

# Paley's version of the Teleological Argument is Based on an Equivocation Fallacy: There is No Order in the Universe Which Resembles the Order of a Watch

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## I. Introduction

Analytic Philosophy and especially the logical positivists such as A.J. Ayer have shined a light on the fact that many philosophical issues are really non-issues or pseudo-issues once we realize that language is the cause behind a given debate or controversy. Equivocal language is one culprit as it can mislead us into thinking an argument is well-reasoned when it is not. The fallacy of equivocation occurs when it is not realized that a word or phrase is not consistently being used to mean the same thing on all occasions. I believe that William Paley's classic version of the Teleological Argument for the existence of God, also known as the Argument from Design, which he wrote in 1802, is an example of this.

Paley's argument states that just as a watch is ordered and we rightfully conclude that it had a creator who ordered it, the universe is also ordered so we should similarly conclude that it had a creator who ordered it. It is a simple and emotionally appealing argument. However, this paper will argue that there simply is no order in the universe which in any way resembles the order found in a watch. When we look at the universe and the matter and energy within the universe, we see much chaos along with local pockets of what can best be described as diverse formations and patterns, but no real order—and certainly nothing that is in any way similar to the order found in a watch. As such, it would have been better to have used a different word than order to describe the workings of the universe. If a different word were used, then Paley's watch analogy would be exposed, for, as the saying goes, it would be readily apparent that the argument is comparing apples to oranges.

There are other examples of the equivocation fallacy in philosophy of religion. For example, Michael Scriven has argued that one cannot put various weak arguments for God's existence together and assert that taken together they make for one strong argument, especially when the various arguments have in mind different conceptions of God. He asserts that these arguments do not mean the same thing when they use the word "God."<sup>1</sup>

Returning to Paley's argument, we can formally lay it out as follows:

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<sup>1</sup> Scriven makes his argument as follows: "It could be argued that the greatest confidence trick in the history of philosophy is the attempt to make various arguments for the existence of God support each other by using the same term for the entity whose existence each is supposed to establish. In fact, almost all of them bear on entities of apparently different kinds, ranging from a Creator to a moral Lawgiver...Instead of attempting to establish monotheism, one can, of course, frankly accept the arguments as separate proofs of the existence of separate beings. (Scriven, 1966: p. 228-229)

1. A watch displays order for a purpose.
2. We correctly conclude that such order was created by a maker.
3. The universe also displays order for a purpose.
4. Therefore we should likewise conclude that it was created by a maker.

Paley argued that the parts of the universe are ordered for a purpose and that the universe displays order both as a whole and in its parts. Therefore, the argument asserts that order appears at different levels in the universe—both in the big things such as the universal scientific or natural laws, and in much smaller things, such as the human body. I will argue in this paper that the order found in a watch is significantly different than what we find when we look at the universe as a whole or in its parts.

When addressing the apparent order of the universe, I will look at the following five developmental stages of the universe.

1. The first moments of the universe immediately subsequent to the Big Bang.
2. The development of the initial natural or scientific laws that arose after the Big Bang.
3. The order that formed in non-living matter and energy from and as a result of the natural laws.
4. The order that eventually formed in living organisms.
5. The present universe.

As far as I know, no prior papers on this subject have examined all five stages. Furthermore, one of the areas of original contribution is my take on the second stage, namely, the natural or scientific laws, which in turn gave rise to the many limited and local examples of patterns or “order” found in the universe. I will argue that the first two stages of the universe, the initial period immediately after the big bang and the ensuing period when things interacted so as to form the scientific natural laws, did not display order at all, and certainly not the type of order found in a watch or other man-made objects which were constructed for a purpose, and stages three and four have been explained by naturalistic processes which do not require a conscious or supernatural creator and for our purposes are best described as manifesting patterns instead of order.

Moreover, when looking at the last stage, our current universe, one must consider that the majority of our universe is best described as having little structure which cannot be fairly described as ordered. In fact, both the past and present universe are primarily disordered. Taking all of these points into consideration, the universe has

never, and still currently does not, resemble a watch regarding either order or design, and as such Paley's analogical argument lacks persuasive force.

Moreover, although I am using Paley's watch analogy as a springboard for my discussion, my argument actually refutes all standard versions of the teleological argument. In other words, the teleological argument need not be based on an analogy, and in fact, since there are so many problems in comparing a watch to the entire universe, one might reasonably believe that the argument is in fact stronger without the analogy. In such a case, the argument asserts that the order of the universe reasonably gives rise to the inference that it has a maker which created the order. This paper disputes that position.

In the balance of this paper, words in many of the quotations are highlighted by me in bold typeface to draw attention to them.

## 2. Looking at Paley's Argument

Paley begins his argument as follows:

In crossing a heath, suppose I pitched my foot against a stone, and were asked how the stone came to be there, I might possibly answer, that, for anything I knew to the contrary, it had lain there for ever; nor would it, perhaps, be very easy to show the absurdity of this answer. But suppose I found a watch upon the ground...when we come to inspect the watch, we perceive (what we could not discover in the stone) that **its several parts are framed and put together for a purpose**, e.g. that they are so formed and adjusted as to produce motion, and that motion so regulated as to point out the hour of the day; that if the different parts had been differently shaped from what they are, or placed after any other manner, or in any other order than that in which they are placed, either no motion at all would have been carried on in the machine, or none which would have answered the use that is now served by it. To reckon up a few of the plainest of these parts, and of their offices, all tending to one result. (Paley, 1809: pp. 1-2)

We see that Paley is emphasizing that the parts of the watch are put together for the purpose of telling time, and that the parts have a precision in that if they were differently shaped or differently placed then the watch would not be able to carry on its purpose of telling time. Paley then concludes that the universe works the same way as a watch—with its parts tending to one result, or in Paley's words, the parts are "accommodated to their end."

Every indication of contrivance, every manifestation of design, which existed in the watch, exists in nature; with the difference, on the side of nature, of being greater and more, and that in a degree which exceeds all computation. I mean that the contrivances of nature surpass the contrivances of art, in the complexity, subtilty, and curiosity of the mechanism; and still more, if possible,

do they go beyond them in number and variety; yet in a multitude of cases, are not less evidently mechanical, not less evidently contrivances, not less **evidently accommodated to their end**, or suited to their office, than are the most perfect productions of human ingenuity. (Paley, 1809: p. 17-18)

The first glaring problem with the argument is that it is not obvious at all that the universe has a purpose at all. The watch's purpose is to tell time, and the parts of the watch contribute to that purpose, but what do the parts of the universe contribute to? We could list some possibilities, but any purpose is not clear when looking at the universe, and people could reasonably conclude that the universe has no purpose at all. Moreover, unlike the watch, it seems we could rearrange the universe without any noticeable difference in the overall integrity of the universe. Indeed, the analogy seems to immediately break down because it is unclear if the many parts to the universe contribute to any purpose at all, and if not, then there would be no strong reason to assume it had a designer.<sup>2</sup>

Another striking problem with the argument is that the reason that we know a watch has a maker is because watches are not found in nature. This is unlike the stone, which Paley admits could have been there forever, and if so, would not and could not have been created by anyone. The universe, moreover, is nature itself, so may not be the product of a conscious being who created it.

