Al-Hikmat Volume 36 (2016) pp. 43-58

AVICENNIAN LOGIC

Dr. Ali Raza Tahir

Assistant Professor
Department of Philosophy
University of the Punjab
Lahore, Pakistan.

Hafiz Hammad Mushtaq

Research Scholar M.Phil Department of Philosophy University of the Punjab Lahore, Pakistan.

Abstract. Avicenna is undoubtedly the most significant philosopher in the history of Muslim thought. He has influenced all the notable factions of Muslim intelligensia. Logic occupies a prominent place in his philosophical system. It is considered by Avicenna such an important theoretical tool that it has practical utility and consequences. Any intellectual activity is inconceivable without the help and guidance of logical tools according to Avicenna. This paper is an attempt to highlight the place and application of logic in Avicennian tradition. Along with that it offers a brief exposition of his logical system. It also gives an insight into the prominent contributions that he has made in this field of study.

Key Words: Logic, Theoretical, Practical, Tool, Islam, Aristotelian, Induction

Introduction:

Avicenna is one of the most influential philosophers in the history of Muslim Philosophy. Not just that, he is considered an important thinker by the West as well. In the history of philosophical thought his influence is phenomenal. He is a representative figure of peripatetic thought in Muslim philosophy. Additionally, he is considered a foundational source of illuminationismⁱ. His influence on Sufism is also notableⁱⁱ. In the West he influenced the whole scholastic traditionⁱⁱⁱ. He is celebrated equally well in the Western Scholastic milieu. The scholars have a consensus regarding Avicenna's influence on the commentaries on Aristotle in the medieval period^{iv}.

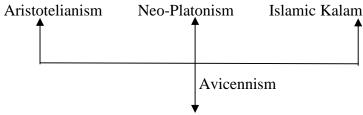
He is an encyclopedic thinker. From the corpus of Avicenna's writings, around 250 have survived^v. Areas other than Philosophy in which he made notable contribution include^{vi}:

- The field of medicine
- The natural sciences
- Musical theory
- Mathematics

His major work in the field of medicine, i.e., Canon, remained an important medical textbook for centuries^{vii}. He also short commentaries on selected verses of the Quran which exemplify his philosophical hermeneutic method.

Contours of Avicennism:

Avicenna is primarily a philosopher of being, whose metaphysics is an effort to understand the existence of the self in this world in relation to the contingency it has. His metaphysics plays the central role in the development of his entire philosophical system. His system also takes into account the religious exigencies of Islam. His thought was an effort to reconcile the religious dogma with the philosophy of the Greeks. He reconciled Aristotelianism and Neo-Platonism with Islamic Kalam. This pursuit of reconciling Greek sciences and religious doctrines is not limited to Avicenna alone. In fact, it is the common characteristic feature of all the Muslim philosophers^{viii}.



Islam and Logic

Arabic contact with Greek learning developed after the conquest of Syria-Iraq. Syrian Christian scholars were the first ones to write on logic in Arabic. This laid the foundation of Arabic logic^{ix}. The standard arrangement of logical works according to these scholars was following:

- Isagoge (Porphyry)
- Categories
- On interpretations
- Prior analytics
- Posterior analytics
- Topics
- On sophistication
- Rhetorics
- Poetics

The arrangement of this Organon was referred to as "the nine books" of logic^x. Many of these books of Aristotle were translated into Arabic in the first part of the 9th century. These translations along with various commentaries which were available prepared the ground for the introduction of logic in Muslim intellectual tradition. The first indigenous Arabic/ Muslim writer on logic was Kindi^{xi}.

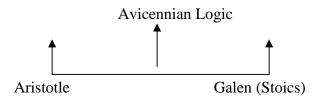
To start with, Arabic logic was the monopoly of a single 'school' known as the 'Baghdad School'. With the exception of Farabi who was a born Muslim all the members belonging from this school were Nestorian Christians^{xii}. Farabi is an eminent scholar who wrote on logic in Islam. His commentaries also paved the path for Avicenna. According to Rescher, there were three principle achievements of 'School of Baghdad', namely,

- 1. Completion of the translations of Greek logical works
- 2. Commentaries on these logical works
- 3. Addition of new concepts

