

The Teleological Argument Revisited

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Our current reading is an adaptation from Chapter 7 of *The Existence of God* where Mixie presents a formulation of the argument from design which fulfills the requirements of scientific empiricism according to the school of falsificationism.

Vocabulary:

Falsificationism:	method of scientific empiricism in which the minimal requirement for a theory to be considered as scientific is that it be at least possible for it to be proven incorrect
Scientific Empiricism:	method of science in which all knowledge must be proved by repeated experiments
Intersubjectivity:	the requirement of scientific statements to be verified by observable repeated experiments
Universal Statement:	in logic any statement that is universal in scope
Existential Statement:	in logic any statement that is particular in scope
Anthropic Principle:	refers to the self-evident fact that human beings can

only observe a universe orderly enough to maintain human life
Corroborating: supporting, providing evidence for

Concepts:

Scientific Falsificationism:
Intersubjectivity:
Scientific Criterion:
Instances of Natural Order:
Instances of Spatial Order:
Instances of Temporal Order:

Questions:

- 1. How does Mixie's formulation of the Argument from Design fulfill the requirements of scientific empiricism?*
- 2. Evaluate Mixie's examples of natural order.*
- 3. Evaluate Mixie's examples of spatial order.*
- 4. Evaluate Mixie's examples of temporal order.*
- 5. Do you find this restatement of the Argument from Design convincing? Why or why not?*

Introduction

Many philosophers think that any argument for the existence of God is “mere metaphysical speculation.” Many times these philosophers use the criteria of scientific empiricism as the standard for an “acceptable” scientific theory, regardless of the subject matter. While acknowledging Kuhn’s work, *The Structure of Scientific Revolutions*, and the insights it gives us regarding how the nature of scientific theories and paradigms change, it is still appropriate to ask whether any argument for the existence of God can be formulated in such a way so as to fulfill the currently acceptable criteria of scientific empiricism. I shall explore the possibility of formulating the argument from design as an empirical scientific theory.

One major school of thought regarding the criteria of scientific empiricism is that of falsificationism. Karl Popper was one of the leading exponents of falsificationism, and presented and defended that position in his works entitled *Science: Conjectures and Refutation* and *The Logic of Scientific Discovery*. For the purposes of this paper, I will adopt Popper’s criteria of falsification.

Revised Teleological Argument

I shall consider a form of the

argument from design which infers the existence of God from our experience of instances of natural order. I shall discuss the notion of natural order in greater detail later in this paper. I shall not count as instances of natural order those patterns which appear randomly in nature from time to time.

Consider the following formulation of the argument from design in *modus ponens* argument form:

- (1) If there are instances of natural order (NO), then there is intelligent design of these instances of natural order (D).
- (2) There are instances of natural order (NO).
- (3) Therefore, (by *modus ponens*) there is intelligent design of these instances of natural order (D).

The acceptance of the truth of the conclusion that there is intelligent design depends upon the strength of the evidence for the antecedent-consequent relation in premise (1) between natural order (NO) and the existence of a designer (D). The evidence for the truth of the antecedent, required for premise (2), is provided in the section entitled “Instances of Natural Order” and I shall argue in the section entitled “Inference to the Best Explanation” for the acceptance of the

truth of the antecedent-consequent relation.

The Scientific Criterion

Recall Popper's method of empirical falsification. According to Popper, for a claim to qualify as empirical, a minimal requirement is that there be some evidence from experience which would indicate the claim to be false. Popper writes in *The Logic of Scientific Discovery*,

But I shall admit a system as empirical or scientific only if it is capable of being tested by experience. These considerations suggest that not the verifiability but the falsifiability of a system is to be taken as a criteria of demarcation. In other words: I shall not require of a scientific system that it shall be capable of being singled out, once and for all, in a positive sense; but I shall require that its local form shall be such that it can be singled out, by means of empirical tests, in a negative sense: it must be possible for an empirical scientific system to be refuted by experience (Popper 1959, 40-41).

It is important to point out that Popper argued that what differentiated empirical science from pseudo-science was that the "objectivity" of scientific statements lay in the fact that they can be intersubjectively tested. Popper says,

Kant was perhaps the first to realize that the objectivity of scientific statements is closely connected with the construction of theories – with the use of hypotheses and universal statements. Only when certain events recur in accordance with rules or regularities, as in the case with repeatable experiments, can our observations be tested – in principle – by anyone. We do not take even our own observations quite seriously, or accept them as scientific observations, until we have repeated and tested them. Only by such repetitions can we convince ourselves that we are not dealing with a mere isolated "coincidence," but with events which, on account of their regularity and reproducibility, are in principle the inter-subjectively testable (Popper 1959, 45).

