

# **Four Myths about Intelligent Design and Four Myths about Theistic Evolution**

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*Full text: [http://www.calvin.edu/~lhaarsma/IDandTE\\_FourMyths\\_ASA2009.pdf](http://www.calvin.edu/~lhaarsma/IDandTE_FourMyths_ASA2009.pdf)*

## ***LECTURE NOTES. NOT FOR PUBLICATION.***

Certain criticisms of Intelligent Design (ID) and Theistic Evolution (TE) are frequently repeated. I believe these criticisms arise from common over-simplifications and misunderstandings of ID and TE. My goal for this paper is to promote more nuanced and accurate discussions of these views.

- **[Four Common Myths about Intelligent Design](#)**
  - Myth #1: Intelligent Design just isn't science.
  - Myth #2: Intelligent Design is a science stopper.
  - Myth #3: Intelligent Design is just creationism in disguise.
  - Myth #4: Intelligent Design has a theology of “god-of-the-gaps” and “episodic deism.”
  
- **[Four Common Myths about Theistic Evolution](#)**
  - Myth #1: Theistic evolutionists don't confront atheism.
  - Myth #2: Theistic Evolutionists embrace “methodological naturalism” in science because they don't believe in miracles (or are embarrassed about miracles).
  - Myth #3: Theistic evolution is essentially deism; it doesn't have God acting as a creator in any meaningful sense.
  - Myth #4: Theistic Evolutionists support evolution because they are worried about their jobs or their scientific respectability.
  
- **[Specific questions confronting Intelligent Design and Theistic Evolution](#)**

## **A common theology of God's governance of nature**

I'll start by laying out some traditional theological points regarding God's governance of nature where most ID advocates and most TE advocates would agree.

- Matter/energy/space/time are not co-eternal with God. God created them out of nothing.
- God designed the properties of matter/energy/space/time and the fundamental laws of nature so that these natural mechanisms, built into the universe, would accomplish God's desired outcomes.
- Natural laws and matter/energy/space/time do not now exist independently of God. Rather, God continually sustains the natural world in existence moment by moment.

- Created things have real creaturely cause-and-effect powers granted by God, but God also “concurrs” with natural cause-and-effect. Nothing can take place apart from God’s will or without God’s co-operation with the created world. (This view called “concurrence” is probably the most common view among both ID and TE advocates. There is another traditional Christian view called “occasionalism” which maintains that created things do not have their own cause-and-effect powers, but whatever happens is directly caused by God; creaturely actions are merely the occasions of divine activity. A minority of both ID and TE advocates hold this view. Both concurrence and occasionalism are compatible with both ID and TE; so I include both here just for completeness.)
- God is not only sovereign over scientifically predictable natural events, but also over scientifically unpredictable or “random” events. (“The lot is cast into the lap, but its every decision is from the Lord.” Prov. 16:33, NIV.) This is relevant to evolutionary biology because mutations, natural disasters, and other natural mechanisms important to evolution include elements which are scientifically unpredictable. This is relevant to many other scientific fields as well, such as meteorology, ecology, developmental biology, and pathology, where important natural mechanisms include elements which are scientifically unpredictable.
  - Some would say that God chooses the outcome of every single scientifically unpredictable event.
  - Some would say that while God could choose the outcome of every event, God chooses instead to grant creation a freedom to “be itself” and explore, through random processes, some of the possibilities built into it. God knows the range of possibilities, and God knows that these processes will produce an outcome within the range of his will.
  - Some would advocate an intermediate view between those two, saying that God doesn’t directly choose the outcome of every scientifically unpredictable event, but does so occasionally at strategically important points to ensure certain particular things happen.
- Whether or not God chose to miraculously supersede natural laws during pre-human biological history, God definitely acted in miraculous and special revelatory ways in human history.

These theological beliefs are shared by many advocates of ID and TE. They form a common basis from which we will start today’s discussion.

## **Four Common Myths about Intelligent Design (ID)**

In recent years, certain criticisms of ID have been frequently repeated in books, articles, blogs and email lists. I believe these criticisms are unfair because they over-simplify ID theory, and because they are over-generalized to apply to all ID advocates. I’ll call them “myths” about ID.

- Myth #1: **Intelligent Design just isn’t science.**
- Myth #2: **Intelligent Design is a science stopper.**
- Myth #3: **Intelligent Design is just creationism in disguise.**

- **Myth #4: Intelligent Design has a theology of “god-of-the-gaps” and “episodic deism.”**

These “myths” are common because several of them are, in fact, true about some ID writings and some ID advocates some times. However, they are not intrinsically or necessarily true about ID theory. And it is false – literally bearing false witness – to say or imply that these things are true about all ID advocates.

Since the term “Intelligent Design” is used in a variety of ways, I will first define how I am using it. I am not referring to cosmological or “fine tuning” arguments for design. I am not referring to so-called “rare-Earth” arguments. I am not referring to arguments which point to the natural world and make an intuitive argument to the apparent design, in how everything fits together, in a way which is compatible with biological evolution. All of these are sometimes discussed under the banner of ID, but for today I want to leave those aside and focus on what I believe is the primary source of contention.

I am using the term ID in what I believe is the most common use of the term – and the one which causes the most debates. ID is a set of beliefs and arguments that biological complexity could not have evolved. More precisely, ID claims that the development of first life, plus some subsequent novel developments and increases in biological complexity during pre-human biological history, cannot be explained via natural evolutionary mechanisms alone, and is best explained in terms of some intelligent agent acting during biological history in ways beyond ordinary evolutionary mechanisms.

