THE PHILOSOPHICAL SIGNIFICANCE OF AL-GHAZZĀLĪ

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The aim of this paper is to make explicit some of the philosophic contributions of the Medieval Persian scholar, al-Ghazzālī.[1] In our discussion we shall endeavour to delineate his philosophic significance by concentrating on two of his major works, *Maqāṣid al-Falāsifah* (The Goals of the Philosophers) and *Tahāfut al-Falāsifah* (The Incoherence of the Philosophers).[2] In addition to this, we shall indicate at length al-Ghazzālī's importance in the development of logic in Medieval Islām.

I. THE SIGNIFICANCE OF AL-GHAZZĀLĪ'S *MAQĀṢID AL-FALĀSIFAH*

Al-Ghazzālī's interest in philosophy began at an early age under the direction of the prominent Ash'arite theologian of the period, al-Juwaynī. It was al-Juwaynī who introduced his pupil not only to the study of *Kalām*, but also to the study of philosophy and

[1] His full name is Abū Ḥāmid Muḥammad b. Muḥammad al-Ghazzālī, the Algazel of the Schoolmen. He was born at Ṭūs in Khurāsān, near the modern Persian city Mashhad. Much discussion centered on whether his *nisbah* should be spelled as Ghazālī or Ghazzālī. The latter spelling is the one we shall use. For a discussion on this controversy see W. M. Watt, *Muslim Intellectual: A Study of Al-Ghazzālī* (Edinburg: The Edinburgh University Press, 1963), pp. 181-182.

[2] We are not suggesting that these are the only two books that al-Ghazzālī wrote; nor are we also suggesting that these are the only significant books. In the course of our discussion we will be referring to other works of his. For a list of al-Ghazzālī's works, we refer the reader to the following: (1) M. Bouyges, *Essai de chronologie des oeuvres de al-Ghazzālī*, ed. M. Allard (Beirut, 1959); (2) F. Jabre, "La Biographie et l 'oeuvre de Ghazālī reconsidéries a la Lumiere des Ṭabaqāt de Subkī," *Mélanges de l 'Institut Dominicain d'etudes orientales elu caire*, 1954; (3) W. M. Watt, "The Authenticity of the Works Attributed to Al-Ghazzālī", *Journal of the Royal Asiatic Society* (1952), pp. 24-45; (4) G. F.

logic. It was not until al-Ghazzālī was appointed Professor at the Niẓāmiyah College in Baghdād in 1091 that he started seriously delving into a systematic study of philosophy. It would seem that his keen interest in phliosophy reached its zenith between the years of 1091 and 1095, the duration of his appointment as Professor at Niẓāmiyah College. According to al-Ghazzālī's own account in *al-Munqidh min al-Ḍalāl* (Deliverance from Error), his interest in the study of philosophy stemmed from the desire to comprehend, prior to refuting, those philosophers whose theories were in conflict with the tenets of Orthodox Islām. In less than two years, al-Ghazzālī was able to master the sciences of the philosophers.[1] The result of these philosophical contemplations was the work entitled *Maqāṣid al-Falāsifah*. His interest in philosophy is further delineated in *al-Munqidh min al-Ḍalāl* in which he categorizes seekers of knowledge into four groups:

1. The theologians (*mutakallimūn*) who claim to be the expounders of thought and speculation.
2. The *Bāṭinīs* who contend that they are the party of instruction (*ta'līm*) and that they derive their truth from the infallible *Imām*.
3. The philosophers (*falāsifah*) who consider themselves as the exponents of logic and demonstration.
4. The mystics (*Ṣūfīs*) who claim to have the privilege of *presence, vision* and *revelation*.

Al-Ghazzālī even contended that truth cannot lie outside these four classes. As he put it: "If the truth is not with them [knowledge seekers], there is then no point in realizing the truth; for it does not make sense to return to the area of imitation [or derivative belief], after one has already left it."[2] According to his scheme it is then imperative that one's intellectual activity be concerned with the study of philosophy, for philosophers "regard themselves as the exponents of logic and demonstration."[3] It should be noted here that al-Ghazzālī's concept of philosophy is restricted to logic and demonstration both of which he considered in subsequent

Hourani, "The Chronology of Ghazzālī's Writings", *Journal of the American Oriental Society* (1959), pp. 225-233; (5) W. M. Watt, "The Study of al-Ghazzālī", *Oriens* (1969), xiii-xiv, 121-131.

[1] Al-Ghazzālī, *Al-Munqidh min al-Ḍalāl*, eds. J. Saliba and K. 'Iyyād (Beirut, 1967), p. 75.

[2] *Ibid.*, p. 69.

[3] *Ibid.*

works as indispensable tools in intellectual endeavour. (We will consider this point later in the paper).