There are numerous other problems with the argument, many of which were pointed out by David Hume even before Paley offered his version of the argument. Indeed, even a strong Christian apologist such as Alvin Plantinga has noted the failure of Paley's version of the Teleological Argument to produce any appreciable evidence to support the conclusion that the universe has an intelligent designer. Plantinga, in

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<sup>2</sup> William Rowe makes this same point as follows: "A teleological system, we shall say, is any system of parts in which the parts are so arranged that under proper conditions they work together to serve a certain purpose...The human eye, for example, is clearly a teleological system. Its parts exhibit an intricate order and are so arranged that under proper conditions they work together for the purpose of enabling a person to see. Other organs in humans and animals are undoubtedly also teleological systems, each serving some reasonably clear purpose...It is one thing to believe that the universe contains many parts which are teleological systems, and quite another to believe that the universe itself is a teleological system...To show that, we would have to claim that the universe itself has a purpose and that its parts are so arranged that they work together toward the realization of that purpose. But can we, by just looking at the small fragment of our universe available us, hope to discern the purpose of the universe itself? It seems clear that we cannot." (Rowe, 2007, pp. 57, 59).

fact, agrees with David Hume’s many criticisms of the argument.<sup>3</sup> I have elsewhere offered my own analysis of the failures of Paley’s analogy and the teleological argument in general. (See Firestone, 2014 & 2019) For example, as to Paley’s analogical argument I wrote the following:

First, we are comparing a little watch to the entire universe. It is hard to think of many things that are more unlike than these two. A watch is small, the universe is very big. A watch lasts only a relatively short time, while the universe has existed billions of years. We have experience in the formation and creation of watches, but, as David Hume pointed out, we have no experience in the creation of universes. In fact, we know that a watch is created by humans. We do not know how the universe was created. A watch has a purpose—to tell time. The universe has no obvious purpose. A watch is clearly organized, but the universe is not clearly organized. In fact, the universe has a lot of chaos, seeming disorganization, destruction, and species extinction that seem to make it questionable as to whether it had an organizer. Stars crash into other stars, black holes gobble up solar systems, earthquakes destroy, meteors have caused mass extinctions of plants and animals on earth, people and animals kill each other, and evil and suffering are present everywhere. (Firestone, 2019: p. 419)

The above points are relevant for the purposes of this paper, but the focus of this paper is that Paley’s argument is a non-starter as the universe and a watch do not have even the first similarity that is claimed in the argument, namely, order, so there is no basis to conclude that the universe has any “other” similarity with a watch, such as a conscious designer who created and ordered it.

I am not arguing that parts of the universe do not display a kind of order, because I think that they do, but these more limited or local instances of so-called order would be better labeled as patterns—and these pattern can be and have been successfully explained by naturalistic processes that do not need to appeal to a conscious creator, let alone a non-physical supernatural creator. As the smaller pockets or instances of order that I have in mind here are the “order” displayed in both non-living matter and living organisms which can be explained by natural self-organization processes—of

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<sup>3</sup> In analyzing the Teleological Argument, Plantinga asserts the following: “In believing that God exists, the theists believes a proposition logically equivalent to a conjunction; among the conjuncts we should find at least the following: (1) The Universe was designed. (2) The Universe was designed by exactly one person. (3) The universe was created ex nihilo. (4) The universe was created by the person who designed it. (5) The creator of the universe is omniscient, omnipotent, and perfectly good and (6) The creator of the universe is an eternal spirit, without body, and in no way dependent upon physical objects. Now we can put the objection as follows. Perhaps the teleological argument gives us a smidgin of evidence for (1), but it does nothing at all for (2) - (6). The sort of evidence to which it directs our attention is entirely ambiguous with respect to these others...Hume’s criticism seems correct. The conclusion to be drawn, I think, is that the teleological argument, like the cosmological, is unsuccessful.” (Plantinga, 1974: pp. 83-84)

which evolution is the name for one of the processes which applies to living organisms. This type of order is not the type of order that a watch has.

However, the theist might claim that even if naturalistic processes of self-organization and evolution can explain the patterns or “order” we find in living and nonliving things in the universe, if the self-organization is a result of the natural laws of the universe and the natural laws are in fact ordered, then one might believe Paley’s argument to be salient. In this case the basic order of the natural laws which gave rise to the universe in its current state would seem in need of an explanation, and further, could arguably be best explained as a creation by a conscious designer. This is one of the focuses of this paper.

Before getting into my argument, I need to address a possible objection to my characterization of Paley’s analogy. It might be claimed that Paley does not assert that the universe as a whole is ordered for a purpose as he only gives examples of many of the parts of the universe as exhibiting order. As such, his argument could be viewed as claiming that the parts of a watch and the parts of the universe are ordered, and perhaps further, that a watch and the universe should be considered as ordered due to all of their parts being ordered. I think, however, that this interpretation of Paley is problematic because Paley does not merely claim that each part of the watch is ordered and has a purpose; rather, he proclaims that the watch as a whole has the overall purpose of telling us the time, or as Paley puts it, “to point out the hour of the day.” Therefore, to maintain the consistency of the comparison of a watch to a universe it seems he must conclude that similar to the watch having an overall purpose, the universe, too, has an overall purpose—and it is not merely the order of the parts which is important.<sup>4</sup>

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<sup>4</sup> That Paley never gives us the purpose of the universe does not mean that he did not believe it had a purpose. Indeed, Paley pointed out that in the early 1800s we, as finite humans with limited knowledge of the universe, did not know the organization or purposes of many of the things in the universe. For example, Paley states that at that time we did not know about the organization of the elements of water, air, fire, and light, nor do we know the organization and purpose of the stars and planets, or what he calls the heavenly bodies:

WHEN we come to the elements, we take leave of our mechanics; because we come to those things, of the organization of which, if they be organized, we are confessedly ignorant...MY opinion of Astronomy has always been, that it is *not* the best medium through which to prove the agency of an intelligent Creator...We are destitute of the means of examining the constitution of the heavenly bodies...Our knowledge therefore of astronomy is admirable, though imperfect. (Paley, 1809: pp. 378-379, 381-382.)

As such, we could reasonably conjecture that Paley did not think he needed to propose the purpose of the universe, nor how the myriad of things in the universe might serve some overriding purpose, since if we cannot even understand the order and organization of many of the things in the universe nor know the purpose of all of its parts, then it would be reasonable to infer that we would not understand the purpose of the universe as a whole.

It is also important to note that modern science has been able to explain the many instances of order that Paley refers to in his book, and as such, if we confine our discussion to just the parts of the universe then Paley's argument has already been refuted. However, if we interpret Paley's argument as more comprehensive in that it claims that the universe is not just ordered in its parts but also as a whole, then Paley's argument seems to present us with an additional hurdle to overcome—a hurdle that this paper will address.

Specifically, this paper will respond to what I take to be Paley's full argument, namely, that the universe both as a whole and in its parts displays order (for a purpose), that this order is manifested by the universal laws, and the universal laws then produce the further instances of order that we observe, including the order we see in our complex human bodies.

I will dispute Paley's position by arguing that the universe as a whole has always been largely and primarily disordered, that the natural scientific laws which are driving the universe are not in themselves ordered at all, and that all instances of so-called local order, or what might be better called patterns, that have developed from the natural laws can be explained naturalistically without a need to appeal to a conscious creator.

Before we analyze the fallacy, I will make my case that I have fairly and correctly portrayed the argument, specifically that the claimed first similarity between a watch and the universe is in fact order and that it is upon this similarity that a similar conclusion should be reached, i.e. that both the watch and the universe had a maker or designer who created the order.

