

ANALYZING ARGUMENTS BY ANALOGY

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ABSTRACT

This paper is an inquiry into the largely unexamined analysis of arguments by analogy (ABA). By exposing the degree of philosophical complexity, which ultimately renders evaluation of ABA subjective, we shall see that the most appropriate doxastic attitude to adopt, with respect to the conclusions drawn from these arguments, is often suspension of judgment. A critical examination of Copi's criteria for evaluating ABA shows that while these criteria work well for simple arguments, they fall when considering more philosophically profound ABA. This paper supports these claims by using Cleanthes' teleological argument for the existence of God from Hume's *Dialogues Concerning Natural Religion* as a case study.

1. INTRODUCTION

Arguments by analogy are very useful to us. We often construct them to help us decide what to buy, where to eat, whom to socialize with, and an array of other daily choices. Given the simple nature of these choices, the arguments are easily and even intuitively evaluated as strong or weak. However, when an argument by analogy directly involves metaphysical claims, such as 'god exists,' in its premises or conclusion, assessment becomes very challenging. This difficulty is the result of highly interpretive criteria, which are not easily weighed against one another.

Because ABA involving metaphysical claims require such careful and delicate assessment, it will be sufficient to focus only on a single argument. For this paper, Cleanthes' teleological argument presented in Hume's *Dialogues Concerning Natural Religion* will be used as a case study. The argument is as follows:

Look around you: contemplate the whole and every part of it: 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; of human design, thought, wisdom, and intelligence. 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. By this argument alone, do we prove at once the existence of a Deity, and his similarity to human mind and intelligence (Hume, 2008, p.45).

However, before Hume's argument should be studied and tested, it must first be critiqued and improved, in order to avoid distractions from any faulty logic or confusing language. After all, the purpose of this paper is to better understand how to evaluate analogical arguments and encourage thoughtful and careful interpretations of the results.

2. ARGUMENTS BY ANALOGY (ABA)

An Argument by Analogy (ABA) is an inductive argument that uses an analogy to infer a conclusion. In other words, we say that an argument is analogical when the inference is based on the assumption that because two or more things are similar in one way, they are also similar in another way.

Using this definition as a framework, we can reconstruct and simplify Cleanthes' argument, while being careful not to distort the original form and logic. The argument should also be strengthened as much as possible so that the conclusions of this paper are not attributed to faulty or biased reasoning.

3. IMPROVING CLEANTHES' ARGUMENT

Here is a simplified version of Cleanthes' argument:

R1: The universe resembles a machine in at least one respect, i.e., it functions harmoniously with itself and consists of subdivisions (ad infinitum), which all have parts operating appropriately with one another.

R2: Because the universe is similar to a machine in that respect, it also resembles a machine in another respect, viz. it is caused by human design, thought, wisdom, and intelligence, i.e. a mind.

R3: The kind of mind necessary for causing the universe is a deity

C: Therefore, a deity exists

With this version of the argument, we see that the likelihood of the conclusion being accepted depends on the strength of the analogy used to support it. In this case, the analogy is that a machine resembles the universe in at least one respect. However, this analogy has notable flaws. As the first line suggests, the mind is something existing in the universe- looking from the inside out, yet a machine is something we see from the outside, seeing its operation in its entirety, as an isolated thing. This is not how we understand or experience the universe, as our minds are only capable of comprehending very little of it at once. Because the inference of this argument is an assumption about everything i.e. the known universe, a very convincing and intuitively sound analogy is required. Thus, in order to strengthen the argument, a more appropriate analogy should be used—one which clearly warrants the inference.

By using the definition of analogy previously stated, we see that the crucial connection between the two things said to be analogous is that they are similar in at least one way. The importance of that similarity, however, is relative to the scope of the argument's inference. For example, if I have enjoyed every prelude composed by Bach that I have heard, then I can reasonably infer that I will enjoy hearing any future preludes composed by Bach. In this example the scope of the inference is obviously justified by the relevant similarities forming the analogy, viz. both are the same kind of musical composition by the same composer. Furthermore, the justification for assuming the conclusion is evident because one can easily comprehend the similarity.