The underlying reason behind al-Ghazzālī's study of philosophy was primarily to enable him to sort out those views that were in conflict with orthodox Islām. But this intellectual enterprise first led to a reproduction of the philosophic views of his predecessors, al-Fārābī and Ibn Sīnā. The philosophic work which reported this non-critical account of the philosophers was *Maqāṣid al-Falāsifah*. Al-Ghazzālī's reason for writing this book was aptly stated in the introduction to his book:

> You have asked for a beneficial discussion in uncovering the destruction (or incoherence) of the philosophers, the contradictions of their theories, and the areas of their ambiguity and deceit. And there is no advantage in helping you [in this respect] except after informing you of their theories and beliefs. For the understanding of the falsity of their theories before fully comprehending their purposes is absurd .... Hence I thought to proceed by explaining briefly the purpose of their logical, physical and metaphysical sciences without distinguishing between that which is true from that which is false. For I only intend to make you understand the purpose of their theories without taking into account any detail concerning that which is considered to be redundant and far removed from their goals. Hence I only want to introduce them just for the sake of narration by linking them to that which they believed to be significant.[1]

In addition, he claimed that the "purpose of the book (The Goals of the Philosophers) is to make you acquainted with their sciences which amount to four divisions: mathematics, logic, physics, and metaphysics."[2] It is interesting to note in this connection that al-Ghazzālī did not discuss mathematics in *Maqāṣid* believing as he did that mathematical propositions "do not contradict the intellect, and they are not the kind to be met by denial. On account of this there is no reason in discussing them."[3] However, with respect to

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[1] Al-Ghazzālī, *Maqāṣid al-Falāsifah*, ed. Kurdī (Cairo, 1936), p. 1.
[2] *Ibid.*, Part I, p. 2.
[3] *Ibid.*

the other fields, al-Ghazzālī felt that their acceptance was met by disapproval from various intellectual circles. He contended that most of the beliefs in metaphysics were contrary to the truth and, furthermore, "their correctness is rare." Most of the logical propositions, he claimed, were correct and that error in them was rare. With respect to physics, al-Ghazzālī felt that the truth about it was mingled with that which was false, and that that which was correct about it resembled that which was incorrect. In *Maqāṣid*, al-Ghazzālī devotes approximately 70 pages to logic, 140 to metaphysics and 75 to physics. Some of the important philosophic topics that he addressed himself to were:

A. Part I (Logic). (1) The significance of utterances, (2) universal notions, (3) compositions of singulars, (4) arrangements of propositions, (5) discourse on categorical and exceptive syllogisms, (6) the content of syllogism, (7) construction of premises.

B. Part II (Metaphysics). (1) Substance and accidents, (2) universals and particulars, (3) one and the many, (4) causation, (5) priority and posteriority, (6) necessity and contingency, (7) potentiality and actuality, (8) necessary existent, (9) attributes of the First.

C. Part III (Physics). (1) Types of motion, (2) simple and compound corporeals, (3) the vegetative, animal and human soul, (4) external perception, (5) internal perceptions, (6) active intellect.

The above topics clearly indicate al-Ghazzālī's sophistication with the philosophical language of his predecessors. It is indeed quite an achievement for an intellectual to be able to report such an objective account, knowing all along that what these philosophers had to say is, for the most part, in sharp opposition to the religious orthodox community of Islām. Whether al-Ghazzālī wrote the book without plagiarizing is perhaps difficult to ascertain. Undoubtedly, he reproduces many of Ibn Sīnā's arguments *verbatim*. Most likely al-Ghazzālī attempted simply to be as faithful as he could to these philosophers and, hence, was bound to reproduce *verbatim* some of Ibn Sīnā's arguments.

It would be worthwhile to study, and compare the texts of Ibn Sīnā and al-Ghazzālī. The advantage that might accrue from such a project would consist not only in determining how textually close al-Ghazzālī was to Ibn Sīnā, but also in attempting to locate

any philosophical misinterpretation on the part of al-Ghazzālī. Such a textual analysis might enable us to dispel some of the erroneous interpretations imputed to al-Ghazzālī's predecessors. To illustrate this point, consider the important "essence-existence" distinction by Ibn Sīnā. It is commonly held by scholars[1] of Islāmic medieval philosophy that Ibn Sīnā subscribed to the thesis that "existence is an addition to essence" or that "existence is an accident of an essence." Recently, however, one author[2] attempted to dispel this commonly held view, basing it on some of Ibn Sīnā's texts. In al-Ghazzālī's *Maqāṣid*, there is an interesting passage that might shed some light on the source of this confusion. The passage in its entirety is as follows:

> Irrespective of how you underetand the essential and that which is essential to it (universal), the subject matter cannot occur in your mind unless you understand first the attainment of that which is essential to it, and you cannot comprehend it without *that* essential. If you understand man and animal, then you cannot understand man without first understanding animal. And if you understand number and understand four, then you will not be able to comprehend four without understanding first number. And if you substituted "animal" and "number" respectively for "existence" and "white", then you are able to understand four without realizing whether it exists or not, or whether it is white or not. But it may be doubted whether there is in the world the number four or not. But this does not match our understanding of the essence of the number four. And thus one undersrands the essence of man by the intellect without having recourse to

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[1] The following authors have at one time or another attributed to Ibn Sīnā the view that "existence is an addition to an essence": A.M. Goichon, *La Distinction de l'essence et de l'existence d' aprés Ibn Sīnā (Avicenne)* (Paris: Desclée de Brouwer, 1937), p. 132. n. 1, and *passim*; J. Weinberg, *A Short History of Medieval Philosophy* (Princeton: Princeton University Press. 1964), p. 114; A. Maurer, *Medieval Philosophy* (New York: Random House, 1964), p. 98; Ḥ. Naṣr, *Three Muslim Sages* (Cambridge, Mass.: Harvard University Press. 1964), p. 26.

[2] See P. Morewedge's article "Philosophical Analysis and Ibn Sīnā's 'Essence-existence' Distinction," *Journal of the American Oriental Society*, (forthcoming).

> understanding that ne is white or that he is existing; and you cannot understand him (i.e., man) without knowing that he is an animal. And if your intellect does not help you understand this example because you are an existent being, and [because] of the plurality of man's existence, then substitute the example by "crocodile" or whatever animal you want. And hence *existence is accidental to all essences*, but that animal [in relation] to man is essential and likewise is "color" to "blackness" and "number" to "five" [are essential].[1]

This passage substantiates the views of the expounders of the thesis that "existence is an addition to an essence." If this were the correct rendition of Ibn Sīnā's view and if one were to accept Professor Morewedge's claim that Ibn Sīnā never entertained such a view, then it would be feasible to contend that the source of confusion with respect to this issue perhaps stems from al-Ghazzālī's discussion of it in *Maqāṣid*. Whether this in fact is the case does not concern us here. What we have tried to suggest is that it is quite conceivable that al-Ghazzālī in *Maqāṣid* was not simply reproducing *verbatim* the views of his predecessors, but that he might also have attempted to go beyond those views. Such a claim could only be substantiated by subjecting al-Ghazzālī's book to a careful philosophical as well as critical analysis, and then comparing it with the available texts of his predecessors in order to demonstrate whether in fact he was simply giving an objective account of them.

Before considering the significance of al-Ghazzālī's book, it is necessary to consider his claim that "most of the logical propositions are correct and that the error in them is rare."[2] This assertion is odd in that al-Ghazzālī never criticised logic. As a matter of fact, he wrote treatises to promote the study of logic. To wit, in his book *Mi'yār al-'Ilm* (The Standard of Knowledge) he offered an extensive treatment of logic; in *Miḥakk al-Naẓar* (The Touchstone of Thinking), he offered a shorter version of *Mi'yār*. Both these books were designed for persons trained in jurisprudence. Al-Ghazzālī hoped that the study of logic would facilitate their subject matter. In *al-Qusṭās al-Mustaqīm* (The Correct Balance), al-Ghazzālī applied

[1] Al-Ghazzālī, *Maqāṣid*, Part I, pp. 11-12. (Emphasis added).
[2] *Ibid.*, p. 2.

syllogistic reasoning to theological questions. Thus if logic does contain any errors, why did not al-Ghazzālī demonstrate them, as he did with the physical and metaphysical theses in his *Tahāfut*. Our only suggestion is that when he wrote *Maqāṣid* he was under the impression that logical propositions did contain some errors and hence were to be refuted. He did likewise with the physical and metaphysical theses of the philosophers, which later proved to be contradictory. If this assumption is incorrect, we fail to understand how to interpret the remark underlying his assertion that logical propositions contain some errors. Indeed, one wonders why he bothered at all to write about logic in *Maqāṣid* if his intention was not to refute it, as he did with the other claims of his predecessors. Again, our suggestion was that he did not find anything controversial about logic. His concluding remarks in *Maqāṣid* bear out what we are suggesting:

> That was what we intended to discuss about knowledge (logic, metaphysics, and physics) without paying attention to distinguishing that which is good from the bad, and the correct from the incorrect. Now let us start the book, *Tahāfut al-Falāsifah* (The Incoherence of the Philosophers) in order that that which is incorrect of their opinions would be clear and God is the one who will let us arrive at the truth.[1]

Now let us focus our attention on the significance of *Maqāṣid*. The following three salient points stand out:

1. It was considered the best introductory study of Islāmic philosophy. The Latin scholastic philosophers used it extensively to the point that they mistook the views expounded in *Maqāṣid* to be al-Ghazzālī's own, despite his warning in the introduction to his book that he was simply giving an objective account of the theories of his predecessors and was not embarking on any critical analysis. In addition to the scholastic philosophers, the Jewish medieval philosophers, especially Ibn Maymun (Maimonides, d. 1204) of Cordova, used al-Ghazzālī's book. *Maqāṣid* became one of the most widely read and influential books on neo-Platonism in the Medieval Ages.