The first achievement was mainly due to the school of Hunain ibn Ishaq, while the second one was due to Farabi. The final achievement was due to the legacy of Farabi and Abu Bishr Matta. The extra Aristotelian concepts which they introduced included^{xiii};

- Theory of conditional syllogism and
- Inductive reasoning

After the logical death of the 'School of Baghdad', it was Avicenna who carried the thought forward. Though he was highly indebted to the 'School of Baghdad' yet contrarily logic for him was possible beyond Aristotle as well. His 'Book of Healing' was the major part of his logical doctrine. Avicnnian school of logic is known as 'Eastern school' in contrast to the 'Western school' (the school of Baghdad). XiV Avicennian logic was a departure from Aristotelian precedent. He incorporated into his system things from Galen which according to Rescher were certainly from Stoic sources.



Avicenna's logical doctrines are contained in his four important books, xv namely:

- 1. Shifa (The Book of Healing)
- 2. Isharat wa Tanbihat (The Directives and Remarks)
- 3. Mantiq al Mashriqiyeen (Logic of the Easterns)
- 4. Danish Name Alai (The Book of Knowledge of Alai)

According to Rescher, Avicenna is "the greatest, and perhaps the most creative logician of Islam." Avicenna even criticized the 'Western School' in his Mantiq al Mashriqiyeen (Logic of the Eastern). He called them occidentals "Vii". In his Mantiq al Mashriqiyyin he says:

We do not worry to show a departure... from those philosophers enamored of the Peripatetics who imagine that God did not guide any except themselves... We do not worry about any departure that may appear on our part from what the expounders of the books of the Greeks have been occupied with. And it is not improbable that certain sciences may have reached us from elsewhere than from the side of the Greeks. **viii*

It was only in Muslim Spain that the tradition of 'Western School' survived for a short while. The 'Western School' was revived again by scholars like Razi. To counter the 'Western School' and defend the 'Eastern School', scholars like Tusi came forward^{xix}.

The only aspect of the Aristotelianism which could have been excepted independentaly without any reconciliation was his logic. Even Ghazali who is strictly anti-philosophical recognized this view. He is of the view that, "Logic is not their [philosophers] prerogative, and may be usefully employed by anyone". *** He even considered the logic of Peripatetics as faultless. **xii Starting from the 13th century logic became a permanent part of the curriculum of the Islamic educational system **xiii . The importance of Avicenna in this system with respect to logic is stated by Walbridge as:

For seven hundred years or more the study of Aristotelian logic in its Avicennan form has been one of the pillars of the curriculum of Islamic *madrasahs*. **xxiii*

However it was Ghazali who played the decisive part in making Aristotelian logic part of Muslim traditional learning as noted by Sabra: xxiv

It is one of the paradoxes of Islamic intellectual life that the man most responsible for admitting Aristotelian logic into the scheme of traditional learning was a n opponent of Greek philosophy..

Subject matter of Logic:

Whether logic is a part or an instrument of philosophy is an important debate that defines the subject-matter of logic. Ancient philosophers were highly interested in this debate but the modern logicians have no interest in this. For Platonists and Stoics different parts of philosophy deal with different aspects of being, and logic was also a part of philosophy. For Peripatetics on the other hand logic was only an instrument not a part. In Islamic world, an added ingredient to define the subject matter of logic was the question whether logicians or

grammarians are the actual custodians of sound discourse. There is also a famous debate between logician Matta ibn Yunus and the grammarian Abu Said al-Sirafi on this question. The debate took place in the tenth century. Farabi was the first philosopher to take up this issue. He considered the question of relation of logic to grammar and of language to thought. He concluded that logic is like universal grammar. Ghazali understood logic as an instrument only. For ibn Tamiyyah, logic was unacceptable no matter in what guise it came.

Avicenna differed from all the authors mentioned above according to Sabra in that although he favored the instrumental character of logic, at the same time he was critical of Aristotelian logic. He not only criticized the 'School of Baghdad' as we have seen already he also modified the Aristotelian logic. For Avicenna logic has its own subject matter which is different from that of other sciences. He defines logic as: **xxvii**

It is an inquiry into concepts, and into their properties, insofar as they can be made to lead to knowledge of the unknown.