### **ID Myth #1: Intelligent Design just isn’t science.**

Considerable energy has been spent debating whether or not ID should be considered “scientific.” I believe these debates over the demarcation of science have been unproductive because ID, as a whole package, is partly scientific, partly philosophical, and partly religious. Here is one way to separate the claims of ID into categories.

- *Scientific claim:* It is extremely improbable that first life could have self-organized via known natural processes; and it is extremely improbable that certain subsequent increases in biological complexity could have evolved via known natural processes.
- *Philosophical claim:* Many events are improbable without being “intelligently designed,” but some events are both improbable and intelligently designed. If the preceding scientific claim is correct, then life and biological complexity have other features which make the most reasonable explanation for their existence that some sort of intelligent agent acted during biological history. Alternative explanations in terms of chance, multiple universes, or some as-yet-unknown natural laws are possible but far less plausible.
- *Philosophy-of-science claim:* A scientific investigation of the natural world need not always limit itself to naturalistic mechanisms. Under certain particular circumstances and when studying particular events, an explanation in terms of actions by intelligent agents

could be both acceptable and useful to the progress of science. (Analogies can be given, for example, to the forensic sciences.)

- *Religious claim:* God acted miraculously in biological history to create first life and to cause some increases in biological complexity.
- *Theological claim:* There are theological reasons for expecting that God acted miraculously in biological history.
- *Religious apologetic claim:* ID is a good approach for combating atheism in the culture.

Because ID is partly philosophical and partly religious, critics of ID do have a legitimate cause for concern. Some advocates of ID want ID theory to be called a “scientific model” because this would give it some additional authority in the cultural arena. And some advocates want ID theory taught in science classrooms. Critics of ID are rightly concerned that the philosophical and religious parts of ID should not be called “scientific,” or taught as such.

Nevertheless, while ID theory as a whole has philosophical and religious elements, some parts of ID theory clearly are scientific claims that can be evaluated by the methods of science. The first three claims listed above can be discussed and analyzed without reference to God or religion. The first claim listed above is a purely scientific claim which can and should be evaluated by the methods of the natural sciences. Just because ID theory as a whole includes a religious component doesn’t mean that its scientific claims should be ignored by scientists. In fact, the scientific claims of ID are some of the most interesting questions in all of science. Is it probable that first life could have self-assembled on the early earth via “chemical evolution,” and if so can we figure out a reasonable sequence of steps in detail? Is it probable that something like the bacteria flagellum could have evolved, and if so can we figure out a reasonable sequence of steps in detail? These are valid scientific questions. Many scientists believe that the answer to these questions is, “yes, I think so, even though we can’t prove it right now.” ID advocates try to construct purely scientific arguments that the answers to those questions are “no, those things are highly improbable given only natural mechanisms.”

Tomorrow, during Part II of this origins symposium, several ID advocates will be presenting papers where they defend the scientific claim of ID. Their arguments will be based on protein structure and function, computer modeling, and quantified measures of information content. These arguments should be studied and critiqued by scientific methods. I hope you will join me in evaluating these scientific arguments as science, trying to figure out where they are sound, and where they might have overlooked some important scientific points.

There will also be times to evaluate the philosophical and religious claims of ID. In fact, I think we’re going to do a lot of that in this afternoon’s session. But when a scientific argument is presented, we should treat it as science and evaluate it on its scientific merits. When critics only focus on ID’s philosophical and religious aspects, dismissing ID’s scientific arguments and instead simply claiming that ID “isn’t science,” the critics themselves are doing a disservice to science.

## **ID Myth #2: Intelligent Design is a science stopper.**

In pre-scientific eras, explanations about the operation of the natural world often included supernatural action, or the explanations included things like Aristotelian “final causes.” In recent

centuries, natural science has made progress by proposing and testing theories about the natural world which restrict themselves to certain types of explanations – direct causation by natural mechanisms. This focus on direct causation by natural mechanisms has been crucial to the advance of natural science over the centuries. So critics of ID do have a legitimate cause for concern here. Some critics fear that ID theory amounts to simply abandoning the pursuit these kinds of explanations. However, this fear doesn't do justice to ID as a whole, or to the history of science.

When scientists confront a puzzling event in nature and try to explain that event using models which only rely on known natural mechanisms, their models can meet varying levels of success. Scientists can reach one of three general types of conclusions.

- *The event is explainable.* Good empirical models predict that known natural mechanisms can explain the event. (e.g. the regular orbital motion of planets, the fuel source for the sun, how cold fronts cause rainfall)
- *The event is partially explainable.* Our empirical models are not sufficiently thorough to explain the event entirely. However, based upon what we know so far, we believe that known natural mechanisms are sufficient to account for the event. We believe that future advances will allow us to explain the event fully. (e.g. how the first galaxies formed, how a tree can grow from a single seed into a mature plant, how birds learn when and where to migrate)
- *The event is unexplainable via known natural mechanisms.* In fact, there are good, empirical reasons for ruling out any model which relies only on known natural mechanisms.

Most scientific work consists of trying to move things from category “partially explainable” to the category “fully explainable.” Scientists make models trying to explain events in terms of known natural mechanisms. Scientists test their models experimentally and theoretically, and usually they find that their models don't match the data. Very occasionally, when there are strong theoretical and experimental reasons, this leads scientists to hypothesize new natural laws which are consistent with known natural laws. Most of the time, however, scientists who confront a failed scientific model go back to work and make better models using only known natural mechanisms. This is how we make progress in science, most of the time.