### **3. The essence of Paley's version of the Teleological Argument is that both a watch and a universe are ordered.**

During both the initial presentation of his argument and his conclusion, Paley does not emphasize the word "order," although it is implied. He does, however, use the word "design." I am not focusing on the word "design" because then Paley's argument would be a circular argument as it would be assuming what it must prove. To say that something is designed seems to have already assumed that it has a designer. "Order," on the other hand, seems to be a somewhat more neutral concept (although not neutral enough as it turns out) which more fairly raises the issue of whether the universe is ordered and if so, whether that order can be explained in a naturalistic fashion or must have (or likely has) a supernatural creator. I will now make the case that order is in fact the primary focus of the teleological argument.

First, we should note that Paley does mention order on more than one occasion. For example, he states that "if the different parts had been differently shaped from what they are, if a different size from what they are, or placed after any other manner, or in any other *order* than that in which they are placed, either no motion at all would have been carried on in the machine, or none which would have answered the use

that is now served by it.” He later explains that the watch has a kind of order that could not be a natural order:

“Nor, fifthly, would it yield his inquiry more satisfaction, to be answered, that there existed in things a principle of *order*, which had disposed the parts of the watch into their present form and situation. He never knew a watch made by the principle of *order*; nor can he even form to himself an idea of what is meant by a principle of *order*, distinct from the intelligence of the watchmaker.” (Paley, p. 200)

Paley’s argument was actually a rehashing of David Hume’s argument on the same subject, but instead of watches Hume compared the universe and its parts to the man-made creations of machines, houses, and stairs. Hume specifically refers to order when setting forth the argument and when he presents criticisms of the argument:

But is the whole adjustment of means to ends in a house and in the universe so slight a resemblance? The economy of final causes? The *order*, proportion, and arrangement of every part? Steps of a stair are plainly contrived, that human legs may use them in mounting; and this inference is certain and infallible. Human legs are also contrived for walking and mounting. (Hume, 1779: p. 19)

When criticizing the argument, Hume points out that the order of the universe may be natural and not require a supernatural conscious creator:

For aught we can know *a priori*, matter may contain the source or spring of *order* originally, within itself, as well as mind does...And will any man tell me with serious countenance, that an *orderly universe* must arise from some thought and art, like the human; because we have experience of it? (Hume, 1779: p.20-21, 24-25)

We can clearly see that Hume believes the essence of the argument is that both human creations and the universe have order, and so both must have a conscious maker who created such order. Much earlier, Saint Thomas Aquinas had made a similar claim when he concluded as follows: “Therefore, there is something intelligent by which all natural things are *ordered to an end*—and this we call God.” (emphasis added) (Aquinas, p. 166)

Kant, who realized that neither experience nor reason could provide evidence or certainty about the existence of God<sup>5</sup>, apparently believed in God, at least in part, due to the order he observed in the universe. He asserts as follows:

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<sup>5</sup> Kant states as follows: “Consequently, the objective reality of these (metaphysical) concepts (viz., that they are not mere chimeras), and the truth or falsity of metaphysical assertions, cannot be discovered or confirmed by any experience” and “Pure reason does not in its ideas point to particular objects, which lie beyond the field of experience, but only requires completeness of the use of the understanding in the system of experience. But this completeness can be a completeness of principles only, not of intuitions and of objects.” (Kant, 1783: Pp. 804, 806)



I may say that the causality of the Supreme Cause holds the same place with regard to the world that human reason does with regard to its works of art. Here the nature of the Supreme Cause itself remains unknown to me: I only compare its effects (**the order of the world**) which I know, and their conformity to reason..." (emphasis added) (Kant, 1783: p. 818)

The Religious Existentialist Soren Kierkegaard likewise seems to have believed in God due to the apparent order in the universe, although he admits that as the order is not perfect there is room to doubt God's existence. As such, he believed that a leap of faith was required. Kierkegaard addressed the issue thusly:

I contemplate nature in order to find God, and I do indeed see power and wisdom, but I also see much more that excites anxiety and disturbs...Or does the wisdom in nature, the goodness, the wisdom in the governance of the world, reside on the very face of things? Are we not here confronted with the most terrible temptations to doubt, and is it not impossible finally to dispose of those doubts? But from such an **order of things** I will certainly not prove God's existence. (Kierkegaard, 1846: pp. 21, 25-26)

Turning to three contemporary philosophers who are well known in the area of Philosophy of Religion, Louis Pojman, William Rowe, and the prominent Christian apologist Richard Swinburne, we also see an appeal to order as the essence and basis of the Teleological Argument. Pojman explains the argument as follows:

It begins with the premise that the world exhibits intelligent purpose or **order** and concludes that there either must be or probably is a divine intelligence, a supreme designer to account for the observed or perceived intelligent purpose or **order**. (Pojman, 2001: p. 31)

Rowe, when he sets forth the Teleological Argument, (which he is unconvinced by), similarly appeals to order as the salient similarity between a watch and nature.

But if we look carefully at many things in nature—plants and animals, for example—we discover that their parts exhibit an **orderly** arrangement fitted to a purpose (survival of the organism and the reproduction of its kind) that, if anything, exceeds the purposeful arrangement of parts in the watch. How absurd, then, to suppose that the world of nature arose from accident rather than intelligent design. (Rowe, 2007, p. 58)

Swinburne is more specific as he describes the teleological argument as being based on the order exhibited by the natural scientific laws, and he refers to two distinct types of order, temporal order and spatial order.

Among the strongest arguments for the existence of God, it seems to me, are two forms of the "argument from design"—which I shall call the argument from **temporal order** and the argument from **spatial order**. The argument from

**temporal order** begins by drawing our attention to the fact that throughout all of possibly infinite time and space material objects behave in the simple way **codified by scientific laws**...The second form of argument—the argument from **spatial order**—draws our attention to the intricate construction of plants, animals, and humans. They are so **organized** as to be able to catch the food for which their digestive apparatus is suited, escape from predators, most keen to catch them, breed and reproduce—they are like very, very complicated machines. (Swinburne, 2002: p. 208.)

I think Swinburne captures the gist of the argument which I wish to draw special attention to in this paper, namely, that the scientific or natural laws constitute the initial order in the universe which then gives rise to the further (more limited) instances of order found in the universe. I will argue that the natural laws do not, in fact, display order.