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[1] *Ibid.*, Part III, p. 77.

2. Ibn Rushd's *Tahāfut al-Tahāfut* (The Incoherence of Incoherence) generated a great deal of interest in the Medieval Ages. Since Ibn Rushd's book was a refutation of al-Ghazzālī's *Tahāfut*, it thus was imperative to comprehend al-Ghazzālī's philosophic position, not just as embodied in *Tahāfut* but also as narrated in *Maqāṣid*.

3. Since Ibn Sīnā was a highly influential philosopher, Medieval scholars resorted to al-Ghazzālī's *Maqāṣid* in order to understand his theories.

II. THE SIGNIFICANCE OF AL-GHAZZĀLĪ'S *TAHĀFUT*

In *Tahāfut*, al-Ghazzālī embarked on the task of refuting the views of the philosophers. Note that it was only the physical and metaphysical theses that al-Ghazzālī wanted to refute. Logic, as mentioned earlier, was praised by al-Ghazzālī, for he considered it a useful tool in man's intellectual activity. Logic, contended al-Ghazzālī, was doctrinally neutral and hence did not conflict with the religious tenets of orthodox Islām. However, with respect to the metaphysical and physical theses, al-Ghazzālī contended that the philosophers' views were objectionable to orthodox Islām and hence should be refuted if one is to preserve Islām.

In the book al-Ghazzālī noted twenty objectionable theses, three of which were deemed to be the doctrines of infidels and the remainder the doctrines of heretics. The metaphysical-physical doctrines which al-Ghazzālī considered the most objectionable were:

1. The eternity of the world.
2. The denial of God's knowledge of particulars, i.e., that God only takes cognizance of the universals.
3. The affirmation only of the immortality of the soul, and hence the denial of the resurrection of the bodies.

Al-Ghazzālī's contention was that the world was created *exnihilo*, hence his rejection of the philosophers' views concerning the eternity of the world; that God takes cognizance not only of the universals but also of particulars, hence his rejection of the second point; that the resurrection of the bodies is conceivable,

hence his rejection of the third point. Interesting as these topics are, we shall not treat them at length; rather we shall focus on one of al-Ghazzālī's most important philosophical theses discussed in *Tahāfut al-Falāsifah*, i.e., his views on the theory of causation. Specifically, we shall discuss his refutation of the concept of a *necessary causal nexus* and note the striking parallel of his views to those of the British philosopher David Hume (1711-1776).

In the last part of *Tahāfut al-Falāsifah*, al-Ghazzālī embarked on the task, *interalia*, to refute those philosophers who advocated the concept of a necessary causal nexus in natural events. His discussion of causality commences with the following:

> Customarily the association (connection) between that which is believed to be a cause and that which is believed to be an effect is not necessary for us. But consider any two things whereby neither of which is the other. And the affirmation of one of them does not guarantee the other, and its denial does not guarantee the denial of the other. And thus the existence of one does not necessarily depend on the existence of the other; neither on the non-existence of the other. Take any two things such as the quenching of thirst and drinking, satiety and eating, burning and contact with fire, light and the appearance of the sun, death and decapitation, cure and medicine, evacuation and the use of a laxative, and so forth for all the empirical connections in medicine, or astronomy, or arts or crafts.[1]

This passage clearly reveals al-Ghazzālī's basic point that when two things invariably follow each other, nothing can prove or demonstrate that one is the cause of the other. In other words, a necessary causal connection is neither logically nor empirically demonstrated. So far it would seem that al-Ghazzālī is as much an empiricist as the British philosopher, Hume. To wit, compare the above passage with the following:

> They are still more frivolous, who say, that every effect must have a cause, because 'tis imply'd in the very idea of effect. Every effect necessarily pre-supposes a cause; effect being a relative term, of which cause is the

[1] Al-Ghazzālī, *Tahāfut al-Falāsifah*, ed. M. Bouyges (Beirut, 1927), pp. 277-278.

