



From Logic in Islam to Islamic Logic

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Abstract. Speaking of relations between logic and religion in Islamic world may refer to logic in two respects: (1) logic in religious texts, from doctrinal sacred texts such as *Qur'ān* and sayings of the Prophet (as well as *Imāms*, in *Shī'īsm*) to the *Qur'ānic* commentaries and the texts related to the principles and fundamentals of jurisprudence, all of which make use of some reasoning to persuade the audiences or to infer the rules and precepts for religious behavior of the members of religious community; and (2) logic as a discipline that is studied and applied both independently and as a tool for reasoning in (a) schools of Islamic theology (from *Ash'arīs* to *Mu'tazilīs* and *Shī'īs*), (b) systems of Islamic philosophy (from Peripatetics to Illuminationists), and (c) other types of knowledge in medieval Islamic world, all being strongly influenced by religious doctrines of Islam. Accordingly, this paper speaks of (i) the different manifestations of using logical reasoning, particularly analogy, in *Qur'ānic* arguments, e.g. for the existence of God and resurrection after death; (ii) some contradictions or paradoxes reported by different opponents in the verses of *Qur'ān*; (iii) the place of logic in the classification of disciplines and the courses taught at the schools and seminaries; (iv) the influence of the attitudes of different religious sects on logic; (v) the instrumental role of logic for both religious and secular reasonings; (vi) the relation between reason and dogmatic religious doctrines, and, finally, (vii) the reflection of this relation on progress or recession of logic in medieval Islamic world.

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Introduction

Logic has a central place both in Islam as a religion and in Islamic world of thought. It has found such a place according to its place in reasoning and inference of various relevant judgments in diverse fields, particularly in religious precepts, theology, and philosophy.

Qur'ān, as the canonical sacred book (with its so-called revealed origin), has shown some important manifestations of reasoning and logical inference of some judgments of religious practice and theoretical theology (concerning God's existence, origin of the world, origin of the man, and the life after death).

Commonsensical reasoning as well as some traditions of genuine logical reasoning in the Arabia region and its neighbors helped Muslim religious leaders to use logic for their various religious aims. Islam was flourished within some cultural context shaped by some Greek, Christian, Jewish, and Iranian effective elements. Before Islam, there have been struggles between two deploys of widespread trust and widespread distrust towards Greek philosophy and logic within both Jewish and Christian societies. Researchers of the history of entering Greek philosophy and logic into those societies have reported of a “genre of literature—the defense *raisonnée* of the religious acceptability of philosophical studies”, having been “developed on account of this antagonism” ([34], p. 55).

The presence of Greek logic, with its possibilities and leading role in various reasonings, helped to give it a central position in translating the Greek heritage in logic (along with the works in other fields such as philosophy and medicine) (for Arabic translation of Aristotle's writings see [36] and [37]). Such a role for logic gave rise to studying, learning, and teaching it in religious and philosophical circles. In spite of some anti-philosophical trends, it is not surprising that the translation of Greek works in logic was welcome by most scholars with their own Islamic religious and theological attitudes. Such a position led to emersion of the great logicians and extension of Greek logic in Islamic world.

The author will arrange this paper in three main sections to show the place of

- (1) reason and reasoning in Islam as a religion,
- (2) logic in Islam as a religion, and
- (3) what has been known as “Islamic logic” (a tradition in the history of logic developed in Islamic world largely by Muslim logicians), with an emphasis on its relation to logic in Islam as a religion that has its own sacred texts, on the one hand, and theoretical and practical issues that possibly makes using logic necessary, on the other hand.

1. Reason and Reasoning in Islam

Islam is a religion that has its own rich effective theology and jurisprudence. The author does not know a religion other than Islam that makes use of reason and reasoning in theoretical and practical issues within its mainstream various schools of theology and jurisprudence. We try to give a short sufficient description of the place of reason and reasoning in Islamic sacred texts and in theoretical issues of theology and practical issues of jurisprudence.

