The Existence of Ultimate Concepts.

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Abstract

A "direct logical proof" for the existence of an "ultimate cause" has as its last line a statement such as "Therefore, an ultimate cause exists." But, what type of "logic" is used to deduce this last line? Is it the propositional, predicate, modal, dialectic, or something else entirely? Then a paper-and-pencil proof requires some sort of axioms. What are these? Do the axioms state facts in a science-community sense, or are they just accepted by a theological-community? If such a proof is accepted, then does the ultimate cause correspond to a theological-community's description for God?

1. The Universe-Generating Ultimate Cause

Kurt Gödel constructed a type of "formal" proof for the existence of an ultimate cause, but he did not allow it to be published until after his death. It was published in 1987 (Gödel, 1995), nine years after his death. St. Anselm gave an ontological argument that is well known. Then Leibniz constructed a more elaborate version. It is the Leibniz version that Gödel "formalized."

However, Gödel's formal proof requires one to accept the axioms and a rather vague definition for the "positive properties." There are valid reasons for not accepting the axioms as fact. Axiom 3, deals with a requirement for the set of all positive properties. Gödel's Axiom 1 requires one to select some-how-or-other the positive properties from a list of properties. Gödel does not describe a selection process that can be applied. But, it is claimed that the set of positive properties is an infinite set and there may not be a describable process that allows human beings to make such a selection. Of course, one can drop the "selection" and simply accept that such a set of positive properties exists. There are other objections to his axioms and Axiom 3 and 4 have been replaced with others (Anderson, 1990). The Gödel proof can lead to more than one ultimate cause unless an additional axiom is assumed.

Other written proofs for the existence of God are often rejected based upon the methods or axioms used. One does have a more physical notion of an ultimate cause, an ultimate cause that produces the physical universe in which we dwell. Michael Heller, the most recent winner of the Templeton Prize, states his proposal. "Various processes in the universe can be displayed as a succession of states in such as way that the preceding state is a cause for the succeeding one . . .(and) there is always a dynamical law prescribing how one state should generate another state. But dynamical laws are expressed in the form of mathematical equations, and if we ask about a cause of the universe we should ask about a cause of the mathematical laws. By doing so we are back in the Great Blueprint of God's thinking the universe, the question on ultimate causality...: 'Why is there something rather than nothing?' When asking this question, we are not asking about a cause like any other cause. We are asking about the root of all possible causes" (Notices, 2008).

Although an artist's painting may not be "signed," the techniques used can be considered as the artist's "signature." Using the idea of a higher-intelligence signature, the GGU-model's GID interpretation has shown that it is mathematically rational to accept the existence of such a universe-generating ultimate cause. This scientific approach is considerable different than the usual arguments that such a higher-intelligence - God - exists. One, as usual, needs to accept certain hypotheses. Such a cause needs properties that differentiates it from other possible causes, which the testable and falsifiable GID-model does.

However, the model is analogue in character. Thus, using classical logic, what the model is actually doing is predicting the existence an ultimate cause that behaves in a specifically described manner. Further, indirect evidence establishes the existence of such an ultimate cause. The actual universe-generating ultimate cause is denoted here by $\mathcal{H}$. (In Herrmann (2002, p. 100), $\mathcal{H}$ is denoted by (bold face) **H**). It is a very specific ultimate cause. I don't known why Heller and others are still "looking for" such a rationally established ultimate cause? Moreover, in 1978 (Herrmann, 1993, Theorem 4.4.1), it was shown that certain biologic entities within the $\mathcal{H}$ constructed universe, have attributes that, in restriction, rationally correspond to $\mathcal{H}$ attributes. However, these $\mathcal{H}$ attributes are "stronger than" any comparable attributes displayed by any biological entity within a universe. Indirect evidence for the existence of such $\mathcal{H}$ attributes comes from the fact that certain biological entities display such attributes in a restricted form. Whether a science-community accepts such indirect evidence for attributes depends up the community's scientific method.

The methods used in Mathematical Logic are often misunderstood. One mathematically investigates a "langrage" (object language) using a another language (the metalanguage) that contains the object language. If the object is a natural language L, then, unless it is but symbolized, there may be confusion between the metalanguage and object language. This is avoided by considering the object language as expressed in a different color or by other means that distinguishes it from the metalanguage. Of course, this is not actually done in practice. But, how is it possible to use mathematical reasoning to investigate logical discourse that is distinct from such reasoning?

