

A Critique of J. C. A. Gaskin's Defense of Philo's Weak Analogy

Objection to the Design Argument in David Hume's *Dialogues Concerning Natural Religion*

The debate between Cleanthes and Philo over the design argument (DA) portrayed in David Hume's *Dialogues Concerning Natural Religion* (DNR)¹ is a fascinating one. Indeed, Philo has offered numerous powerful objections to DA, which is regarded as an analogical argument. One of the major objections from Philo is that the DA is only based on weak analogy. Philo suggests that "wherever you depart, in the least, from the similarity of the cases, you diminish proportionably the evidence; and may at last bring it to a very weak *analogy*, which is confessedly liable to error and uncertainty" (DNR, 116). With regard to Cleanthes' proposed analogy between the universe and "productions of human contrivance," he thinks that the dissimilarities are in fact more striking. J. C. A. Gaskin, an expert on Hume, also agrees that the "analogy between those objects known to proceed from design and any natural object is too weak and remote to suggest similar causes."²

In this paper I will look at this Weak Analogy Objection. I will first clarify and elaborate the

¹ In this paper, all texts of DNR are quoted from this version: David Hume, *Dialogues Concerning Natural Religion*, in Richard Wollheim, ed., *Hume on Religion* (London: Collins, 1963), 99-204.

² J. C. A. Gaskin, *Hume's Philosophy of Religion* (London: Macmillan, 1978), 22.

analogies suggested by Cleanthes. Then I will briefly point out the shortcomings of Philo's Weak Analogy Objection. However, I think Gaskin has provided a stronger defense of the Weak Analogy Objection. Although Gaskin wrote more than four decades ago, I think the critics of DA have not made significant improvements on Gaskin's detailed examination of the analogies proposed by DA in these forty years. Moreover, I know of no substantial response to Gaskin. That is why he is still worthy of response today, and this is what I want to do in this paper.

The Analogies Suggested by Cleanthes' Design Argument

Different Formulations of Design Argument

There are different formulations of DA. This is Cleanthes' first and longest formulation of DA: "Look round the world... You will find it to be nothing but one great machine, subdivided into an infinite number of lesser machines, which again admit of subdivisions, to a degree beyond what human senses and faculties can trace and explain. All these various machines, and even their most minute parts, are adjusted to each other with an accuracy, which ravishes into admiration all men, who have ever contemplated them. *The curious adapting of means to ends, throughout all nature, resembles exactly, though it much exceeds, the productions of human contrivance...* Since therefore the effects resemble each other, we are led to infer, by all the rules of analogy, that the causes also resemble; and that the Author

of nature is somewhat similar to the mind of man; though possessed of much larger faculties, proportioned to the grandeur of the work, which he has executed" (DNR, 115-116; italics mine).

The second formulation by Cleanthes is more succinct: "The order and arrangement of nature, the curious adjustment of final causes, the plain use and intention of every part and organ; all these bespeak in the clearest language an intelligent cause" (DNR, 137). These DAs are not incompatible. They appeal to several kinds of empirical data, and suggest different kinds of analogies of the universe with "productions of human contrivance" (the key concept in Cleanthes's first formulation). These analogies may then be used to support an analogical inference to the existence of a Cosmic Designer. Let me explore in some detail the nature of these analogies below. I will also elaborate and update these analogies.

The Universe as a Complex Highly Ordered System

Cleanthes talks about the "order and arrangement of nature," and the design argument which appeals to data about order can be called DA qua order. Cleanthes compares the world to "one great machine, subdivided into an infinite number of lesser machines, which again admit of subdivisions." This is referring to the complex hierarchical structure of the world, which is impressive order indeed. This may suggest intelligence through an analogy with the Russian

dolls, which consist of a larger doll containing a smaller doll of exactly the same shape inside, which contains yet another smaller doll of exactly the same shape inside, and so on. In fact, Cleanthes's description of the world is significantly similar to another description informed by contemporary sciences more than two centuries later: "the worldview justified by the evidence provided in the major sciences was one of a single, indivisible whole of reality, ordered by a principle of organization, which specifies itself in and as a scale of overlapping, interdependent, and dialectically related forms. Each major phase of this scale is itself a whole of the same kind, itself differentiated into a similar series of forms; and all together they constitute one continuous scale ranging from the physical and chemical, to the biological, and thence to the mental and intellectual. This last presents the whole as a conceptual totality that itself is a science."³

For modern scientists, the most astounding feature of natural order is that it seems to be governed by universal and invariable natural laws. Swinburne is a notable contemporary defender of this DA qua order, or regularity argument. He draws our attention to the fact of a temporal order which is all-pervasive in our world. "The orderliness of nature is a matter of the vast uniformity in the powers and liabilities throughout endless time and space, and also in

³ Errol E. Harris, *Hypothesis and Perception: The Roots of Scientific Method*, Paperback edition (New Jersey: Humanities Press, 1996), ix.

the paucity of kinds of components of bodies."⁴ Or "the orderliness of the universe... is its conformity to simple, formulable, scientific laws."⁵ It seems to me that the premises can be divided into three: a) structural order- our world is simple in structure, consisting only of a few basic kinds of fundamental building blocks, hence possessing structural intelligibility, without which chemistry would not be possible; b) temporal order: this structure is stable over time, governed by the same set of natural laws; c) the mathematical nature of these natural laws. I think we should also add the fourth point: d) creativity: following these natural laws, the cosmic process has generated many levels of reality in the cosmic hierarchy, e.g., quantum level, material level, life and consciousness.