It is clear that Popper defines an empirical test as a repeatable experiment under controlled conditions. The procedure is deductive. Singular statements, known as predictions, are deduced from the general theory and are then tested. As Popper says,

Next we seek a decision as regards these (and others) derived statements by comparing them with the results of practical applications and experiments. If this decision is positive, that is, if the singular conclusions turn out to be accepted, or verified, then the theory has, for the time being, passed its test: we have no reason to discard it. But if the decision is nega-

tive, or in other words, if the conclusions have been falsified, then their falsification also falsifies the theory from which they were logically deduced (Popper 1959, 33).

Popper argued that empirical strict universal statements are falsifiable and cannot be verified, and empirical strict existential statements are verifiable and are not falsifiable. Again Popper writes,

Strict or pure statements, whether universal or existential, are not limited to space and time. They do not refer to an individual, restricted, spatio-temporal region. This is the reason why strict existential statements are not falsifiable. We cannot search the whole world in order to establish that something does not exist, has never existed, and will never exist. It is for precisely the same reason that strict, universal statements are not verifiable. Again, we cannot search the whole world in order to make sure that nothing exists which the law forbids. Nevertheless, both kinds of strict statements, strictly existential and strictly universal, are in principle empirically decidable; each, however, in one way only: they are unilaterally decidable. Whenever it is found that something exists here or there, a strictly existential statement may be verified, or a universal one falsified (Popper 1959, 70).

Popper argued that the only

“acceptable” method for scientific empiricism to employ is that of *modus tollens* (denying the consequent) argument form. Popper says,

Consequently it is possible by means of purely deductive inferences (with the help of the *modus tollens* of classical logic) to argue from the truth of singular statements to the falsity of universal statements. Such an argument to the falsity of universal statements is the only strictly deductive kind of inference that proceeds, as it were, in the inductive direction; that is, from singular to universal statements (Popper 1963, 41).

In this way, Popper tried to avoid the problem of induction which occurs when scientists employ the *modus ponens* form and commit the fallacy of affirming the consequent.

Modern analysis of the problem of induction begins with Hume and his celebrated analysis of causation in his work entitled *Enquiry Concerning the Human Understanding* (Sec. 5, Part 1). The problem of induction is that it is impossible to derive a universal statement from any number of existential statements. That is, no amount of specifically confirming instances can verify a universal law. For example, P (universal law) cannot be experimentally verified by par-

ticular instances of Q (P holding). The fallacy is shown as follows:

- (4) If P (universal law), then Q (Particular instance).
- (5) Q (Particular instance of P holding).
- (6) Therefore, P (universal law).

Thus, Popper says in *Conjectures and Refutations*, “Every genuine test of a theory is an attempt to falsify it, or to refute it” (Popper 1963, 63). In other words, only one instance of a weight not falling when dropped from a tower disconfirms the universal law of gravity, while no number of instances of a weight actually falling from a tower when dropped can confirm the universal law of gravity. Popper does allow for corroboration of universal laws based upon confirming instances.

The argument from design as stated fulfills Popper’s falsification criterion. All experiences of natural order may be taken as falsification of the negative hypothesis that a designer does not exist. In this case, the *modus ponens* argument may be translated via the rule of replacement known as transposition into the *modus tollens* form:

- (7) If there is not intelligent design (-D), then there are no instances of natural order (-NO).

- (8) There are instances of natural order (NO).
- (9) Therefore, (by modus tollens), there is intelligent design (D).

The experience we have of instances of natural order falsifies the non-existence of intelligent design.

Instances of Natural Order

The term “natural order” refers to instances in nature of repeating patterns. These repeating patterns exhibit uniformity, symmetry and predictability. It is precisely because these instances of natural order are predictable and repeating that the theist argues they fulfill Popper’s criterion of inter-subjectivity and can be verified.

I would like to discuss three types of natural order which are evident in this world. The three types are spatial order, temporal order, and informational order.

Spatial Order

I shall refer to instances of spatial order as instances of co-presence and distinguish co-presence from co-incidence by repetition. Co-presence is characterized by the repeating arrangement of a certain structure. I shall discuss the instances of atomic co-presence and anatomical co-presence.