According to Avicenna, logic becomes an instrument of philosophy, if philosophy is equated with the investigation of external and conceptual things as such. On the other hand, it becomes a part of philosophy, if by philosophy we mean a theoretical investigation of all kinds. For Avicenna logic; xxviii

- Is a study of intelligible/ abstract concepts
- Is a science to judge the concepts
- Is an instrument to judge the validity/ invalidity of arguments
- Is the key to acquire knowledge
- Is necessary to understand the world
- Is a shield of science against errors

The most basic features of Avicennian logic can be summed up as: xxix

- Every proposition is either temporal/ modal.
- Everything in the world is either necessary or possible. This is the basic point of his ontology as well.
- Objects of logic and science (ilm) are closely related.
- The premises and conclusions capture the world as it is accurately.

Relation between Logic and Science (Ilm):

Avicenna distinguishes between two acts of knowledge, i.e., Tasawwur and Tasdiq. Tasawwur has been translated variably as; xxx

- Concept
- Conception
- Thought
- Intellectus
- Magul

On the other hand, Tasdiq has been translated as; xxxi

- Assertion
- Belief
- Judgment
- Proposition
- Credulities
- Itiqad
- Verification xxxii

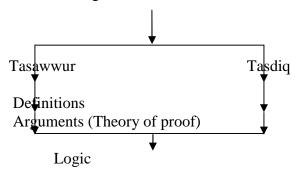
This distinction between acts of knowledge has become a permanent feature of Arabic logic after Avicenna. Conception is related to receiving/ grasping forms; verification is related to truth/ falsity of a belief. Names/ verbs (man/ white) also fall in the category of conception. Truth and falsity result from the combination and separation of these, according to Aristotle. For Avicenna on the other hand, truth/ falsity is a function of relation between subject and predicate. Theory of definition covers the domain of conception; theory of proof/ argument covers the domain of verification. This divides logic in two domains, namely, definitions and arguments.

Furthermore, Avicenna's conception of 'essence' plays an important role not only in his metaphysics but also in his theory of logic. He in his 'Shifa' outlines two different manifestations of the 'essence' on the basis of its modes of existence, i.e., in thought and in actual things. In its modes of existence 'essence' becomes polluted with 'accidents'. These 'accidents' include; xxxv

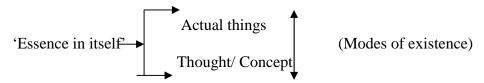
- To be Subject/ Predicate
- Universality/ Particularity

Essential/ Accidental

Acts of Knowledge



This makes 'essence in itself' different from 'essence of things/ concepts'. It is the 'essence in itself' which is the link between logic and science (ilm). **xxxvi** However, it must be kept in mind that 'objects of logic' are purely mental objects whereas 'objects of science' are extramental.



The nature of 'objects of logic' is composite. They are composed of simpler concepts. We need to understand all the simpler terms/ concepts involved to understand the meaning of the statement/ term/ concept under consideration. The most basic terms for Avicenna, following Porphyry's Isagoge are;

- Universals (represented by the genus)
- Difference
- Species
- Property
- Accident

This approach is analogues to recent approach of analytical philosophers. For example, Russell's theory of description can be considered in resonance with this point of view. To elaborate this point further we will consider the term 'human' and the way he analyzes it. The logically basic concepts of which it is composed are 'animal' and 'rational'. 'Animal' is the genus while rational is the 'difference'.

Various capacities which are related to human but are not essentially linked to 'human' are the accidental properties, i.e., to laugh, walk etc. To understand the term 'human' we need to understand all the simpler concepts.

Definitions:

Avicenna classifies sciences in two types. This classification is based on the modes of existence of things. He classifies sciences into theoretical and practical sciences. Theoretical sciences seek knowledge for the sake of knowledge whereas practical sciences are related to the practical affairs/ conduct. This classification is similar to the Aristotelian classification of science. For Avicenna the aim of theoretical knowledge is certainty. Definitions play an important role in this pursuit.

Definitions for Avicenna are composed of genus and difference. The components of definitions are an indicator of the 'essence' of the things involved. Definitions depict the extra-mental world. For Avicenna definitions should be built with the positive aspects of the things. It should not be composed of those aspects which are negative or non-existent. At this point, Avicenna stands in contradiction to Porphyry who believes that negative differences can also be constituents of definitions. Those concepts which cannot be defined using positive factors are an indication of the concept under consideration as a 'vacuous concept'.