1.1. Kinds of ‘*Aql* in Religious Texts, Theology, and Metaphysics

According to the field of study, one may find different terms for the faculty of reasoning in Islamic tradition of philosophico-logicus thought, the most important word for which is “‘*aql*”. We may choose the English terms “Intellect”, “Intelligence”, and “Reason”. ‘*Aql* appears as a canonical concept in the large part of philosophy, theology, logic, jurisprudence, and, even, religious sacred texts, so that one may find various manifestations of these terms in various texts on *Qur’ānic* commentary, theology, philosophy, and jurisprudence. The main usages of the terms may be listed as follows: Speculative Reason, Practical Reason, Particular Reason, Universal Reason, Common Reason, Sacred Reason, Human Reason, Angelic Reason, Devine Intelligence, First Intellect, Potential Reason, Actualized/Actual Reason, Passive Intellect, Active Intellect, Material Intellect, Pure Reason, and Acquired Reason (cf. [13]: 72–73; [12]: 44, 53).

1.2. ‘*Aql* in *Qur’ān*

One may find reason and reasoning in *Qur’ān* (the most authoritative sacred text for all Muslims) in various cases that may be classified in three categories:

- (1) The words derived from the Arabic “‘*aql*” (= Intellect / Intelligence / Reason) have been used 49 times in *Qur’ān* (e.g. 2: 75, 10:16, 13: 4, 67: 10);
- (2) There are about 300 other words derived from different infinitives with meanings more or less near the meaning of “to reason” (e.g. “to reflect” in 2: 19 (“*tatafakkarūn*” = “perhaps you may reflect”), “to understand” in 2: 269 (“*ūlul-albāb*” = “men of understanding”), and in 20: 28 (“*yafqahū qawlī*” = “that they may understand my saying”), and some other infinitives such as “to think”, “to grasp”, and “to comprehend”); in general, men and women are asked to undertake such activities as conditions for believing;
- (3) Concerning some theological issues, there are several cases of reasoning, arguing, and inferring a conclusion on the basis on some premise(s). Another important word is “‘*ilm*” (= knowledge), awareness) the frequency of which is 80 (e.g. “knowledge” in 2: 32 (“*lā ‘ilm-a lanā*” = “we have no knowledge”).

The frequency of other words derived from “‘*ilm*” as a root is 667 (e.g. 2: 30 (“*innā ‘alam-o mālāta ‘lamun*” = “surely I know what you know not”) and 2: 77 (“*av-a lā ya ‘lamūn-a ann-allāh-a ya ‘lam-o...*” = are they then unaware that God knows ...”))

‘*Aql* has great roles in *Qur’ān*, some of which are as follows:

- (i) as a means to know God, to prove His existence and His oneness;
- (ii) as a means to know the universe, its origin, and its laws,
- (iii) as a means to know the commands of God (i.e. religious rules and decrees originated from God);
- (iv) as a means to get belief in life after death; and
- (v) as a means to judge human actions according to the Divine laws.

All cases are based on a commonsensical approach to the roles of reason and reasoning in convincing the readers and listeners to accept the doctrines manifested in the *Qur'ān*'s verses. Such an approach makes possible

- (1) to use reasoning in Islamic jurisprudence, and
- (2) to find examples for conciliate sacred texts and Greek logic by theologians and religious scholars such as al-Ghazālī (c. 1058–1111 AD, the anti-philosopher *Ash'arī* jurist, theologian, and Sūfi).

1.3. 'Aql in Immaculate Holy Religious Leaders' Sayings

Islam, as a religion, has been comprised of two types of doctrines:

- (1) theoretical theological doctrines concerning some important issues such as God, Being, the Universe, the Origin of Man, and the Life After Death (and resurrection);
- (2) practical doctrines concerning various issues of individual and collective life of the believers and those non-believers who live in an Islamic society; the collection of these doctrines make Islamic Jurisprudence.

