Axioms: Mathematical and Spiritual: What Says the Parable?

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Abstract

Pastors such as A.W. Tozer have described their preaching as an attempt to extract from scripture axioms that are universal across circumstances. Similarly, academicians in various disciplines have tried to characterize the foundational principles of their field. For example, the social psychologist Gerard Hofstede proposed an onion model for comparing cultures in which core values of a nation help explain its rituals, feelings, and artifacts. On a personal level, many of us have likely tried to identify root causes of our beliefs and feelings.

These attempts to find bedrock are somewhat analogous to the axiomatization of mathematics attempted by Euclid, Hilbert, Frege, Russell and Whitehead, and others. As is well known, the success of these efforts ranges from that of Euclid (whose book arguably guided western mathematical reasoning for two millennia) to that of Russell and Whitehead (whose book was essentially defeated by Gödel's incompleteness theorem within two decades).

In this paper, I will propose insight that mathematical axiomatization (considered as a parable) may have for our efforts to understand God and explain our core spiritual beliefs. Is it really possible to identify our personal spiritual axioms? Is it possible to classify spiritual axioms as consistent and complete? Are there things that God does and does not want us to know? How should Christians respond when deductive reasoning fails to explain a situation?

1 Introduction

A *parable* is an example from a familiar context used to illustrate a point from a less familiar situation. Jesus frequently used examples from His first century agrarian society to illustrate concepts of the kingdom of heaven. An *axiomatic base* is a set of statements accepted without proof which is then used to derive other facts. In this paper, I will use ideas arising from the study of mathematical axiom bases to explore the nature of psychological and spiritual axioms. Much credit for the overall idea is due to Chapter 6 of [4].

I will first give three brief examples, from mathematics, cultural psychology, and theology, to illustrate the concept of axioms from each of these three areas. Next, I will return to each area in more detail. I will then comment on similarities and differences between mathematical and spiritual axioms, before finishing with brief overall conclusions.

1.1 A Mathematical Example

To avoid circular definitions, every field of mathematics must simply accept some terms as a starting point for further definitions. In this example taken from [8], the undefined terms are *spirit, substance,* and *possess.*

Two spirits are defined to be *distinct* if there is a substance which one possesses and the other does not. The following axiomatic base is then given:

1. There is at least one spirit.
2. Each spirit possesses at least one substance.
3. Given a substance, there is a spirit not possessing that substance.

These axioms then allow proof of theorems, such as the following, given here merely to illustrate the methodology of deductive mathematics.

Theorem: There are at least two distinct spirits.

Proof: By Axiom 1, there is a spirit s. By Axiom 2, s possesses a substance S. By Axiom 3, there is a spirit t not possessing S. Therefore, s and t are distinct spirits. QED

1.2 A Social Psychology Example

The Dutch social psychologist Geert Hofstede studies similarities and variations of culture between societies [6]. A modified version of his "onion model" is shown in Figure 1.

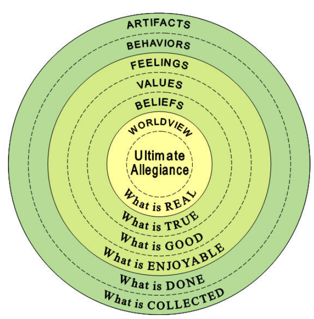

Figure 1: Hofstede Onion Model

The model illustrates that a visitor to this culture from the outside would first notice its artifacts and behaviors such as how weddings are performed, what recreational activities are common, and what literature is currently being produced. Increased familiarity with the culture would allow the visitor to learn the feelings, values, and beliefs behind these artifacts and behaviors such as the relative importance of time, the goals of the educational system, and the reasons the society's heroes were chosen. Finally, the visitor could, perhaps with great difficulty, learn people's ultimate foundations for their values and beliefs.

1.3 A Spiritual Example

The pastor and theologian A.W. Tozer once said at the beginning of a sermon [10], "My method in preaching is to extract from the scriptures certain basic spiritual principles and to turn those spiritual principles into axioms; they are valid everywhere, anywhere at all times, always." In his sermon, he then gave the example "There are different kinds of working, but the same God works all of them in all men" (I Corinthians 12:6, [1]). Restated another way, Tozer accepted as an axiom the biblical claim that all good works of humanity are inspired by the one God.