It should be noted that order *as such* may not be strong data for DA, but complex and highly ordered systems (HOSs) are. The universe may consist of only one big iron sphere and it has order in some sense, but this hardly invites the postulation of a Designer. For a HOS, there may be millions of parts which constitute the system, but all parts can be divided into a few kinds of basic building blocks, thus manifesting some kind of structural intelligibility rather than sheer chaos. Moreover, these building blocks can interact or even combine together, but again the combination processes are not chaotic- they are governed by definite rules. The

⁴ R. G. Swinburne, *The Existence of God* (Oxford: Clarendon, 1979), 140.

⁵ Ibid, 136.

English language is a highly ordered system (HOS), and its basic building blocks are the 26 alphabets, which can be combined into different words. There are also more or less rigid rules governing the combination of these words, e.g., the English grammar. Similarly, the Hong Kong coin system is a highly ordered system, and its basic building blocks are the ten cents coins, the twenty cents coins, the fifty cents coins and the one dollar coins. Of course the combinations of these coins follow strictly arithmetical rules to give different sums of money. Other HOSs may include musical scales, traffic systems, cities, the game of lego, etc. A HOS in itself may not reach the level of a complex specified purposive system (CSPS) (this concept will be explained further below), but a HOS can be the infrastructure for the creation of CSPSs, e.g., by using the English language system, human beings can produce works of genius like the plays of Shakespeare.⁶

Of course, all these HOSs, such as languages, coin systems, musical scales, traffic systems, cities, libraries, and the game of lego, are all products of human contrivance. So understanding the universe as a HOS, which it obviously is, is a way to mount the analogical DA. That our universe turns out to be a HOS is by no means a guaranteed fact. Our universe might consist of amorphous energy/matter which is constantly changing with no stable building blocks, and the changes may be more or less random, not governed by any laws.

⁶ But not all HOSs can develop into CSSs. This point will be explained more below.

Perhaps this kind of universe would be more like chaos than a system. Even given a universe constituted by well-demarcated particles, all the particles might have different sizes, shapes and weights, like the stones on the mountain side. There may also be no laws governing these particles. In all these and infinitely many possible worlds, no HOS would exist, and science in those worlds would not be possible. So the existence of our universe as a HOS open to scientific investigation should not be taken for granted. Indeed, the existence of a complex, beautiful, creative, hierarchical HOS with a rational structure like our universe is an occasion for wonder.

The Universe as a Complex Specified Purposive System

In some complex systems, their structure suggests a purpose as the governing principle of that structure, such as a biological organism- “the plain use and intention of every part and organ” is to keep the organisms survive. Of course, products of human contrivance like clocks or computers also have this kind of structure. The DA qua purpose may refer to these two important features mentioned in Cleanthes’ first formulation of DA:

- **“curious adapting of means to end” (CAME);**
- **mutual adjustment of parts with accuracy (MAPA):** rephrasing “parts adjusting to each other with an accuracy” in the first formulation.

The categories of final causes, purpose and intention clearly have more affinity with mind than matter, and hence complex specified purposive systems (CSPSs) would provide stronger data for DA.⁷ Let me first explain this concept. By “system” I mean a collection of closely interacting parts which maintain some degree of regular form or behaviour. A system is complex if it consists of many parts. The more parts it has, the more complex it is. A system is also more complex if it exhibits a more intricate structure, such as the existence of hierarchical levels of organization. A system is specified if the arrangements of its many parts are highly specific. In fact they have to be arranged in highly specific ways before the system can achieve some purpose, which seems to characterize the system as a whole. The parts can be seen to have various well-defined functions which interact, cooperate or are integrated to make the realization of its overall purpose possible. If a *slight* deviation from the existing organization of the parts would result in the system’s loss of its purpose, then the system can be said to be *highly* specified. Both complexity and specificity are matters of degree.

⁷ Obviously this concept is inspired by the important work of Dembski. See William A. Dembski, *The Design Inference: Eliminating Chance through Small Probabilities* (New York: Cambridge University Press, 1998). My ideas in this paper owe a lot to him, but the elaboration, and any fault contained here, is completely mine.

It can be readily seen that a watch or a computer is a CSPA: it has many parts like gears, and the parts have different functions but they have to fit together in highly specific ways before the watch can realize its purpose of telling the time *accurately*, or for the computer to serve as a highly efficient data processing machine. A novel is also a CSPA: it has many different chapters which contain descriptions of various incidents, conversations, etc., and different parts of the novel have to fit together in highly specific ways before it can tell a coherent and meaningful story. It is not hard to see that typical products of human contrivance like scientific theories, symphonies, books, various kinds of machine, buildings like houses and museums, and complex organizations of big companies are all CSPAs.

However, sometimes we only have a complex specified system (CSS) but the purpose which characterize or integrate the system as a whole may not be apparent or discernible by us. For example, the Stonehenge has many parts (many big stones) and they have somewhat regular shapes (specified), but the puzzling feature about them is that we cannot yet understand the overall purpose of the Stonehenge, and how this purpose can reveal the principle of organization of all those stones. So it can be said to be a complex specified system (CSS) without being known to be a complex specified purposive systems (CSPA) yet. But the purpose may be discovered in the future. For example, we may have good reasons to believe some ancient symbols to be really linguistic expressions but we cannot understand their

meaning. But their meaning may be suddenly unraveled one day due to the availability of new information. So a mere CSS may turn out to be a CSPA as well.