Qur'ān, as the so-called revealed holy book respected by all Muslims, is the first and most fundamental source for both types of doctrines. However, according to some epitomes and seemingly vague verses in *Qur'ān*, there are a lot of differences concerning the interpretation of its relevant verses. It is not surprising that the sayings (= *hadīths* in Arabic) and practices of the first religious leaders have had the potentiality to be an additional source (along with *Qur'ān*) for both theoretical and practical doctrines.

Accordingly, there are two sacred texts as the sources of various doctrines:

- (1) *Qur'ān* (with its absolute authenticity and authority for all Muslims); and
- (2) collections of the immaculate holy religious leader's sayings and practices.

The differences in views concerning various issues (including the leader who is entitled to be considered as immaculate) have led to various religious branches the most important of which are *Sunnīsm* and *Shī'īsm* with their own internal theological and legal divisions.

According to *Sunnīsm*, there is just one immaculate holy religious leader, who is the Prophet Mohammad, while there are several immaculate holy religious leaders for *Shī'īsm*: the Prophet and *Imāms* (with a difference in number according to the beliefs of various sub-branches). Sunnīs (as the largest branch of Islam) have 4 principal legal sub-branches: *Hanbalīsm*, *Shāfi'īsm*, *Hanafīsm*, and *Mālikīsm*. The most important sub-branch of *Shī'īsm* is Twelver *Imāmī Shī'īsm*.

Now we introduce the "authentic" collections of the immaculate holy religious leader's sayings and practices for the main Islamic branches. For the *Sunnīs* there are six authoritative or canonical collections of the reports concerning both sayings and practices of the immaculate holy Religious Leader who is the Prophet.

These books are

- (1) *Sahīh al-Bukhārī*,
- (2) *Sahīh al-Muslim*,
- (3) *Sunan-e Abū Dāwood*,
- (4) *Jāmi'-e at-Tirmizī*, (5) *as-Sunan as-Sughrā*, and
- (6) *Sunan-e Ibn Mājah* (it must be said that, for *Mālikīs*, *Sunan-e Ibn Mājah* is replaced by *Muwāttā* of *Mālik*).

For *Shī'īs*, the authoritative canonical books of *hadith* are four books:

- (1) *Kitāb al-Kāfī*,
- (2) *Tahzīb al-Ahkām*,
- (3) *al-Istibṣār*, and
- (4) *Man lā Yahzuruhu al-Faqīh*.

In both sets of the Hadith books of above main Islamic religious legal branches, there are hundreds, and even thousands, sayings concerning “‘aql”, attributed to the Prophet Muhammad and/or some of the *Imāms* in *Shī'īsm*, the most significant of which is: “The first thing God created was reason” (this saying has been mentioned in the main authoritative texts of *Sunnīs*. It has been accepted in *Shī'ī* texts too, though in some different versions.

As we said, one of the four authoritative *Shī'ī* collections of twelve *Imāms*' sayings and traditions is *al-Kāfī* (of *Kitāb al-Kāfī* = *the Sufficient Book*), having been compiled by Muhammad ibn Ya'qub ibn Ishāq al-Kulaynī, with 34 books. The collection of the first eight books of *al-Kāfī*, called *Usūl al-Kāfī* (= *the Principles of al-Kāfī* or *the Sufficient Principles*) contains the sayings and traditions that deal largely with theoretical issues concerning epistemology, *Qur'an*, theology, and ethics.

The collection of the other 26 books, called *Furū' al-Kāfī* (= *the Offshoots of al-Kāfī* or *the Sufficient Offshoots*) contains the sayings and traditions that deal largely with practical issues concerning various individual and collective religious actions. The first book of *Usūl al-Kāfī* is called *Kitāb al-'Aql wa al-Jahl* (= *the Book of Intellect and Ignorance*) having 36 important sayings, while the second book is called *Kitāb fadl al-'ilm* (= *the Book of the Merit of Knowledge*) containing 176 important sayings.