To say that the similarity is easily comprehended is just to say that one can abstract those qualities said to be had by one thing, and impose them on another thing in a meaningful way. In the Bach example, I first abstracted the qualities of Bach's preludes that have led me to enjoy them, generally, the musical characteristics of Bach's compositional style, and then imposed them on another prelude that I have not heard. Hypothetically, I can imagine myself enjoying the

unfamiliar prelude because it supposedly shares those qualities. The reason this can be done is that there is a very low level of vagueness and ambiguity with respect to what I claimed is similar.

In Cleanthes' argument, the universe is said to be similar to a machine. Unlike the musical example, which essentially transplants the same (or very similar) qualities of the same (or very similar) degree from one similar thing to another, Cleanthes claims that the qualities shared by machines and the universe are of the same kind, but not degree. For a machine, the quality of admitting of subdivisions is finite, as is functioning harmoniously with itself. For the universe, however, that quality is effectively infinite. As Hume said, the universe admits of subdivisions "to a degree beyond what human senses and faculties can trace and explain." (Hume, 2008. p. 45) Also, we should make note that comparing machines and the universe is far more complex than comparing two songs, or any two things of the same type.

This discrepancy creates vagueness between the supposedly shared qualities, making it very difficult to transplant those qualities onto the universe in a meaningful way. The more a term becomes an abstraction, the less meaning it carries because its definition is more difficult (if not impossible) to comprehend. For example, in Section 2 of *Enquiry*, Hume describes the process of developing the concept 'god' from one's experience. From the impression of love and wisdom come the corresponding simple ideas. Those simple ideas, viz. goodness and wisdom, are transformed into the complex ideas of omniscience and omnipotence. Being "extended without limitation," these complex ideas coalesce into a single term—"god" (Hume 1999. P. 98). Each time we combine simple ideas we are entering territory farther and farther away from experience. For example, I can fully grasp the meaning of the term 'love,' by either reflecting on my own experience or learning from someone else. While 'love' simply depicts an experience, 'infinite love,' describes an experience augmented by the vague notion of limitless degree. The implications of such manipulation are not well understood, and open the doors to a flood of philosophical questions, like what is an infinite experience of something, what kind of being can experience infinite love, and does infinite love imply love of everything, even the future? Therefore, a definition involving infinity has inherently less meaning than the same definition that does not involve infinity, as 'infinity' is extremely vague and so limits our capacity to comprehend a term that depends on it. So it follows that a concept built of vague terms is a vague concept. Similarly, the teleological analogy is based on the concepts of infinite subdivision and infinite auto-functionality. Since these terms are inherently vague, so too is the analogy which is based on them.

So the analogy should be replaced with something that preserves the essence of the argument, while simultaneously strengthening it. An enormous sealed factory satisfies these

criteria. Like the universe, it is something a person would be inside of, thus one's postulations would not be based on the entire picture, as opposed to the assumption about machines. Furthermore, a sealed factory also functions harmoniously with itself, and could very well admit of subdivisions to such a degree and complexity that human faculties could not possibly understand or explain them all.

Given these similarities, we need only replace the original machine analogy in the argument with the sealed factory analogy:

P1-An enormous sealed factory functions harmoniously with itself, consists of subdivisions which in turn admit of further subdivisions operating efficiently with one another, and is caused by human design, thought, wisdom, and intelligence, i.e. a mind

P2-The universe resembles an enormous sealed factory in at least two respects: (1) it functions harmoniously with itself and (2) consists of subdivisions which all have parts operating efficiently with one another.

P3-Because the universe resembles a sealed factory in those respects, it is reasonable to infer that it is also similar to a sealed factory in another respect, i.e. (3) it is caused by human design, thought, wisdom, and intelligence, i.e. a mind.

P4-However, just as a cause is proportional to its effects, the kind of mind necessary for causing the universe must be proportional to the size of the universe, which it caused

P5-A mind capable of creating the universe is a deity

C-Therefore, a deity (probably) exists, and resembles a human mind

4. EVALUATING THE NEW VERSION OF ARGUMENT

Though the sealed factory is a more appropriate comparison than the machine, this version of the teleological argument still does not completely avoid vagueness. Omitting the term 'infinite' is a significant improvement because the crucial similarities creating the analogy in P2 are expressed in a meaningful way. Nevertheless, there remains a disproportional progression of reasonable assumptions from one premise to the next. P1 is descriptive in that it simply states characteristics of an enormous sealed factory, P2 claims the universe shares those traits, and P3 follows the basic reasoning of induction. So far the argument is straightforward. However, even if the logic linking P1 through P3 is granted, the logic linking P4 through the conclusion is questionable. It is true that one either accepts P3 or finds a reason to doubt the analogy, but to

claim that a deity designed the universe—every force, galaxy, particle, and existent thing—borders so closely to fantasy and conjuration that it is hard to accept as a logical induction. But perhaps this skepticism is undeserved.

