



An Intersubjective Approach in the Validation of Axioms Considering Islamic Philosophy

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Abstract

Original Research



Axioms are crucial to epistemic frameworks, as several schools of the history of science have recognized. The issue of the current research is that in the validation of axioms, what defects does the intuitive approach entail, and how can the intersubjective approach (based on the ideas of Islamic philosophers) be explained as an alternative, less-known system? The former is dedicated to clarifying and criticizing what is called the intuitive approach to validating axioms: this approach is attributed to classical philosophers and consists of assuming that axioms are propositions whose truth is immediately evident upon taking into account the terms they are based on. The latter focuses on clarifying the alternative approach, called the intersubjective approach of validating axioms (IAVA): this approach is attributed to a specific Islamic tradition, developed by Avicenna and Mullā Ṣadrā, and consists of assuming that axioms are propositions that cannot be rationally proved, denied, or doubted, without being already assumed. In this article, we present the intersubjective approach from a historical point of view.

Keywords

axioms, intersubjective, validation, intuitive, knowledge-by-presence, Mullā Ṣadrā.

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Introduction

One of philosophy's main concerns has always been reflection on the axioms. Numerous issues arising in the sciences and various facets of human life have heightened considerations in this field.

For example, the prevalence of certain paradoxes, such as the liar paradox, indicates that axioms and rules should be carefully chosen to avoid recurrences of contradictions and paradoxes. Regarding axioms and their validity, numerous systems have been discussed (Halbach, 2020), and various scientific challenges have emerged in these fields, such as: “Are there any such propositions? What kind are they, if so?” These challenges have generated a wide range of studies.

Consequently, several keywords were established, resulting in the direct or indirect discussion about fundamental propositions. Axioms, established postulates, first principles, self-evident premises, self-evident, intuitions, and postulates were terms used for this in Islamic philosophy. Throughout history, there have been research and efforts made to separate these propositions. It seems that “Axiom” was finally utilized for the most fundamental propositions in Islamic philosophy. The definitions of Islamic thinkers will be examined in the paragraphs that follow.

In Greek philosophy, words like axiom, self-evident, and postulate are equivalent (Al-Tanhavi, 1996, vol. 1, p. 319). “The word ‘axiom’ comes from the Greek ἀξίωμα that which describes itself as evident” (Kant et al., 2019, p. 30).

The term “axiom” has not always been used in the same sense over the centuries. It was typically understood by Aristotle and the early mathematicians as a general premise that was instantly obvious, infallible, and common to many sciences. In the Middle Ages and the early Modern Era, the term mostly preserved its Aristotelian meaning. In the nineteenth century, especially among modern logicians and mathematicians, an axiom was a statement that was accepted without any evidence and as the basic premise in a logical system. No consideration was given to whether or not the proposition was obvious (Kamiński, 2000).

These terms are also used, though with some variations and accuracy, in other sciences, such as mathematics. Axioms are different from postulates in the mathematical sciences, for example. Axioms are analytical, a priori, self-true, and common statements throughout all mathematical disciplines, while postulates are synthetic and not self-true

across many mathematical sciences (Salbiya and Saniei, 1987, p. 192). It should be noted that some mathematical systems divide axioms into evident and uncertain categories.

The majority of the concerns stated thus far have been founded on a conventional and intuitive perspective, according to which, simply visualizing the subject, predicate, and their relationship is sufficient to validate that statement. However, this method has a lot of flaws, which has led numerous intellectuals throughout history to oppose it.

To evaluate the intuitive approach, certain critical works with favorable or unfavorable perspectives have been published. The majority of them have been completed recently, indicating that this problem is still relevant and important in philosophical discourse.

The intuitive approach has been the focus of the following studies and cases like them: “The Unreliable Intuitions Objection against Reflective Equilibrium” (Paulo, 2020, pp. 333–353); Testing for the Phenomenal: Intuition, Metacognition, and Philosophical Methodology” (Egler, 2020, pp. 48-66); Cooperative Intuitionism (Ingram, 2020, pp. 780-799); Intuitions as Evidence Facilitators (Ramsey, 2019, pp. 76-99); Epistemically Self-Defeating Arguments and Skepticism About Intuition (Silva, 2013, pp. 579-589). Therefore, it would seem that another approach to explaining the axioms is required in order to avoid criticism in support of them.