There are however those rare occasions in science when an event seems to fall into category of “unexplainable via known natural mechanisms.” Not only are we currently unable to construct a model of the event in terms of known natural laws, but we can even come up with good quantitative arguments why any model which relies only on known natural laws would fail. An historical example of this is the period in the late 1800's when the energy source of the sun was a mystery. At that time, there was good evidence that the earth, and therefore the sun, was at least hundreds of millions of years old. But the known energy sources of chemical burning and gravitational collapse could be shown quantitatively to be inadequate to fuel the sun for that long a period. The energy source of the sun was unexplainable in terms of natural mechanisms known at that time. The solution to this puzzle was the discovery of an entirely new natural process – nuclear fusion. Today, the source of the Big Bang is unexplainable in terms of known natural laws. Scientists can and do hypothesize new natural laws, acting in some primordial

vacuum or mother universe, which might cause a Big Bang. This is an ongoing area of research. However, there are no currently known natural laws for which we have independent evidence which could explain the source of the Big Bang.

There are other historical scientific puzzles which, at one time, at least some scientists claimed were scientifically unexplainable in terms of known natural laws. These instances are rare in the history of science, but they do happen. When they happen, individual scientists reach one of several different meta-scientific conclusions about the cause of the scientifically unexplainable event. (For example: a supernatural event occurred; super-human technology caused the event ; an as-yet unknown natural law caused the event; a very improbable event simply happened; there are many universes and we just happen to live in one where this improbable event happened.) These meta-scientific explanations are very different from each other philosophically; however, from a scientific point of view they play virtually identical roles as “placeholder” explanations for some particular event which is simply unexplainable via known natural mechanisms. The history of science, and the present situation of the Big Bang, show us that science can and does tolerate such puzzles for a while without grinding to a stop.

Consider the scientific puzzles of most interest to ID: the formation of first life on earth, and some subsequent increases in biological complexity during biological history. The majority of scientists today believe that these events are “partially explainable.” They argue that while there are many steps – perhaps some very important steps – which they do not understand in detail because the problem is so difficult, they expect that the development of life and biological complexity ultimately will be explainable in terms of natural mechanisms. They argue that the best naturalistic models currently available are compatible with the known data and suggestive of how to make progress. Advocates of ID try to show that biological complexity belongs in the category of “unexplainable in terms of known natural mechanisms” by arguing that the best naturalistic models for the evolution of complexity are incompatible with the known data. When advocates of ID act in this way, their arguments might be good, solid scientific arguments, or they might be poorly done, flawed scientific arguments. But even if their arguments are flawed, they are not “stopping” science. Scientists on both sides are doing just what they are supposed to do. They are constructing competing models, testing them, and seeing which models work and which ones don’t.

In addition, we can speculate how science itself may evolve just a bit if ID turned out to be correct about first life and biological complexity. It’s not the case that people sat down once upon a time, developed a prescriptive list for the kinds of explanations, hypotheses, and methods acceptable to natural science, and proclaimed that whatever can’t be studied by those methods is “not science.” Like most things in science, the list of “acceptable” and “unacceptable” explanation, hypotheses, and methods of science were discovered over time by a process of trial and error, prediction and testing, theory and experiment. Three rather significant developments in the history of science were to put three types of explanations, at one time thought “unacceptable” by many people, onto the “acceptable” list: Newtonian gravity which allowed “spooky action at a distance” (i.e. fields); non-deterministic causes for events in quantum mechanics; and the Big Bang. Every time one of those things was added to the list of acceptable types of explanations, some scientists argued, “That’s not science.” But because those explanations proved valuable in helping to understand the history and operation of the natural

world, the consensus of the scientific community decided to permit such explanations. ID is not asking that scientists should wholesale change the list of “acceptable” and “unacceptable” explanations for all of science. ID is simply asking that for a particular set of phenomena in nature (first life, and certain kinds of biological complexity), one additional type of explanation be moved from the “unacceptable” list to the “acceptable” list – and even then only if that explanation turns out to be helpful in explaining the data, formulating hypotheses, and making predictions.

So while ID used unthinkingly could act as a science-stopper, ID at its best does not threaten to stop science whether the claims of ID turn out to be true or false. For critics of ID who believe that first life and biological complexity will ultimately be explainable in terms of known natural processes, the best answer to ID is simply to go back to work trying to make better and better scientific models, and don’t get hung up worrying about what might happen to science if the answer should turn out that these things really are scientifically “unexplainable.”

### **ID Myth #3: Intelligent Design is just creationism in disguise.**

It is true that some people who want to teach creationism in schools have adopted ID language as a way to advance their cause. It is also true that many leaders of ID have written about using ID as a way to combat atheism. However, the scientific and philosophical claims of ID can and should be evaluated separately from the religious motives of their advocates. (After all, some people advocate evolution as a way to advance atheism, but that shouldn’t stop us from evaluating evolution on its scientific merits.)

The great majority of ID advocates believe that God acted miraculously in biological history and that these actions left consequences which are scientifically detectable today. But when asked, “Who is the designer?” ID advocates often say that the scientific evidence cannot determine who the designer was – simply that the designer was intelligent and purposeful. (Space-alien genetic engineers are sometimes put forward as an alternative hypothesis.) Critics sometimes accuse ID advocates of being evasive on this issue, but this criticism isn’t fair. ID advocates are correctly separating a philosophical question from a religious question.