When mathematical reasoning is used to discuss a different form of reasoning R, an "R-theory" is developed. Such mathematical reasoning is used in the discipline "Universal Logic." For a particular form of reasoning, the title "proof theory" is often used. The fact that (a human being) H uses mathematical reasoning to obtain an R-theory does not imply that H can follow the R-rules and obtain a deduction. The R-properties can either be considered as existing prior to the R-theory being developed and H shows, based upon a set of axioms, that portions, at least, of the R-properties are consistent with an H developed R-theory or the underlying general logic-system that H uses does produce all the R-properties. In either case, for the GID interpretation there is no difficulty with such investigations since only the "signature" concept is applied. H uses a specific general logic-system and rules to obtained R-properties. Most intelligent human beings can apply the rules that correspond to deduction via a general logic-system. Thus, if R corresponds to a general logic-system, then independent from how its properties came into being, most humans can use it for logical deduction. Indeed, the only R-properties needed are the rules for deduction. There may be other R-properties that may or may not deducible by H.

In the GGU-model, most R-logical processes are represented by different general logic-systems, which are then represented by finite consequence operators. All of the universe-generating operators used in developing the GGU-model are considered as physical-like and their behaviors are, at least, partially deducible and describable using mathematical reasoning. These operators all have signatures that imply that a higher-intelligence is responsible for the production of and alterations in the behavior of every physical-system within our universe. The classical reasoning processes used by H to develop the GGU-model, yields the startling result that H and all other biological entities cannot apply all of the rules for the general logic-systems that correspond to the special *R-logical processes. (All terminology or notation that has the prefix * are read as "star R" or "hyperR"). This includes the ***mathematical reasoning** processes. Further, ***mathematical reasoning** can have properties that cannot be described using any human language.

Even if we had complete knowledge as to the properties of mathematical reasoning, we have incomplete knowledge of the ***mathematical reasoning** processes. In this case, the ***mathematical reasoning** processes when restricted to H are the mathematical reasoning processes H uses. It is because of incomplete knowledge that, in Herrmann (2002), the ultimate cause is denoted by **H** rather than by $^*\mathbf{H}$. Hence, using indirect evidence via signatures, the hypothesis that $\mathcal{H}$ exists is scientifically verified by the H analysis, which describes those aspects of $\mathcal{H}$'s higher-intelligence that generate a universe.

How long has it been since the rational existence of $\mathcal{H}$ has been known? In 1982, in an article using old terminology and presenting only the first rough conclusions, quoted statements made by Louis de Broglie and C. S. Lewis are modeled by the GID-model. Lewis writes that the "universe is more like a mind than it is any thing else we know" (Herrmann, 1982, p. 20). Then this quotation is followed by "The entire body of the *G-model* (*Applied to C. S. Lewis*) . . . show[s] - simply and intuitively - how this model logically yields Lewis' theological descriptions by giving the reader the mathematically predicted statements but translated back into Lewis' theological language" (Herrmann, 1982, p. 21).

Using new discoveries, a refined model predicts how $\mathcal{H}$ can construct universes that have properties far removed from any idea Lewis and most other well-known philosophically minded authors had ever presented. In a series of papers, originally titled "Nature: The Supreme Mathematical Logician," some of the refined notions were presented. For example, "In this section the 'supermind' concept is discussed, . . ." (Herrmann, 1986, p. 191.) The term "supermind" was changed and it now refers to $\mathcal{H}$. Then in a 1996 in the Herrmann Templeton Prize nomination (see this website), among other reasons, we find

> "When interpreted from a secular viewpoint, it [the MA-model] yields a solution to the General Grand Unification Problem among others. When the MA-model is interpreted theologically, it gives a scientific model for the various Divine creation scenarios described within the Bible. The existence of this mathematical model shows that various Biblically based creation scenarios can be investigated by means of the theoretical aspects of the scientific method. This is exceptionally significant to the work of all of those scientists who are attempting to verify that one of the many possible MA-model creation scenarios is the specific Divine creation scenario that has produced the universe in which we dwell." (The MA-model is a *sudden appearance* submodel of the GGU-model.)

Indeed, in the 1996 edition of "Who's Who in Theology and Science" (Templeton Foundation, 1996) Heller and Herrmann are listed and under the Herrmann "Selected Publications" are listed seven papers including the 1982 and 1986 papers as well as the 1994 paper entitled "The Scientific Existence of a Higher Intelligence" (Herrmann, 1994). As done in the next section, the GGU-model and the GID interpretation continue to be refined.

2. The Existence of Ultimate Concepts.

In a more general sense, can various "ultimate" concepts rationally exist? Is there a rational argument for there being an ultimate "good" notion and, in contrast, an ultimate "evil" notion, among other possibilities? Using mathematical reasoning the answer is yes.