#### **4. The initial conditions of the universe were not ordered at all.**

One would expect that if there were a designer of the universe, then the beginnings of the universe would exhibit that design or order. But this is not the case. Supporting the position that the world did not begin with the order one would expect from a creator or ‘Grand Designer’ God, physicist Victor Stenger has explained that the big bang actually produced total chaos and maximal disorder with no structure at all. Without such initial order, there is no reason to believe there was a conscious creator such as God. Stenger elucidates as follows:

If the universe were created, then it should have possessed some degree of order at the creation—the design that was inserted at that point by the Grand Designer... [However], the universe began with no structure. It has structure today consistent with the fact that its entropy is no longer maximal. In short, according to our best current cosmological understanding, our universe began with no structure or organization, designed or otherwise. It was a state of chaos. (Stenger, 2008, pp. 117, 121)

Indeed, in 2010 Stenger’s conclusions were verified by physicist Adilson Motter. Here is an article written by Science and Engineering editor Megan Fellman describing Motter’s conclusions:

Seven years ago Northwestern University physicist Adilson E. Motter conjectured that the expansion of the universe at the time of the big bang was highly chaotic. Now he and a colleague have proven it using rigorous mathematical arguments. The study, published by the journal *Communications in Mathematical Physics*, reports not only that chaos is absolute but also the mathematical tools that can be used to detect it. When applied to the most

accepted model for the evolution of the universe, these tools demonstrate that the early universe was chaotic. (Fellman, 2010)

## 5. The natural scientific laws of the universe are not ordered in the same way, if at all, as a watch is.

Even if the universe started with disorder, one could argue that it quickly manifested order with the formation of the natural or scientific laws of nature, and further, those laws led to the omnipresent order we find in the universe today. While Paley is guilty of making a circular argument (the fallacy of Begging the Question) when he assumes what he must prove when he says that “a law presupposes an agent,” (Paley, 1809: p. 7) one could claim that it is a reasonable assumption that the natural laws display a kind of order that is best explained by a conscious designer. Let us return to Swinburne who relies on the natural scientific laws as the basis for the conclusion that God created those laws:

The argument from **temporal order** begins by drawing our attention to the fact that throughout all of possibly infinite time and space, material objects behave in the simple way **codified by scientific laws**...The second form of argument—the argument from **spatial order**—draws our attention to the intricate construction of plants, animals, and humans. They are so **organized** as to be able to catch the food for which their digestive apparatus is suited, escape from the predators most keen to catch them, breed and reproduce—they are like very, very complicated machines. Now, of course, there is a well-known explanation of all this in terms of evolution by Natural Selection...And why are there laws of evolution? That is, laws which bring it about that animal genes mutate randomly, that animals produce many offspring, etc? Presumably because those laws follow from the **fundamental laws of nature**. (emphasis added) (Swinburne, 2002: p. 208)

Swinburne’s position, I believe, has inaccurately portrayed the natural laws of the universe as exhibiting the type of order found in a watch or other “very complicated machines” created by human beings. In fact, the natural scientific laws do not display order. When we say that the watch is ordered we mean something quite different than when we say that the universe is ordered. Why? What do we mean when we say that the universe is ordered as exhibited by the natural laws?

I think all that we mean is that it operates a certain way. The natural laws of science are just the way it works. They are not truly ordered like the things that people order or organize. Why not? All things that exist have attributes or characteristics. If they did not have any attributes, then it is difficult to imagine how they could be anything. The things in the universe, which include both matter/objects and also energy, interact with each other. We would expect that in any universe the way that any given things and their attributes interact would be the natural or scientific laws of that universe. In other words, the scientific laws would be the attendant causes and

effects of each thing when it interacts with other things.<sup>6</sup> That does not mean that any of these universes are ordered or organized by a conscious organizer. It only means that the scientific laws work a certain way—that there are facts of the matter about each thing’s attributes and the way those attributes interact with other things.

The renowned chemist Peter Atkins, whose areas of expertise also include molecular quantum mechanics and the laws of thermodynamics, seems to offer support for my idea when he describes the constants or laws of the universe as merely being the interactions between the things that exist in the universe:

To my mind there are two classes of fundamental constants: those that don’t exist and those that do...The latter, the constants that really do exist in a fundamental way, and thus which are the truly fundamental constants, are **coupling constants** that summarize the strength of the **interaction between entities**, such as the strength of the force between electric charges, the strength of the **interaction** of an electric charge with an electromagnetic field, and the strength of the nuclear forces that bind elementary particles together and into the structures we call atomic nuclei. (Atkins, 2018: p. 134)

Atkins goes further and argues that quantum mechanics emerged naturally from the disorder or what he calls the anarchy of the universe: “My aim, then, is simply to show that a central plank of quantum mechanics emerges very naturally from anarchy and that our plank is a springboard for the emergence of Newton’s classical mechanics in a very straightforward way.” (Atkins, 2018: p. 41)

Philosopher Nicholas Everitt, who is unconvinced by Paley’s analogy, explains the so called “order” of the universe in a similar way as I have:

[W]e arrive at the conclusion that for all kinds of stuff and all kinds of objects, if there is to be a stuff or object of that kind at all, it must display certain regularities in its behaviour. If it didn’t, it simply would not be a stuff or an object of that kind. This implies that it could not have been the case that the world contained kinds of stuff or kinds of objects and yet was wholly random.

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<sup>6</sup> Anne Marie Helmenstine explains the natural laws in a similar way: “Scientific laws (also known as natural laws) imply a **cause and effect** between the observed elements and must always apply under the same conditions. In order to be a scientific law, a statement must describe some aspect of the universe and be based on repeated experimental evidence.” (Helmenstine, 2019) Wikipedia defines the natural laws of science as follows: “**Scientific laws or laws of science** are statements that describe or predict a range of natural phenomena. A scientific law is a statement based on repeated experiments or observations that describe some aspect of the natural world. The term *law* has diverse usage in many cases (approximate, accurate, broad, or narrow) across all fields of natural science (physics, chemistry, biology, geology, astronomy, etc.). Laws are developed from data and can be further developed through mathematics; in all cases they are directly or indirectly based on empirical evidence. It is generally understood that they implicitly reflect, though they do not explicitly assert, causal relationships fundamental to reality, and are discovered rather than invented... A scientific law always applies under the same conditions, and implies that there is a **causal relationship** involving its elements.” (Wikipedia, Scientific Law: 2019)

The concept of kinds of stuff (like bread or water, or coal or gold) and of kinds of objects (like trees or mountains, or telephones) is inextricably linked to the concept of order and regularity...This means that we cannot coherently envision a universe which was totally chaotic, any more than we can coherently envisage a circle with four sides...For there to be a material universe at all is for there to be an *orderly* material universe...Given that the universe contains objects and kinds of substance, it is *certain* at once that it displays some order.” (Everitt, 2004: p. 89)

Notice that this type of order does not need an organizer or maker of the order, unlike a watch. So what we call order when applied to the natural laws is in reality just the interactions of the attributes of the things in the universe. They would have to interact in some way, and given definite and specific attributes or characteristics we would also expect that the interactions between things would to be somewhat regular and predictable. In other words, presumably, given their specific attributes, specific pieces of matter and energy will interact in predictable specific ways due to those attributes.

B.C. Johnson makes the point that the attributes and interaction of things *naturally* produces a kind of organization or order—with emphasis on “naturally.”

After all, oil mixed with water tends to separate into a layer of water topped by a layer of oil; the tendency here is toward a more organized result. Gaseous nebulae tend to contract to form stars, a result more organized than diffused gases. Mixed atoms of hydrogen and oxygen tend to combine when heated to form molecules with an exact ratio of two hydrogen to one oxygen. (Johnson, 1983: pp. 57-58)

Accordingly, my conclusion is that a universe and a watch do not share the quality of being ordered if ordered means ordered for a purpose by an agent or organizer, which is what the Teleological Argument takes them to be. Perhaps it would be better to describe the natural laws as *patterns* instead of instances of order. Things with attributes cannot help but to produce recognizable patterns due to their attributes, but no order or design is manifested thereby that in any way resembles the order for a purpose that we find in a watch.