Suppose the scientific claims of ID ultimately are proven correct. Suppose most of the scientific community one day reaches a consensus that it is extremely improbable that first life, plus some later increases in biological complexity, could have developed via known natural mechanisms. Consider again the list of meta-scientific explanations which would be available to scientists:

- Supernatural events occurred – caused by an intelligent being of an entirely different reality than our universe.
- Super-human technology brought about these events – caused by intelligent beings who are contained in and limited by our universe but with superior technology.
- As-yet unknown natural laws are responsible for these events.
- Very improbable events simply happened.
- There are many universes, and we just happen to live in one where these improbable events happened.

ID makes a combined philosophical and scientific argument that biological life has certain features which make the first two explanations much more plausible than the other three explanations. The arguments used by ID can be expanded to a general philosophical question regarding improbable events. When is the most reasonable explanation for an improbable event the action of an intelligent agent, when is the most reasonable explanation that some unknown natural mechanism was acting, and when is the most reasonable explanation that an improbable event simply happened? This is an intriguing philosophical question. Reasonable theories can be constructed and debated, and then applied to the specific case of biological complexity (assuming that the development of biological complexity really is an improbable event). It is legitimate and proper to discuss this question separately from, or in parallel with, the question of whether one also has religious reasons for believing that God acted supernaturally.

#### **ID Myth #4: Intelligent Design has a theology of “god-of-the-gaps” and “episodic deism.”**

It would be fair to label an ID argument as “episodic deism” if it said, for example, “It is theologically meaningless to speak of God as a creator if God didn’t act miraculously during biological history.” It would be fair to label an ID argument as “god of the gaps” if it said, for example, “If biological complexity can evolve, then atheists will have won that territory. We won’t be able to point to living organisms as evidence of God’s handiwork. However, there must be scientific evidence of God’s existence and miraculous action somewhere in nature, and the complexity of life seems to be the best place to look for such evidence. Therefore, biological complexity must be scientifically unexplainable.”

It should be admitted that a number of writings by ID advocates have come close to saying such things. However these ideas, phrased in this way, are not an intrinsic or necessary part of ID/

ID advocates might just as well say – and some have said – something like the following: “God is just as much in charge of scientifically explainable events as he is in charge of miracles. God could have chosen to create biological complexity however he wished, whether by a scientifically explainable process or by miracles. But we think – for scientific reasons, or theological reasons, or both – that it is probably the case that God created the universe in such a way that natural mechanisms are incapable of producing biological complexity on their own, and that God chose to use methods beyond normal natural mechanisms to produce the biological complexity that we see. Therefore, we expect that scientists will not be able to find a satisfactory explanation for how biological complexity could evolve.” Such an argument is neither “episodic deism” nor “god of the gaps.”

So while it might be accurate to criticize particular ID writings as having a theology of episodic deism or god-of-the-gaps, it is not accurate to say this about ID in general.

## Four Common Myths about Theistic Evolution (TE)

In recent years, certain criticisms of TE have been frequently repeated in books, articles, blogs and email lists. I believe these criticisms are unfair because they over-simplify TE, and because they are over-generalized to apply to all TE advocates. I'll call them "myths" about TE

- Myth #1: **Theistic evolutionists don't confront atheism.**
- Myth #2: **Theistic Evolutionists embrace "methodological naturalism" in science because they don't believe in miracles (or are embarrassed about miracles).**
- Myth #3: **Theistic evolution is essentially deism; it doesn't have God acting as a creator in any meaningful sense.**
- Myth #4: **Theistic Evolutionists support evolution because they are worried about their jobs or their scientific respectability.**

These "myths" are common because several of them are, in fact, true about some TE writings and some TE advocates some times. However, they are not intrinsically or necessarily true about TE. And it is false – literally bearing false witness – to say or imply that these things are true about all TE advocates.

Since the term "theistic evolution" is used in a variety of ways, I will first define how I am using it. First, I want to distinguish TE from deistic evolution. In deistic evolution, God starts the universe, creates matter and the laws of nature, and then just lets them run. In contrast, the way I define TE, God's governance and providential oversight over natural processes are meaningful. I'll say more about that later.

I also want to define TE in distinction with something which I would call a hybrid view between ID and TE which goes something like this: God governed biological history and created all the species using common ancestry and by guiding the natural mechanisms of mutation and natural selection in such a way that no one particular event – no single mutation – looked miraculous at the time; however, the sum total of all that guidance was to produce far more diversity and complexity of biological life forms than otherwise would have occurred. In this hybrid view, the scientific claim of ID is correct. The evolution of biological complexity and biological novelty is very improbable via natural mechanisms alone; however, God accomplished this via a sequence of small steps, each of which would have been scientifically undetectable at the time. The "detection" of God's guiding action comes from adding up the sum total of these events and seeing far more complexity than otherwise would have been expected. A number of people hold this view. Some would call it a version of ID. Some would call it a version of TE. But it is not a view I wish to discuss in this talk. In the version of TE which I have in mind, God designed matter and the fundamental laws of nature such that the evolution of biological complexity and biological novelty really is probable. So God's providential oversight and governance of biological history is not scientifically detectable either in the individual small historical events or in their sum aggregation. In this way, God's governance of biological history is like God's governance of the formation of mountains, or the weather, or the growth of saplings into full-grown trees. God's governance is real, it is theologically significant, but it is not scientifically detectable.

So here is my definition: I am using TE to refer to a set of beliefs and arguments that God chose to govern pre-human biological history through ordinary natural processes without using scientifically detectable miracles.