> correlative. But this does not prove, that every being must be preceded by a cause; no more than it follows, because every husband must have a wife, and therefore every man must be marry'd. The true state of the question is, whether every object, which begins to exist, must owe its existence to a cause; and this I assert neither to be intuitively nor demonstratively certain...[1]

Just as al-Ghazzālī asserted that co-existence does not indicate causation, so also did Hume. Because two events invariably follow each other, there is no necessary justification from experience for claiming that one is or is not the cause of the other. Let us consider one of al-Ghazzālī's examples in order to further reveal the similarity between him and Hume. Contact with fire burns cotton. Al-Ghazzālī admitted that it is quite conceivable that the contact might occur without the burning or that the cotton might be changed into ashes without coming into contact with fire.[2] What he inferred from such an example was that sense observation does not disclose that fire necessarily causes the burning of cotton. As he put it:

> They [philosophers] have no other proof than observation of the occurrence of burning when there is contact with fire. And that observation proves only that one is with the other, but does not prove that it is by it and that it has no other cause than it.[3]

So far al-Ghazzālī and Hume are in fundamental agreement concerning their denial of necessity to empirical events. To both the concept of a necessary causal nexus is not given in experience. All that we actually perceive when we look at the external world are events followed by other events with no necessary connection between them. The necessity that the concept of causality implies is nowhere to be demonstrated by experience. However, it is with respect to the explanation of how one arrives at the idea of "necessary connection" that both adopted different views. Al-Ghazzālī contended that events are necessarily connected in nature because of God's will. As he explained it:

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[1] David Hume, *A Treatise of Human Nature*, ed. L.A. Selby-Bigge, (Oxford: The Clarendon Press, 1960), p. 82.

[2] Al-Ghazzālī, *Tahāfut*, p. 279.

[3] *Ibid.*, p. 280.

> The connection of these things [i.e., empirical events] is a result of God's power, which preceded their existence. If one follows another, it is because God created them in that manner, and not because this connection is necessary in itself and cannot be disjoined. He has the power to create satiety without hunger, and death without decapitation, to prolong life after decapitation, and so on with respect to all concomitant things.[1]

Al-Ghazzālī's contention with respect to why things in nature are connected differed from Hume's explanation. To Hume, the belief in causality was found to be a matter of *custom, habit, instinct, expectation.* Specifically, all sequences do invariably occur, but these sequences, if repeated again and again, will produce in the mind a strong disposition to connect the events that form the sequence. Thus Hume's answer boiled down to the assertion that necessary connection is no more than psychological, i.e., the way in which we think. As he put it, "Upon the whole, necessary is something that exists in the mind, not in objects: nor is it possible for us even to form the most distant idea of it, considered as a quality in bodies."[2]

With respect to al-Ghazzālī's analysis of causation there is first the *empiricist* element which, as I attempted to indicate, closely parallels that of Hume. Second, there is the metaphysical element which al-Ghazzālī on the one hand invokes and Hume on the other rejects.

Further examination of *Tahāfut* seems to indicate al-Ghazzālī's closeness to Hume. After al-Ghazzālī denied that there is any necessary connection between cause and effect, he entertained the possibility of whether a book could turn into an animal, a slave boy into a dog or a stone into gold.[3] If we denied the necessary dependence of effects on causes and maintained that an effect is to be attributed to the will of its creator and, furthermore, that that will has no definite pattern, but that it may vary and be quite arbitrary, then one would be led to entertain the possibility of the above examples. Al-Ghazzālī's answer to that was:

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[1] *Ibid.*, p. 279.
[2] Hume, *Treatise*, pp. 165-166.
[3] Al-Ghazzālī, *Tahāfut*, p. 280.

> ...God has created in us the knowledge that he will not do all these possible things ... but they are possible in that they may or may not happen, and the persistence of habit firmly fixes their occurrence in our minds in accordance with a previous habit in a fixed impression.[1]

This passage is quite revealing in its statemeent that God does not permit, for example, a book to be turned into an animal, or a slave boy into a dog. We do not expect such phenomena to occur, because we are not accustomed to seeing such things. Clearly there are overtones of Hume's analysis here too. As human beings, we are creatures of habit and tend to depend upon past events to justify future events. Yet, whereas al-Ghazzālī speaks about the orderly course of nature as being the habit of the divine will,[2] Hume believes that the justification of the orderliness of nature is psychological, the way we think, and therefore has nothing to do with God. Thus al-Ghazzālī's position is again similar to Hume's except that he introduced God as part of his argument.[3]

Tahāfut has proved of permanent interest and influence, not just in the Islāmic world but also in the Medieval Latin West. The following points are of importance:

1. It revived the religious atmosphere by saving orthodox Islām. Al-Ghazzālī's refutation of the philosophers' views were for the most part based on religious explanations, believing, as he did, that philosophic theory cannot be the basis of religious beliefs;

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[1] *Ibid.*

[2] *Ibid.*, pp. 272, 285, 296.