The simplest and most striking

example of co-present order is that of the atom. Every electron that revolves around its nucleus does not revolve at just any distance from the nucleus. These orbits or shells have specific energy levels and can only contain a certain number of electrons. When any atom has more electrons than a specific shell can hold, the additional electrons begin to fill up the next shell. The atomic orbits of all electrons for each of the specific elements are identically spatially ordered. The electronic structure of even the most complex atoms can be viewed as a succession of filled levels increasing in energy, with the outermost electrons primarily responsible for the chemical properties of the element. Niels Bohr won the Nobel Prize in 1922 for this discovery. One of the basic ideas of quantum theory and quantum mechanics is that as these electrons jump from one shell or orbit to the next they move in discrete jumps exhibiting only a certain specific amount of energy. While studying blackbody radiation in 1900, Max Planck discovered that energy is absorbed and emitted in specific amounts. He called these amounts “quanta.” In other words, these jumps from different orbits are not gradual but discontinuous. There is no in-between position. The periodic table of elements is based upon this spatial order.

I distinguish the spatial order (co-presence) present in atomic structure from mere co-incidence by appeal to the universality of the structure. If this structure occurred only sparingly or at random, then there might be an argument for referring to these incidences as coincidences. But, this is not an acceptable explanation of the atomic structure because it is an identically repeated pattern for each specific element.

Another instance of natural spatial order is that of the anatomical structure of animals and plants. The philosophers of the eighteenth century almost exclusively discussed this instance of co-presence. William Paley, in his work entitled *Natural Theology*, discussed the details of the anatomical structure of the eyes and ears and marveled at the minute precision which yielded high efficiency of operation.

It is possible to formulate an argument from the instance of anatomical order which is immune to Darwin’s criticisms. Evolution can only occur given special natural laws. These laws include the chemical laws which specify how, under certain conditions, organic molecules combine, and subsequently how these combine to make organisms. There are also biological laws of evolution which govern offspring and the transfer-

ence of those characteristics which are advantageous for survival. Those organisms that survive will be so structured that they will be able to more easily adapt to the changing environment than competitors. These organisms will exhibit greater anatomical spatial order than their competitors. Under these circumstances, nature guarantees that these instances of spatial order cannot be co-incidental.

Temporal Order

The instances of natural temporal order in our world are even more obvious than those of spatial order. These instances of order refer to the simple patterns of non-conscious behavior of physical objects. The regularity of day and night, the changes of the seasons, the succession of growth in plants and animals are all examples of temporal order. Any example of a physical object acting in accordance with the laws of nature and the laws of physics, such as the laws of gravity and motion, provide experimentally testable evidence of temporal order. Richard Swinburne in his article entitled "The Argument from Design," says "Almost all regularities of succession are due to the normal operation of scientific laws" (Swinburne 1969, 200). One need only look up in the sky to see examples of the predictable, uniform, temporal paths

that the heavenly bodies follow. The fact that we are able to predict any natural occurrence is evidence of temporal order. The universe could have naturally been chaotic.

Kant's criticism that, the idea that temporal order is the result of human beings imposing their order on an otherwise chaotic world, can be countered by arguing that since human beings can discriminate between order and disorder, this discrimination must be in response to something independent of human beings. The argument from design holds that the temporal order in the world is independent of human being's recognition of it. As such, temporal order has been, is, and will continue to be regardless of any human being present to observe it. Temporal order is a basic feature of the structure of the universe.

There has been much discussion of the many interpretations and definitions of the anthropic principle. In 1974, Brandon Carter coined the phrase in his book entitled *Confrontation of Cosmological Theories with Observations* (Carter 1974). Essentially, the anthropic principle refers to the self-evident and trivial fact that human beings can observe only a universe orderly enough to maintain human life. It is not my point to argue the validity of this prin-

ciple. I would only like to provide a response to the potential objections which might be raised by this principle. The mere fact that order is a necessary condition for human beings to observe the universe does not dismiss the existence of order as less extraordinary and less in need of explanation. True, there would need to be a certain amount of order for human beings to exist, but there could be chaos outside the earth, so long as the planet earth was unaffected by it. As Richard Swinburne says in his book entitled *The Existence of God*,

There is a great deal more order in the world than is necessary for the existence of humans. So men could still be around to comment on the fact even if the world were a much less orderly place than it is ... The Teleologist's starting point is not that we perceive order rather than disorder, but that order rather than disorder is there (Swinburne 1969, 136).