- Note the restriction to biological history – I am not referring to theories of cosmological evolution or human social evolution.
- Note the words “God chose.” Some advocates of deism, process theology, panentheism, or liberal theology might call themselves theistic evolutionists and say that God had no choice but to act non-miraculously. I am not discussing that version of TE here. Rather, I am discussing a version of TE held by many Christians with more orthodox views on God’s sovereignty and governance, in which God was fully capable of performing scientifically detectable miracles during pre-human biological history but chose not to do so.
- Note also the restriction to pre-human history. TE advocates who take this more orthodox view of God’s sovereignty typically say that God did act miraculously during human history.

(Many TE advocates who take this view actually prefer the term “evolutionary creation” because it makes “creation” the central theological concept, with “evolution” becoming a modifier term that describes one of God’s particular methods for making part of creation. However TE is a more common term, so I will use it here.)

### **Myth #1: Theistic evolutionists don’t confront atheism.**

Critics of TE do have a legitimate concern here. Some TE advocates concentrate on arguing for the scientific theory of evolution, and against young earth creationism and ID, to audiences of Christians. In such contexts, particularly in blogs and email discussion groups, TE advocates sometimes neglect explaining how their views differ from atheistic evolution. If this is the only way in which someone encounters TE arguments, the misconception is understandable.

However, a simple review of articles and books written by TE advocates refutes this myth. I haven’t done a broad survey, but the vast majority of TE articles that I have read, and every single TE book I have read (including several books aimed at broad audiences including non-Christians), spent considerable time challenging atheism. Many TE advocates also give public lectures in which confronting atheism is a central point.

In light of these articles and books and lectures, why do some critics of TE still make this charge? In some cases, perhaps the critics have not actually read TE articles and books; they are relying on speculation, hearsay, or encounters with TE advocates in online discussion groups. In other cases, perhaps they critics have read TE articles and books, but simply didn’t recognize or remember the attack on atheism because it didn’t take the form they expected – namely, as an attack on the theory of evolution. In either case, it is important that critics who make this charge become better informed about what TE advocates are actually doing.

## **Myth #2: Theistic Evolutionists embrace “methodological naturalism” in science because they don’t believe in miracles (or are embarrassed about miracles).**

There is a legitimate cause for concern here. In liberal theology and process theology, there is a de-emphasis and often outright rejection of miracles. However, many advocates of TE reject liberal theology or process theology and have no problem with miracles. TE does not require a general rejection of miracles.

TE makes a much more limited claim – that methodological naturalism (MN) is a good working strategy for solving the remaining scientific mysteries of pre-human biological history, including the issues of first life and later developments of biological complexity.

Advocates of TE agree with each other that MN is a good working strategy for studying pre-human biological history, but they don’t all agree about why they believe this. I have heard various advocates of TE suggest each of the following seven reasons. I believe that most TE advocates would agree with one or two items on the list below and disagree with the rest.

### 7 different options for accepting MN as a good working strategy for biological history

1. I expect that MN will always work in the natural sciences because I believe, primarily for theological reasons (although informed by science), that God chooses to work in creation only in “hidden” ways, except for a few instances of heaven “breaking in” on creation, such as the Incarnation and the resurrection.
2. I expect that MN will always work for studying pre-human natural history because I believe, for a combination of theological and scientific reasons, that God chose to govern natural history through natural processes, and that God chose to reserve special miracles for human history. While God could do miracles at any time, God chooses to do miracles in limited contexts and particular occasions during human history connected to his special relation with human beings.
3. MN might not succeed in explaining everything in the natural world, but there is a practical reason (rather than a principial reason) for keeping MN as a rule for doing science: Science has made progress over the last few centuries precisely by limiting its search for explanations to explanations involving natural, immediate causes. The method works, so let’s not abandon it until we’re very, very sure it won’t continue to work. We haven’t reached that point yet in the study of pre-human biological history.
4. MN might not succeed in explaining everything in the natural world, but there is a practical reason for keeping MN as a rule for science: Scientists have a variety of religious worldviews. We need common ground for working together, and MN has proven to be a pretty good common ground so far, so let’s not abandon it until we’re very, very sure it won’t continue to work. We haven’t reached that point yet in the study of pre-human biological history.
5. MN might not succeed in explaining everything in the natural world, but there is a practical reason for keeping MN: Science is defined as a game played by certain rules. The limiting rule of science is to try to explain as much as possible via natural, immediate causes. As we play this game, we simply need to remember that, because science has a

limited toolbox of explanations, it can only achieve limited truths. Nevertheless, we can learn a lot from it by continuing to pursue it.

6. MN should not be considered a ground rule for science in general. If the evidence warrants it, science could accommodate non-naturalistic explanations such as ID. However, it appears the remaining questions about pre-human biological history – even questions about the origin of first life and the evolution of complexity – will probably be solved by improving our understanding natural evolutionary mechanisms. I say this purely on the basis of the scientific evidence collected so far regarding how complexity can evolve.
7. MN should not be considered a ground rule for science in general. If the evidence warrants it, science could accommodate non-naturalistic explanations such as ID. However, it appears the remaining questions about pre-human biological history – even questions about the origin of first life and the evolution of complexity – will probably be solved by improving our understanding natural evolutionary mechanisms. I say this even though the scientific evidence of evolutionary biology and abiogenesis by itself isn't quite good enough to warrant this claim; however, I see additional support for this claim from cosmology and geology, which provide strong evidence that God used ordinary natural mechanisms to govern the physical history of the universe and earth.