[3] In my article "Ghazzālī, Berkeley and Hume on Causation," *Agora* (forthcoming), I discussed at length these views. In addition, I indicated too how close are the views of the British philosopher Berkeley (1685-1753) to al-Ghazzālī. Al-Ghazzālī, Berkeley and Hume are in accord concerning their fundamental empiricist theses, with respect to causation. All three rejected the view that there is any necessary connection between cause and effect in nature. However, there is a marked difference in the answers to "why sensible things are connected in nature?" Al-Ghazzālī and Berkeley provide a metaphysical justification; to both, causal connections are necessarily imposed by God. To Hume, on the other hand, causal connections are by-products of our subjective nature. Furthermore, there seem to be other similarities among the three in response to the question "How can we be sure that our inferences are to be trusted?" The al-Ghazzālī-Berkeley's empirical analysis suggests a metaphysical explanation, whereas Hume's empiricism is divorced from any metaphysical vestiges.

revelation alone can discover the essentials of truth. Thus, in opposing the positions of the philosophers, he was able to subordinate philosophy to theology.

2. *Tahāfut* was one of the first attempts to separate Islāmic philosophy from Greek philosophy. Indeed, Al-Ghazzālī was one of the first Muslim philosophers to fundamentally deviate from Greek philosophy.

3. Al-Ghazzālī's attack on the concept of the causal necessary nexus was classical. He was the first thinker to embark on a systematic refutation of the notion of necessary connection in nature. It is quite conceivable, however, that al-Ghazzālī, in his attack on the concept of the causal necessary nexus, could have been influenced by the Greek skeptics, especially those of the Pyrrhonian school.[1]

4. Al-Ghazzālī's arguments in support of the theory of creation *exnihilo*, God's cognizance of particulars, and the resurrection of the bodies were widely received in the Islāmic world. When *Tahāfut* was translated into Latin, it was adopted by many scholastic philosophers.[2]

III. AL-GHAZZĀLĪ'S PLACE IN LOGIC

Now, we shall turn to al-Ghazzālī's significance in the development of logic in Medieval Islām. We indicated earlier that he had a keen interest in logic. Although he rejected most of Ibn Sīnā's metaphysical and physical theses, al-Ghazzālī was a staunch follower of Ibn Sīnā in the field of logic. Al-Ghazzālī's desire to accept logic stemmed primarily from the lack of any doctrinal content in it that might conflict with orthodox Islām. This indeed is the criterion that he adopted in his intellectual life. In other words, if the contents of a particular subject matter were not in conflict with religion, it was useful and hence should be utilized by the community. On the other hand, if the contents were in conflict with

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[1] Van den Bergh, *Averroes' Tahāfut al-Tahāfut* (The Incoherence of the Incoherence) (London: Luzac and Co., 1954), Vol. I, *Introduction*, Vol. II, *passim*.

[2] See S. M. Afnān, *Avicenna: His Life and Works* (London: GeorgeAllen and Unwin Ltd. 1958), p. 239.

religion, then it was harmful and hence should be avoided by the community. It is in this sense then that logic passed al-Ghazzālī's scrutiny.

Because he found logic theologically useful and acceptable, al-Ghazzālī encouraged its study. Arguing that it was doctrinally neutral, that it was merely "a tool of knowledge," he wrote logical treatises for his fellow theologians, urging them to master the tools of logic in order to be better equipped in rebutting the opponents' doctrines. The most comprehensive logic book which al-Ghazzālī appended to *Tahāfut* was *Mi'yār al-'Ilm*. One of the motives for writing this book was, as he tells us, to explain the technical, logical vocabulary of the philosophers to his fellow theologians, thus enabling them to have a better understanding of the arguments delineated in *Tahāfut*. In *Mihākk al-Naẓar*, al-Ghazzālī offered a shorter version of *Mi'yār*, still hoping that logic would be utilized by his fellow theologians. In *Al-Qusṭās al-Mustaqīm*, he applied syllogistic reasoning to theological questions.

It should be noted in this connection that all of al-Ghazzālī's treatises on logic faithfully followed the ideas of his predecessors, particularly Ibn Sīnā. Although al-Ghazzālī was not original in his treatment of logic, he was still credited as being the first Islāmic Medieval philosopher who encouraged and utilized logic in discussion of theological questions. Indeed the link between theology and logic proved to be a decisive factor in the survival of logical studies in Medieval Islām, for logic came to be accepted by theologians and others as an important tool in the shaping of the Islāmic basic curriculum. The following structure was developed: (a) *Qur'ān*, (b) Arabic Language, (c) Logic, (d) Theology and Religious Law.[1] The slogan "*man tamantaqa tazandaqa*" (he who uses logic commits heresy) was no longer seriously entertained in the Islāmic community. Once again "Persia was to become the undisputed center of logical studies in the Arabic speaking world.[2]

Although the detachment of logic from philosophy proved to be of significance, it did not advance the development of logic. As Professor Nicholas Rescher so aptly stated:

[1] See A. S. Tritton, *Materials on Muslim Education in the Middle Ages* (London, 1957), pp. 134-135; also see N. Rescher, *The Development of Arabic Logic* (Pittsburgh: University of Pittsburgh Press, 1964), pp. 51-52.