This inquiry is a fresh effort to acquire an alternate perspective (the intersubjective approach) by studying the writings of notable Islamic philosophers. Finally, based on their opinion, the central issue of this paper is how to explain the alternative method for validating axioms.

In an evolving process, the research innovation counts the fundamental elements of the Intersubjective Way from the works of Islamic scholars before providing the alternate approach. IAVA has not consistently and methodically been observed in other works. The research method is analytic-descriptive, and both paper and electronic books from the library were used to acquire data.

Axiom Validation Using the Intuitive Approach

Describing the Intuitive Method of Validation

This point of view holds that an axiom is a proposition that can be validated by simply picturing its subject, predicate, and their connection. To put it another

way, both its definition and its validation criterion are the same. For example, merely imagining the combination of two contradictory and impossible propositions would be enough to attribute impossibility to that.

This definition was being utilized by Islamic philosophers, as Avicenna says that self-evident premises are statements that the common sense would instinctively affirm itself, without any external reason. These statements would be confirmed if their minor and major premises were imagined, so that considering the combination alone determines this confirmation rather than anything else¹ (Avicenna, 1984, pp. 35-36). Therefore, confirming self-evident premises just requires attention to the combination.

To clearly distinguish between self-evident premises, empirical premises, intuitive propositions, and frequencies, Naṣīr l-Dīn Ṭūsī believes that a proposition can be affirmed in one of two ways: either the intellect requires no justification beyond merely conceiving its subject and predicate, or it demands additional reasoning. The former constitutes self-evident premises (Tusi, 1996, vol. 1, pp. 213-214). Thus, self-evident premises are the cases for which the intellectual faculty requires nothing more than imagining the subject and predicate.

This explanation is also maintained in transcendent wisdom. Mullā Ṣadrā expresses that self-evident premises require neither equilibrium, nor sense, experience, observation, or frequency. They only need the imagination of both sides and the relation between them (Mulla Sadra, 1984, p. 140; 1989, vol. 3, p. 507).

We can see that in Sadra's explanation, in addition to considering the sides of the proposition, considering the copula is necessary. Therefore, in Sadra's opinion, the imagination of three elements — the subject, the predicate, and their relationship, or the copula—is necessary to affirm the statement.²

A Critique of the Use of Intuition to Validate Axioms

If we assume that the intuitive technique is the standard for approving axioms, then we will run into some challenges, including:

1. See also: Bahmanyar, 1996, p. 96

2. Other cases have been found among Islamic philosophers, like: al-Razi, 1373, p. 198; al-Shahrzuri, 1383, p. 371; Hilli, 1371, p. 192; Tabataba'ii, 1387b, p. 231; Tabataba'ii, 1387a, p. 56; Sobhani, 1413, vol. 1, p. 25; Sobhani. 1427, vol. 2, p. 281.

1. Particular and Presential Axioms

Axioms would merely be present and specific in an intuitive approach. That is, while Person A may confirm an axiom's truth simply by considering its subject, predicate, and copula, Person B—or any other thinker—might not share this same intuitive recognition.

It is conceivable that individuals with varied cultural, social, gender, or structural origins may have intuitions that differ from one another (Paulo, 2020, p. 333). As a result, it is feasible that various people experience personal and uncommon states when imagining or acknowledging a proposition. For instance, A may take a statement for granted, whereas B may view it as uncertain.

2. Skepticism

An axiom is a proposition validated by general consensus that its subject-predicate-copula examination alone warrants acceptance, thus answering the first objection. Being axiomatic in this instance depends on a collective agreement, and this strategy breeds skepticism and instability because, perhaps, a different group in a different time or location might not reach the same agreement (as was noted in the first objection about people).

If a collective agreement is intended between all people, it is first important to note that this agreement has no chance of coming into effect because it is impossible to gather all people in one place and many of them are no longer living. Second, the history of human research demonstrates that, in actuality, the opinions of intellectuals on numerous hypotheses have been dispersed.

Intriguingly, Mulla Sadra says that when it comes to the problem of the finitude of dimensions, if there is debate among the wise as to the obviousness of something, then it is not evident (Mulla Sadra, 1989, vol. 4, p. 28). It should be noted that in ancient logic, what was universally acknowledged was referred to as “public-accepted premises” rather than axioms.