Just as there is a diversity of views within ID on various topics, there is a diversity of views within TE on various topics, and in particular on the topics of MN. Critics of TE ought to acknowledge that this diversity of views.

### **Myth #3: Theistic evolution is essentially deism; it doesn't have God acting as a creator in any meaningful sense.**

Critics of TE have a legitimate cause for concern here. In addressing God's creation and governance, some TE advocates write a few brief sentences about God still being in charge of events which are scientifically explainable, without going into much theological detail beyond that. As a result, some critics see TE a sort of "weak fall-back" position which is theologically and apologetically inferior to ID, something which is acceptable only if the scientific data ultimately supports TE over ID.

Three issues are sometimes mixed together here. The first is whether God is governing creation in any meaningful sense under TE. The second is whether the role played by random events in evolution makes it antithetical to the idea of God "designing" modern life forms. The third is whether God's governance of biological history *ought to be* scientifically detectable.

First, God's governance: Look back at the bullet-point list at the beginning of my talk, on the theology of God's governance of nature. Most TE advocates would agree with each of those points. Look at the fifth major bullet point in particular.

- Matter/energy/space/time are not co-eternal with God. God created them out of nothing.
- God designed the properties of matter/energy/space/time and the fundamental laws of nature, so that these natural mechanisms built into the universe would accomplish God's desired outcomes.

- Natural laws and matter/energy/space/time do not now exist independently of God. Rather, God continually sustains the natural world in existence moment by moment.
- Created things have real creaturely cause-and-effect powers granted by God, but God also “concur[s]” with natural cause-and-effect. Nothing can take place apart from God’s will or without God’s co-operation with the created world. (This view called “concurrence” is probably the most common view among both ID and TE advocates. There is another traditional Christian view called “occasionalism” which maintains that created things do not have their own cause-and-effect powers, but whatever happens is directly caused by God; creaturely actions are merely the occasions of divine activity. A minority of both ID and TE advocates hold this view. Both concurrence and occasionalism are compatible with both ID and TE; so I include both here just for completeness.)
- God is not only sovereign over scientifically predictable natural events, but also over scientifically unpredictable or “random” events. (“The lot is cast into the lap, but its every decision is from the Lord.” Prov. 16:33, NIV.) This is relevant to evolutionary biology because mutations, natural disasters, and other natural mechanisms important to evolution include elements which are scientifically unpredictable. Assuming that natural evolutionary processes can produce new life forms and produce increases in complexity over time, it is probably the case that, from a human scientific standpoint, there are many different paths which evolution might have taken in biological history. God could have guided those processes in ways which did not require God to supersede natural laws – and therefore would be scientifically undetectable – to produce the particular life forms with particular features that we see today.
  - Some would say that God chooses the outcome of every single scientifically unpredictable event.
  - Some would say that while God could choose the outcome of every event, God chooses instead to grant creation a freedom to “be itself” and explore, through random processes, some of the possibilities built into it. God knows the range of possibilities, and God knows that these processes will produce an outcome within the range of his will.
  - Some would advocate an intermediate view between those two, saying that God doesn’t directly choose the outcome of every scientifically unpredictable event, but does so occasionally at strategically important points to ensure certain particular things happen.
- While God chose not to miraculously supersede natural laws during pre-human biological history, God has acted in miraculous and special revelatory ways in human history.

Critics who accuse TE of being “deistic” should reflect on how they believe God governs the natural world today. Consider the parts of the natural world studied scientifically by the fields of developmental biology, ecology, epidemiology, and meteorology, just to name a few. In all of these, there is an interplay between deterministic natural laws and scientifically random processes. When asked how God governs these parts on the natural world, most critics of TE – unless they believe that God regularly supersedes natural processes and performs miracles in these areas – would probably respond with a list nearly identical to the one above. The same could be said for non-biological (cosmological, geological) natural history such as the formation of galaxies, stars, planetary nebulae rich in heavy elements, planets, planetary atmospheres, and the geological history of the Earth. When asked how God created and governed these physical processes, most critics of TE – unless they believe that God needed to perform miracles to make these things – would probably respond with a list nearly identical to the one above. In light of

this, the charge of “deism” should not be applied to TE unless it is also applied to every other scientific field which is studied and modeled without explicit reference to miracles.

Second, chance is not antithetical to design: It is certainly possible for humans to design systems in which random events play a limited role for a purposes. Casinos do this – games of chance bring customers into casinos for fun and the hope that they will be the individuals who win more than they lose; while of course the odds are set so that the casino gets a profit in the long run. Alternatively, an artist could program a computer to display beautiful pictures based on mathematical equations, then program the computer to randomly alter variables in the equation, so the computer would display a whole sequence of new beautiful pictures, one after the other.

If humans can design systems in which random events play a role to achieve a desired outcome, God could certainly do so as well. And most critics of TE would agree that microevolution works in exactly this way so that species adapt to changes in environments. The question remains, however, whether this could be applied to a macro-evolutionary scale and still have God achieve God’s desired outcomes for modern life forms.

There is a scientific question: Assuming that evolutionary mechanisms can account for biological history, including the development of novel and complex life forms, how much historical contingency is there in the history of life on Earth? Some scientists such as Stephen Jay Gould argue that evolutionary history is highly contingent; so if you “replayed the tape of life” a second time, you would get an entirely different outcome and probably wouldn’t get anything like human beings. Other scientists like Conway Morris argue, on the basis on convergent evolution and other data, that evolution is highly constrained by fundamental physical parameters, by what is biochemically and physiologically possible, by the environment and by adaptation; so if you “replayed the tape of life” a second time, you’d get something that was pretty similar in all the major features and differ only in the minor details. It’s an open scientific question, and the truth might be somewhere on a continuum between the extremes.