Being a CSPA seems to be a very strong indicator of being a product of intelligence, unless there is a good alternative explanation. However, being a CSS is already a good indicator of being a product of intelligence as illustrated by the movie *Contact*. In this movie Jodie Foster is a scientist who has tried to establish contact with ET intelligence but with no success for a long time. But one day she received a digital signal composed of a very long series of zeros and ones- this signal was of course very complex. Moreover, it turned out to have a very specific structure: the zeros were like punctuation marks which separated the ones which represented the series of prime numbers. This was evidence enough for the existence of the ET intelligence, which did come to have contact with her later. This signal is a CSS but the purpose of this signal is not very clear- so it is not yet a CSPA. (We may guess that its purpose is exactly to indicate the existence of intelligence somewhere in the universe for other intelligent beings elsewhere, but this purpose cannot be “read” from the structure of that message. For the watch, the purpose is kind of built into its structure.)⁸ It should be clear that

⁸ In general, many purposive systems are also complex and specified but there are also some purposive systems which may not possess a high degree of complexity and specificity. For example, a thermometer is created for a purpose, i.e., to measure temperatures, but its structure is much less complex or specific than other CSPAs like computers.

the features of the universe as mentioned by Cleanthes look like those of a CSPA. The infinite number of levels of its hierarchical structure, and its numerous parts evince the complexity of the universe. Together with the universe's MAPA (with accuracy, i.e., specificity) and CAME (with curious adjustment of final causes), it can be rightly classified as a CSPA. So the analogy of the universe with "a product of human contrivance" seems to be quite strong, if Cleanthes' characterization is correct.

But there is a problem here. Traditional DA qua purpose mainly uses biological design as data, and the analogy of organisms, which are parts of the universe, with products of human contrivance concerning being CSAs is indeed quite strong. Suppose this is successful in inferring the designer of those organisms. Questions can still be raised whether the designer of those organisms is identical to the Designer of the whole universe. Natural theologians like Paley seem never to raise this question and they assume that if there is a designer of the organisms, then it is also the Designer of the whole universe. For example, Newton infers from "Eyes, Ears, Brain" directly to "a powerful ever-living Agent" (Newton 1989, 156), without considering the possibility that this "ever-living Agent" can be any being other than God.⁹ Moreover, if we just look at the natural laws and the large-scale structure of the

⁹ This assumption may be natural or even reasonable in their time, as the only kind of superhuman intelligence credible to them is Divine Intelligence. But in our post-Darwin space

universe, it is also not clear what the purpose of all these is. So the analogy of the universe as a whole with CSPSs is not as well-established as the analogy of organisms with products of human contrivance concerning being CSPSs. There is a gap in the argument here.

However, recent developments in modern cosmology provide new data of fine-tuning which may fill up this gap. These data suggest the existence of ingenious cosmic design in addition to biological design. We find that the exact forms of our orderly universe as HOS and the emergence of life and embodied persons can't be separated; in fact the latter depends on the former. (Here I just assume that the theory of evolution can completely and satisfactorily explain the origin of the first cell as well as the subsequent evolution of all diverse life forms.) For the emergence of life and embodied persons to be even possible, a lot of "accidents" have to happen. For example, there has to be a "very close balance between the competing effects of explosive expansion and gravitation contraction which would have corresponded to the incredible degree of accuracy represented by a deviation in their ratio from unity by only 1 part in 10^{60} ."¹⁰ If expansion rate is a little higher, the world would have flown apart. If this is a little lower, it would have collapsed earlier. In either case, life would be impossible.

age, some people may believe that organisms on earth are created by some very wise and powerful ET intelligent beings, which evolved on some distant planets long time ago.

¹⁰ John Polkinghorne, *Science and Creation* (London: SPCK, 1988), 22.

Another example: “Cosmologists have calculated that the actual density of matter in the universe as measured against the critical density of matter (the exact amount necessary for the perfect balance- in expansion between confetti and crunch) cannot have differed by more than one part in 10^{15} and still lead to a complex, life-friendly universe.”¹¹ What is more striking is that the constants of the basic laws of physics have to be fine-tuned as well. For example, if the nuclear strong force is a little bit weaker, all elements heavier than hydrogen would not be stable. If the nuclear strong force is a little bit stronger, all hydrogen would become heavier elements. If the electromagnetic force is a little bit weaker, atoms will not be formed at all. If the electromagnetic force is a little bit stronger, no covalent bonds would be possible, and all bio-molecules would not exist.¹²

There are numerous such kinds of “coincidences”- this inspires Paul Davies, a theoretical physicist, to remark: "It is hard to resist the impression of something- some influence capable of transcending space-time and the confinements of relativistic causality- possessing an overview of the entire cosmos at the instant of its creation, and manipulating all the causally

¹¹ Benjamin Wiker and Jonathan Witt, *A Meaningful World: How the Arts and Sciences Reveal the Genius of Nature* (Downers Grove, Illinois: IVP Academic, 2006), 153.

¹² For the details, see J. D. Barrow & F. J. Tipler, *The Anthropic Cosmological Principle* (Oxford: Clarendon, 1986), chapters 4-7; Geraint Lewis & Luke Barnes, *A Fortunate Universe: Life in a Finely Tuned Cosmos* (Cambridge: Cambridge University Press, 2016).

disconnected parts to go bang with almost exactly the same vigor at the same time, and yet not so exactly coordinated as to preclude the small scale, slight irregularities that eventually found the galaxies, and us."¹³ The force of the argument depends on the fact that if there is no further explanation, the balance of the universe is very improbable- it's very delicate, and many causally unconnected factors contribute to it. A slight change of the constants would make life impossible. The degree of precision needed, in some case of fine-tuning, is equivalent to that required to hit a target an inch wide on the other side of universe, twenty thousand million light years away! Also there's the problem of accounting for the apparent coordination or mutual adjustment of separate factors, e.g., different physical constants. These are also CAME and MAPA at the abstract level. Hence it suggests an intelligent purpose because from our experience, intelligence can achieve a *purpose* (e.g., the emergence of life and embodied persons) by fulfilling stringent conditions and coordinating diverse parts, e.g. perfect fitting of the components of a watch.