2 Mathematical Axioms

2.1 Definition of Axiom

In logic, the definition of an axiom has weakened over time. Classically, an axiom was understood to be a statement so evidently true that it should be accepted without question. Because of the philosophical difficulty of the meaning of "true," today an axiom is simply taken to be any statement accepted without justification as a starting point for reasoning.

In mathematics, there has also been a shift of meaning. In the time of Euclid, a distinction was made between logical and non-logical axioms. A *logical axiom* was a statement inherited from the general system of logic. For example, the transitive property of equality, $A = B$ and $B = C$ implies $A = C$, is commonly used without being stated as an explicit assumption. A *non-logical axiom* (also known as a *postulate*) on the other hand, is a statement consciously chosen for the specific situation. For example, deliberate inclusion or exclusion of a commutative axiom of multiplication $AB = BA$ characterizes the type of algebra being studied. Because most modern practicing mathematicians do not become involved with the foundations of formal logic, over time this distinction has somewhat faded. The term axiom is now often used interchangeably for both logical axioms and postulates, as will be the case in this paper.

2.2 Models

A *model* is an attachment of meaning to the undefined terms of an axiomatic system. The usage of the words "spirit," "substance," and "possession" in the example of Section 1.1 has likely already led the reader to try to form some sort of mental image of the situation. To illustrate how helpful our mental images can be, note that the exact same axiomatic system can be described by replacing these terms by "mug", "table," and "on" as follows.

1. There is at least one mug.
2. Each mug must be on a table.
3. Given a table, there is a mug not on that table.

Now the reader probably begins to get a more intuitive understanding of the axiomatic system through a mental image such as Figure 2.

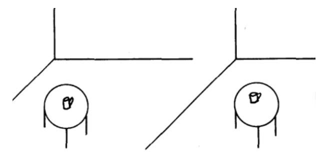

Figure 2: Mugs Model

This example with mugs and tables was prompted by statements of the famous mathematician David Hilbert pointing out that the process of formal deductive reasoning used in geometry does not depend on our intuition regarding the meaning of the undefined terms. In fact, this system is an example of a simple geometry described still more intuitively (at least to a mathematician) by the following axioms and pictured by the model in Figure 3

1. There is at least one point.
2. Each point must be on a line.
3. Given a line, there is a point not on that line.

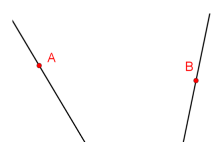

Figure 3: Points and Lines Model

Note that though different equally valid meanings (models) can be associated with a given axiom set, our understanding is greatly helped by finding familiar and intuitive models. We likely find (perhaps subconsciously) models for our spiritual axioms as well.

2.3 Desirable Features

When choosing a set of axioms, mathematicians strive for three desirable characteristics.

1. An axiom set is said to be *consistent* if no contradictions can be proven from the set. Consistency is a necessity for meaningful logic since if one contradiction can be proved, then any statement can be proved and the described system becomes meaningless. However, proving that a axiomatic base is consistent is usually quite difficult as will be illustrated shortly.
2. An axiom set is said to be *independent* if none of the axioms can be proven from the others. Independence is considered desirable since it avoids redundancy and extra complexity in the axiom set.
3. An axiom set is said to be *complete* if every well-defined statement can either be proved or disproved. One reason that completeness is desirable is that it avoids having to make the awkward distinction between "true" and "provable."

The concept of a model is a powerful means of determining the consistency, independence, and completeness of an axiomatic base. [9] Referring back to the points and lines axiom set of Section 2.2:

1. This axiom set is consistent since it has the model shown in Figure 3.
2. This axiom set is independent. For example, Axiom 1 is independent of Axioms 2 and 3 since empty space with no points or lines at all is a possible model for the latter two axioms but not of the full axiom set including Axiom 1.
3. This axiom set is not complete since, for example, the statement ”there exist three lines” can neither be proved nor disproved. Both models shown in Figures 3 and 4 are possible models for the axiom set, yet one has three lines and the other does not.