That patterns emanate or develop from disorder was previously demonstrated by mathematician Frank Ramsey. In fact, Ramsey mathematically proved that patterns will necessarily emerge when there are enough numbers or things being considered. Those patterns, however, are a result of randomness, not conscious design. Mathematicians Ronald Graham and Joel Spencer explain what is now known as Ramsey Theory as follows, and notice that they use the word “pattern” instead of the word “order,” which corresponds with my suggestion so as to avoid being induced to equate the workings of a watch with the workings of our universe:

According to a 3,500-year-old cuneiform text, an ancient Sumerian scholar once looked at the stars in the heavens and saw a lion, a bull, and a scorpion... Could it be that such geometric patterns arise from unknown forces in the cosmos?

Mathematicians provide a much more plausible explanation. In 1928 Frank Plumpton Ramsey, an English mathematician, philosopher, and economist, proved that such **patterns** are actually implicit in any large structure, whether it is a group of stars, an array of pebbles or a series of numbers generated by throws of a die. Given enough stars, for instance, one can always find a group that very nearly forms a particular **pattern**: a straight line, a rectangle or, for that matter, a big dipper. In fact, Ramsey theory states that **any structure will necessarily contain an orderly substructure**. As the late American mathematician Theodore S. Motzkin first proclaimed some 25 years ago, Ramsey theory implies that **complete disorder is an impossibility**. (Graham & Spencer, 1990)

Indeed, things with attributes cannot fail to exhibit patterns or some degree of order if order merely means that due to its characteristics it will behave in a certain manner, but that is not the type of order that we find in a watch. As Ramsey Theory conclusively has shown, “complete disorder is an impossibility” as patterns will necessarily emerge in things, and the more things there are the more patterns we would expect to find.

Now to be fair to Paley, he was operating in a very different world. Scientists had relatively little knowledge of the universe compared to present times. The chaos and disorganization in the universe were not as well-known. Nor did Paley have the benefit to know that the purpose of our human body parts, such as the eye to see and the ears to hear, could be explained by the naturalistic process of evolution which operates by way of natural selection and does not require a supernatural creator—as Darwin had not yet published his seminal work on evolution.

This language problem in the Argument from Design was noted by Stenger, and although he focuses on the word “design” instead of “order,” the point is the same. Not all types of design are referring to the same kind of design, and not all types of order are referring to the same type of order. Stenger states, “Some authors use the term ‘design’ to refer to any structure of atoms and molecules that exhibits some pattern or purpose. Indeed, many are inconsistent in their usage and definition of the term ‘design.’” (Stenger, 2008: p. 67)<sup>7</sup> Indeed, some usages of design do not imply a designer, and some do. Similarly, a watch’s design or order implies a designer or

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<sup>7</sup> Nietzsche makes the same point when he says “but ‘nature’s conformity to law,’ of which you physicists talk so proudly...exists only owing to your interpretation and bad ‘philology.’” (Nietzsche, 1887, BG &E 22: p. 220)

creator who made the order of the watch, but the universe's design and order do not imply such a designer or creator. The watch and the universe do not work the same way and the usage of the words design or order mislead the reader into believing that they do.

## **6. Limited and local instances of order in non-living things are a result of naturalistic processes of self-organization that can be explained without the need to appeal to a conscious or supernatural creator.**

I have already claimed that the natural laws are a result of the fact that our universe is not empty, and a universe with things in them means that the attributes of the things and their interactions with other things will form a regularity of patterns which we call the natural or scientific laws. We can add to this that the natural laws will produce a world that will in many places display patterns. Those patterns, however, flow from the natural laws and do not need reference to any external force or consciousness in order to be explained in full. The formations of these patterns have been labeled by scientists as instances of self-organization. Ramsey Theory tells us that these instances of patterns or self-organization are not only what we would expect, but are inevitable.

Self-organization is a natural process which occurs due to the attributes of things and how they interact with each other—just as the natural laws are. In fact, it does not require an external creator to bring such organization into existence. Any patterns, order, or symmetry that develop do so naturally from the fact that things with attributes will organize into recognizable patterns. As stated in the Encyclopedia of Ecology, “Self-organization is the emergence of pattern and order in a system by internal processes, rather than external constraints or forces.” (Green, 2008: p. 3195) So external forces such as a God are not needed to explain self-organization. However, as a result of self-organization, we see a world populated by numerous local pockets of patterns or a kind of order, although it differs from the order of a watch in that the order can be explained by the matter and energy already existing in nature.

Francis Heylighen, a Belgian cyberneticist specializing in the investigation of the emergence and evolution of intelligent organization, instructs us that the apparent order can be accounted for by the blind processes of nature:

The spontaneous emergence of new structures is easy to observe, both in the laboratory and in our day-to-day world. Perhaps the most common example is crystallization, the appearance of a beautifully symmetric pattern of dense matter in a solution of randomly moving molecules...More complicated examples are certain chemical reactions...**What these examples have in common is *self-organization*: the appearance of structure or pattern without an external agent imposing on it.** (Heylighen, 1999: p. 2)

Philosopher of science Niall Shanks and the evolutionary biologist Istvan Karsai, make it abundantly clear that self-organization is a natural process that does not require the introduction of a conscious creator such as God:

Ordered, organized, complex states of matter abound in the world around us. How are we to explain this complexity? Our current best account of these types of phenomena is given by dynamical systems theory, a branch of natural science that explains the existence of complex, organized systems in terms of self-organization...Hence, self-organization is evidently a pathway to irreducible complexity and one **that involves no intelligent design, supernatural or otherwise...**The orderly, complex structures emerge as the consequence of the operation of blind, unintelligent, natural mechanisms operating in response to chancy, contingent, and unpredictable environments. (Shanks & Karsai, 2005: pp. 85, 99, 106)

A recent 2018 paper by Markus Aschwanden, Felix Scholkmann, et. al. indicates how common self-organization is in the field of astrophysics, and how that self-organization is a product of spontaneity. Spontaneity here means a natural evolution that does not require a creator or God. The abstract for the article states as follows:

Here we investigate for the first time a comprehensive number of self-organization processes that operate in planetary physics, solar physics, stellar physics, galactic physics, and cosmology. Self-organizing systems create **spontaneous “order out of randomness”**, during the evolution from an initially disordered system to an ordered quasi-stationary system... (Aschwanden, 2018, p. 1)

The paper goes on to explain how widespread self-organization is as it is found throughout the many various fields of scientific inquiry:

*Self-organization is the spontaneous often seemingly purposeful formation of spatial, temporal, spatio-temporal structures or functions in systems composed of few or many components. In physics, chemistry, and biology, self-organization occurs in open systems driven away from thermal equilibrium. The process of self-organization can be found in many other fields also, such as economy, sociology, medicine, technology.* (Aschwanden, 2018: pp. 2-3)

What is this self-organization? It seems to me that all that it is are the results of the natural laws interacting on and with all of the objects in the world. This self-organization causes formations or patterns and could not avoid doing so. Wikipedia explains the patterns in nature in understandable terms as follows:

Patterns in nature are visible regularities of form found in the natural world. These patterns recur in different contexts and can sometimes be modelled mathematically...Mathematics, physics and chemistry can explain patterns in nature at different levels. Patterns in living things are explained by



the biological processes of natural selection and sexual selection. Studies of pattern formation make use of computer models to simulate a wide range of patterns...Visual patterns in nature find explanations in chaos theory, fractals, logarithmic spirals, topology and other mathematical patterns...Visible patterns in nature are governed by physical laws...In mathematics, a dynamical system is chaotic if it is (highly) sensitive to initial conditions (the so-called "butterfly effect"), which requires the mathematical properties of topological mixing and dense periodic orbits...Alongside fractals, chaos theory ranks as an essentially universal influence on patterns in nature. (Wikipedia, 2019: Patterns in Nature)

Indeed, self-organization is a natural process that can be explained by the interactions within a system, or in this case universe. There is no need to appeal to an outside force or creator as the things and their interactions can fully account for any patterns or apparent order.