[2] Rescher, *Arabic Logic*, p. 54.

> In making its peace with theology, as it was ultimately to succeed in doing, Arabic logic did not get off without paying a price. By breaking away from philosophy and becoming an aecepted part of advanced religious instruction, the study of logic became sterile and stylized — a matter of memorizing handbooks rather than mastering a living discipline.[1]

Professor Rescher's comment is historically correct. But be that as it may, the logical treatises that the Muslim philosophers wrote, especially those of al-Fārābī, Ibn Sīnā and al-Ghazzālī, were of profound historical significance in the development of logic. Though Islāmic logic was Aristotelian in its general outline, a closer examination of the logical treatises of the Muslim philosophers reveals that it was wider in scope and subject matter. No one is certain about the actual influences on Islāmic logic, but it may be safe to suggest that logic as propounded by Muslim logicians tended for the most part toward assimilation of Aristotle's *Organon* which was available to the Muslim scholars through the expertise of various commentators and the works of the Stoics. If this claim is correct, one may consider Muslim logicians as *synthesizers* of Aristotle's logic as well as that of the Stoics. In order to substantiate this claim, let us consider how the two significant Arabic terms *taṣawwur* (*concept*) and (*taṣdīq*), (*assent*) as well as *hamliyyah* (*categorical, attributive, non-conditional*) and *sharṭiyyah* (*conditional*) propositions were utilized by Muslim logicians.

(*I*) *Concept and Assent*

The origin of these two terms is not known; yet every Islāmic logic textbook of the Medieval period begins by stating that all knowledge is either of concept or assent (judgment). The concept, roughly speaking, is the realization of essence without judging it either affirmatively or negatively; and the way of apprehending it is by means of a *definition* (*ḥadd*). Assent (judgment) is the concept which is judged; that is to say, it is the ascription (predication) of one thing of another affirmatively or negatively; and the way of apprehending it is by means of a *demonstration* (*burhān*).[2]

[1] *Ibid.*, p. 63.

[2] See al-Ghazzālī's *Munqidh*, p. 82.

The above indicates the bifurcation of logic into two parts: one dealing with concepts, the other with assent (judgment). It would indeed be historically helpful to locate the underlying reasons for this division. One explanation would be to claim that the desire on the part of Islāmic logicians to accomodate Aristotle's logic as well as the works of the Stoic logicians led them to such a division. If one were to claim that the part of logic dealing with concept is equivalent to the logic of terms and that of assent equivalent to the logic of propositions, and, furthermore, if one were to agree with Lukasiewicz's contention.[1] that Aristotelian logic was a logic of terms, while Stoic logic was a logic of propositions (judgments), then this would lend some credibility — not just to the view that is being suggested for the division of logic into concept and assent, but also to the view that Islāmic logicians tended to synthesize the best of Aristotle's logic and Stoic logic.

(*II*) *Conditional and Non-Conditional Propositions*

A non-conditional (categorical) proposition, according to Islāmic logicians, is one which affirms a predicate to a subject, or denies it of a subject. For instance: Zayd is a writer; Zayd is not a writer. In connection with the discussion of categorical propositions and syllogisms, Islāmic logicians did not substantially differ from the Aristotelian tradition, as evidenced in their discussions of the kinds of categorical propositions, the three figures, categorical syllogisms, etc. On the other hand, in their treatment of conditional propositions, Islāmic logicians deviated from the Aristotelian tradition. Conditional propositions consist of two parts, each part including a proposition. Starting with al-Fārābī and possibly earlier, Islāmic logicians discussed two kinds of conditional propositions: (a) *hypothetical conjunctive* (*al-sharṭiyyah al-muttaṣilah*), and (b) *hypothetical disjunctive* (*al-sharṭiyyah al-munfaṣilah*). The paradigm examples of (a) and (b) are respectively: "If the sun has risen, it is day." "Either the world is created or eternal." It should be pointed out that though conditional propositions were known to Aristotle, they were, however, never explored by him.[2] However,

[1] J. Lukasiewica, *Aristotle's Syllogistic* (Oxford: Clarendon Press, 1958), pp. 47-48.

[2] See Aristotle's *Prior Analytics*, $50^{a}32$.

Islāmic logicians went beyond Aristotle's promisory note. One indeed finds detailed accounts of coditional statements in the writings of Islāmic Medieval philosophers.[1]

It is interesting to note in this connection that Islāmic logicians were quite familiar with valid as well as invalid conditional syllogisms. In *Maqāṣid*, al-Ghazzālī cited the following paradigm examples of hypothetical conjunctive arguments:[2]

A) 1. If the world is created, then it has a creator.
2. The world is created
Therefore, it has a creator

Letting "A" stand for "The world is created," and "B" for "The world has a creator," the argument form of (A) is:

If A, then B
A
∴ B

B) 1. If the world is created, then it has a creator
2. There is no creator
Therefore, the world is not created.