3. The Occurrence of Basic Issues in Determining Instances

Building on these objections, we encounter a further limitation of the intuitive approach. If we adopt this method, which defines an axiom as ‘a proposition whose truth is confirmed merely by contemplating its subject, predicate, and copula,’ we face significant difficulties in reliably identifying actual instances

of axioms. This criterion, along with the previously cited objections, makes it impossible to determine if Proposition X or Y is an axiom, since it is debatable whether or not taking the triple components of X into account is sufficient to confirm it. The determination of axiom instances has been the subject of major conflicts amongst philosophers throughout the history of human science because of this dilemma.

Imagine a discussion between individuals who know different propositions as axioms and primary propositions. They challenge and cast doubt on each other's beliefs by asking one another hard questions. Naturally, they use their various fundamental propositions to support their beliefs. These are assertions that they somehow took for granted and are beliefs regarding their present psychological situations.

Similar to this point, Lehrer raises a problem with self-justifying propositions. Taking such an approach leads to the most common types of speculation. Anyone can assert that what they believe to be true is a fundamental belief, and when challenged to support their assertion, they can reply that their belief is fundamental and that the proposition they are referring to is self-evident and does not require explanation (Alston, 1989, p. 48).

4. The Inability to Extend Mental Assent to the Outside World

This strategy also has another flaw. We assume that it is true in our minds, and that considering the subject, predicate, and their relationship is sufficient to support that claim. However, even with this internal support, its exterior truth will not be supported. Person M's mental endorsement of the causation principle does not imply that the principle is outwardly actualized and confirmed.

Axiom Validation Using an Intersubjective Method

IAVA Explanation

Due to issues with the intuitive approach to axiom validation, Islamic philosophers were forced to devise an alternative method for accomplishing this task. Islamic thought eventually underwent a process that led to an intersubjective approach for axiom validation (IAVA) as opposed to an intuitive method that was specific and personal.

Avicenna and Mullā Ṣadrā, two philosophers, were important figures in the historical development of IAVA.

Avicenna discussed axioms in two parts of *Burhān al-Shifā'*. He

initially made a distinction between the sciences in three aspects: the subject, the issue, and the principles (Avicenna, 1985, pp. 155-156).

Category	Definition	Expanded Explanation
Subject	What the proof is about	All issues pertain to this
Issue	What the proof is for	The specific claim the proof addresses
Principles	What the proof is derived from	Without principles, no proof can be formed

According to Avicenna, a science's postulates (or established postulates) are its presuppositions, whereas a science's principles come from outside it. He divides principles into two categories (pp. 155-156), identifying them as follows:

- Special principles: These are dedicated to particular sciences (e.g., physics, chemistry, biology, etc.), with each discipline having its own unique principles.
- Public principles: These apply to all sciences and are further subdivided into:
 - Public for several sciences (shared across multiple disciplines)

Absolutely public (universally applicable to all sciences)

Avicenna believed that axioms arise from absolutely public principles.

Avicenna outlines three criteria for differentiating sciences (p. 191), replacing "proof" with "demonstration" in the following formulation:

- Subject: The matter under demonstration
- Issue: The purpose of the demonstration
- Principles: The foundation from which the demonstration derives

Synthesizing Avicenna's explanations, axioms are defined as: "Those propositions from which all proof absolutely derives", or more precisely, "Those fundamental premises from which all demonstration necessarily proceeds."

1	Axioms = absolutely public principles
2	Principles = the foundation from which demonstration derives
Based on 1 & 2	Axioms = the propositions from which proof or demonstration absolutely derives

The adverb “absolutely” refers to all proofs, regardless of its source, including logical, dialectical, and empirical proofs.

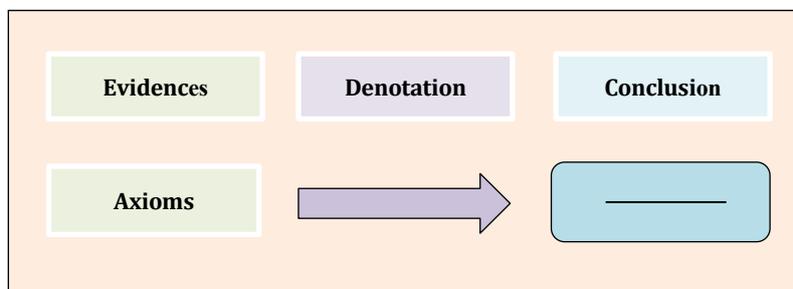
Considering this clarification, axioms are “the propositions from which proof is absolutely derived” or “the propositions from which demonstration is absolutely derived.” Considering all this, we can say that in Avicenna’s opinion, none of the sorts of proofs are feasible without taking into account axioms. Any principle with such a property is, of course, an axiom and also self-true.