Informational Order

The final instance of natural order in our world that I would like to consider is that which I refer to as informational order or order exemplified as information. Donald M. MacKay in his article entitled "The Wider Scope of Information Theory" said,

Information theory, in the more general sense it has developed over the past forty years, is concerned with all processes in which the spatio-temporal form of one set of objects or events (at A) determines the form of another set (at B) without explicit regard for the energetics involved. These are situations in which we say that information flows from A to B. In the operational context, then, we can define information as that which determines form, in much the same way as force is defined in physics as that which produces acceleration (Machlup 1983, 486).

Both energy and information are operationally defined by what they do. Mackay differentiates the two as follows,

Whereas the work done by energy is physical in character, the work done by information is logical work. In talking about information, there is always a suppressed reference to a third party, since, as in the physical theory of relativity, we have to relate our definitions to an observer, actual or potential, before they become operationally precise" (Machlup 1983, 486).

The relation between information and order is that the spatio-temporal sets must be ordered sets. The individual members of these sets are arranged in an ordered pattern which determine form. Whereas the formation of a snowflake, in which a simple, structural pattern is

repeated, involves high order but little information, the DNA and protein formation involve both high order and great information.

One instance of natural informational order is genetic material. Carl Sagan in his book entitled *The Dragons of Eden* writes,

But complexity can also be judged by the minimum information content in the organism's genetic material. A typical human chromosome has one very long DNA molecule wound into coils, so that the space it occupies is very much smaller than it would be if it were unraveled. This DNA molecule is composed of smaller building blocks, a little like the rungs and sides of a rope ladder. These blocks are called nucleotides and come in four varieties. The language of life, our hereditary information, is determined by the sequence of the four different sorts of nucleotides ... The genetic instruction of all the other taxa on Earth are written in the same language, with the same code book (Sagan 1977, 23).

It is an accepted idea that information is transmitted between genetic material. Most introductory textbooks in modern genetics devote entire chapters to the topic. A typical example of this is seen in *An Introduction To Modern Genetics* by Donald Patt and Gail Patt. Chapter 4 of this book is entitled, "Transmission of

Genetic Information" (Patt 1975, 51-78) and is devoted entirely to the discussion of information transfer between genetic material.

All books on genetics also make use of linguistic terms. In the 12th volume of *Frontiers of Biology* which is entitled "The Biological Code," editors A. Neuberger and E.L. Tatum make this point explicitly when they say, "A sequence of nucleotides or amino acids in a nucleic acid or a protein is a *text* and the residues are *letters*. *Reading* is a general term for any process which uses the sequence information in one polymer to produce a defined sequence in another" (Neuberger 1979, 7).

How much information is contained in a single human chromosome if this information were written down in ordinary printed book form in a modern human language? Carl Sagan in his book *The Dragons of Eden* addresses this question. To summarize Sagan's explanation: A single human chromosome contains twenty billion bits of information. Assuming that human language has no more than 64 individual characters (letters, numbers, and punctuation marks), and that it would take no more than 6 bits (6 questions) to determine any specific character, twenty billion bits are about equivalent to three billion characters. If

we assume that there are 6 letters in the average word and 300 words on the average page of a book, and 500 pages in the average book, the information content of a single human chromosome would be roughly equivalent to 4000 five hundred page books. (Sagan 1977, 25).

Corroboration

Let us recall the formulation of the argument from design in *modus ponens* argument form:

- (1) If there are instances of natural order (NO), then there is intelligent design of these instances of natural order (D).
- (2) There are instances of natural order (NO).
- (3) Therefore, there is intelligent design of these instances of natural order (D).

We have seen that this argument, when restated in its *modus tollens* form, fulfills Popper's criterion of falsifiability and thus qualifies as a scientific theory. We now must shift our focus from falsifiability to corroboration. The question which we are now engaged in is that given that our theory in question has passed the test of falsifiability, to what degree, if any, can we accept it as representing the truth of the matter to which it offers explanation?

According to Popper, if a hypoth-

esis has survived continual and serious attempts to falsify it, then the hypothesis can be provisionally accepted. In *The Logic of Scientific Discovery*, Popper says,

It should be noticed that a positive decision can only temporarily support the theory, for subsequent negative decisions may always overthrow it. So long as a theory withstands detailed and severe tests and is not superseded by another theory in the course of scientific progress, we may say that it has "proved its mettle" or that it is "corroborated" (Popper, 1959, 33).

After having rejected the verificationist ideas of Carnap and others because of the problem of induction, it is clear why Popper stresses the provisional nature of accepting any scientific theory.