So a Supreme Mind can provide a good explanation for this "accidental universe" which, against all odds, tends to the eventual emergence of life and embodied persons. This looks very like a purposive adaptation imposed by Intelligence on the universe. For this we can find many analogies in our lives, e.g. a gardener tinkering with the growth of plants to make some

¹³ Paul Davies, *The Accidental Universe* (Cambridge: Cambridge University Press, 1982), 95.

pattern. A close analogy can be provided by the human-created mini-ecosystem in a big greenhouse containing many life forms. To make this life-sustaining, the scientists have to monitor numerous conditions like the temperature, the humidity, the oxygen content of the air inside, and many more. Every condition has to be just right; otherwise the “ecosystem” will break down. The common point is that intelligence can select one specific meaningful combination out of infinite possible sets to achieve a purpose: emergence of life and embodied persons in this case. The existence of all-pervasive natural order together with the fine-tuning of this order to prepare for the emergence of life and embodied rational consciousness reveal the universe as a whole to be a CSPA. The highly *specific* conditions for this to happen are already laid down in the deep structure of the universe (i.e., its natural laws) from the very beginning (including the initial conditions of the Big Bang or so). So after all, the universe as a whole is not only a HOS, but also a CSPA. The analogy is completed.

Critical Evaluation of Philo’s Weak Analogy Objection

The First Exchange between Cleanthes and Philo

In Philo’s first reply to Cleanthes, he claims that Cleanthes’ DA suffers from the weak analogy objection- this claim is based on his proposed rules about analogical argument (paragraph 2.7), and he further elaborates these rules later in paragraph 2.17. (I will critically evaluate these principles in the next section.) Then Philo objects: “But surely you will not

affirm, that the universe bears such a resemblance to a house.” Instead the “dissimilitude is so striking” that one cannot say that “the analogy is here entire and perfect.” So in the end the DA is only “a guess” (DNR, 117). I find this criticism less than clear because Philo does not really spell out what kind of disanalogy he is mainly talking about.

Anyway, here Philo seems to be interpreting Cleanthes as comparing the universe to a house, but this is odd because Cleanthes did not compare the universe with a house before, but with the entire class of “productions of human contrivance” abstractly conceived instead of a specific product. As explained above, Cleanthes’ main point is that the universe as a great machine, on the one side, and productions of human contrivance, on the other side, share a common feature, i.e., the ingenious feature of curious adaptation of means to end (CAME). (I think we may also add MAPA here.) *Concerning this comparison*, he claims that the two sides “resemble exactly”!

If Philo is talking about the *external appearances*, then of course Cleanthes would agree with Philo that the universe is very different from a house. So Cleanthes could accuse Philo of attacking a straw man here. If Philo wants to vindicate his weak analogy objection, he should try to show that the universe and an abstractly conceived product of human contrivance are greatly disanalogous concerning the crucial feature of adaptation of means to end. Philo has

not done so. We'll see later that Gaskin tries to remedy this defect.

Critique of Philo's Rules of Analogical Argument

Philo objects that Cleanthes's analogy is not "entire and perfect" (DNR, 117). But the requirement that any analogy be entire and perfect is simply too demanding. It is not even possible for the inference concerning most familiar objects like houses, which Philo endorses.

Almost all houses differ somewhat in size, color and design. All differ at least in terms of location and their environments. Philo's weak analogy objection seems to be grounded on supremely demanding methodological requirement: "Unless the cases be exactly similar, they repose no perfect confidence in applying their past observation to any particular phenomenon. Every alteration of circumstances occasions a doubt concerning the event; and it requires new experiments to prove certainly, that new circumstances are of no moment or importance. A change in bulk, situation, arrangement, age, disposition of the air, or surrounding bodies; any of these particulars may be attended with the most unexpected consequences" (DNR, 120).

It is simply impossible to observe this rule: in every two cases compared, there is likely to be an infinite number of dissimilarities. Nothing is exactly identical to another thing in all respects. Otherwise they would be the same thing. If what Philo says is correct, it is not clear we can have confidence in *any* analogical argument even for very familiar objects. To sum up,

Philo's rules of analogical argument are unrealistic and impossible to meet, not even by himself. So it seems that Philo's Weak Analogy Objection fails to threaten Cleanthes's analogical DA. His claim of dissimilitude seems to depend on some misunderstanding of Cleanthes's central analogy, and in any case he fails to explain the details about the alleged dissimilitude, not to mention providing *empirical* evidence to support his claim. Nor has he produced *empirical* criticisms of the analogies suggested by Cleanthes. Surprisingly, his major criticisms seem to be based instead on allegedly true *theoretical* principles of analogical reasoning, which are simply unrealistic, and which are not followed consistently by Philo himself.

Gaskin's Defense of the Weak Analogy Objection

I have pointed out Philo is not very clear about in exactly what aspects the analogy is seen to be weak. However, Gaskin makes good attempts to clarify this criticism. I will respond to him below.

Only Two Similar Features?

Gaskin has tried to provide an explanation: allegedly the similar features between the universe and artifacts are order and purpose- but then the "features of similarity named are only two... and the scale on which the feature(s) occur in artifacts and natural objects is almost

ludicrously different.” So it makes “the analogy incredibly weak.”¹⁴ But of course order and purpose are both very broad terms and they may imply many detailed features of similarities. For example, consider Paley’s comparison of eyes with telescopes below.