### **7. Evolution is a natural self-organization process for living beings.**

Evolution is a self-organizing principle that has produced the myriad of life forms on earth. It is the process which describes how living things respond to their environment in order to survive and perhaps thrive. Evolutionary biologist Richard Dawkins describes the success of evolution in explaining the world we see: "The theory of evolution by cumulative natural selection is the only theory we know of that is in principle capable of explaining the existence of organized complexity." (Dawkins, 1986, p. 452) Additionally, Dawkins explains that the apparent design found in nature has occurred naturally and without the requirement of positing a conscious creator, similar to the self-organization in non-living things.

The natural temptation is to attribute the appearance of design to actual design itself. In the case of a man-made artefact such as a watch, the designer really was an intelligent engineer. It is tempting to apply the same logic to an eye or a wing, a spider or a person...The temptation is a false one, because the designer hypothesis immediately raises the larger problem of who designed the designer...Darwin and his successors have shown how living creatures, with their spectacular statistical improbability and appearance of design, have evolved by show, gradual degrees from simple beginnings. We can now safely say that the illusion of design in living creatures is just that—an illusion. (Dawkins, 2006: p. 188)

Similar to Dawkins, Stenger concluded that the world can misleadingly appear to be designed because simple systems *naturally self-organize* into more complex systems, including complex living beings, but this natural self-organization provides no evidence of organization or design by an organizer or designer. Stenger explains as follows:

Biologist Stuart Kaufman has long argued that self-organization plays a larger role in the evolution of life than previously thought...For my purposes here,

suffice it to say that complex systems do not need complex rules in order to evolve from simple origins. They can do so with simple rules and no new physics...It follows that no complex rule maker of infinite intelligence is implied by the existence of complex systems in nature. (Stenger, 2008: pp. 64-67)

Peter Atkins echoes the conclusion that simple naturalistic processes can produce the seeming organization and true complexity:

Thus, it is much easier to comprehend Nature in light of Darwinian natural selection than simply to lie back and marvel at the richness and complexity of the biosphere: his **simple idea** provides a framework for understanding even though the complexity emerging from the framework may be profound. (Atkins, 2018: pp. 5-6)

Daniel Dennett, noted philosopher and co-director of the Centre for Cognitive Studies at Tufts University, in his award-winning book *Darwin's Dangerous Idea* explains how evolution is the result of several natural algorithmic processes, an idea which Dennett claims was implicit in Darwin's conclusions and has since been supported by a great body of evidence. An algorithm is merely a set of rules or operations, and Dennett concludes that a relatively simple set of rules or operations such as random mutations accompanied by natural selection can account for the immense diversity and complexity in living organisms. Dennett explains as follows:

Evolution is not a process that was designed to produce us, but it does not follow from this that evolution is not an algorithmic process that has in fact produced us... Evolutionary algorithms are manifestly interesting algorithms...No matter how impressive the products of an algorithm, the underlying process always consists of nothing but a set of individually mindless steps succeeding each other without the help of any intelligent supervision; they are automatic by definition... (Dennett, 1995: pp. 56, 59.)

Moreover, we can better explain the world of living organisms by the natural processes of natural selection and self-organization than by a conscious creator. This can be seen because the world is not organized or ordered in a way that is ideal or even necessarily good for its living beings. Stenger explains this by emphasizing how the human body is not organized in such a way that it maximizes the well-being of individual human beings:

The parts of the human body hardly resemble a watch. In an article in *Scientific American* [March 2001] titled: "If Humans Were Built to Last," S. Jay Olshansky, Bruce Carnes, and Robert N. Butler have looked at flaws in the human body and shown how an engineer might have fixed them to enable us to live a hundred years or more in better health. They trace our physical defects to the Rube Goldberg way evolution cobbles together new features by tinkering with existing ones. Natural selection does not seek out perfection or endless

good health. The body has to live only long enough to reproduce and raise young...Our bodies lose minerals after age thirty, making them susceptible to fracture and osteoporosis. Our rib cage does not fully enclose and protect most internal organs. Our muscles atrophy. Our leg veins become enlarged and twisted, leading to varicose veins. Our joints wear out as their lubricants thin. Our retinas are prone to detachment. The male prostate enlarges, squeezing and obstructing urine flow...However, not just biological data but, we will see in future chapters, the whole realm of scientific observations lead to the same conclusion: the universe does not look designed...The other place where evidence for the absence of beneficent design can be found is in the short, brutal existences of most life-forms...Indeed, Earth and life look just as they can be expected to look if there is no designer God. (Stenger, 2008: pp. 69-71)

Indeed, we can see that these naturalistic processes of so-called order are nothing like the order found in a watch. In the next section we will revisit the fact that evolution is a process that has serious design flaws which an intelligent (and certainly an omnipotent and all-good) designer would never create. Before we do so, I want to briefly mention another possible support for Paley's Argument that has been set forth by several scientists such as biochemist Michael Behe.

Behe asserts that some things in nature display irreducible complexity (IC) that could not occur in nature and therefore could only be explained by an intelligent designer. Behe specifically cites bacterial flagellum, blood clotting, the proteasome, and the immune system as examples of irreducible complexity which cannot be explained by natural processes. However, this view has been discredited by many scientists who have been able to explain these complexities by way of the natural process of evolution. For example, David Ussery, director for the Arkansas Center for Genomic and Ecological Medicine at the University of Arkansas for Medical Sciences (UAMS) in Little Rock, and who has been working with bioinformatic analysis of bacterial genomes since the first sequence was published in 1995, rejected Behe's conclusions with the following explanation:

In summary, all three of the irreducible components of the flagellum could have evolved independently, and the flagellum could have evolved from a combination of the three independent parts rather than suddenly being created by an intelligent designer. Such coevolution is one of several alternative mechanisms for evolution of Behe's irreducibly complex biochemical systems. Similar arguments show that Behe's three other IC systems (blood clotting, the proteasome, and the immune system) consist of reducible components that could have evolved (Miller 1999, Ussery 1999, Thornhill and Ussery 2000). As a general principle, complex biochemical systems can arise from simple precursors (Ptashne and Gann 2002). (Ussery, 2005: p. 54)

Victor Stenger had this to say about Behe's arguments for God based on irreducible complexity:

Thoroughly refuting Behe's argument, evolutionary biologists have listed many examples in nature where an organic system changes functions as the system evolves. They have provided plausible natural mechanisms for every example Behe presents, many of which were well known (except to Behe) before Behe ever sat down to write...Behe is a biochemist, not an evolutionary biologist, and was unaware when he wrote his book that the mechanisms for the evolution of 'irreducibly complex' systems were already discussed six decades earlier by Nobel Prize winner Hermann Joseph Muller and have been common knowledge in the field since then. (Stenger, 2008: pp. 55-56)

I think that the overwhelming consensus of the scientific literature published by evolutionary biologists clearly shows that the irreducible complexity cited by Behe and others can be explained by naturalistic processes. Moreover, these naturalistic processes do not display the order we would expect of a conscious designer.

