the probability of randomly arranging the 20 different amino acids used in living things into a specific sequence of 100 amino acids is about 1 in 10^{130} ($20^{100} = 1/20 \times 1/20 \times 1/20$ etc.). And as Stephen Meyer explained in the slide I rushed over last week, the probability calculation of arranging the *nucleotide* sequence on the DNA or

the *amino acid* sequence on the protein are roughly equivalent, so for simplicity the calculation is typically made with regard to the amino acid sequence on the protein.

b. Because some amino acids can substitute for others without destroying the protein, Douglas Axe, who has a Ph.D. in chemical engineering from Cal. Tech., took into account the frequency with which that substitution can happen. That increased the probability of randomly assembling a protein of 100 amino acids from 1 in 10^{130} to 1 in 10^{65} . Though 10^{65} that is vastly smaller than 10^{130} , I mentioned last week that it is estimated that there are only 10^{65} atoms in our galaxy. So we are still talking about a ridiculous improbability.

c. You may think, "Well, those are long odds, but even so, if you rolled the dice enough times it would at some point become *likely* that you'd land on a functional sequence." To use Meyer's example, if a bicycle lock had 10,000 possible combinations, a thief who randomly tried more than 5,000 combinations statistically would be more likely than not to stumble onto the right combination. But the improbability of randomly stumbling onto the right nucleotide combination(s) for a new protein of 100 amino acids is so great that there is not enough time to have that many attempts, that many throws of the dice, to overcome the vast odds against it.

d. Based on work by scientists at the University of Georgia, it is estimated that a total of about 10^{40} individual organisms have lived on earth since the time it is assumed under the standard theory that life first appeared (3.8 billion years ago).

(1) The overwhelming majority of these organism are bacteria (DD, 203; Behe, *The Edge of Evolution*, 63). They statistically swamp all other lifeforms because of their vast population size and short generation times.

(2) If one makes the exceedingly generous assumption that every organism that ever lived inherited a new, randomly generated 300-nucleotide sequence, each organism that ever lived would represent one roll of the dice, one chance to land on a new nucleotide sequence capable of building a protein of 100 amino acids. In that case, there would have been 10^{40} chances, rolls of the dice, to stumble on the sequence for the new protein. Even with that great number of attempts, the odds of landing on a right sequence would still be only 1 in 10^{25} . 10^{40} is that tiny of a fraction of 10^{65} .

(a) The assumption that every organism that ever lived inherited a new 300-nucleotide sequence (and thus a new potential gene of the required length) is exceedingly generous because mutations necessarily are rare for life to survive. Indeed, most bacterial cells inherit an exact copy of the parent's DNA, and as I say, the overwhelming majority of the 10^{40} organisms that have lived are bacteria.

(b) Studies have shown that in general there is only about one mutation anywhere in the bacterial genome per every 330 cell replications (a rate of 0.003 – see [here](#)). For *E. coli* it is as few as one mutation per 1000 cell replications (see [here](#) and [here](#)). So even if every bacterial mutation, wherever it occurred on the genome, was assumed to create

a new potential gene of 300 nucleotides, the frequency would be far less (1/330) than the one potential new gene for *every replication/generation* (1/1) that is assumed in the analysis.

(3) And that is for the random generation of just *one protein of only 100 amino acids*. Many new proteins would have to be generated in the alleged process of transforming the first living cell into the vast array of radically different organisms that have lived on earth.

9. In addition to the improbability of randomly generating the new proteins that are necessary for a different body plan, the new body plan must unfold from the single cell after fertilization pursuant to a precisely coordinated process which requires the production of the right proteins, the right building materials and construction signals, at the right time.

a. Even I know that in building something as simple as a house there is an order and process that must be followed if you want to end up with a house. If the construction does not proceed in series of orderly steps, each building on the previous one – foundation, framing, electrical, plumbing, drywall, cabinets, etc. – the house will not get built. The same is true for building higher organisms from the first fertilized cell. There is a plan and process.

b. In building higher level organisms from the first cell, the construction project is coordinated in significant part by the timing of the production of *specialized* proteins by what are known as "developmental genes." These specialized proteins turn on or turn off other genes as necessary in the unfolding construction. These "developmental genes" interact with one another in ways that affect their operation, they have feedback mechanisms, and thus constitute what is known as a "developmental gene regulatory network." It is as if these developmental genes "play" the genome like a piano in a magnificent piece of music. Meyer explains (TE, 121):

Developmental biologists have also discovered that building an animal does not just require new genes and proteins, but instead it requires integrated networks of genes and proteins called developmental gene regulatory networks (dGRNs). These networks of genes and their protein products regulate the timing of gene expression as animals develop. The products of the genes . . . in these integrated networks transmit signals . . . that influence the way individual cells develop and differentiate during this process.

These signaling molecules influence each other to form circuits or networks of coordinated interaction, much like integrated circuits on a circuit board. For example, exactly when a signaling molecule gets transmitted often depends upon when a signal from another molecule is received, which in turn affects the transmission of still others – all of which are coordinated and integrated to perform specific time-critical functions.

c. Since a dGRN orchestrates the construction of an organism from the first fertilized cell, to change from one organismal body plan to another would require changing the dGRN, the developmental program. In other words, in transforming the body plan of a sponge into a flatworm, having genes that code for the construction of all the building materials

needed for a worm would not get you a worm if the dGRN was orchestrating construction of a sponge. It would have to be "rewired" or "reprogrammed" by randomly altering it.

d. The problem is that experimental evidence shows that developmental genes and dGRNs are highly resistant to change. If you mess with them, the organism dies.