It is interesting that Mullā Sadrā, as one of the most leading Twelver *Shī'ī* philosophers, has a very important philosophico-mystico-theologous commentary on *Usūl al-Kāfī*, with significant notes of the first book (particularly ‘*Aql* (= “intellect”). He has very important, more or less neo-Platonic, philosophical comments on the sixth *Imām*'s saying that “God created al-‘aql and it is the First Creature God created among the ‘spiritual beings’”. (see Mullā Sadrā [=Sadr ad-Dīn Muhammad Ibn Ibrāhīm al-Shīrāzī], *Sharh Usūl al-Kāfī*, I, 400ff).

Most of the Muslim philosophers before Mullā Sadrā, for example al-Fārābī and Ibn Sīnā, particularly influenced by both Platinus' philosophy and the Prophet's saying, have asserted that the first creature is “Intellect” (see Badavi, pp. 135–136; Ibn Sīnā 1383: 12–13).

The above saying, attributed to the immaculate holy religious leader(s), has had a lot of implications and far-reaching consequences for philosophy,

logic, theology, *Qur'ānic* commentary, mysticism, and jurisprudence in both *Sunnīism* and *Shī'īism*.

1.4. 'Aql in Jurisprudence (*Fiqh*)

Fiqh (literally meaning, in *Qur'ān*, “deep understanding”) is the “Science of Inferring the Ordinances of Religious Law” from relevant authoritative (Islamic) religious sources.

According to the mainstream Islamic jurisprudence, all human actions are of one of the 5 types:

- (1) obligatory/necessary (*Wājib* = must be done),
- (2) prohibited/forbidden (*Harām* = must not be done (man will be punished for doing it)),
- (3) recommendable (*mostahab* = it is better to be done (man will be compensate for doing it but will not be punished for not doing it)),
- (4) undesirable (*Makrūh* = it is better not to be done (it is better not to be done, man will not be compensate for not doing it but will be punished for doing it)), and
- (5) permissible (*Mubāh* = there is no difference between its being done and its not being done (there is no compensate for doing it and no punishment for not doing it)).

In recognizing the appropriate ordinances concerning human actions, one may be confronted with three cases:

- (1) the ordinances for these actions may exist directly and explicitly in the sacred texts,
- (2) they may exist indirectly and implicitly in the sacred texts, and
- (3) they may not exist at all in the sacred texts.

The jurists have the duty of codifying the ordinances of the first type and inferring the ordinances of the second and third types. They have, according to their beliefs in their religious branch, their own appropriate rules and tools (i.e. sources and fundamentals) to do their duties.

1.4.1. Sources and Fundamentals of Jurisprudence (*Fiqh*) According to the *Sunnīism*. According to four leading *Sunnī* schools (i.e. *Hanafīism*, *Hanbalīism*, *Shāfi'īism*, and *Mālikīism*), the sources of deriving the ordinances of Islam are (1) *Qur'ān*, (2) Prophet's Sayings and Practices, and (3) Consensus.

Abū Hanīfeh (the founder of the *Hanafī* School) has accepted a fourth source, i.e. Judicial Reasoning by *Qiyās* (=Analogy, similar to analogy in logic).

Mālikīs and *Hanbalīs* pay no attention to Judicial Reasoning by Analogy, whereas the *Shāfi'īs* has a middle position.

There are some differences among the schools concerning the interpretations and details of consensus, the conditions of Judicial Reasoning by Analogy, as well as speaking of other sources such as Induction, Authorizing the Previous State, Juristic Preference, Custom or Common Sense, the Predecessors' Laws, the (Prophet's) Companions' Adjudges.

Moreover, scrutinizing on *Qiyās*, the scholars undertook a logical debate concerning the definition and characteristics of *Qiyās*, comparing it with analogical reasoning, inductive reasoning or categorical syllogism.