Paley points out that both an eye and the telescope are “made upon the same principle; both being adjusted to the laws by which the transmission and refraction of rays of light are regulated.”¹⁵ “The lens of the telescope, and the humours of the eye bear a *complete resemblance* to one another, in their figure, their position, and in their power over the rays of light, viz. in bringing each pencil to a point at the right distance from the lens.”¹⁶ The “resemblance ... [is] still more accurate” in other aspects: “Pencils of light [will be]... separated into different colours” after passing through the lenses, and this will have adverse effects on vision. But “in the eye, the evil was cured by combining together lenses composed of different substances... Our artist borrowed from thence this hint”¹⁷ to solve a similar problem in the telescope. When we notice dissimilarities, we also recognize the “superiority of the eye over the telescope.” This is shown by “the adaptation of the organ [eye], first, to

¹⁴ Gaskin, *Hume’s Philosophy of Religion*, 22.

¹⁵ William Paley, *Natural Theology* (Oxford: Oxford University Press, 2006), 16.

¹⁶ Ibid, 17; italics mine.

¹⁷ Ibid, 18.

different degrees of light and secondly, to the vast diversity of distance at which objects are viewed by the naked eye.”¹⁸ It seems as though the eyes know the secret laws of optics! Indeed, the analogies can be further elaborated: “Its coats and humours, constructed, as the lenses of a telescope are constructed, for the refraction of rays of light to a point... the provision in its muscular tendons for turning its pupil to the object [is] similar to that which is given to the telescope by screws.”¹⁹ More details do not need to detain us here.

In fact all these details about analogy can be further elaborated for one organ after another, and one biological system after another. So the number of analogies is huge. It is Gaskin’s method of counting which seems to be incredibly skewed. Moreover, consider the regularity like “stones fall”- there is only one common feature among all stones which fall, and only one is really needed, i.e., they all have some mass! Does this make the analogy incredibly weak?

Concerning the scale, I am not sure why size *as such* is necessarily linked to the kind of causal explanation which is appropriate. Suppose the world is exactly like a clock magnified many many times. Presumably Hume should agree that there's very probably a Cosmic Watchmaker. If the intricate structure of a small watch demands the appeal to a designer, what

¹⁸ Ibid.

¹⁹ Ibid, 45.

makes a very big watch different? How does the increase in size itself help matter to gain the power to spontaneously form itself into a watch? Philo, in his rephrasing of Cleanthes's DA, points out that at least our ordinary experiences suggest that matter cannot do this: "Throw several pieces of steel together, without shape or form; they will never arrange themselves so as to compose a watch" (DNR, 119). He later suggests that in the extraordinary condition of the formation of the universe, the situation might be different, because there might be "new and unknown principles" (DNR, 122). But this is a mere possibility without any empirical support whatsoever. As Tweyman correctly observes, "Philo has not established that any principle other than thought is capable of yielding a design such as we find in the world. Hence, Cleanthes is not troubled by Philo's point."²⁰ To really challenge Cleanthes' position, "Philo's criticisms must establish, with at least as much plausibility as the Argument from design possesses, that a design such as we find in the world could have been caused by springs and principles other than thought."²¹

Boyle believes in invisible particles, and thinks that by arguing from analogy, we should

²⁰ Stanley Tweyman, "Introduction," in David Hume, *Dialogues Concerning Natural Religion* in focus, edited by Stanley Tweyman (London and New York: Routledge), 1-94 at 10.

²¹ Ibid, 11. Tweyman is one of the few commentators on Hume's DNR who can recognize the inadequacy of Philo's criticisms in Part II. However, he thinks that other criticisms, e.g., the objection from generation, may be more successful.

believe that the laws of mechanism should also be applicable to the invisible realm. He thinks that to say otherwise “is like allowing that the laws of mechanism may take place in a town-clock, and not in a pocket-watch.”²² His point is that size seems irrelevant to the applicability of laws of motion (at least this should be our presumption), although there does exist a great disanalogy of size between ordinary objects and invisible particles. If size seems irrelevant to the applicability of laws of motion, there is also a presumption for thinking it irrelevant for the question whether non-intelligent mechanisms are adequate for the spontaneous generation of a CSPA like a clock. Gaskin at least owes us an explanation why not.

How to Identify Products of Human Contrivance?

Gaskin’s another argument is that “Anything whatever man-made is exceedingly unlike the universe at large.”²³ This is to attack the analogy of natural order with products of intelligence as a weak one. This can then be used to criticize the DA qua order. To substantiate the above claim, Gaskin needs to show that we can distinguish human artifacts from natural objects by noting the characteristics of agent-imposed order. One way is to

²² Robert Boyle, “The Excellency and Grounds of the Corpuscular or Mechanical Philosophy,” in Michael R. Matthews, ed., *The Scientific Background to Modern Philosophy: Selected Readings* (Indianapolis/Cambridge: Hackett Publishing Company), 111-123 at 115.

²³ Gaskin, *Hume’s Philosophy of Religion*, 22.

“recognize in objects which in structure and/or function are the same as or closely similar to objects we know from experience to be agent-ordered.”²⁴ I think this is posited as a sufficient condition for the identification of design- as such I have no objection and think that it does not affect the DA. Gaskin thinks that size is also important, as illustrated by the point that “the order in sub-microscopic structures is never agent-given, nor is the order in cosmic systems” (Gaskin 1978, 27). To evaluate this claim, we need to point out that “agent-given” can be interpreted in two senses: either as *human-agent-given* or agent-given in a general sense. In the latter general sense, things created by angels or gods are also agent-given. It is true to say that neither the order in sub-microscopic structures nor cosmic systems are ever *human-agent-given* due to obvious limitations of human power, but to say that they are never agent-given in a general sense is to beg the question against DA.