There is a theological question: Does God choose the outcome of every single event which appears random to us (e.g. quantum mechanical measurements, the exact time of decay of radioactive elements, genetic mutations cause by copying errors)? Does God choose the outcome of such events occasionally, at strategic moments, when a large system is poised to go down one of several possible paths and a small random event is enough to push it down one path or another? Or does God never do so in the ordinary operation of the natural world, and reserve such actions for human history, revelation, and answer to prayer? Some Christians prefer the first option for theological reasons; other Christians prefer the second or third option for theological reasons.

Imagine putting the scientific and theological options for TE on a three-by-three grid:

	Scientifically, evolution is:		
	Highly	Somewhat	Highly
Theologically, God determines:	Constrained	Constrained	Contingent
Every random event			

Some random events  
No\* random events  
(\*outside human history)

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Critics of TE typically argue against the bottom right corner of that 3-by-3 grid. But various TE advocates hold views which cover every one of the nine points on that grid.

It might be argued that the options on the bottom tier, where God determines the outcome of no random events outside of human history, is really deism. But I already answered that charge above, so I'm not going to repeat those arguments again. Instead, I want to focus on this question: Does God get what God wants out of biological history?

Of those nine options on the grid, only the combination on the lower right (highly contingent evolution + God never selecting the outcome of random events outside of human history) carries significant risk that God wouldn't get particular outcomes which God presumably desires, such as intelligent beings to whom God could reveal himself and make to be his image bearers. (And and advocate for this combination could still argue that God might be content to let life evolve on many different planets, and wait for one to develop intelligent life.)

But there are many TE advocates who hold positions covering the other eight points on that grid. And in all those other eight points on that grid, there is no question that God can get what God wants out of biological history.

Moreover, in the top two thirds of that grid, there is no question that God acted in significant ways during biological history so as to cause some outcomes to occur instead of other outcomes. God's action is not scientifically detectable in this scenario, but God unquestionably acts in ways to produce particular outcomes.

Therefore, there is nothing antithetical with the idea of God using natural events which appear random from a human perspective as part of a system in which God meaningfully designs and accomplishes the final outcome.. Theistic evolution can easily accommodate (and many TE advocates do believe) the idea that God achieved God's particular desired outcomes for the history of life on earth through evolution.

Third, ought we to expect that God's governance or design of biological history is scientifically detectable? This argument is one of the most common arguments I have heard ID advocates make against TE. Here is one recent example from a relatively new webpage at discovery.org on theistic evolution:

“Theistic evolution proponents who do not openly deny that God guided the development of life typically insist that His guidance is unobservable in biology. Francis Collins proposes this view in *The Language of God*, suggesting that from God's perspective the outcome of evolution could “be entirely specified... while from our perspective” evolution “would appear a random and undirected process.” [*The Language of God* (2006), p. 205] Thus, in Collins' view, design in biology is

undetected. Yet for thousands of years, Jewish and Christian thinkers maintained that God's design could be clearly seen throughout nature. From the psalmist who claimed that the "heavens declare the glory of God" (Psalm 19) to the Apostle Paul who argued in Romans 1:20 that "since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made," the idea that we can see design in the regularities and functionality of nature was clearly accepted. In fact, Jesus himself pointed to the feeding of birds and the exquisite design of the lilies of the field as observable evidence of God's active care towards the world and its inhabitants. (Matthew 6:26-30)."

I can understand where this is coming from. I have some sympathy with it. How would most TE advocates respond to this? By saying, "Yes, God's daily feeding of the birds points to God's active care of creation, even though there are no scientifically detectable breaks in natural cause-and-effect when birds hunt for food or digest their food. Yes, the daily growth and flowering of lilies points to God's active care, even though there are no scientifically detectable breaks in natural cause-and-effect when flowers grow and bloom. Do you believe that the sun, moon, and stars proclaim God's glory, even though we have scientific explanations for how they formed in terms of natural processes? Do you believe that the mountains, the atmosphere, and the ocean's speak of God's great handiwork, even though we can scientifically understand their formation? Of course, we all do."

For this reason, advocates of TE find it puzzling and sometimes frustrating that critics would speak about seeing God's governance and design of every other part of the natural world, including mountains and oceans and stars – even when there are complete scientific descriptions of their formation and functioning in terms of natural processes – and yet insist that we cannot speak of God's design of biological species unless their formation defies explanation in terms of natural processes. TE advocates respond by saying that they see God's design and care in the origin and adaptation of species in exactly the same way as they see God's design and care in every other part of the natural world.

#### **Myth #4: Theistic Evolutionists support evolution because they are worried about their jobs or their scientific respectability.**

Of the eight "myths" discussed here, this is the one about which I will say that critics do not have a legitimate concern. While I haven't done a broad survey, I can say that this myth is simply false for every single TE advocate whom I know personally. This is a destructive myth because it questions the faith commitment of fellow Christians. It impugns the motives and integrity of people who are honestly doing their best to understand God's revelations. It is a particularly nasty form of bearing false witness. Speaking personally, this one bothers me to no end. Please, vigorously stomp out this myth wherever you see it.