1.4.2. Sources and Fundamentals of Jurisprudence (*Fiqh*) According to the *Shī'ism*. First of all, we must say that according to *Shī'ī* jurists the analogy accepted by *Sunnī* jurisprudence is wrong and false because

- (1) it is adherence to guess, opinion and supposition, and
- (2) the principal doctrines and teachings of both *Qur'ān* and immaculate holy religious leaders are sufficient for answering any question concerning religiously right actions.

In *Imāmī*-Twelvers *Shī'ī* School, the sources for inferring the ordinances of *Fiqh* are

- (1) *Qur'ān*,
- (2) the Prophet's and immaculate holy *Imāms*' sayings and practices,
- (3) Consensus (on the basis of the Immaculate's sayings and practices), and
- (4) Reason.

Of course, there are some tendencies (e.g. in the Traditionists) that insist on the Book (i.e. *Qur'ān*) and Tradition (i.e. the Immaculate's Sayings and Practices), without any belief in Consensus and Reason.

Shī'ī Jurists (except the Traditionists) hold that the authority of reason means that a judgment is authoritative if the intellect's judgment concerning it is certain.

1.4.3. 'Aql in Science of the Principles of Jurisprudence ('*Ilm-e Usūl-e Fiqh*). The Science of the Principles of Jurisprudence ('*Ilm-e Usūl-e Fiqh*) is the science of the rules and tools that are used to derive the commands of jurisprudence. It teaches the safe and right method of inferring the commands from the sources of jurisprudence. It is, therefore, a normative or prescriptive science, being closer to technique than to science (speaking of "ought" rather than of "is").

There is a section in *Mu'tazilī* and *Shī'ī* "Science of the Principles of Jurisprudence" that speaks of "rational good and evil", according to which the necessity of obeying the commands and prohibitions of Divine Lawgiver is a rational necessity.

In this regard, the specialists in the first principles recourse to "the rule of correlation/mutual implication": "all judgment of reason would be the judgment of divine religious law too", and vice versa. (see, for example, Mozaffar, p. 250) 'Abd al-Jabbār, the *Mu'tazilī* judge, says that the proof for authority of the Book (i.e. *Qur'ān*), the Immaculate's Tradition, and Consensus is a proof by reason. He holds that, in inferring the religious ordinances, reason is prior to other three sources (see [1, p. 88])

1.4.4. The Sciences Necessary for Jurisprudents. Muslim jurists generally teach and learn some sciences as necessary preliminaries for inferring the ordinances in jurisprudence. These sciences are as follows:

- (1) Arab Literature,

- (2) morphology,
- (3) philology,
- (4) syntax,
- (5) semantics,
- (6) figurative expression,
- (7) exegesis,
- (8) science of traditions (i.e. sayings and practices of the immaculate religious leaders),
- (9) biography and authority of narrators of the traditions,
- (10) science of fundamentals and methodology of jurisprudence, and
- (11) logic.

Of course, different schools or sub-schools have their own authoritative texts, some of which have been adopted as classic texts with their own claimed authenticity.

1.5. Capability of Reason in Understanding the Depth of the Doctrines and Justifying Them

As we said, according to some schools in the science of the principles of jurisprudence (particularly *Mu'tazilism* and *Shā'ism*) reason has a central status in both understanding the doctrines and inferring the ordinances, so that all rational statements are among the valid religious statements. In such an approach, most, if not all, of religious doctrines and decrees are intelligible (*ma'qul al-ma'nā*). It has been said by religious authorities that the first principles are understandable on the basis of reason and logic, so that to be a Muslim or embracing Islam must be on such a basis. Thus, those who want to enter into Islam must be able to make use of his/her cognitive faculty to recognize and/or infer the ordinances.

Accordingly, in theory though not in practice, the pre-requisites for entering into Islam are

- (1) having reached the age of puberty and
- (2) being sane.

Moreover, the dogmatic orders and prohibitions are valid for those people who

- (i) have reached the age of puberty, and
- (ii) are sane.