The required foundations for the construction and coherence of the intersubjective approach, which was developed by other Islamic thinkers after him and given in the form of a cohesive approach that will be clarified later, were laid with this clarification of Avicenna’s viewpoint. It should be noted that Aristotle’s writings contain ideas that are similar to Avicenna’s initial justification of this strategy (Aristotle, 2002, p. 262).

This argument was developed by Mullā Ṣadrā, who helped us understand the Intersubjective approach more clearly. In *al-Aṣfār al-Arba‘ah* (The Four Journeys) (vol. 3, ch. 28) under the title of *al-Avvalīyyāt* (axioms), he asserted that what is referred to as “the propositions from which proof is absolutely derived” (or “the propositions from which demonstration is absolutely derived.”) is that they are neither provable nor disputable, and any principle that possesses this property would be an axiom (Mullā Ṣadrā, 1989, vol. 3, p. 443).

As a result, axioms are always among the premises and can never be among the conclusions, according to this reasoning.

According to the previously noted explanation, the place of axioms in an argument could simply be as premises (evidence), as shown in the following.



Mullā Ṣadrā's ultimately argues that one requires axioms to move validly from premises to conclusions in any argument. In other words, if there are no axioms, there will be no evidence and no denotation in any argument. The key idea here is that axioms are not the result of any kind of thinking, and thus, there is no escape from thinking other than adhering to these propositions.

Mullā Ṣadrā has put this claim to the test using one of the propositions known as an axiom. He examines the proposition of “impossibility of co-existence and negation of contradictories” (ICNC) with an intersubjective approach. If we assume that the co-existence and negation of contradictory statements are not implausible, the first thing that comes to mind is that “everything that can be true, can also be false.” Additionally, anything that can denote something cannot simultaneously denote that thing. We shall now investigate the assertion made by an opponent of this idea.

His claim (which also serves as his conclusion): I do not believe in the ICNC.

His evidence: I would not accept anything unless it is affirmed for me.

Mullā Ṣadrā argues that the opponent's denial itself relies on the ICNC principle. If a proposition could exist without being subject to affirmation or negation, the denier's claim would lack any meaningful denotation. In such a case, nothing could signify the proposition's truth unless it were first proven—but this would lead to an infinite regress, as any attempt at proof would itself depend on prior affirmation (Mullā Ṣadrā, 1989, vol. 3, p. 443).¹

According to Ṭabāṭabāī, you cannot have any attribution in propositions if you don't embrace ICNC (even this one). ICNC forms the basis for both the statements “A is B” and “A is not B”.

Ṭabāṭabāī is of the opinion that acceptance of ICNC is necessary for skepticism toward any proposition. Saying that “I doubt the truth of ICNC or I don't doubt the truth of it” is completely dependent on accepting it. In other words, affirmation, denial, or skepticism in ICNC implicates its affirmation (Tabatabaii, n.d. (b), pp. 253-255; Tabatabai, n.d. (a), pp. 149-150).

IAVA attained its final form through a developmental and evolutionary process. As articulated in this framework, a proposition's validity rests on meeting the following criteria: it must be neither rationally provable, deniable, nor doubtful. IAVA's core argument is that some philosophical and logical propositions have unquestionable logical validity, whether they are true or false, since their logical value would be demonstrated if that were the case (so that their truth could be disputed or denied). To put it another way, an axiom is a

1. See also Fakhr Rāzī, 1991, vol. 1, p. 349.

statement whose affirmation, denial, and doubt imply its affirmation.

This strategy is taken from the writings of Islamic philosophers and serves as a criterion for validation that is absent from the works of Western philosophers.

The question that now arises is how we could regard Islamic philosophers as the founders and beneficiaries of this methodology when studying the works of many of them shows that the early to late Islamic philosophers believed that an axiom is a proposition that can be confirmed by simply considering the subject, predicate, and copula.

In response, it should be emphasized that the crucial innovation of Islamic philosophers lies in their reformulation of the criterion for validating axioms. Previously (based on the Aristotelian tradition), philosophers had relied on intuition as the sole standard, whereby a proposition's self-evidence was determined by whether merely considering its subject and predicate sufficed to confirm their copula. But Islamic philosophers innovated a new criterion for validation. According to the Islamic perspective, an intersubjective experiment should be conducted on P in order to determine its self-evidence, so that if confirmation, denial, and doubt regarding P implicate its confirmation, then P would be an axiom. This experiment is intersubjective rather than individual and presential.

