A Synthesis of Logic, Faith,

And Truth

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Honors 213 Mathematical Reasoning: Foundations of Geometry

The concept of truth is one highly contingent on the system you use to evaluate your environment. Many define truth on the premises of logic, proof, and reason, using these tools of explanation and discovery to interpret the world around them. According to the system of defining ‘truth’ by logic, something is ‘true’ if and only if it can be logically proved using an accepted method of reasoning, such as the axiomatic method. In contrast, some people define truth based on an inherent faith or belief in some sort of higher power. Truth is seen to be a sort of *cosmic truth*, a conception of existence based on a belief that is not necessarily provable or even rational in some senses. This idea of an ‘ultimate truth’ relies on a person’s personal commitment to a belief in something inherently unknowable and impossible to prove. At first glance, these two systems of evaluation seem completely incompatible- a system based entirely on provability cannot coexist with a system founded on a belief inherently impossible to prove. Especially in this age of higher education and increased availability of scientific information and discoveries, these two systems frequently come into conflict. However, despite first appearances, these two systems of evaluating reality are by no means mutually exclusive, and are, in fact, to a large extent complementary. The first two sections of this essay shall provide a brief and somewhat elementary explanation of the basic tenets of truth as determined by logic and truth as determined by faith. The rest of the essay shall be devoted to developing a synthesis between these two systems of evaluating existence. Although logic and faith appear to be mutually exclusive methods of interpreting reality and the environment around us, they are in fact complementary and important for a more complete understanding of existence.

PROOF, REASON, AND THE AXIOMATIC SYSTEM: A LOGICAL WAY OF DETERMINING TRUTH

Logic and reasoning provide the basis for the field of mathematics. A discussion of truth in mathematics boils down to questions of provability and consistency. Consider, for example, the axiomatic method employed in geometry. An axiomatic system consists of a set of undefined terms and a series of axioms and postulates using those terms. In order for mathematicians to begin constructing correct proofs within an axiomatic system, two requirements must be met:

> Requirement 1: Acceptance of certain statements called “axioms,” or “postulates,” without further justification.
> Requirement 2: Agreement on how and when one statement “follows logically” from another, i.e., agreement on certain rules of reasoning.
> -Greenberg 10-11

A mathematician attempting to construct a proof within a given axiomatic system must, therefore, accept certain statements to be ‘true’ without further justification, and then construct any and all propositions, corollaries, or additional axioms built within the system from those formed before them. Thus, in order for a proof to be legitimate within an axiomatic system, each statement must “’[follow] logically’ from another.” (Greenberg 10-11) In this way, all conceptualization of truth within the axiomatic system relies on logical and consistent progressions from a given and accepted foundation. Words like ‘faith’ or ‘belief’ do not exist in an axiomatic system.

The axiomatic systems of geometry and mathematics in general provide a starting point for understanding the scientific system of

interpreting and explaining reality. In basic terms, a scientific way of evaluating the world is based on provability, observation, and reason. It is essentially an attempt to *impose a sense of order on reality*. Therefore, scientific thought is based on what you can see, or measure, and then attempt to explain through logic and reason. Scientific proofs differ from mathematical proofs because they place more of an emphasis on gathering evidence or data and then finding and explaining patterns contained in this data. This is because scientific proofs generally try to explain the physical world in terms of *observable* consistencies instead of the *theoretical* consistencies of mathematics. For example, the scientific truth that "The Angle of Reflexion [of a light ray bouncing off a surface] is equal to the Angle of Incidence [at which the ray hits that surface]" (Newton 5) is considered to be a scientific truth because it is observable through experimentation. Of course, there exists a large body of scientific and mathematical theorizing in such subjects as the size and shape of the universe, concepts that will remain impossible to prove at least until greater implements for observation and measurement are invented. But this serves to demonstrate the point, since these theories will remain as such and will never progress to constitute any real sort of *scientific truth* until they are found to be observable (through more precise measurement), and thus provable.

Mathematical and scientific communities carefully and rigorously maintain the requirements for logical argument. The previous description of the requirements for logical mathematical proof within an axiomatic system is an excellent indication of this. Also, consider the requirement that any scientific theory must be submitted to criticism and evaluation at the hands of other scientists in order to achieve any sort of credibility. A scientist attempting to obtain

affirmation for his theory or experiment must first explain it in logically consistent and easy-to-follow steps, so that his colleagues may recreate it and assess its validity for themselves. Therefore, truth is not relative to each individual within the scientific and mathematical communities- it is something collectively determined and maintained. Above all, truth is something completely defined by logic and provability in mathematics, and, similarly, by consistency and observation in science; the label of ‘truth’ is sparingly assigned, and once bestowed is difficult to remove.