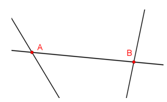

Figure 4: Alternative Points and Lines Model

We conclude this section with a summary of the status of “standard” mathematics in terms of consistency, independence, and completeness. There are elementary axiom sets, such as those for Presberger arithmetic (which is essentially the addition of whole numbers), that have been proven to be consistent, independent, and complete. Presberger arithmetic, however, is of mostly theoretical interest since it does not allow for standard arithmetic and thus for the fields of algebra and analysis.

While the body of mathematics as a whole has no official axiomatic base, since the early 20th century this role has been unofficially played by the Zermelo-Frankel axioms for set theory supplemented by the Axiom of Choice. In particular, the properties of standard arithmetic can be derived from the ZFC axioms. Set theorists originally hoped that these axioms would eventually be demonstrated to be consistent, independent, and complete. However, the two incompleteness theorems proved by Kurt Gödel in the 1930’s showed that:

1. Any consistent axiomatic system allowing the standard arithmetic of the integers must be incomplete.
2. Any axiomatic system allowing the standard arithmetic of the integers cannot prove its own consistency.

The Incompleteness Theorems showed that ZFC could not prove itself consistent, so today though essentially all mathematicians believe ZFC is consistent, it remains an open question. The Incompleteness Theorems also suggest (and this was later proven) that ZFC is incomplete. An example of a statement that ZFC can neither prove nor disprove is the Continuum Hypothesis, which asserts that the cardinality of the real numbers is the next larger infinity to that of the integers. It is interesting to note that the (logically troubling) incompleteness of the ZFC axioms has spurred a search for a new axiomatic base for set theory that has been ongoing for decades. Because of the competing demands from the mathematical academy on such a new axiom set, the selection process has actually in many ways resembled an ad hoc empirical approach as might be used in the natural sciences to test hypotheses. This empirical approach is itself controversial and no universally accepted resolution seems likely soon. In short, the foundations of modern mathematics are neither currently truly anchored to "bedrock," nor have they ever been.

3 Social Psychological Axioms

I now turn to constructs in sociology and psychology that resemble mathematical axioms. Hofstede's work as illustrated by the onion model in Section 1.2 is one such example. Another is a study on "Social Axioms" by Bond, Leung, et. al. [2]. Their main goal was to characterize certain types of beliefs, which they called social axioms, that are distinct from values and that might help predict human behavior. According to the social psychologist Leung, a *value* is an assertion that something, such as ending poverty, is good, desirable, or important. A *normative belief* is a prescriptive assertion such as "we should help poor people." Finally, a *social axiom* is a belief about "what is possible" and is often of the form of a correlation between two items such as "ending poverty would be possible via social programs."

In the early 2000's, Bond, Leung, and others conducted a survey of nearly 10000 individuals from over forty different culture groups. Subjects completed a Likert scale questionnaire indicating their level of agreement with statements such as "hard working people will achieve more in the end." It is important to note that allowing Likert scale responses means that derived social axioms will not be Boolean (either accepted or rejected) as are mathematical axioms, but will rather be held with a variable strength of belief that may be more analogous to the idea of subjective probability in mathematics.

As mentioned, one reason for attempting to identify social axioms is that social psychologists know that values alone are an imperfect predictor of behavior – humans do not always do what their claimed values would dictate. Among other results, the study confirmed that using social axioms and values together rather than values alone better predicted human behavior in coping style, conflict resolution style, and vocational choice. [3] Statistical principal component analysis of the responses showed two main factors of clustered social axioms described below, one of which is further broken down into four subcomponents.

1. Dynamic Externality
   (a) *Social complexity* is the belief that there are multiple ways of achieving an outcome and one must act according to specific circumstances.
   (b) *Reward for application* is the belief that planning and effort will lead to positive results.
   (c) *Religiosity* is the belief in a supreme being and that religious activities have positive results.
   (d) *Fate control* is the belief that people can influence the outcomes of life's events.
2. *Social cynicism* is a negative view of human nature, believing that people and institutions are exploitive and that life tends to unhappiness.