(1) Paul Nelson has a Ph.D. in the philosophy of biology from the University of Chicago and specializes in evolutionary theory and developmental biology. He summarizes in three premises the challenge that animal development poses to naturalistic evolution (DD, 262):

(1) Animal body plans are built in each generation by a stepwise process, from the fertilized egg to the many cells of the adult. The earliest stages in this process determine what follows.

(2) Thus, to evolve any body plan, mutations expressed early in development must occur, must be viable, and must be stably transmitted to offspring.

(3) Such early-acting mutations of global effect on animal development, however, are those least likely to be tolerated by the embryo and, in fact, never have been tolerated in any animals that developmental biologists have studied.

(2) This is acknowledged by developmental biologists. For example (TE, 120), Wallace Arthur, summarizing the evidence from a wide range of animal systems, writes in *The Origin of Animal Body Plans* (Cambridge: Cambridge University Press, 1997), 14, "Those genes that control key early developmental processes are involved in the establishment of the basic body plan. Mutations in those genes will usually be extremely disadvantageous, and it is conceivable that they are *always* so" (emphasis original). (The only exception to this rule is mutations that cause the *loss* of a structure which in some cases can be advantageous [e.g., loss of wings on an island beetle or eyes in cave fish]. But obviously the evolution story requires the *gaining* not the *losing* structures.)

(3) Eric Davidson of Cal. Tech. was the leading investigator of dGRNs in the world. He discovered that these networks cannot be changed significantly. Meyer states (TE, 121), "Davidson discovered that mutations affecting the dGRNs that regulate body-plan development inevitably lead to 'catastrophic loss of the body part or loss of viability altogether.'" Davidson wrote (TE, 121-122), "there is always an observable consequence if a dGRN subcircuit is interrupted. Since these consequences are always catastrophically bad, flexibility is minimal . . ."

d. Given the intolerance of dGRNs to mutation, no one knows how a new body plan ever could evolve. Davidson remarked (TE, 122), "contrary to classical evolution theory, the processes that drives the small changes observed as species diverge cannot be taken as models for the evolution of the body plans of animals."

e. In the face of this experimental evidence, some evolutionary biologists, like Charles Marshall, speculate that the dGRNs of organisms in the distant past was more amenable to mutation, but as Davidson observed (TE, 125), if such dGRNs existed they "must have differed in fundamental respects from those now being unraveled in our laboratories." Moreover, that response does not address the deeper problem of how the ancient allegedly more flexible dGRNs arose in the first place. How did those instructions, that genetic information, get encoded originally? Nor does it address how the genes necessary for coding the new protein construction materials for the new body plan came to be.

10. Finally, in addition to the improbability of randomly generating the new genes that code for the new proteins necessary for a different body plan, and in addition to the problem of randomly transforming a dGRN into a new one that directs the developmental of a different body plan, there is the problem of changing the *nongenetic* or *epigenetic* ("beyond genes") contributors to the development of a body plan.

a. As important as DNA is for production of proteins that are necessary for countless purposes, it cannot by itself generate a new animal body plan. Meyer observes (DD, 277):

DNA does not by itself direct how individual proteins are assembled into these larger systems or structures – cell types, tissues, organs, and body plans – during animal development. Instead, the three-dimensional structure or spatial architecture of embryonic cells plays important roles in determining body-plan formation during embryogenesis. Developmental biologists have determined several sources of epigenetic [meaning "beyond genes"] information in these cells.

b. For example, body plan development from an embryo is influenced by the shape and location of microtubules within embryonic cells that serve to help distribute to specific locations essential proteins used during development. Different kinds of embryos have different precise microtubule arrangements emanating from an organelle called a centrosome, and those arrangements are not determined by DNA. Other epigenetic factors include patterns of proteins in cell membranes that provide targets for regulatory molecules that play critical roles in organizing a body plan.

c. Because DNA is not wholly responsible for embryological development, things other than DNA would need to be altered to change a body plan, which greatly compounds the difficulties. The physical cell structures that carry the epigenetic information are immune to alteration by the typical sources of genetic mutation, things like radiation and chemical agents, and any alterations would be overwhelmingly likely to have harmful or catastrophic consequences. That information is deployed at the very beginning of the developmental cascade, so disrupting it would likely damage something crucial in the developmental trajectory.

11. In assessing the scientific establishment's view of how life arose and diversified, it is helpful to recognize it is dominated by a philosophical commitment to

exclusively naturalistic explanations. In other words, they define the discipline of science as the search for *only* naturalistic, unintelligent causes of the phenomena of nature. Even when indications of intelligent involvement are staring them in the face, that is an inference they define as off limits.

a. Listen to what Harvard biologist Richard Lewontin wrote in a book review in *The New York Review of Books* on January 9, 1997:

Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science *in spite* of the patent absurdity of some of its constructs, *in spite* of its failure to fulfill many of its extravagant promises of health and life, *in spite* of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our *a priori* adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door.

b. The National Academy of Sciences declared in its 1998 publication *Teaching About Evolution and the Nature of Science* (p. 42), "The statements of science must invoke only natural things and processes. . . . The theory of evolution is one of these explanations."

c. The notion was expressed starkly and succinctly by a scientist named Scott Todd in a letter published in the September 30, 1999 issue of *Nature* (p. 423): "Even if all the data point to an intelligent designer, such an hypothesis is excluded from science because it is not naturalistic."

d. Just this week, the *Journal of Theoretical Biology* disavowed a peer-reviewed paper published last month in its own journal because it learned the authors, a biologist from Norway and a mathematician from Sweden, were "connected to a creationist group." In a pledge of philosophical orthodoxy, the editors wrote, "The Journal of Theoretical Biology and its co-Chief Editors do not endorse in any way the ideology of nor reasoning behind the concept of intelligent design." The pressure is on for them to retract the article.