FAITH AND RELIGION: ULTIMATE TRUTH DERIVED FROM AN UNPROVABLE BELIEF

The concept of truth found in the belief systems of faith and religion provides a stark contrast to the rationalism and logical analysis of the scientific and mathematical systems. Unlike those systems based on logic and proof, truth as determined by faith lies in a belief in something *inherently unknowable and unexplainable*. While logic and reason attempt to explain the world around us, faith and religion attempt to explain the world *beyond* us. Faith, like science and mathematics, is also an attempt to impose a sense of order on existence; however, this concept of ‘existence’ is expanded to something transcending the physical. According to Peter L. Berger, author of *The Sacred Canopy: Elements Of A Sociological Theory Of Religion*, humans have a natural tendency towards the sacred (meaning the transcendental or metaphysical). “Although the sacred is apprehended as other than man, yet it refers to man, relating to him in a way in which other non-human phenomena (specifically, the phenomena of non-sacred nature) do not. The cosmos posited by religion thus both

transcends and includes man. The sacred cosmos is confronted by man as an immensely powerful reality other than himself." (Berger 26) While logic and reason provide man with a sense of security in his ability to explain the world around him (the 'non-sacred nature'), they fail to explain the transcendent qualities many humans feel to exist within and beyond themselves. A sense of a *sacred cosmos* that "both transcends and includes man" seems to offer this sense of security by placing man within a larger framework than an explanation of the natural world can provide.

The definitive difference between truth as determined by logic and truth as determined by faith is the inherent inability to prove the latter. While the logic and reason of science and mathematics is dependent on proof, faith and religion exist wholly without it. Faith is much more of a *feeling* than a real mental construct like logic; feelings do not require provable justification in order to be powerful. The central example of this, of course, would be a faith in God. (For simplicity's sake, I will refer to the Christian God as the most prevalent example in our society; however, this applies to the god or gods of other religions as well.) No one can actually see or physically touch God, or logically prove He exists, yet most would argue that they 'know' He exists because they 'feel it' inside. Few would claim anymore that such 'sacred texts' as the Bible actually constitute any sort of proof for the existence of God. Instead, they are spiritually meaningful only if that initial faith is there.

We established in the previous section that truth in mathematical and scientific groups is communally determined, meaning it takes the consensus of the group to label something as a truth. This is not the case in matters of faith; in fact, truth is for the most part personally determined within this system. Admittedly, such things as

doctrine of belief and a ‘right understanding of God’ (or any other supreme deity) are often dictated by some sort of group understanding, but the basis of personal faith and belief lies in the individual. This differs from science or mathematics because a person does not necessarily have to justify or back up his or her religious beliefs in order for them to have personal resonance, since in most cases they cannot *be* justified.

Thus, truth as determined by faith within the context of religion is fundamentally different from truth as determined by logic and reason within the context of science and mathematics. The former relies on an inherent belief in something unknowable and impossible to prove, whereas the latter relies on provability, consistency, and rationalism. However, the following will attempt to demonstrate that despite their fundamental differences in how they interpret and explain existence, these two systems are far from mutually exclusive and in fact comprise an important synthesis.

THE RELATIONSHIP BETWEEN LOGIC AND FAITH, SCIENCE AND RELIGION

We have established that in science, truth as determined by logic attempts to explain *observable*, physical existence, and in mathematics, truth as determined by logic attempts to explain *theoretical*, physical existence. In contrast, truth as determined by faith provides a cosmology that includes both the physical world and the supposed world beyond. Herein lies the key to formulating a synthesis between these two systems. Logic and reason attempt to provide explanations for the observable world and to formulate ‘truths’ based on these observations and proofs; faith provides an explanation for the *unobservable* world *in*

addition to the observable world. The observable world exists within the unobservable world; thus, one does not mutually exclude the other.