This having been said, Popper does offer some criteria by which we may speak of the degree of corroboration of a theory. It is not simply the number of corroborating instances which determines the degree of corroboration, although this is taken into consideration, but the severity of the tests and the degree of testability of the theory in question. The degree of testability is directly proportional to the degree of falsifiability. Popper says, "In appraising the degree of corroboration of a theory we take into account its degree of

falsifiability. A theory can be better corroborated the better testable it is” (Popper 1959, 269).

Inference to the Best Explanation

The statement of the argument from design that we have been concerned with here is intended to show that belief in the existence of intelligent design is the most experimentally acceptable hypothesis which attempts to account for the instances of natural order in the world. At this point we need to investigate the logic of accepting theories.

Implicit in the spirit of the scientific method is the principle of sufficient reason. According to Gottfried Leibniz, the principle of sufficient reason holds for all truths, especially contingent truth, such as we have been concerned with here. Leibniz expressed this principle simply as, “There must be a sufficient reason for anything to exist, for any event to occur, for any truth to obtain.” The argument from design relies upon this principle that there must be a sufficient reason which explains the instances of natural order in the world.

In the case of competing hypotheses, appeal to the principle of sufficient reason will not resolve the dilemma. We need to appeal to another principle of rea-

soning, the inference to the best explanation.

Although the formulation of the argument from design that we have been discussing is stated in deductive logical form, the truth of premise (1) is not derived through deduction. Premise (1) is not derived through induction either. We could never conclude that instances of natural order require intelligent design from analysis of any number of individual instances of natural order. This is not a problem because, as we have seen, if the truth of premise (1) were arrived at through induction, we would be faced with the problem of induction. So how is the truth of premise (1) arrived at? I submit that the truth of premise (1) is arrived at through the principle known as “inference to the best explanation.”

We have established the fact that there are many instances of natural order in the world. These instances of natural order are confirmed not only in our daily experiences, but also in the strictly controlled environment of scientific experimentation. We must now address the question of competing hypotheses because, as we have seen, in *modus ponens* argument form, the conclusion of the argument will follow deductively if premise (2) is accepted.

Many times several different

hypotheses claim to be the best explanation to some accepted set of observations. Under these circumstances, we employ the method of the inference to the best explanation in order to determine which of the competing hypotheses is, in fact, the best explanation.

What makes one hypothesis a better explanation than another? There are four criteria which logicians and scientists have traditionally cited in their attempt to clarify what makes one explanation of observed phenomena better than others. These are:

- (A) Do any of the competing hypotheses conflict with established background knowledge?
- (B) Is there more evidence supporting one hypothesis than the others?
- (C) Is there less evidence against one than the others?
- (D) Which hypothesis is simpler?

There are two major competing hypotheses that are usually argued to be better explanations for the existence of natural order in the world than intelligent design. These two hypotheses are:

- (10) If there are instances of natural order in the world, then these instances of natural order are the result of chance.
- (11) If there are instances of natural order in the world, then these instances of nat-

ural order are the result of self-ordering matter.

I will now argue that the instances of natural order in the world are better explained by intelligent design than by either of these two competing hypotheses.

Chance

Regarding premise (10), there are several reasons which indicate the weakness in this explanation.

First, recall the definition of order as repeating patterns exhibiting uniformity, symmetry and predictability. Premise (1) stands in contradiction with this definition of natural order. The *Encyclopedia of Philosophy* distinguishes chance events from other events “on the basis of whether or not men can predict their occurrence” (vol. 1, 73). The notion of an absolutely random pattern that predictably repeats is self-contradictory.

Second, premise (10) conflicts with the established background knowledge of scientific laws based upon repeatable scientific experiments. Recall Popper’s notion of inter-subjectivity. Chance explanations, by their very nature, could not possibly fulfill this requirement. There is no chance involved regarding Newton’s law of motion (force = mass X acceleration).

Third, theories of chance lead to

theories of probability that, it is claimed, provide an explanation of chance. Recall that only universal statements fulfill Popper's criterion of falsifiability. Carl Hempel in his book entitled *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science* writes,

But the distinction between law-like statements of strictly universal form and those of probabilistic form pertains, not to the evidential support of the statements in question, but to the claims made by them: roughly speaking, the former attribute (truly or falsely) a certain characteristic to all members of a certain class; the latter, to a specific proportion of its members (Hempel 1948, 376-386).