The argument form of (B) is:

If A, then B
Not B
∴ Not A

C) 1. If the world is created, then it has a creator
2. The world is not created
Therefore, there is no creator[3]

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[1] See N. Rescher, *Al-Fārābī on Aristotle's Prior Analytics* (Pittsburgh: The University of Pittsburgh Press, 1963), pp. 74-80; also see A.M. Goichon, *Lexique de la langue philosophique d'Ibn Sīnā (Avicenne)* (Paris, 1938); and *Livre des directives et remarques (Kitāb al-Ishārāt wa al-Tanbīhāt)* trans. A.M. Goichon (Paris, 1951). Yet the distinction between hypothetical conjunctive and hypothetical disjunctive propositions is not original with Muslim logicians, for one can find treatment of them in Boethius' treatise *De Syllogismo Hypothetico* (See N. Rescher, *Studies in the History of Arabic Logic* [Pittsburgh: The University of Pittsburgh Press, 1963], p. 77, note 4).

[2] See *Maqāṣid*, Part I, pp. 36-37.

[3] Also, al-Ghazzālī stated that argument (C) could yield: "There is a creator." The form of this argument is:

(C[1]) If A, then B
Not A
∴ B

The argument form of (C) is:

If A, then B
Not A
∴ Not B

D) 1. If the world is created, then it has a creator
2. There is a creator
Therefore, the world is created[1]

The argument form of (D) is:

If A, then B
B
∴ A

Obviously (A) and (B) are valid arguments. They respectively correspond to *Modus Ponens* and *Modus Tollens* of the Latin logicians. (C) and (D) are invalid arguments. (C) commits the fallacy of *denying the antecedent*, while (D) commits the fallacy of *affirming the consequent*.

Islāmic logicians were also familiar with disjunctive syllogisms. In *Maqāṣid*, al-Ghazzālī reports the following as paradigm examples of disjunctive arguments:

> The hypothetical [disjunctive] syllogism is when you say "Either the world is created or eternal." From this kind of hypothetical disjunctive [sentence], there results four exceptive syllogisms. For you say that it is created and hence not eternal; but it is not created and hence eternal; but it is eternal and hence not created; but it is not eternal and hence created.[2]

Letting "A" stand for "the world is created," and "B" for "the world is eternal," then the above passage contains the following argument forms respectively:

A) Either A or B
A
∴ Not B

B) Either A or B
Not A
∴ B

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[1] Also, according to al-Ghazzālī, this argument could yield: "The world is not created." The form of this argument is:

(D') If A, then B
B
∴ Not A

[2] Al-Ghazzālī, *Maqāṣid*, Part I, p. 37.

C) Either A or B
B
∴ Not A

D) Either A or B
Not B
∴ A

These four argument forms are all considered valid provided the logical operator "either...or" is understood in the exclusive sense. If the *inclusive*[1] sense is used, (A) and (B) would then be invalid argument forms.

The preceding discussion indicates al-Ghazzālī's familiarity with formal logic. Admittedly nothing is original in al-Ghazzālī's discussion of logic; he closely follows Ibn Sīnā. Al-Ghazzālī's aim, as mentioned earlier, was to render logic acceptable and palatable to his fellow theologians. Hence his significance in logic does not lie in introducing any new techniques to the development of logic. However, credit should go to al-Ghazzālī for his insistence that logic, since it does not conflict with the articles of faith, should be employed as a tool of inquiry.

IV. CONCLUSION

In conclusion, it may be mentioned that much needs to be done with respect to al-Ghazzālī's *Maqāṣid.* So far the book has not received the scholarly attention that it should. Much light could be shed on al-Ghazzālī's predecessors if this book were available in English. We have suggested that a worthwile study would consist in a textual comparison of views of al-Fārābī and Ibn Sīnā with those expounded by al-Ghazzālī in *Maqāṣid* in order to locate philosophical misinterpretations, if any, on the part of al-Ghazzālī. In other words, it behoves us to find out how accurate, philosophically speaking, al-Ghazzālī was in reporting the

[1] The inclusive sense of "or" means at least one, not requiring, but allowing the possibility for both to be true. The exclusive sense of "or" means that it is not the case that both are true.

doctrines of the philosophers. In *Tahāfut* one encounters a brilliant systematic refutation of the views of Ibn Sīnā. The translation of the book into English by S. A. Kamālī has enabled the western scholars to study and appreciate the philosophic acumen embodied in the book. Finally, with respect to al-Ghazzālī's contribution to logic, much credit should go to him for the support which he gave to its study. This enabled his fellow theologians to use logic as a tool in their intellectual endeavors.