This point can be illustrated by the extension of a science fiction example used by Gaskin: “everyone is instantly supposed to recognize (and does recognize) that a large regularly shaped metal oblong emitting powerful radio signals and found beneath the surface of the moon is an artifact, not part of the order of nature.”²⁵ This example shows that recognition of nonhuman-agent-given order is possible. Further suppose that when one digs deeper, it is

²⁴ Ibid, 27.

²⁵ Ibid.

discovered that below the crust of the moon, the inside of the moon is in fact a giant spaceship with very complicated, intricate, and apparently purposive structure. In other words, we find out that the moon is in fact a giant CSPA disguised as a natural satellite. In this space-age, probably we would not infer to God, but certainly we would infer to some ETs as the designers of this spaceship. The size of this giant CSPA of course far exceeds what our current technology can create, but it does not debar us from recognizing its order as agent-given in a general sense.

Gaskin also notices the significance of the “regularity of shape (flat polished surfaces, regular geometrical shapes etc. are seldom ... found in natural objects).”²⁶ I think this is correct and helps to explain why we recognize the Stonehenge and the pyramids as artifacts. Gaskin also talks about “objects which have both a macroscopic structural organization and are either unique like a particular garden design or only repetitive ... in locally limited ways where the repetition cannot be explained by the operation of natural laws... [e.g.,] systems of concentric marks on flat boulders.”²⁷ I have no objection to the above posited as sufficient conditions for the identification of design, but again I cannot see how they will affect the DA. (The example of a garden is in fact congenial to the DA- we may say the world is like a Garden created for

²⁶ Ibid.

²⁷ Ibid.

us.) The problem is that there may be several ways to identify design, and I have proposed the analogies with HOSs and CSPSs as reliable indicators. Gaskin can certainly propose other ways to distinguish human artifacts from natural objects, but as long as those ways do not contradict the use of HOSs and CSPSs as reliable indicators, and I cannot see how they can, this will not affect the DA advocated here.

Gaskin also talks about systems with an “appearance of being endowed with a purpose”;²⁸ but he argues that this is not a sufficient criterion for an artifact, because organisms have an appearance of being endowed with a purpose but the source of the “structure of a living being is *always* another, structurally identical, object.”²⁹ But this is only reiterating Philo’s point that generation can also be a source of purposive order. The claim that the “structure of a living being is *always* another, structurally identical, object”, if taken literally rather than as a summary of our observations so far, immediately commits us to *millions of infinite* chains of organisms which have existed for an infinite time (one chain cannot explain the other because they are not structurally identical, e.g., cats cannot explain the generation of whales, nor vice versa). This claim, besides begging the question against the DA and very messy, seems extremely implausible given the currently widely accepted Big Bang theory. So the *ultimate*

²⁸ Ibid

²⁹ Ibid.

source of the structure of living beings is still an open question. Gaskin's discussions of various ways to distinguish human artifacts from natural objects so far have yielded nothing inimical to the DA.

Disanalogy of the Universe from Products of Human Contrivance?

Gaskin does go on to query the analogy of natural order with products of intelligent design:

"The plays of Shakespeare are uniquely sophisticated examples drawn from a group of objects (intelligible writings) which in our experience *always* derive from agent intelligence and which display individuality and purpose... the order, or multiplicity of orders, in the natural world, is the repetitive, infinitely extended, non-purposeful, sub-microscopic or cosmic order which is never found in artifacts and which is never mistaken for them."³⁰ His conclusion is that there is obvious difference between natural order and artifacts imposed by intelligent design. So DA qua order is not plausible. However, he seems to forget that the major proponent of DA qua order, Swinburne, does not regard this argument mainly as an analogical argument.³¹ There are various theoretical reasons for positing God as the

³⁰ Ibid, 28.

³¹ Swinburne did present the DA as analogical argument in his 1968 article (reprinted as R. G. Swinburne, "The Argument from Design," in Keith Yandell, ed., *God, Man and Religion* (New York: McGraw Hill), 137-149.) But from his *The Existence of God* in 1979 onwards, he

explanation of the existence of natural laws, such as there is no other way to do so, and to do so would greatly simplify the world picture. Moreover, the occurrence of the world order "would be very improbable a priori and also because, in virtue of his (God's) postulated character, he has very good, apparently overriding reason for making an orderly universe"³² - this is argued on the basis of his Bayesian confirmation theory. So even if Gaskin's point about disanalogy is valid, this would not pose a major threat to Swinburne's DA qua order.³³

Let us examine Gaskin's comparisons. Natural objects can be divided into two main classes: living things and inanimate systems. Living things do show many marks of intelligent design comparable to many human contrivances, including the plays of Shakespeare. Living things are also "uniquely sophisticated" systems with degrees of complexity which may even exceed

has consistently adopted a Bayesian confirmation theory as the framework for his arguments, including the DA.

³² Swinburne, *The Existence of God*, 147.