It should be noted that the intuitive approach is only left out in validation, but it is still a feature of axioms by which merely considering the subject, predicate, and copula is enough to confirm the copula. In other words, intuition is no longer a criterion for validation, and it is only one of the characteristics of axioms.

Also, the intuitive approach is not abolished totally by Islamic philosophers. Along with popular literature in philosophy, they have also given intuitive explanations, but due to the inadequacy of their explanation in determining axioms, it seemed to require a more comprehensive approach. Intuition may be implied in the definition of axioms, but if used as a standard for axiom validation, it would present issues.

Putting IAVA to the Test with Some Other Propositions

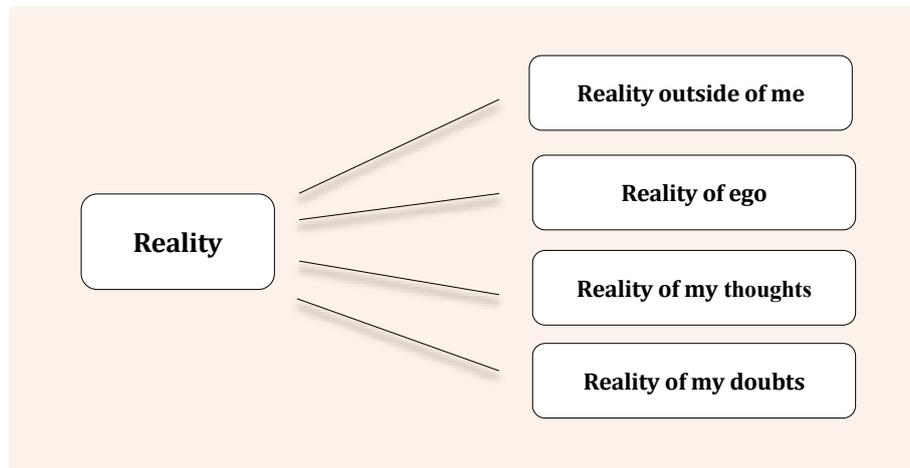
Now, after an explanation of the main claim, the validity of THE self-evidence of some propositions will be examined by IAVA. As was already indicated, we did this regarding ICNC.

1. The Principle of Reality

1-1. What does Reality Mean?

Reality possesses different grades and degrees. The most apparent and superficial degree of reality is that which is customarily understood as “outside of me.” But philosophers believe in some other degrees of reality (Tabataba'ii, 2008, p. 294; n.d. (a), vol. 1, p. 6). These degrees are:

- The ego is part of reality.
- My thoughts and mind are other existents of reality.
- My doubts: When I doubt, there is something that is called doubt. Therefore, doubt is a reality.



The subject of the principle of reality must be “divided reality.” The topic at hand is not “partial reality.”

The question, “Is there anything outside of me or not?” is an a posteriori discussion. Philosophical and rational issues have ultimate precision. As a result, it is emphasized that the subject of the principle of reality and the present discussion is about divided reality. Like the proposition “M= reality exists.”

1-2. Experimenting IAVA on the Principle of Reality

In order to determine the self-evidence of the principle of reality, we will attempt to test IAVA on the proposition “M= there is something.” According to IAVA, there will be a three-step attempt, including affirming, denying, or doubting proposition M to determine whether it is self-evident.

There is no problem with the affirmation since the claim is proven.

First, claiming that M needs to be affirmed requires acceptance of M before its affirmation. It implies that this principle was a presumption prior to being confirmed. As a result of having been presupposed, the principle of reality does not require affirmation.

Denying M is the next stage, yet doing so necessitates its affirmation. If a person has the view that “there is nothing,” that person will be asked, “Is this denial real?” or “Do you actually deny it?” If he answers “yes I deny it,” then this is what we claimed, that is, “there is something” since the denier has accepted a reality here, which is “accepting denying external reality” (it should be noted again that what is meant by reality here is divided reality).