Despite granting the analogy, it seems there are two possible reasons why one would be hesitant to accept the conclusion: (1) the inference so closely resembles fantasy that it must actually be fictitious, or (2) this kind of inference is so unfamiliar that we reject it on purely psychological grounds, i.e. the mind lacks the necessary comfort and confidence to accept it. If (2) is the reason, then rejection of the conclusion is unjustified, or should at least face serious scrutiny, as the root of skepticism lies in a lack of familiarity with such grandiose inferences. If (1) is the basis of justification for doubting the conclusion, then an argument would be useful, if not necessary, in order to illustrate clearly why the inference is considered fanciful. Such an argument could be as follows:

F1- Something is said to be fanciful if it involves conjuration or miracles¹, and it is considered highly improbable or impossible

F2- A mind-like thing creating the universe resembles something fanciful in that it seems to involve conjuration and miracles

F3- Thus, a mind-like thing creating the universe also resembles something fanciful in that it is highly improbable or impossible

C- Therefore, it is highly improbable or impossible that a mind-like thing created the universe

Interestingly, by comparing the creation and designing of the universe to a miracle, the counter-intuitive nature of the argument is revealed, especially from an empirical perspective. Nowhere in nature does anything remotely similar to the creation of the universe happen. When humans build massive factories the materials used already exist in some form, which in a sense limits the human capacity to “create” anything. In fact, we can never completely create something because at least part of that thing will have already existed in some form. Thus, all human creation is actually partial-creation, as opposed to total-creation, which is a complex idea,

¹ This refers to miracles in the Humean sense, where a miracle is some phenomenon violating the laws of nature

similar to 'god²,' and a necessary condition for a deity to cause the universe. Because P6 depends on some kind of total-creation, there is an element of vagueness that could be reason to doubt the conclusion. Of course this by itself does not necessarily defeat the argument. However, keeping this in mind leads one to contemplate that all the material that is the universe must have come from somewhere, at the very least, from the mind-like being that caused the universe. Just as contemplating infinity exposed the philosophical baggage of granting meaning to any term that depends on it, so other mysterious questions arise with the idea of total-creation, such as how a thing can exist before anything else and then proceed to create everything, the origins of this deity, and what does it mean to be everything or exist apart from reality? Overall, we should not ignore the deep complexity left unexplained by the conclusion that a deity created the universe.

It seems that from the evaluation of the two reasons for being skeptical, a third possibility arises: (3) perhaps one is skeptical with respect to the conclusion that a deity caused the universe on the grounds that this inference is too incomplete and unexplained, given its level of grandiosity. It might not be that the mind is unfamiliar with such grand inferences, or that the idea is too fantastical, but that the conclusion is so philosophically complex that it requires much more analysis in order to be accepted. In other words, if one gives assent to the conclusion, they carry the burden of defending or answering the long line of metaphysical questions that are inseparable implications of such an inference. In lieu of thorough explanation, one may feel that suspension of judgment is the most appropriate doxastic attitude to adopt. In effect, one withholds judgment because she or he realizes the consequences of the conclusion and that she or he does not understand them, and therefore decides it would be irresponsible to accept it.

5. USING CRITERIA TO EVALUATE ABA AND CONCLUSION

Whether or not this rebuttal is accepted, we are faced with the fact that arguments by analogy are not easily analyzed or evaluated. Fortunately, Copi is a philosopher well aware of this issue (Copi 1998). He developed six criteria that can help one analyze arguments by analogy in a systematic way. Briefly, Copi's criteria are as follows:

² Just as we are our own cause for our idea of god, we are our own cause of our idea of total-creation.