Applications of a language L are investigated. This language contains all of the words taken from a well-known dictionary used for some human language. Indeed, in most investigations L, at the least, contains more symbolic-forms than all of the written languages that have ever existed. Usually, it is assumed that there are denumerably many symbolic-forms constructible from a nonempty finite alphabet. For what come next, it is not necessary to define the notion of a "cause." Consider a nonempty subset A of L and an alphabet symbol $\wedge$. In all that follows, for simplicity, the often formal language requirement for parenthesizes is suppressed.

Definition 2.1. For nonempty $\mathrm{A} \subset \mathrm{L}$, the symbol $\wedge \in \mathrm{L}$ is not a member of any $\mathrm{x} \in \mathrm{A}$. Let $\mathcal{F}'(\mathrm{A})$ be the set of all nonempty finite subsets of A. For each $\mathrm{E} \in \mathcal{F}'(\mathrm{A})$, there exists a $0 \neq n \in \mathbb{N}$, where $\mathrm{n} = |\mathrm{E}|$, and a bijection $\mathrm{f_E}\colon [1, \mathrm{n}] \to \mathrm{E}$. For each $\mathrm{E} \in \mathcal{F}'(\mathrm{A})$, where $\mathrm{n} = |\mathrm{E}|$, let $\mathrm{F_E}$ be the set of all such bijections. By application of choice, there is a bijection S, such that for each $\mathrm{E} \in \mathcal{F}'(\mathrm{A})$, $\mathrm{S(E)} = \mathrm{G_E} \in \mathrm{F_E}$. For a $\mathrm{G_E} \in \mathrm{F_E}$, $|\mathrm{E}| \geq 2$ there is a $\mathrm{B_E} \in \mathrm{L}$ such that $\mathrm{B_E} = \mathrm{G_E}(1) \wedge \mathrm{G_E}(2) \wedge, \ldots, \wedge \mathrm{G_E}(\mathrm{n})$. If $|\mathrm{E}| = 1$, let $\mathrm{B_E} = \mathrm{G_E}(1) \wedge \mathrm{G_E}(1)$. Let $\mathrm{B} = \{\mathrm{B_E} \mid (\mathrm{E} \in \mathcal{F}'(\mathrm{A}))\} \subset \mathrm{L}$. Note that $\mathrm{A} \cap \mathrm{B} = \emptyset$.

Definition 2.2. Consider a nonempty $\mathrm{A} \subset \mathrm{L}$. For each $\mathrm{E} \in \mathcal{F}'(\mathrm{A})$, let $\mathrm{P_E} = \{(\mathrm{x}, \mathrm{y}) \mid (\mathrm{x} \in \mathrm{E}) \wedge (\mathrm{y} = \mathrm{B_E})\}$, where $\mathrm{B_E} \in \mathrm{L}$ is the unique member of B determined by S(E). Let $\mathrm{P} = \bigcup\{\mathrm{P_E} \mid \mathrm{E} \in \mathcal{F}'(\mathrm{A})\}$. The binary relation $\mathrm{P} \subset \mathrm{A} \times \mathrm{B}$.

The following theorem uses methods and notation found in Herrmann (1993).

Theorem 2.1 *Let* A *and* B *be nonempty subsets of* L*, where* B *is defined by 2.1. Let* P *be as defined in Definition 2.2. Then there exists a* $c \in {}^*\mathbf{B} \subset {}^*\mathbf{L}$ *such that for each* $\mathrm{a} \in \mathrm{A}$*,* $(\mathbf{a}, c) \in {}^*\mathbf{P}$.

Proof. Consider the relation $\mathbf{P}$. Then let nonempty $\{(\mathbf{a_1}, \mathbf{c_1}), \ldots, (\mathbf{a_n}, \mathbf{c_n})\} \subset \mathbf{P}$. The set $\{\mathbf{a_1}, \ldots, \mathbf{a_n}\} \in \mathcal{F}'(\mathbf{A})$. Hence, there exists a $\mathbf{b} \in \mathbf{B}$ such that $\{(\mathbf{a_1}, \mathbf{b}), \ldots, (\mathbf{a_n}, \mathbf{b})\} \subset \mathbf{P}$. This $\mathbf{P}$ is a concurrent relation. Since ${}^*\mathcal{M}$ is an enlargement, then there exists a $c \in {}^*\mathbf{B}$ such that $({}^*\mathbf{a}, c) = (\mathbf{a}, c) \in {}^*\mathbf{P}$ for each $\mathrm{a} \in \mathrm{A}$. ▌

For a denumerable A, $c \neq {}^*\mathbf{d} = \mathbf{d}$ for any $\mathbf{d} \in \mathbf{B}$. Hence, $c \in {}^*\mathbf{B} - \mathbf{B} \subset {}^*\mathbf{L} - \mathbf{L}$. Moreover, it is not difficult to show that there are $a \in {}^*\mathbf{A} - \mathbf{A}$ such that $(a, c) \in {}^*\mathbf{P}$. For a specified A, the a have the same describable properties, in * form, as members of A.