³³ In fact Gaskin later admits that the regularity argument has some force: the "regularity argument ... may give some real substance, however slight, to the schematic possibility set out by the cosmological argument: namely, that the laws of change are the product of an intelligence remotely similar to the mind of man. The evidence in favour of the typically theistic response to the first three cosmic questions would thus appear to be weak, but not entirely negligible" (J. C. A. Gaskin, *The Quest for Eternity* (Penguin, 1984), 77.)

that of the plays of Shakespeare. Cleanthes has pointed this out: “as there are infinitely fewer parts and less contrivance in the finest composition of eloquence, than in the coarsest organized body, the propagation of an *Illiad* ... is an easier supposition than that of any plant or animal” (DNR, 127). Surely, the “anatomy of an animal affords many stronger instances of design than the perusal of ... Tacitus: and any objection which you start in the former case, by carrying me back to so unusual and extraordinary a scene as the first formation of worlds, the same objection has place on the supposition of our vegetating library” (DNR, 127-128). In fact the living books (organisms) written in this language of life also display individuality and purpose- just notice the immense varieties of flowers, butterflies, birds, fishes and mammals- which are all distinct and interesting! Consider the case of pandas. Critics of DA “fault the designer ... for not giving pandas opposable thumbs.” But “from a purely aesthetic standpoint, might not those charming pandas up in the bamboo with their un-opposing but quite workable thumbs be just the sort of humorous supporting character this great cosmic drama needs to lighten things up a bit?”³⁴ I think nobody would deny the charming individuality of pandas!

The above discussions reflect the point illustrated by Cleanthes’ analogy of living or vegetating library in Part III of DNR: “Suppose that there is a natural, universal, invariable language... and that books are natural productions, which perpetuate themselves in the same manner w/ animals and vegetables, by descent and propagation” (DNR, 127); these “natural

³⁴ Wiker & Witt, *A Meaningful World*, 53.

volumes, containing the most refined reason and most exquisite beauty: could you possibly open one of them, and doubt, that its original cause bore the strongest analogy to mind and intelligence?... could you persist in asserting, that all this, ... had really no meaning, and that the first formation of this volume in the loins of its original parent proceeded not from thought and design?" (DNR, 127). To say so is a glaring absurdity to Cleanthes. If things like the plays of Shakespeare "in our experience *always* derive from agent intelligence," then isn't it also reasonable to believe that these living books are also written by some Intelligent Author?

Nature as the Work of Genius

Interestingly, Wiker and Witt use the analogy of nature with works of genius like the plays of Shakespeare to support DA. They think that the "explanatory category of genius actually strengthens rather than weakens the design argument" because we can see "the signature of genius in nature."³⁵ They propose four criteria for a work of genius:

- ◆ First, the criterion of *depth*. "Our experience with the artistic works of human genius lead us to expect depths that outstrip our immediate understanding," but "many inscrutable things in a work of genius are only apparently so and, that, with sustained effort, the work will yield up more and more."³⁶ "A person can dig and dig in

³⁵ Wiker and Witt, *A Meaningful World*, 28.

³⁶ Ibid.

Shakespeare and keep finding new meanings. It's magnificently dense, rich and subtle."³⁷

- ◆ Second, the criterion of clarity. "Shakespeare set about to be watched and understood, and succeeded to the point that even uneducated peasants loved him." It shows a "clarity [which]... bespeaks a brilliance that both dazzles and illumines. As such, clarity is the opposite not only of obscurity, but also of drab and easy newspaper prose."³⁸
- ◆ The third criterion: power to "bring the most disparate elements into *harmony*."³⁹
- ◆ Fourth, the criterion of elegance. "With harmony the emphasis is on the relationship among the parts, a diversity brought into happy association. Elegance emphasizes the unity in diversity. When harmony is discussed, two or more particular elements are often in view, whereas when we speak of elegance, typically we have in view something, some intimately ordered whole. Albert Einstein's theory of relativity is elegant because it describes so much so compactly."⁴⁰

A work which satisfies these four criteria of genius would often surprise us: "The readers most likely to ferret out the surprises afforded by Shakespeare are those who most suspect

³⁷ Ibid, 75.

³⁸ Ibid, 76.

³⁹ Ibid, 78.

⁴⁰ Ibid.

there is some great underlying richness and order that an ingenious author wove into his plays for us to find.... it was just this kind of suspicion that drove the founders of modern science.”⁴¹ Moreover, as these founders of modern science made continuous progress in unraveling the secrets of Nature, Nature seems to satisfy these four criteria of the work of an artistic genius. Certainly, the universe has a depth dimension, and exhibits a harmonious and elegant order which unifies so many diverse parts of Nature. It is also clear and intelligible to human minds. In the end, the scientific discoveries, such as the beautiful structure of DNA or the phenomena of fine-tuning, often generate experiences of surprise. So in fact we can turn the table against Gaskin, and argue that since the analogy of the universe with the work of a genius is quite strong, we can reasonably infer to the existence of the Cosmic Designer as the Genius! Let us further elaborate these points below.

As for Gaskin’s description of the “repetitive, infinitely extended, non-purposeful, sub-microscopic or cosmic order,” we need to point out that while this sub-microscopic or cosmic order may not be obviously purposive at first sight, and it’d better be classified as a HOS initially, a HOS may turn out to have a purpose after all, and be recognized to be a CSPA at a later stage. So to describe the sub-microscopic or cosmic order as non-purposeful in any categorical sense is going beyond the data, and begging the question against the DA.

⁴¹ Ibid, 80.

We have argued that some systems can be recognized as products of intelligent design even if we cannot yet identify their purposes. Consider this case: “Suppose that Herbert Jacobsen, crossing the Sahara alone, discovers a five-foot cube whose corners and edges are sharply defined but whose material is old. Obviously, someone has *made* the cube. Left to itself, the material would erode and the sharp edges and corners be worn down. Herb may not ever discover what possessed its artificer to produce this artifact. But he can nonetheless rightly claim to know it *is* an artifact.”⁴² In other words, this example shows the independence of design detection from the identification of a clear purpose. Other cases have been given above, e.g., the Stonehenge, the movie *Contact*.