### **8. Currently, the universe is essentially and primarily disordered both as a whole and in its parts.**

Although we have seen how there are many pockets of limited or local patterns or order in the universe, including the order we find in living organisms, the universe as a whole is still best characterized as disordered. Disorder predominates over order, and it is the disorder that abounds, not order. In fact, the overall lack of order and design in the universe is supported by well-established physics. For example, physicist Victor Stenger explains as follows:

Most of the matter and energy of the universe exhibits little structure and shows no sign of design. We noted above that 96 percent of the mass of the universe appears to be composed of dark matter and dark energy whose exact natures are unknown but that are definitely not composed of familiar atomic matter. As far as we can tell, these components have little structure. (Stenger, 2008, p. 162)

Recent research by theoretical physicist Ekrem Aydiner published in Scientific Reports lends further credence to Stenger's conclusion. The paper is titled Chaotic Universe Model and proposes a model which combines the big-bang and oscillating universe models in a novel way which solves some current cosmological mysteries. The abstract states as follows: "These results provide that the time evolution of the universe is chaotic." (Aydiner, 2018)

Noson Yanofsky, Professor of Computer and Information Science at Brooklyn Science, further articulates this point.

There is another, more interesting, explanation for the structure of the laws of nature. Rather than saying that the universe is very structured, say that the universe is mostly chaotic and for the most part lacks structure. The reason why we see the structure we do is that scientists act like a sieve and focus only on those phenomena that have structure and are predictable. They do not take into account all phenomena; rather, they select those phenomena they can deal with. (Yanofsky. 2017)

So we can see that the universe began with the big bang, which was total disorder, and although it has developed pockets of patterns or order, it is still in the main disordered. A conscious designer would not likely seek to design such disorder.

Moreover, when we look at the areas where we conclude that order exists, we can see much disorder—in fact far more disorder than order. For example, when we consider both the living and the non-living parts of the universe, they are typified by disorder. Black holes gobble up anything within their path, stars shred other stars and hurl planets into outer space, and planets collide with other planets and moons. Moreover, on our own planet, at times, excessive volcanic activity and asteroids have destroyed the majority of species then existing on earth. Additionally, most of the universe is incompatible with life, and certainly with the higher forms of life, as life cannot survive in outer space, in black holes, in stars, on asteroids, nor on most planets. Where is the order that we would expect from a designer?

What I have argued is in keeping with the second law of thermodynamics which states that the universe and the things in the universe are moving toward disorder. The higher the degree of disorder, the higher the entropy. What this means is that although pockets of so-called order or patterns emerge simply from the facts that things exist in the universe, those things interact with each other, and those interactions are primarily stable or predictable due to those attributes, even those relatively small pockets of order do break down over time. In fact, humans are examples of pockets of order, but our bodies move toward disorder as they break down and eventually die. Atkins elaborates on the second law of thermodynamics as follows:

Whenever a change takes place, the disorder of the universe increases, the quality of its energy degrades, its entropy increases. The funny thing is, such is the interconnectedness of events in the world, that this degradation is not a cosmically uniform sliding into disorder, a general elimination of structure, a global dispersal of energy, a collapse of matter into slime. There may emerge **local abatements of chaos**, we among them. The only requirement of the second law is that the total entropy of an isolated system (the universe, or an isolated part of it ...) increases in a spontaneous change: **in localized pockets the entropy may decrease and a structure emerge** provided that overall there is an increase in disorder. (Atkins, 2018: p. 83)

That the universe is actually dominated by chaos instead of order is not a new idea. In 1992, British mathematician Ian Stewart wrote an article for Discover magazine titled “Does Chaos Rule the Cosmos?” in which he reached the following conclusions:

Chaos, being ubiquitous, strikes at the heart of what we think of as nature’s laws, with their safe, predictable consequences. Though simple rules may govern individual atoms, nevertheless the behavior prescribed by those rules may well be chaotic...While chaos may run the universe on its greatest scale, it may also be at work on its smallest. On the level of subatomic particles, Lady Luck seems to rule. Radioactive atoms decay at random, their only regularities being statistical. A large quantity of radioactive atoms has a well-defined half-life, a period of time during which half the atoms will decay. But we can’t predict which half. This randomness isn’t just a matter of ignorance; it’s explicitly built into the theory of quantum mechanics. (Stewart, 1992)

Turning from the non-living world, what about the apparent design of living organisms, and the complexity found in human beings, especially the intricacy of the human brain? Besides the fact that the apparent order can be explained by naturalistic processes, there is also abundant disorder in living beings that is inconsistent with a conscious designer. On a common sense level, if there were a designer, why would that designer create a world where its inhabitants kill and eat each other, where viruses and bacteria debilitate and exterminate its higher beings, where natural disasters wipe out whole villages of good people, and where in the past so many mothers died in childbirth—robbing many young women of their lives and so many children of their mothers? This is quite puzzling as it does not seem that this is a very good design that we would expect of a Grand Designer. Hume masterfully described the condition of most living things on earth.

A perpetual war is kindled amongst all living creatures. Necessity, hunger, want, stimulate the strong and courageous: Fear, anxiety, terror, agitate the weak and infirm. The first entrance into life gives anguish to the new-born infant and to its wretched parent: Weakness, impotence, distress, attend each stage of that life: and ‘tis at last finished in agony and horror....Consider the innumerable race of insects, which either are bred on the body of each animal, or flying about infix their stings in him. These insects have others still less than themselves, which torment them. And thus on each hand, before and behind, above and below, every animal is surrounded with enemies, which incessantly seek his misery and destruction. (Hume, 1779: pp. 70-71)

Addressing insects, it has been estimated that the mosquito has been responsible for up to half of all human deaths on earth, with the majority of those due to malaria.

This does not look like the design of any conscious designer unless that designer were exceedingly cruel.<sup>8</sup>

Malcolm Murray discusses how evolution better explains the development and disappearance of species on earth than does an appeal to a conscious creator because evolution predicts that species will go in and out of existence based on their ability to adapt and survive in a changing environment, while with Paley's design argument one would expect the perfect (or even relatively good) designer to design beings that would be able to survive a changing environment. Murray explains as follows:

Evolution provides a much better account of the seeming 'design' than the theory of design itself...If the design theory were right, we wouldn't expect many things to have been designed that wouldn't fit. This is doubly so if the designer is deemed to be perfect in every sense. The evolutionary theory makes no such suggestion. Rather, the evolutionary account predicts that the currently existing things should be a tiny fraction of what there has been and will be. Alas, fossil evidence supports the latter theory and counts against the first theory. The number of species existing today is less than one per cent of the species known to have existed. It seems a poor design if only one per cent of it survives. (Murray, 2010: pp. 77-78)

Gregory Paul uses a statistical analysis and shows that the majority of fetuses and fully half of all children have died before reaching maturity.<sup>9</sup> According to his calculations, only 1 out of 8 human conceptions survive to adulthood. This hardly resembles what we would expect from a conscious designer. Paul summarizes his point as follows:

Of the hundreds of billions of human conceptions, the large majority died before birth, over half the one hundred billion born have died as children, a portion of the survivors were severely harmed, and among children the great majority suffered high and even extreme levels of discomfort, pain, and fear that qualifies as torture. This dysfunctional system can be objectively described as merciless or ruthless... (Paul, 2009: pp. 132, 141)