3. Applications of Theorem 2.1.

Theorem 2.1 is used, in this section, as the mathematical part of a mathematical model for linguistics. It applies, however, to a set A that contains a collection of symbol-strings such as $\{\mathrm{xy}, \mathrm{xyxy}, \mathrm{xyxyxy}, \mathrm{xyxyxyxy}, \ldots\}$. For what follows, the A contains only meaningful words or images (Herrmann, 2002) considered as <u>representations</u> for physical concepts, causes, events and physical behavior.

Although the composition of the c in Theorem 2.1 can be described, in applications, the c is interpreted as a primitive and is used as an analogue model. The inverse P^{-1} can be considered as a rule of inference for a general logic-system. As such, it is similar to a consequence operator (Herrmann, (1993, p. 70; p. 65)) generated logic-system. The difference is that when the P^{-1} logic-system is applied certain extraneous deductions are eliminated. This rule of inference defines a finite consequence operator C. Thus, when ${}^*\mathbf{C}$ is applied to $\{c\}$, the result has a higher-intelligence signature.

What is the set of all possible causes? A cause is represented by a member of L. Due to possible changing parameters associated with various physical-science causes, it is reasonable to assume that the set of all possible causes that lead to the "cause/effect" or the "cause/cause" as defined by Heller is, at least, a denumerable set. Although mathematical logic notions are applied to languages of a greater cardinality, the language L being considered is a real physical language. I concede that it may be considered by some as only potentially infinite.

Let A be a denumerable set of causes as defined by a specific science-community. For a nonempty set $\mathrm{D} = \{\mathrm{A}_1, \mathrm{A}_2, \ldots, \mathrm{A}_\mathrm{n}\} \subset \mathrm{A}$, the P^{-1} logic-system mimics, for members of D, a form of material implication denoted by the world "yields." That is, given $\mathrm{A}_1 \wedge, \ldots, \wedge \mathrm{A}_\mathrm{n}$, then $\mathrm{A}_1 \wedge, \ldots, \wedge \mathrm{A}_\mathrm{n} = \mathrm{G}$ is read as follows: G yields A_1, which yields an effect or cause E_1 and G yields A_2, which yields an effect or cause $\mathrm{E}_2, \ldots,$ G yields A_n, which yields an effect or cause E_n. (This result is independent from the assumption that an effect is also a cause and any succession of cause/cause or effect). As usual for physical behavior the notion of "yields" takes on the physical process notion in the GGU-model with its GID intelligent agent signature. Thus, c in Theorem 2.1 can be interpreted as a higher-intelligence statement that is interpreted as stating that $\{c\}$ produces each member of A via the ***yields** process with its intelligent agent signature. As before, c may be considered as an ultimate cause for the generation of a universe. It is the GGU-model that specifies such a cause for universe-generation. Then the GGU-model also describes properties of some of the *causes*. However, $\mathcal{H}$ still remains THE ultimate cause for all there was, all there is, and all there every will be as well as all of the *mental methods* used.

It is shown, using Herrmann, (1993, Theorem 4.4.1), that it is rational to assume there exists an entity that has a stronger form of "good," *good*, as Biblically defined for God, than any biological entity within a universe. What has not been shown is that this holds for each of the actual specified members of a Biblically defined set entitled as "good." Make a list A of the words in the Bible that are classified as describing God's "good" behavior. This can include the negative of some terms God describes as "evil" behavior. If one of the words for good behavior can be modified by the "very" adjective, then include in A the "very" strings as is done for adjective reasoning (Herrmann, 1993). As an example, "very, kind," "very, very kind" etc. Such a set A is considered as denumerable.

Applying Theorem 2.1 to A, there is a statement c that can be interpreted as a "higher" form of "goodness," *goodness*, that ***yields** each of the specific forms of "goodness" listed in A as well as *good* attributes that cannot be described by members of L. Hence, relative to specifically defined behavior, it is rational to assume that there exists an entity - God - that, at least satisfies this ultimate goodness concept. In restricted form, this ultimate goodness $\{c\}$ is either the same as or stronger than the behavior that can be displayed by any biological entity within our universe. Obviously, the same approach can lead to the rational existence of an entity that displays or advocates a higher form of "evil" behavior. However, the Bible indicates that these two entities are totally distinct. An entity that now influences biological entities to follow defined "evil" behavior is a created entity and has no other properties that are not specifically allowed by God.

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