Different culture groups share social axioms, but with different strengths of belief. Like Hofstede's onion model, these differences in belief can help explain and predict differences in cultural practices in an analogous way to, for example, choices of mathematical axioms leading to different types of geometry.

It is extremely unlikely that an individual's set of social axioms will be entirely consistent. In fact, psychologists have long studied the *cognitive dissonance* resulting from an individual holding contradictory beliefs. For example, many of us value both physical fitness and comfort food and thus have the dilemma illustrated by Kevin Hosey in Figure 5. On a more serious note, in Romans 7 the Apostle Paul discusses essentially the same dilemma of his spiritual mind living in a body with a sin nature.

Figure 5: Cognitive Dissonance

4 Spiritual Axioms

I next address the possibility of identifying spiritual axioms (which are also related to the linguistics term *presuppositions*). I first explore the role of foundational statements in Christian apologetics, then consider the possibility of identifying one's own (perhaps implicitly held) axioms.

4.1 Axioms of Apologetics

Apologetics is the systematic defense of the truth of religious doctrines. Though most, if not all, religions have some culture of apologetics, the idea of a logical defense seems most highly developed in the Christian religion. Many Christians believe that the scripture "Always be prepared to give an answer to everyone who asks you to give the reason for the hope that you have" (I Peter 3:15) is a directive that all believers should be able and willing to engage in some level of apologetics.

Because a likely goal of an apologist is to persuade his audience to his own point of view, he should be aware of the presuppositions of that audience. For example, Peter's sermon in Jerusalem to the Jews in Acts 2 and Paul's sermon to the Athenians in Acts 17 begin from very different perspectives even though repentance and turning to Christ was the central message of each. One choice any modern Christian apologist must make is how much to use the Bible itself as an assumed foundation for Christian beliefs. In Christian theology, one accepts scripture (God's special revelation) and perhaps other religious experiences essentially as axiomatic and argues logically from that basis. On the other hand, in natural theology, one argues from observation of nature (God's general revelation). Both approaches have advantages and disadvantages.

If one accepts as an axiom that the Bible is inerrant, then many arguments are simple. For example, the first verse of the Bible "In the beginning, God created the heavens and the earth" (Genesis 1:1) already proves the existence of God as well as several things about His nature. However, there is still much room for disagreement. For example, Christians have historically struggled (and sometimes literally fought wars) over the scope of ecclesiastical authority. Some Christian leaders have used the text "I will give you the keys of the kingdom of heaven; whatever you bind on earth will be bound in heaven, and whatever you loose on earth will be loosed in heaven" (Matthew 16:19) as proof that they should be obeyed. It is interesting to note here that the controversy is partly due to differing definitions of "keys," "you," "bound," and "loosed." But perhaps the most serious weakness of reasoning solely from scripture is that it will likely be ineffective with an audience that is unfamiliar with or hostile to the Bible.

Arguments from general revelation trade the dependence on an axiom of scriptural inerrancy with dependence on various other presuppositions. Consider the "5th Way" argument of Thomas Aquinas for the existence of God, parts of which were actually used in other ways as far back as Aristotle.

Theorem: God exists.

Proof: Many non-intelligent objects behave predictably. This cannot be by chance, so their behavior must be set. It cannot be set by themselves, so must be set by an intelligent entity, understood to be God. QED

Aquinas' argument has been criticized both by people who agree with its conclusion (such as Immanuel Kant) and those who do not (such as Richard Dawkins). Both groups of critics agree that debatable presuppositions lie behind the statements in the argument. In linguistics, a *presupposition* is an implicit background assumption whose truth is taken for granted when a statement is made. A famous political example is the trap question "Have you stopped beating your spouse?" in which either a yes or no response confirms the implication that such beating has already occurred. Similarly, the statement "he forgot to mail the letter" presupposes that he intended to mail the letter or that it was his duty to mail the letter.

When listening to a logical argument, we all hear the words through the context of our own background. The Aquinas argument is repeated below with some of the implicit assumptions identified in italics as they are used.