Finally, if we cast doubt on this assertion, it will certainly result in its confirmation. To put it another way, if the person who doubts M is asked, “Does he doubt?” Any positive response to this question necessitates acceptance of at least one reality. This acceptance leads to affirming the principle of reality. Additionally, doubting this uncertainty necessitates reaffirming this idea.¹

2. The Causality Principle

There are numerous ways to explain the causality principle according to various schools of thought. For most Islamic philosophers, everything that has the same relationship to existence and non-existence needs a determinant (or cause) to take it out of the equation. In other words, everything whose actualization and non-actualization is not through itself, needs a cause to actualize (Mulla Sadra, 1989, vol. 2, p. 127). Now, to determine the self-evidence of the principle of causality, we will expose this principle to a three-step experiment: Is it rationally provable, deniable, or doubtful?

For the first question, the person who claims that proving something is necessary says, “Unless it is proven for me, I would not accept any proposition, and the principle of causality is no exception.” It indicates that he has an equal relationship to accepting or rejecting everything, meaning that he is, on his own and independent of the cause, equally capable of accepting or rejecting any

1. Şamdī (one of the commentators of the works of Tabataba'ii) says that we are forced to affirm reality. Since, by denying it we have to do the same regarding ourselves. Naturally, reality is not false, meaning that even if we suppose that reality is false and gone, this supposition requires its affirmation. We could ask whether this supposition exists or not. There are only two possible answers: either you say it really exists, by which you confess at least to one reality; or you say this supposition is not real. In this case, the discussion ends, since you do not even believe in your own reality. Therefore, it is clear that reality is an affirmative and really necessarily subsistent thing that we cannot deny (Samdi, 2007, p. 29).

proposition. This point suggests that in order to affirm it, the causality principle must be cited. As a result, it can be said that the causality principle cannot be proven in any way and that without it, no affirmation can be made. Because the premises serve as the determinant (or cause), and there is a link between the premises and the conclusion. Furthermore, the process of affirmation is regarded as a causal process.

The claimant states in response to the second query that “because there is no determinant, I will accept denial.” Following that, he will be informed that accepting the side of denial is a form of choosing and determining.

The claimant describes themselves as a skeptic, claiming that “The principle of causation is neither provable nor deniable.” Examining this assertion raises the question, “Why would he favor doubt?” As a result, he has acknowledged that there is a determinant in this alternative that casts doubt on the causality principle. The analysis of the phrase “I do not accept,” if it is rational, is that “he accepts or rejects the principle of causality to equal degrees.” Here, this acceptance of doubt is a kind of determinant.

Eventually, in all three parts of the experiment, there is a kind of determinant indicating that affirmation, denial, or doubt in the principle of causality requires its affirmation.

Conclusions

1. According to the intuitive approach to validating axioms, they are statements that can be confirmed by simply taking into account their subject, predicate, and copula. However, using this strategy as a criterion leads to certain issues. First, axioms would be both individual and presential. The second issue is skepticism, since it is feasible that one group will experience this general agreement but not another group at a different time or location. The third issue is the emergence of fundamental problems with instance determination. Even if this method is widely adopted, finding instances for it will still present serious issues. The fourth issue is the inability to extend mental assent to external assent. It implies that merely affirming a claim in one’s mind does not confer legitimacy on that claim’s veracity in the real world.

2. In light of the aforementioned problems, the intersubjective approach of validating axioms (IAVA), derived from the teachings of Islamic philosophers, has been proposed as a different methodology. The great Islamic philosophers, Avicenna and Mullā Ṣadrā, have played key roles in the historical development of IAVA. According to Avicenna, axioms are the propositions from which the proof or demonstration is derived. Because of this, if they are ignored, no type

of proof is feasible, and any proposition (or principle) that possesses this property is unquestionably an axiom and self-true. Mullā Ṣadrā expands on this viewpoint and, more precisely, directs us to IAVA. Axioms, in his opinion, are always derived from premises and are never regarded as conclusions. In every argument, there will be neither evidence (premises) nor denotation without axioms.

3. Finally, IAVA can be described as follows in summary of the perspectives of Islamic scholars: a proposition is only considered self-evident if, and only if, it cannot be rationally proved, denied, or doubted. Also, the logical value (truth or falsehood) of these propositions is not questionable. In other words, axioms are statements whose affirmation, denial, or doubt necessitates their affirmation.

4. At the end of this study, IAVA is applied to two propositions – the principles of reality and causality – as test cases. To determine their self-evidence, each was evaluated through three tests: rational provability, deniability, and doubtability. All three tests resulted in the affirmation of their axiomatic status.

▣ **Conflict of Interests**

- ▣ The authors declare no competing interests.

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