Problem of Induction:

Avicenna's philosophy mostly remains in harmony with the Aristotelian philosophy. It is at the point of induction that parts his way from Aristotle. Induction in Aristotelian system is not only capable of providing generalizations but can also help in formulating the first principles. **Example of Avicenna induction is incapable of doing this. At best it can only point towards usual causal relations. It can in no way reveal the universal necessary causal relations. Sense-perception and particulars are insufficient to achieve it according to Avicenna. For Avicenna induction is incapable of providing the certainty that is required by sciences.

As an alternative to induction Avicenna coins the concept of 'methodic experience'. ** Methodic experience instead of identifying 'what the causal relations are' only points towards the existence of 'some kind of causal relation'. The validity of this causal relation

remains limited to the domain of actual observation/ examination. On the basis of new empirical evidence results are capable of variation. Instead of providing absolute universal it only provides conditional universal knowledge.

Modal logic:

It is the study of the various modes of truth and the relation they have with the reasoning. Various ways that can make a proposition true/false (modes of truth) are;

- Necessity
- Contingency
- Possibility

Modal logic is a vast field of study and Avicenna also gives special importance to it. He develops a completely systematic theory of modal logic which deserves a special attention owing to its intellectual and historical importance. However, in an introductory paper of this sort we can only have a bird's eye view of it.

Temporal qualifiers of the sort "sometimes" and "always" were present in the Greek thought. Greeks had a theory of temporal modalities. Fundamentals of modal theory were present in 'the Megarians', 'the Stoics', and Aristotle. The position of 'the Megarians' and 'the Stoics' has minute differences. There position related to truth/actuality is similar but they differ on the postulates of possibility and necessity. Aristotelian view is similar to 'the Stoics' with respect to the necessary propositions and the same is reflected by Saint Thomas Aquinas. Aguinas.

These ideas although emerged in the ancient Greece but were developed by the Arabic Logicians of the middle ages with a high level of sophistication. Modal logic was introduced into the Arab world through/by Abu Bishr Matta ibn Yunus. xliii

Although the mainstream view of Arabic logic, i.e., the school of Baghdad always remained on the side of Aristotle as opposed to Galen, Avicenna is an exception. He is the fountainhead of a separate tradition of Arabic logic and is chiefly influenced by Galen. Due to the division of reality into necessary and possible being, the concept of modality plays a central role in his whole system. Avicenna's Kitab al-Isharat

deals with the subject of modal logic in a detailed manner. He also discusses modal logic in his Kitab al-Shifa. Although Avicenna's modal logic has a profound impact on Muslim intellectual tradition, nevertheless it was criticized by Averroes. Averroes was highly critical of his modal scheme and gave an alternative of it. xlv

Conclusion:

Although the tradition of logic existed before Avicenna and was an established discipline with prominent figures like Aristotle and Galen but Avicenna revolutionized it altogether. He not only made important contributions to the discipline but also changed the nature and utility of logic. Unlike Aristotle and Galen, even the Baghdadi School who were mere imitators of Aristotle, logic for Avicenna is not a theoretical discipline which aims at hair splitting debates alone. Logic has serious practical utility and implications according to Avicenna. Be it the recognition of human self, Gnostic activity, or even serious philosophical/ religious thinking all require this theoretical toolkit at their base to be anything substantial and valid. Avicenna's definition of *Hikma* perfectly clarifies this utility of logic;

"Al-hikma [which he uses as being the same as philosophy] is the perfection of the human soul through conceptualization [tasawwur] of things and judgment [tasdiq] of theoretical and practical realities to the measure of human ability."xlvi

Logic instead of having existence like zombies has a significant part to play in the molding of our consciousness and the perfection of our souls. Although its double staged structure, namely; tasawwur and tasdiq, apparently deals with wildly different aspects but the way Avicenna synthesizes them makes them a monistic whole with an aim to shape the practical aspects of our existence.