Regarding natural spatial order, the explanation of chance or co-incidence fails on two accounts. First, as I mentioned earlier when discussing atomic structure, there are instances of natural spatial order that are all-pervasive. No doubt chance arrangements of physical objects do occur in nature, but when these arrangements continually recur, the explanation of chance fails because we are able to formulate laws and make predictions as to their recurrence. There is no doubt that by mere chance there could exist a lake such that there could be a row of trees around the lake that alternated in a pattern of maple, oak, and pine. Were we to come

across such a lake with such an arrangement of trees, one acceptable explanation could be that this arrangement occurred by mere chance. But if we continually observed similar lakes with a similar arrangement of trees around them, the explanation of chance would cease to be an acceptable explanation in light of other possible explanations, such as intelligent design. Therefore the explanation of chance in this instance conflicts with the established background knowledge of predictability.

Self-ordering matter

Regarding premise (11), there is a major reason which indicates the weakness of this explanation.

First, quantum physics has discovered that all elementary particles, atoms, and even molecules are identical. In his book entitled *The Emperor's New Mind*, Roger Penrose says,

According to quantum mechanics, any two electrons must necessarily be completely identical, and the same holds for any two protons and for any two particles whatever, of any one particular kind. This is not merely to say that there is no way of telling the particles apart: the statement is considerably stronger than that. If an electron in a person's brain were to be exchanged with an electron in a brick, then the state of the system would be

exactly the same as it was before, not merely indistinguishable from it. The same holds for protons and for any other kind of particle, and for whole atoms, molecules, etc. (Penrose 1989, 25).

The significance of this is clear. If all elementary particles of atoms and molecules are identical in kind, how does premise (11) explain the fact that some of these elementary particles become orderful patterns, i.e. atoms and molecules, and some do not? Quantum physics does not recognize order and disorder as intrinsic properties of elementary particles. There is no recognized property in physics known as self-ordering matter. Clearly, these unconscious entities do not possess the capability within themselves of creating order. If they did, then they would all be orderful.

An objection might be raised regarding the previous discussion of spatial order in reference to atomic structure. It is true that atoms exhibit order, but there is no evidence that this order is due to some intrinsic property of the elementary constituents of the atoms. Furthermore, not all electrons orbit around nuclei. There are free floating elementary particles. Therefore, premise (11) conflicts with established background knowledge.

Intelligent Design

In contrast to premises (10) and (11), premise (1) of the argument from design does have supporting evidence which qualifies it as the best explanation. I shall now discuss this evidence.

The strongest evidence a theist could provide in favor of intelligent design being the best explanation for the instances of natural order is that there is, in fact, a class of order which we know is the result of intelligent design, namely human order. Natural order and human order are not different in kind, but only in origin. This is not an argument from analogy. The theist is not saying that human order and natural order are merely similar or resemble one another. The theist can make the stronger claim that natural order and human order are identical in kind, but only differ in origin.

There are many examples of spatial human order. Books arranged in a library, streets arranged in a city, and even traffic lights are instances of spatial human order. Examples of temporal human order are any regularly scheduled event, such as train, bus, or airline schedules. Music also is an example of temporal human order. Examples of informational human order are also numerous. Any human language or communication is an example. Street signs and books are

examples of human informational order. The list goes on and on. All these instances of human order are the result of intelligent design. Therefore the inference to the explanation that instances of natural order are also the result of intelligent design at least has more corroborating evidence than the others we have discussed.

What is important to notice about all instances of human order is that they all involved reference to some purpose or goal. Up to this point in the discussion I have purposely not introduced any notion whatsoever regarding purpose or intention. Regarding instances of human order, the elimination of purpose or intention is impossible.

I agree that the introduction of specific motives and desires pertaining to the intelligent design of the universe does employ the argument from analogy, but not the general notion that some motivation, though we may never know specifically what it is, does play a part in the design of the universe. This does not violate the scientific nature of the explanation. Carl Hempel and Paul Oppenheim wrote in their work entitled "Studies in the Logic of Explanation."

"The determining motives and beliefs, therefore, have to be classified among the antecedent conditions

of a motivational explanation, and there is no formal difference on this account between motivational and causal explanations" (Hempel 1948, 45).

In conclusion, I submit that intelligent design is the best explanation for the instances of natural order in the universe. According to the criteria of inference to the best explanation, intelligent design (A) does not conflict with established background knowledge; (B) has more evidence supporting it; (C) has no evidence against it; (D) is simpler than any competing explanation.

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