I have also argued that consideration of size like “infinitely extended” is largely irrelevant. Moreover, Gaskin himself says that repetitive structural organization like “systems of concentric marks on flat boulders” may indicate intelligence. There is no reason why the “repetitive sub-microscopic or cosmic order” cannot be a good indicator of intelligence. For example, consider a musician practicing musical scales on a piano, a monk repeatedly saying Jesus’ Prayer in meditation, or others chanting some repetitive yet beautiful hymns. Can we say that these are not products of intelligence? Moreover, Gaskin’s emphasis on the

⁴² Keith E. Yandell, *Hume’s “Inexplicable Mystery”: His Views on Religion* (Philadelphia: Temple University Press, 1990), 183.

repetitiveness of the cosmic order is misleading. At first sight it rings true as we form a picture of the large-scale universe as one galaxy after another and so on. It seems to be monotonous and non-creative. However, we should not only look on the surface; we should rather look at the deep structure of the universe, and the existence of many levels of reality in an integrated hierarchy is unmistakably rich and interesting- so interesting that many scientists have devoted their whole lives to study it. Moreover, the picture would be very different if we look at the cosmic process from a diachronic rather than synchronic perspective- we should be amazed by the prodigious diversity of things produced by this process from very humble beginnings: the emergence of atoms, myriads of molecules, millions of life-forms, rational consciousness, and the immensely rich contents of this rational consciousness, the astounding creativity of human civilizations, and so on. In short, the cosmic process is far from “repetitive,” boring and monotonous. In fact, a huge variety of things are produced and a wide range of intrinsic values are realized. The cosmic process is extremely creative, far exceeding our expectations.

Therefore, although the “repetitive, infinitely extended, not yet *apparently* purposeful, sub-microscopic or cosmic order” is never found in *human* artifacts and which is never mistaken for them, it does not mean they cannot reasonably be seen as products of intelligent design *in a general sense*. Of course we need to distinguish human artifacts from the general

concept of products of intelligent design. Some objects cannot be human artifacts because the limitations of human power are well-known- we cannot directly affect anything apart from our bodies, and the instruments as extension of our bodies. But we can produce a variety of products which bear marks of intelligent design, and we can study these marks and generalize about products of intelligent design. That we can distinguish natural objects from *human* artifacts does not mean that we cannot reasonably infer that some natural objects are ultimately products of intelligent design. These are two separate questions which should not be confused. So Gaskin's argument here is far from convincing.

True, the analogy of universe as a HOS with a product of intelligent design may initially not be as powerful as that obtain in organisms. The inanimate systems should be *first* compared to highly ordered systems (HOSs) like language systems, musical scales, traffic systems, cities, lego, etc. But even at this level the analogy is far from weak- HOSs are also typically products of intelligent design. Moreover, a HOS in itself may not reach the level of CSPA, but a HOS can be the infrastructure for the creation of CSPAs- e.g., by using the English language system, human beings can produce works of genius like the plays of Shakespeare. The recent discovery of fine-tuning confirms that this is really the case, and further strengthens the analogy of the universe with a CSPA. The pattern of adapting means to end is now clearly shown in the stringent choice of initial conditions of the cosmic process, natural laws and

their parameters. The repetitive yet creative, infinitely extended, cosmic order with a hierarchy of many levels is found to be precisely manipulated at various levels to make possible the emergence of life and rational consciousness in the cosmic process, and hence this cosmic order can be seen to be *purposeful* after all! This kind of “manipulation” is very complex and precise, and the cosmic process turns out to be extremely creative.

In all these aspects, Nature seems to be the work of a Genius, and in fact the analogy of the universe with the plays of Shakespeare can now be seen to be plausible or even striking. The HOS of natural laws seems to be used to produce CSPSs which are highly meaningful products such as life and rational beings, just as the HOS of the English language system is used to produce the plays of Shakespeare with meaningful contents. The fact is that a HOS can easily be sterile, and not all HOSs can develop into CSPSs. Suppose there is a universe with four kinds of basic building blocks, but the only law which governs their combinations is universal gravitation. The most likely outcome of this universe is the coalescence of all these building blocks in an amorphous lump for eternity. It is difficult to see how a CSPS can emerge in this situation. It is fortunate that our universe as a HOS is not like that. To the contrary, this HOS turns out to be immensely creative, such that in the end it can produce rational persons who can create the plays of Shakespeare. This fact cannot be taken for

granted.⁴³ So Gaskin's accusation of weak analogy can be rejected.

Conclusion

Indeed, the external differences between the world (or even an organism) and some specific artifact (e.g. a watch, a house) are striking, but it is doubtful that these differences really significantly *weaken* the argument by analogy. As pointed out, we should look for the analogies in the deeper or more abstract level like CAME, MAPA, HOS, and CSPA. We also need to be reminded that no proponent pretends that the DA is a certain proof, and Philo's rules for analogical reasoning are simply too stringent. In this essay, I argue that various dissimilarities proposed are not great enough to discredit the suggestion of a Designer. The weak analogy objection to DA is itself weak. Gaskin's defense of the weak analogy objection also fails. Of course, the weakness of Weak Analogy Objection does not automatically mean that the analogies supporting the DA are strong. Philo still have many powerful objections which have not been dealt with. So supporters of DA still have a huge task to provide positive

⁴³ Shakespeare is "a playwright who, for more than three hundred years, had held the world in awe. Are we really to believe that natural selection moved from a single cell in a dirty pond to this? Vague just-so stories about nature selecting for verbal skill are one thing, but standing in steady contemplation before one of Shakespeare's mature literary works and then entertaining such an explanation without feeling a deep sense of skepticism— that's a very different matter" (Wiker and Witt, *A Meaningful World*, 59.)

arguments in support of the analogies used by DA, and to provide effective replies to other Humean objections. These must be left for other papers.