The effect of Avicenna was not limited to peripatetic circles alone. It manifested itself in Illuminationist and Sufi circles as well. The two most prominent representative figures of the schools, namely; Suharwardy and Ibn Arabi, favoured the practical implications of logic as has been expounded by Avicenna. This tradition was in turn synthesized in the figure of Mulla Sdara. This tradition was in turn synthesized in the figure of Mulla Sdara.

Apart from this, Avicenna provided a genuine alternative of Baghdadi School of logic to the Muslim world. The sweep and effectiveness of this alternative is highly valued. It is of use for not only the seasoned intellectuals but also of the beginners. *Risla Shamsiyyah* is an important exemplification of this impact. Xlix

Although the thought of Avicenna is highly valuable in the history of thought, however, unfortunately we could not build something substantial on the base provided by this towering figure. Like always we trivialized and conventionalized his system as well. All this was further coupled with general intellectual decline in the Muslim world which aggravated the situation even more. Need of the time is that we critically study the thought of Avicenna and couple it with some serious intellectual activity to actualize the potential horizons of his system.

End Notes

ⁱ Nasr, Seyyed Hossein, An Introduction to Islamic Cosmological Doctrines; Conceptions of Nature and Methods Used for Its Study by the Ikhw n Al- af, Al-Brn, and Ibn Sn (Lahore: Suhail Academy, 2007), 182.

ii Nasr, An Introduction to Islamic Cosmological Doctrines, 188-196.

- iii Sharif, Mian Mohammad, A History of Muslim Philosophy. With Short Accounts of Other Disciplines and the Modern Renaissance in Muslim Lands (Wiesbaden: Harrassowitz, 1963), 505.
 - iv Sharif, A History of Muslim Philosophy, 505.
 - ^v Nasr, *Three Muslim Sages*, 24.
- vi Nasr, Seyyed Hossein, *Three Muslim Sages: Avicenna, Suhraward*, *Ibn Arab* (Cambridge, Massachusetts: Harvard University Press, 1963), 23.
 - vii Nasr, Three Muslim Sages, 24.
- viii Avicenna, and Farhang Zabeeh. Avicenna's Treatise on Logic: Part One of Danesh-name Alai (a Concise Philosophical Encyclopaedia) and Autobiography (The Hague: M. Nijhoff, 1971), 1.
- ix Rescher, Nicholas. *Studies in the History of Arabic Logic* (Pittsburgh: University of Pittsburgh Press, 1963), 13.
 - ^x Rescher, Studies in the History of Arabic Logic, 14.
 - xi Rescher, Studies in the History of Arabic Logic, 14.
 - xii Rescher, Studies in the History of Arabic Logic, 14.
 - xiii Rescher, Studies in the History of Arabic Logic, 15.
 - xiv Rescher, Studies in the History of Arabic Logic, 16.
 - xv Zabeeh, Avicenna's Treatise on Logic, 4.
 - xvi Rescher, Studies in the History of Arabic Logic, 16.
 - xvii Zabeeh, Avicenna's Treatise on Logic, 3.
 - xviii Zabeeh, Avicenna's Treatise on Logic, 3.
 - xix Rescher, Studies in the History of Arabic Logic, 17-18.
 - xx Zabeeh, Avicenna's Treatise on Logic, 2.
- xxi Ghazali, and Nadvi, Muhammad Hanif. *Qadeem Yunani Falsfa (Translation of Ghazali'a Magasid Al Falasafa)* (Lahore: Majlis E Taraqi E Adab, 2014), 20.
 - xxii Rescher, Studies in the History of Arabic Logic, 19.
- xxiii Walbridge, John. "Review." *Islamic Research Institute, International Islamic University, Islamabad* 41, no. 3 (2002): 534-37.
- xxiv Sabra, A. I. "Avicenna on the Subject Matter of Logic." *The Journal of Philosophy* 77, no. 11 (November 1980): 749.
 - Sabra, "Avicenna on the Subject Matter of Logic." 746.
 - xxvi Sabra, "Avicenna on the Subject Matter of Logic." 747.
 - xxvii Sabra, "Avicenna on the Subject Matter of Logic." 752.
 - xxviii McGinnis, Jon. Avicenna (Oxford: Oxford University Press, 2010), 28.
 - xxix McGinnis, Avicenna, 27.
 - xxx Sabra, "Avicenna on the Subject Matter of Logic." 758.
 - xxxi Sabra, "Avicenna on the Subject Matter of Logic." 758.
 - xxxii McGinnis, Avicenna, 29.
 - xxxiii Sabra, "Avicenna on the Subject Matter of Logic." 757.
 - xxxiv Sabra, "Avicenna on the Subject Matter of Logic." 758.