Additionally, probably the strongest example of order, the parts of the human body which serve important and identifiable purposes, such as the eye or the immune

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<sup>8</sup> Timothy Winegard provides this statistic: "The mosquito has killed more people than *any* other cause of death in human history. Statistical extrapolation situates mosquito-inflicted deaths approaching *half of all humans that have ever lived*. In plain numbers, the mosquito has dispatched an estimated 52 billion people from a total of 108 billion throughout our relatively brief 200,000-year existence. (Winegard, 2019: p. 2)

<sup>9</sup> Specifically, Paul cites studies which indicate that 75% of all conceptions have ended in miscarriage and that throughout history 2/3 of pre-adult deaths have occurred to children under 5 years old. (Paul, 2009: p. 128).

system, are not crafted in a way that is consistent with a designer. For example, mutations that help us survive often have other poor consequences for us: the development of a big brain took away the room needed for our wisdom teeth to grow and also made childbirth both extremely painful and riskier than it had been; the development of walking upright offered some advantages but also created back and foot problems; and the development of genetic mutations helped Africans better resist malaria but also made them more susceptible to getting sickle cell anemia. A designer would not have designed things this way, and evolution is certainly a much better explanation because each of these changes offered survival advantages even with the accompanying and substantial disadvantages.

Columbia University philosophy professor Philip Kitcher, who specializes in the philosophy of science, biology, and mathematics, makes this point as follows:

“If we lapse from the official story for a moment, we have to have some idea about what Intelligence ‘wants to achieve’....For if Intelligence has been waiting in the wings throughout the history of life, seizing opportunities as they arise, we know that there are all sorts of things it hasn’t done. Apparently, Intelligence isn’t directed toward eliminating the junk from genomes or removing vestigial structures like the whale’s pelvis or generating radically new arrangements for mammalian forelimbs...For there are really simple genetic problems with respect to which Intelligence seems to be impotent.” (Kitcher, 2010, p. 549)

Indeed, evolution can account for both the positive changes and their negative side effects in living organisms and is evidence of both natural organization and the attendant and abundant disorganization and imperfection that has come along with it.

## **9. Conclusion: Putting everything together, there is no order found in the universe that resembles the order found in man-made objects such as a watch, and all order can be explained by natural processes.**

So our conclusion is that we mean something quite different when we say that a watch is ordered and we claim that the universe is ordered. For the watch, we are claiming that it is not part of the natural world and therefore needs a creator to order it and so that it will serve a purpose (to tell time) which is known before the watch is even made, while for the universe all we mean by order is that it works a certain way, and even though that way will come to manifest some patterns or what has been labeled self-organization, in most areas and in most ways it exhibits a lack of structure and disorder with no apparent overall purpose. The watch’s type of order causes us to conclude that it has a designer or maker, while the universe’s very different type of limited or local instances of patterns or order which were derived from the natural laws and which are in a sea of overwhelming and abundant chaos and



disorder should lead us in the opposite direction. The natural laws just do not exhibit the type of order which would lead us to infer an organizer/designer/maker.

We can see the flaw in Paley's argument by setting forth a revised and more accurate argument:

1. A watch is ordered for a purpose—that of telling time.
2. The watch has a human organizer/creator/maker.
3. The universe works a certain way because it has things that have attributes, and at times those things interact so as to form noticeable patterns, but for the most part the universe presents us with disorder and chaos.
4. Therefore, the universe has a non-human, conscious designer and/or supernatural creator.

When we lay out the argument as above, we see, first of all, that not only does the conclusion not follow from the premises, but the premises seem unrelated to the conclusion. The premises make statements about watches and the universe, and the conclusion deals with a non-human and possibly supernatural being. The argument deals with the order for a purpose that is clear in a watch and wants us to draw a conclusion as to patterns occurring in nature—a nature where disorder predominates. Additionally, there is absolutely no evidence or even a good reason offered for why we should believe that there is anything supernatural or immaterial that actually exists. The argument would also need to give us some good reasons or evidence to believe that such a being, even if it existed, would be capable of creating our vast universe and then actually created it. No such evidence or reasons are offered for this either.

We see that the watch analogy is a part of an argument that aims to simplify the issue of whether God exists, but in reality, is not a strong argument as it is based on a language problem regarding the word "ordered." When it is claimed that a watch is ordered we mean something quite different than the claim that the universe is ordered. In fact, the universe as a whole is not ordered. Specifically, the natural laws which are the driver of the formation of the universe and any order that has developed, are not themselves ordered at all. The equivocation fallacy present in the Teleological Argument misleads us into believing that a well-reasoned argument is being made when in fact no such argument is being made, and in reality no reasons at all are given to support its conclusion that a supernatural/immaterial maker created and ordered our universe.

If we put together the many parts referred to in this paper, then we can see the lack of need to explain anything with a supernatural creator. First, the universe began in a big bang which was total chaos and disorder. Then the natural laws formed due to the interaction of the many things in the universe, both energy and matter, but these natural laws do not manifest order, at least not in the way that a watch does. This has

been one of the original contributions of this paper. From the natural laws arose many limited and local examples of patterns or a type of order resulting from self-organization, including a self-organization process that pertains to living organisms and is known as evolution. These processes are explainable in natural terms and do not need to appeal to a supernatural creator. Furthermore, currently our universe is best characterized as having a considerable amount of chaos and disorder coupled with pockets of naturalistic order or patterns that arose from the chaos and disorder. Indeed, most of the universe is disordered, not ordered.

Amazingly, Hume had it figured out quite well in the 1700s. He described the universe as one quite possibly beginning in disorder, and then developing relatively small pockets of order which move toward disorder in keeping with the second law of thermodynamics which states that ordered systems will move toward greater entropy:

Suppose (for we shall endeavor to vary the expression), that matter were thrown into any position, by a **blind unguided force**; it is evident that this first position must in all probability be the most confused and **most disorderly** imaginable, **without any resemblance to those works of human contrivance**, which, along with a symmetry of parts, discover an adjustment of means to ends with a **tendency to self-preservation**...If a glimpse or dawn of order appears for a moment, it is instantly hurried away, and confounded, by that never-ceasing force, which actuates every part of matter. **Thus the universe goes on for many ages in a continued succession of chaos and disorder**...This we find to be the case with the universe at present. Every individual is perpetually changing, and every part of every individual, and yet the whole remains, in appearance, the same. May we not hope for such a position, or rather be assured of it, from the eternal revolutions of unguided matter, and might not this account for all the appearing wisdom and contrivance, which is in the universe. (Hume, 1779: pp. 60-61)

To sum up, there is no order manifested in our universe which resembles the order we find in a watch, and as such Paley's famous version of the teleological argument fails. It fails, in part, due to being guilty of an equivocation fallacy dealing with the word "order," as any so-called order in the natural laws and the universe which those laws have produced is really not order at all, at least not the kind of order as Paley had in mind when he looked at the operation of a watch. Moreover, my paper is an indictment of all standard versions of the Teleological Argument in that they, similar to Paley's argument, rely on the claim that the universe is ordered in such a way that it must have a conscious creator. I have suggested that perhaps instead of calling the universe and its parts ordered, we should merely state that they work a certain way, as would be the case in any universe. That our universe has recognizable patterns is undoubtedly true, but patterns do not mean ordered, and patterns can be explained without an appeal to a conscious creator, let alone a supernatural one.

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