However, There are some doctrines, and some decrees manifested in the sacred texts, that cannot be comprehended by reason, though (or in spite of such an inability) reason has no disagreement with them. These doctrines and decrees are dogmatic (*ta'abbudī*) ones that have been revealed by God and must be obeyed without any need to have a rational justification of them.

Here, some opponents have found an Achilles' heel to criticize Islam for its probably unjustifiable/unreasonable orders and prohibitions, though the defenders and apologists give their own explanations and justification, of course on the basis of this thesis that, adopted by all Muslims (with, of course, different degrees of emphasis) since the *Qur'ān* is the word of God, everything in

it is correct, even if any mind other than Divine mind (including the human mind) cannot comprehend something appeared in *Qur'ān*.

2. Logic in Islam

By “logic in Islam” we mean

- (1) logic in sacred books (particularly *Qur'ān*) (both using logic and view on logic in the text),
- (2) logic in Islamic theology as a tool for reasoning and argumentation for theological issues (e.g. existence of God), and
- (3) logic in jurisprudence for deriving religious orders and prohibitions. We try to give short accounts of such topics.

2.1. The Word for “Logic” in Pre-Islamic Persia and Islamic World: Its Root and History

We may agree that the term “Logic” is from Latin (*ars logica*, from ancient Greek *logike*, λογική (*techne*), meaning “reasoning (art)”, from fem. of *logikos* “pertaining to speaking or reasoning” from *logos*, λόγος, meaning “reason, idea, word” (see, for example, {www.etymonline.com/index.php?l=l&p=22&allowed_in_frame=0}). It may be added that the meanings of the ancient Greek *logos* are “word, thought, idea, argument, account, reason, or principle”. Similarly, *logike* has meanings such as “possessed of reason, intellectual, dialectical, argumentative” (see Liddell and Scott, the entry “*logikos*”).

It is clear that Iranian of the Sassanid era (224–651 AD) have been acquainted with Plato’s and Aristotle’s works, so that they have taught and learned both philosophy and logic.

According to different researchers, referring to different documents (from *Khurdeh Avestā* to Persian Paul’s treatise on Logic), there has been several words for logic in pre-Islamic Persia (particularly Sassanid Persia):

- (1) *Sukhun*, from “*sukhan*”, meaning speech or word, having the same relation to *Sukhun* as the relation of “Logic” to “*Logos*”;
- (2) *çim-guwagīh* (*çim* means “meaning” and “*gowagīh*” means “reasoning” or “rationality”),
- (3) *tarkeh* (a Sanskrit word), with its Arabicized forms “*tarq*” and “*tarqa*”;
- (4) *Mantāg* (from “*man*” = to know, and “*tāg*”, a suffix that means “concomitant” and “compatible”; and
- (5) *vīr* as it is seen in *Khorddeh Avestā*.

The Arabic word accepted for “Logic” is “*Mantiq*”, probably from the word “*nutq*”, meaning “speech”, “utterance”, and “oration”. The literal meaning of “*mantiq*” is “speech” and “language”. Referring to texts such as *Khurdeh Avestā* (e.g. p. iii and p. 104), some scholars argue that the root of the apparently Arabic word “*mantiq*” is not “*nutq*” but its root is the Avestaic word “*mānthra*” that means “spell”, or “secret mystery”.

In Islam (as a religion) and Islamic culture, or, better, in Islamic-Arabic religious and nonreligious literature, *mantiq* has various meanings and usages, some of which are as follows:

- (1) As the reasons in religious tradition, or reasonable/rational action compatible with intuition or common sense;
- (2) As the foundation or doctrinal principle for moving towards truth or rightness;
- (3) Religious justification or explanation of (i) some unusual statements in theology or exegesis of *Qur'ān*, as well as (ii) some practical affairs or rituals; It is argued that most of these justifications or explanations show that such statements and affairs are reasonable; It is in such a framework that the experts in Islamic jurisprudence believe that one is entitled to speak of “the logic behind Islamic rules/laws”;
- (4) “Islamic-logic” as whole of Muslim Locians’ activities and achievements in logic during about 900 AD up-to about 1400 AD on the basis of Greek logic (both Aristotelian and Stoic) as well as some innovations.