- xxxv Sabra, "Avicenna on the Subject Matter of Logic." 751.
- xxxvi McGinnis, Avicenna, 35.
- xxxvii McGinnis, Avicenna, 40.
- xxxviii McGinnis, Avicenna, 48.
- xxxix McGinnis, Avicenna, 50.
- xl Rescher, Nicholas. Temporal Modalities in Arabic Logic (Dordrecht: D. Reidel, 1967), 34.

 xli Rescher, Temporal Modalities in Arabic Logic, 35.

 - xlii Rescher, Temporal Modalities in Arabic Logic, 35.
 - Rescher, Temporal Modalities in Arabic Logic, 2.
- xliv Bäck, Allen. "Avicenna's Conception of the Modalities." Vivarium 30, no. 2 (1992): 217.
 - xlv Rescher, Temporal Modalities in Arabic Logic, 34.
- xlvi 'Abdurrahman Badawi (ed.). 'Uyun al-hikmah (Cairo: Fontes sapientiae,
- 1954), 16.

 xivii Izutsu, Toshihiko. The Concept and Reality of Existence (Tokyo: Keio
 - xlviii Izutsu, The Concept and Reality of Existence, 65.
 - xlix Rescher, Temporal Modalities in Arabic Logic, 26.

Bibliography

Aristotle, and D. W. Hamlyn. *Aristotle's De Anima, Books II and III (with Certain Passages from Book I)*. Oxford: Clarendon P., 1968.

Avicenna, and Farhang Zabeeh. *Treatise on Logic: Part One of Danesh-name Alai (a Concise Philosophical Encyclopaedia) and Autobiography*. The Hague: M. Nijhoff, 1971.

Avicenna, and Nabil Shehaby. *The Propositional Logic of Avicenna*. Dordrecht: Reidel, 1973.

Bäck, Allen. "Avicenna's Conception of the Modalities." *Vivarium* 30, no. 2 (1992): 217-55. Accessed February 18, 2016. http://www.jstore.org/stable/42569869.

Ghazali, and Nadvi, Muhammad Hanif. *Qadeem Yunani Falsfa (Translation of Ghazali'a Magasid Al Falasafa)*. Lahore: Majlis E Taraqi E Adab, 2014.

Izutsu, Toshihiko. *The Concept and Reality of Existence*. Tokyo: Keio Institute of Cultural and Linguistic Studies, 1971.

McGinnis, Jon. Avicenna. Oxford: Oxford University Press, 2010.

Nasr, Seyyed Hossein. An Introduction to Islamic Cosmological Doctrines; Conceptions of Nature and Methods Used for Its Study by the Ikhw n Al- af, Al- B r n, and Ibn S n. Lahore: Suhail Academy, 2007.

Nasr, Seyyed Hossein. *Three Muslim Sages: Avicenna, Suhraward , Ibn Arab .* Cambridge, Massachusetts: Harvard University Press, 1963.

Rescher, Nicholas. *Studies in the History of Arabic Logic*. Pittsburgh: University of Pittsburgh Press, 1963.

Rescher, Nicholas. *Temporal Modalities in Arabic Logic*. Dordrecht: D. Reidel, 1967. Sharif, Mian Mohammad. *A History of Muslim Philosophy. With Short Accounts of Other Disciplines and the Modern Renaissance in Muslim Lands*. Wiesbaden: Harrassowitz, 1963.

Sheikh, M. Saeed. Studies in Muslim Philosophy. Lahore: S.M. Ashraf, 2007.

Sabra, A. I. "Avicenna on the Subject Matter of Logic." *The Journal of Philosophy* 77, no. 11 (November 1980): 746-64. Accessed February 18, 2016. http://www.jstore.org/stable/2025992.

Walbridge, John. "Review." *Islamic Research Institute, International Islamic University, Islamabad* 41, no. 3 (2002): 534-37. Accessed February 18, 2016. http://www.jstore.org/stable/2083712.