[the universe can be rationally understood, so proof is possible]

Many non-intelligent objects *[such objects commonly exist]*

behave predictably. *[our senses and memory are accurate]*

This cannot be by chance, *[randomness cannot produce order]*

so their behavior must be set. *[every action is necessarily caused]*

It cannot be set by themselves, *[non-intelligent objects are passive]*

so must be set by an intelligent entity, *[law of excluded middle]*

understood to be God. *["God" is the only "prime mover" possible]*

The presuppositions that must be accepted in order to believe this argument weaken its persuasive force. This situation is somewhat analogous to the 18th century reluctance by mathematicians to accept non-Euclidean geometries because the required non-Euclidean parallel postulate is so “obviously wrong.” Still, the concept of an apologetic is in essence the same construction as that of a mathematical proof.

4.2 Personal Presuppositions

An interesting exercise I have occasionally posed to students in our Math Senior Seminar class at Indiana Wesleyan University is to identify their set of personal “spiritual axioms.” Recall that an axiom is a statement accepted without proof, and it is desirable that axiom sets be consistent, independent, and complete. The list below is a combination of student inputs and some of my own when I have tried to do the same thing.

1. “Truth” is a meaningful concept.
2. My senses are reliable.
3. I am capable of logical reasoning.
4. Logical reasoning can improve my life.
5. At least one “god” (a being overwhelmingly more powerful than humans) exists.
6. At least one omnipotent God exists.
7. *Exactly one omnipotent God exists.*
8. God is consistent.
9. God is “good” (holy and benevolent).
10. The original manuscripts of the Bible were inspired by God and contain truth beyond what can be discerned from any other source.
11. *The original manuscripts of the Bible are inerrant words from God.*
12. My copy of the Bible (e.g. NIV) is essentially the same in meaning as that of the original manuscripts.
13. *God is a Trinity – Father, Son, and Holy Spirit.*
14. *God created the physical world.*
15. *Events with no “natural” explanation can happen.*
16. *I have a nonphysical part of my being.*
17. *I have sufficient free will to significantly impact my future.*
18. *No man comes to the Father but by [Christ].*

This activity turns out to be surprisingly difficult for most people, including me. My personal opinion is that I must accept Axioms 1-3 in order to even be able to consider the task, and I must accept Axiom 4 in order to want to do so. Then comes the first real decision. Axioms 1-4 by themselves are highly incomplete and more must be assumed to reason further. Though I believe the nature of the physical universe and of human conscience are strong evidence for the existence of spiritual beings, I also believe naturalism is a partially intellectually defensible position. Therefore, there is still some measure of faith involved, so I choose to accept Axiom 5 as the best explanation for what I observe.

Next I must choose between monotheism and polytheism, both of which are believed by billions of intelligent people, so more faith is required. I accept Axiom 6 because to me a limited god really does not answer the "big questions" one expects from a deity. More than one omnipotent being seems self-contradictory to me, so Axiom 7 seems to be a theorem rather than an axiom to me (and therefore is written in italics). Axioms 1-6 have lead me to one Supreme God. I then immediately want to accept Axioms 8-9 for emotional reasons, as the idea of a petty or vindictive God is depressing.

Now there are several monotheistic religions to choose from. I believe God, being good, wants to communicate with me. I cannot personally see or hear Him, so I must rely on what I see in nature and hear or read from others. Monotheistic religions seem to have similar views on the order of the universe, so nature does not help me with this decision. I do not personally know anyone who claims to authoritatively speak for God (and probably would not trust such claims anyway), so I must rely on writings. Here I believe the Bible has the best case, both in terms of the consistency and appeal of its message as well as in the scholarship involved in its translations and analysis. So I am led to accept Axiom 10 and follow Christianity. I believe it would be deceptive, and thus neither good nor consistent of an omniscient God to inspire an only partially correct scripture, so Axiom 11 again seems to me to be a theorem following from Axioms 1-10. Again, the history of scholarship connected with the Bible gives me confidence in its modern translations, so I accept Axiom 12.

Once I believe the authority of scripture, I both want and am compelled to believe that God created the world and can continue to work miracles as He chooses, to accept my responsibility for choosing my soul's destiny, and to accept Christ as Lord and Savior. So Axioms 13-18 are theorems, as well as many similar statements, are theorems for me, and I have arrived at who I am today. My resulting set of axioms are the ones above in regular (non-italic) type. I believe they are independent but am sure they are not complete. Although I believe this axiom set is consistent, I know I have many other life axioms which taken in totality are inconsistent.