### **Specific questions confronting Intelligent Design and Theistic Evolution**

One way to promote more nuanced and accurate discussions of ID and TE is to avoid broadly general criticisms, and instead focus on specific questions. Here are a list of interesting questions. Advocates of ID and TE might find consensus on some of these while having friendly and productive disagreements on others.

### **Scientific question**

- Are the known mechanisms of biological evolution adequate to produce the complexity we see today; or is it extremely improbable that the natural mechanisms evolution can produce significant increases in biological complexity?
- Under the physical and chemical conditions of the early Earth, what is the probability that living organisms could self-organize and then evolve into organisms with a genetic code?
- How rare are planets like Earth (*i.e.* the right mass and composition, in the “habitable zone” of a long-lived star)?
- Will advances in particle physics shed light on why the fundamental laws and constants of nature are what they are (*i.e.* the “fine tuning” question)?
- Will cosmology provide evidence for multiple universes?
- Are the mechanisms of biological evolution adequate to provide a scientific explanation for why humans have dispositions towards altruism, morality, and religion? (Evolution can’t explain our specific belief content, but can it explain our biological dispositions?)

### **Philosophy of science questions**

- If methodological naturalism is simply accepted as a precondition for doing natural science, then what are the consequences for the broader search for truth – especially if God did act miraculously in biological history?
- If methodological naturalism is not accepted as a precondition for doing science, how can we guard against too quickly giving up searches for naturalistic explanations when the search is proving difficult? (Should we simply leave it to the atheists to keep trying in these areas?)
- Even if methodological naturalism is not accepted as a precondition for doing science in general, is it still reasonable to believe that MN is still a good strategy for studying the more limited questions of the development of biological complexity? What about the development of first life?

### **Philosophical questions**

- If cosmology or particle physics find evidence for multiple universes, would this actually “solve” the fine tuning question?
- An atheist worldview hypothesizes a self-existing “mother universe” (or “material underpinnings”) which is either eternal or came into existence out of nothing, and which is capable of producing one or more universes such as ours. Is this or is this not a “simpler” hypothesis (*a la* Occam’s razor) than God?
- What are the different types of information? (*E.g.* information needed to describe a complex environment; information needed to describe an organism; information needed to describe the genetic information of an organism) Can deterministic and random processes increase some of those types of information, and if so, what types of information and under what conditions? Can deterministic and random processes cause a

transformation of one type of information into another type, and if so, what types and under what conditions?

- Under what conditions is it reasonable to suppose that a very low probability event was “designed?” Are certain auxiliary hypotheses necessary in order to answer that question (*e.g.* questions about the type of design activity being proposed, or questions about the assumed probability that such a designer might exist)?
- If it turns out that the evolution of biological complexity and the self-organization of first life are low-probability events, what auxiliary hypotheses are necessary in order to argue that the most reasonable explanation is divine miraculous action?

### **Theological questions**

- What scriptural and theological arguments favor ID over TE?
- What scriptural and theological arguments favor TE over ID?
- Do scriptural and theological arguments favor one over the other strongly, weakly, or not at all?
- How can ID best be dissociated from the “god of the gaps” danger?
- How can TE best be dissociated from the “deism” danger?

### **Apologetic questions**

- Is ID a better strategy than TE for attacking atheism? Is TE a better strategy? Does this depend on the audience? Does it depend on *how* the arguments are constructed?
- Is “Intelligent Design” a good term to association (equate) with the idea that biological complexity could not evolve? What are the pros and cons of doing so?

My own brief answers on some of these questions can be found at <http://www.asa3.org/asa/PSCF/2007/PSCF3-07Haarsma.pdf>

## **Conclusion**

Right now, the origins of life and the origins of biological complexity are ongoing areas of scientific investigation. They are fascinating questions. ID advocates believe that evolution of biological complexity are high improbable. TE advocates believe that the evolution of biological complexity will be shown to be highly probably via the right combination of known natural mechanisms. I believe that further research on that question will ultimately settle this issue.

In other forums, I’ve defended the TE scientific claims. I’ve argued that the laws of nature in this universe are exactly the sort which produce complex environments over time, which allow for the self-assembly of more complex things out of simpler pieces, and which allow for the transfer of information from complex environments into self-replicating organisms. I’ve also argued that if we look at all the different natural mechanisms which can effect biological evolution – point mutations, gene shuffling, gene duplications, transposable elements, horizontal transfer, alternative splicing, multi-tasking of proteins, redundancy in how some tasks are accomplished, environmental triggers to mutation, RNA editing, genotypic redundancy of phenotypes, large phenotypic changes caused by mutations of some gene regulators during development, population heterogeneity, changing environments, environmental overlap zones,

sexual selection and extreme natural selection, rich environments rewarding behavioral plasticity, and co-evolution, to name a few – when we put them all together I believe that we ought to expect that the evolution of biological complexity is probable.

But I hold all of those arguments tentatively. I might be wrong. And in tomorrow's session, some ID advocates will present some scientific arguments to try to convince me that I'm wrong. Is the evolution of biological complexity probable, or improbable? We're not really sure yet what the answer is going to be. So I hope that each of us, whether an ID advocate or a TE advocate, holds his or her position with some degree of tentativeness.

I hope that by clearing up some misconceptions about TE, that advocates of ID realize that they could happily embrace some versions of TE if their scientific arguments about the evolution of complexity fail. And conversely, I hope that by clearing up some misconceptions about ID, that advocates of TE realize that they could happily embrace some versions of ID if their scientific arguments about the evolution of complexity fail.