1. "The number of entities between which the analogy is said to hold"
2. "The number of varieties in the instances in the premises"
3. "The number of respect in which the entities involved are said to be analogous"
4. "The relevance to the respects mentioned in the premises to the further respect mentioned in the conclusion"
5. "The number of disanalogies between the instances mentioned only in the premises and the instance mentioned in the conclusion"
6. "The modesty (or boldness) of the conclusion relative to the premises" (Copi, pp. 478-482)

However, while Copi's criteria for analyzing ABA works well for simple analogies comparing similar things, certain criteria fall short of offering clear and useful results when evaluating subtle and complex metaphysical arguments, such as teleological arguments for the existence of god. Furthermore, his language is obviously not intended for a curious reader or someone new to philosophy. For those reasons, I have simplified and revised Copi's six criteria into five questions to consider while reading an ABA:

1. How many conceivable instances is the inference based on? (more=stronger)
2. How diverse are the instances? (more=stronger)
3. How many relevant similarities are shared among the things said to be analogous?
4. Are there significant differences between the premises and conclusion, which undermine or weaken the inference?
5. How reasonable is it to assume the conclusion based on the evidence provided by the premises.

Now, in order to analyze the sealed factory version of Cleanthes's ABA, we need only run the premises of the argument through the five criteria.

1: The universe can be divided and subdivided into an indefinite amount of "parts," each in turn resembling a factory. To say that the inference is based on an infinite amount of instances is unhelpful as we are looking for conceivable instances. This means the number is based on the motivation of the thinker to discover and consider them. As this number is potentially extremely

high, this criterion has shown the analogy to be strong in this respect. 2: The instances are also extremely diverse. We are talking about the entire universe, and every “part,” which there is an indefinite number of. This also is a sign of strength for the argument. 3: Generally speaking, the number of relevant similarities is two, one being that the universe admits of subdivisions like a sealed factory, and two, that the universe functions harmoniously with itself just as a sealed factory would. These commonalities are also indefinite if we consider that each subdivision has parts, functions harmoniously with itself, and with the universe as a whole. The purpose of this question is to separate the meaningful similarities from insignificant coincidences. For example, having subdivisions is a meaningful similarity in that it provides crucial support for the inference, while factories and the universe both having vast amounts of empty space, relative to their size, is insignificant and irrelevant with respect to the inference. 4: See section 4. 5: In other words, weigh the inference against the evidence provided by the premises. In this case the scope of the inference is extremely broad, weakening the inference. In fact, because the conclusion is a deeply complex metaphysical claim, and because the conclusion is an inference about the entire universe, this weakens the argument as much as possible. How detrimental this is to the reasonableness of the argument is not so clear, however.

If all of the criteria had equal weight in determining the strength of the argument, then one possible way to summarize the analysis is to rate the results of each criterion on a scale of -1 to +1, affirming or disaffirming the inference, respectively, with 0 representing suspension of judgment. In this case, criterion 1 (C1) = +1, C2 = +1, C3 = +1, C4 = -1, C5 = -1, with a grand total of +1. If this were the case, then the argument would be considered strong enough to warrant acceptance of its conclusion. However, each criterion is not equal with respect to its influence in determining the strength of the argument. In fact, the importance of each criterion is up to the discretion of the individual evaluating them. Therefore, it is possible that three unbiased people could each arrive at different doxastic attitudes with respect to the conclusion.

If the first three criteria were the only questions to consider, then the argument would be as strong as it could possibly be, given that each criterion has a maximum positive response. In fact, it would be unreasonable not to accept the conclusion. However, an analysis of the argument that includes all of the criteria does not yield an objective answer with respect to the argument’s overall strength. This is because each criterion does not demonstrate or represent a determinate value or significance for the argument’s strength. In fact, the role of each criterion is relative to the inference and the context of the argument.

Given these results, and the inherently difficult nature of analysis, we are faced with a kind of balancing act between evidence and judgment, to determine the most responsible doxastic

attitude to adopt with respect to the conclusion of Cleanthes' ABA. Because unbiased logic can reasonably yield a variety of contradictory results, viz. all three doxastic attitudes, the responsible position is to remain agnostic. By appreciating the deep philosophical complexity of the argument, granting the conclusion, and acknowledging strong logic of the first three premises, we have learned to be very careful while evaluating not only this ABA, but also any ABA.

REFERENCES

Copi, I. *Introduction to Logic*. Upper Saddle River, NJ: Prentice-Hall, 1998.

Hume, David. *Dialogues Concerning Natural Religion and a History of Religion*. Ed. J. Gaskin. New York: Oxford University Press, 2008. 45.

Hume, David. *An Enquiry Concerning Human Understanding*. Ed. Tom Beauchamp. New York: Oxford University Press, 1999. 96-100.