And now the confession. Did I really go through this methodical process when I became a Christian at age eighteen? I did not. As someone who grew up in a Christian home, I never remember not believing in the Christian God. I did not know enough about Islam, for example, to choose between Islam and Christianity. And for better or for worse, there is a good deal of peer pressure from Christian family and friends to fit in to society by "doing the right thing." In the years after I became a Christian, I (sometimes subconsciously) went back and filled in many of the missing links detailed above. Interestingly enough, this "after-the-fact" chronology is very similar to the historical development of some mathematical axioms as explained later in Section 5.3.

5 Application

I next present three types of observations regarding the use of mathematical axioms as a parable for spiritual axioms. First, I summarize what I believe are the essential similarities and differences between mathematical and spiritual axioms (I think the case with the social axioms discussed is similar to that of spiritual axioms). Next, I give my opinion regarding the consistency, independence, and completeness of spiritual axiom sets. Finally, I make some observations on the relative importance of this type of study. Some of these ideas are adapted from [4]

5.1 Mathematical and Spiritual Comparisons

Mathematical and spiritual axioms are similar in several ways. In both contexts, some statements (axioms) must be accepted "by faith," while other concepts (theorems) can be arrived at by logical reasoning. Consistency, independence, and completeness are valuable in both contexts. There is a need for undefined terms in both situations, which are then used to define further concepts. The deductive reasoning used in apologetics is essentially the same system of logic as used in mathematical proof, and the use of intuitive models is helpful in both areas. (Jesus' parables can be considered models of spiritual concepts as can the divine institutions of the family, communion, etc. Probably we all also form personal mental models of concepts such as heaven).

There are also some significant differences between mathematical and spiritual axioms. The most obvious has already been noted – mathematical axioms are Boolean (either accepted or rejected) by definition, while spiritual axioms often seem to be tentatively accepted with varying degrees of certainty. Another difference is the scope of applicability. Mathematical axioms are usually intended to apply only to a hypothetical sub-universe. Incompatible axiomatic systems, such as Euclidean and hyperbolic geometry, can therefore easily coexist in our minds as we understand that in a given situation we should use the system that is most useful at present. Spiritual axioms, on the other hand, often make universal statements about the only physical universe we know. When I claim that "murder is wrong," I do not just mean it is wrong for myself but rather that it is wrong for everyone. The resulting impact is that it is often hard for different religions to coexist without clashing over different foundational beliefs.

As an aside, it is interesting to speculate on the proper role of spiritual axioms in literary fantasy and science fiction where a different physical universe is hypothesized. Is it reasonable to expect Harry Potter or Frodo Baggins to share exactly the same values as someone in our own world? Because the author gets to choose his own physical universe in such fictional writing yet there is usually some attempt to connect with the reader on a believable human level, spiritual axioms in these stories may occupy a role intermediate between that of mathematics and religion.

5.2 Status of Spiritual Axioms

Regarding the consistency, independence, and completeness of spiritual axiom sets:

1. Achieving consistency in one's own spiritual axioms seems unlikely.

The concept of a spiritual axiom seems too complicated and ambiguous to allow for the elimination of self-contradictions. As we live life and learn more, no doubt our internal axioms are changing without our full conscious knowledge. Even at a corporate level, Christianity has learned to live with such ambiguities as that between “For by grace are ye saved through faith...not of works” (Ephesians 2:8-9) and “Ye see then how that by works a man is justified, and not by faith only” (James 2:24). I believe the human mind has been created to be able to handle such cognitive dissonance and that we will all necessarily deal with it throughout our lives.

2. Full independence is likely impossible, but at least reducing the number of axioms seems both useful and feasible.

   It is common practice for organizations to identify and publicize their “core values” (which is a similar concept to that of an axiom), perhaps as part of or associated with a mission statement. Such publications are more likely to be referenced and used if they are short, so minimizing the number of overall items by selecting an independent or near independent set is thus helpful. Similarly, in terms of apologetics and evangelism, it seems more persuasive to ask the audience, especially those familiar with formal deductive reasoning, to accept only a small number of items without justification.