Many scientists and prominent thinkers have seriously debated the issue of reconciling religious belief with a scientific desire for provability and logic. Although some are still unable to effectively synthesize the inherent differences between the two in their own minds, others have found unique ways of explaining their beliefs (or the reasonableness of this type of belief in general) while maintaining their logical outlook on the physical world. For example, Isaac Newton saw his immense discoveries in the realm of physics as *evidence* of the existence of a supreme deity- only a higher power could create such order and complexity, he reasoned. (Dobbs)

Contemporary scientists and mathematicians are faced with this issue to a larger degree than many of their predecessors. This is because of the wealth of information available on mathematical and scientific discoveries expanding on the store of knowledge about the physical world. However, this has served to provide the need for more detailed thought on the subject.

For example, an interview (taken from Henry Margenau's *Cosmos, Bios, Theos: Scientists Reflect On Science, God, And The Origins Of The Universe, Life, And* Homo Sapiens) with John Eric Fornaess, Professor of Mathematics at Princeton University, demonstrates the ways in which some 'logical thinkers' have tackled the issue of logic versus faith. Fornaess draws a clear distinction between the origin of life, which he considers to be provable ("The origin of life came about under favorable chemical conditions. Lumps of matter which developed and divided into equal lumps were formed. Chance mutations developed more advanced forms. Human beings arose this way as well." (Margenau 41)) and the origin of matter, which is generally accepted to be unknown

(“We don’t have any idea where the basic ingredients of the universe came from. The origin of life is less mysterious.” (Margenau 41)). In Fornaess’ view, God provides the structure that logic and reason can uncover- “I believe that there is a God and that God brings structure to the universe on all levels from elementary particles to living beings to superclusters of galaxies.” (Margenau 41) Thus, Fornaess serves as an example of someone who clearly views the world in terms of logic and reason, yet creates a synthesis between logic and faith by attributing all the inherently unknowable aspects of existence to a higher power.

Another example of a mathematician reaching a synthesis between logic and faith is Professor Edward Nelson, also of Princeton University. In his interview, Nelson recognized the need for a mathematician or scientist to suspend his personal religious beliefs during work. He goes on to explain that mathematics and science exist within limited frameworks of understanding, meaning they only address certain aspects of existence, versus faith and religion, which exist within an infinitely broader scope (Margenau 75-77). This is compatible with the statement made previously in this section that logic and reason attempt to provide explanations for the observable world and to formulate ‘truths’ based on these observations and proofs, whereas faith provides an explanation for the *unobservable* world as well.

Professor of Mathematics at Oregon State University, Wolfgang Smith expressed in his interview what might perhaps be viewed as the most complete synthesis between logic and faith thus far. He began the interview by quoting Einstein, who said “Science deals with what is; religion deals with what ought to be.” (Margenau 111) Smith then explained his own views on faith and religion, and how religion essentially deals with the *inaccessible* reality whereas science deals

with the accessible reality: “if we consider the religious phenomenon in its highest forms- as indeed we should if we would understand its essence… we find that religion deals not just with ethical norms and human consolations, but with reality, precisely, and that on a level which is normally inaccessible, to say the least…. It would seem, therefore, that Einstein’s dictum needs to be revised: it may indeed be religion, taken at its summit, that actually ‘deals with what *is*,’ in contrast to science, which by its nature is constrained to deal with ‘what appears to be.’” (Margenau 111-112) Smith closes the interview by applying a simile to express the difficulty in trying to fit religion into any sort of scientific understanding- “It is doubtful that the truths of religion can be adequately explained on the level of scientific discourse, any more than a three-dimensional body can be made to fit into a plane; and the attempt is prone to “flatten” and thus destroy the very thing one pretends to render intelligible.” (Margenau 112)

These three professors, all mathematicians and ‘logical thinkers,’ succeeded in achieving syntheses in their own minds about the relationship between logical, provable thought and faith. Thus, their thoughts on the subject enhance our ability to establish a reasonable synthesis between these two modes of examining and arriving at truth.

The concept of truth is fundamental to how we view ourselves and the world around us. Whether we see this world in a strictly scientific way, requiring solid proof for everything we take to be fact, or whether we place faith in some sort of inherently unknowable higher power, we still look at the world through the lens of our own perceptions. However, truth as determined by logic and reason, and

truth as determined by faith, are not mutually exclusive systems of viewing existence. In fact, they are complementary in many ways. As long as one understands that the realm of logic and reason is limited to the physical world, one is free to maintain a belief and faith in a “sacred cosmos.” (Berger) Thus, logic and faith reach their synthesis through an understanding of their respective limitations and strengths.

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