3. Achieving completeness clearly seems permanently impossible.

   It would seem an act of great hubris to claim possession of a complete set of spiritual axioms which could then be used to determine the truth of all statements. The Christian perspective on such a claim could be summarized by “ ‘For my thoughts are not your thoughts, neither are your ways my ways,’ declares the Lord. ‘As the heavens are higher than the earth, so are my ways higher than your ways and my thoughts than your thoughts.’).” (Isaiah 55:8-9). Most other religious faiths share the perspective that not all truth is knowable.

5.3 Importance of Spiritual Axioms

Finally, I briefly address the relative importance of this topic as a whole. On the one hand, one’s choice of spiritual axioms is critically important. The extent to which I accept an axiom such as “logical reasoning can improve my life” may impact how I approach Bible study. More importantly, my acceptance or rejection of the axiom “writings outside scripture can be authoritative” may determine which denominations within the Christian faith are comfortable for me. And finally if I accept “Jesus is the Son of God” as an axiom then subsequently reject this axiom, nearly all Christians would say I have switched to a different religion entirely. The famous Christian saying “in necessary things unity; in uncertain things freedom; in everything compassion” (whose attribution seems uncertain) notes the differing levels of importance between different tenants of faith, but does not help in deciding which ones are necessary.

On the other hand, explicit identification of axioms may not be as important, either in mathematics or in religion, as we sometimes believe and claim. R.W. Hamming writes “The idea that theorems follow from the postulates does not correspond to simple observation. If the Pythagorean theorem were found to not follow from the postulates, we would again search for a way to alter the postulates until it was true. Euclid’s postulates came from the Pythagorean theorem, not the other way.” [5]) I agree with this statement as I believe most mathematicians would. Also, though Gödel’s Incompleteness Theorems crushed the attempt to axiomatize all of mathematics, yet advances continue to be made in mathematics (in fact, made at unprecedented pace) since proof of these theorems. This idea also calls into question the extent to which we literally return to the foundations of our faith as we make moral choices. It also mirrors my own faith journey as explained in Section 4.2

Another reason to doubt the importance of explicit statements of axioms is related to an observation by Penelope Maddy. "Philosophers gave up the search for [epistemological certainty] arguments in natural science long ago; its retention in the philosophy of mathematics can only be traced to an outmoded vision of the nature of mathematical knowledge. No one would expect even the best scientific arguments to be absolutely justifying. Our epistemological inquiries in mathematics will be hampered if we set an unreasonably high standard." [7] Maddy is not advocating a relaxation in proofs of mathematical propositions, but rather in the methodology of mathematical epistemology. If it is unreasonable to expect certainty arguments in mathematical philosophy, the prospect certainly looks cloudy for systematic proof of broader spiritual propositions.

6 Conclusion: What Says the Parable?

So what can be concluded from using mathematical axioms as a parable for spiritual presuppositions? First, I believe the connection is strong enough that there is significant value in using the parable. Many of the same methodologies and difficulties occur in both fields. Compared to mathematical axioms, most spiritual axioms claim greater scope but have more ambiguity, which is exactly the situation in which a parable can effectively improve understanding.

It is also comforting from a faith perspective that mathematics has progressed despite the difficulties encountered in forming axiomatic bases. Most practicing mathematicians do not worry (indeed they may not even know) that the axiom set for the field in which they are working is not complete, for example. So as Christians we should not be discouraged or intimidated that we have trouble cleanly articulating our own spiritual axioms. Nor should we feel obligated to have an answer to every question posed by skeptics; the skeptics likely do not have answers either.

Finally, it is thought-provoking to consider the fact that in mathematics, the axiomatic foundation is usually constructed after much work in the field is already done. However, the development of axioms then often leads to additional insights. Axioms are important but in practice do not always play their stated role. Similarly, Christianity began and rapidly developed as a faith transmitted orally among people largely untrained in theology. But later development of formal doctrine has helped keep the religion relevant through cultural changes that impact methods of reasoning and communication.

References

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