2.2. “*Mantiq*” and Logic in Sacred Texts

The words derived from “*nutq*” (= speech) have been used 12 times in *Qur'ān* one of which is “*mantiq*” itself in the term “*Mantiq ot-Tair*” (= the language of birds (that Solomon had been taught {*Qur'ān*, *al-Naml*: 16})).

According to the extent of belief in *Qur'ān*'s attitude towards logic, one may recognize three points of view concerning the meanings and usages of “*mantiq*” and logic. We give below a short report on three views.

2.2.1. Logic in *Qur'ān* According to Minimalist Views. The main Islamic theological and/or legal groups that weaken the role of reason in interpretation of *Qur'ān* are as follows:

- (1) Literalists (or *Zāhirīs*, i.e. those who, generally belonging to *Sunnīsm*, rely on apparent and literal meaning of the words of *Qur'ān* and the Prophet's sayings and usually reject the derivation of verdicts through reasoning);
- (2) Traditionalist (*Akhhbārīs*, those who, belonging to twelve *Shī'ism*, deny the capability of reason and believe in *Qur'ān* and the immaculate twelve *Imāms*' sayings as the only sources of deriving the religious verdicts);
- (3) Segregationists (*Tafkīkīs*, those twelve *Shī'īs* who reject any use of philosophy and other non-revealed knowledges in interpreting *Qur'ānic* verses), and
- (4) *Ash'arīs* (those who, opposing *Mu'tazilism*, rely on old interpretations of *Qur'ān*).

According to these groups, generally speaking, the Divine word and the Immaculates' speech are incomparable with human speech, human reason and human logic, even if one may find some cases of similarities between some statements of the sacred texts and human reasoning.

2.2.2. Logic in *Qur'ān* According to Moderate Views. According to the scholars having a moderate position, there are examples of logical techniques in both *Qur'ān* and the Immaculate's sayings. However, such phenomenon is not a rule but rather exception so that one is not entitled to look at such texts as manifestations of logic and rational argumentation.

2.2.3. Logic in *Qur'ān* According to Maximalist Views. We may mention just two leading schools of thought in theology and/or jurisprudence as rationalist schools:

- (i) Usūlites (=foundationalists, those who, opposing *Akhbarīsm*, believe in conclusive role of reason and reasoning in deriving the verdicts; They make the mainstream of Twelver *Shī'ī* jurisprudence;
- (ii) *Mu'tazilīs* (those *Sunnīs* who, opposing *Ash'arīsm*, believe in central conclusive place of reason in theology).

Generally speaking, according to these rationalist views:

- (1) *Qur'ān* regards itself in plain Arabic (e.g. *Yūṣuf*: 2), so that it is in accordance with Aristotelian commonsensical rules of logic as the rules of natural thinking in natural language;
- (2) *Qur'ān* speaks of contemplation and reasoning, and addresses those who are possessed of reason;
- (3) There are a lot of examples of reasoning on the basis of logical inference, so that a fair reader may find in *Qur'ān* some cases of reasoning, methods of reasoning, deductive reasoning, inductive reasoning, analogical reasoning, exceptive syllogism (both conjunctive and disjunctive), implicit/abridged syllogism, reduction ad absurdum, inference on the basis of resemblance, poetics, rhetoric, dialectics (a variety of cases), demonstration, argumentation, and invitation to rational disputation;
- (4) One may find various arguments for existence, oneness, and attributes of God in *Qur'ān*, the most important of which are as follows:
 - (i) teleological argument (or argument from design, many examples),
 - (ii) cosmological argument (on the basis of necessity and contingency),
 - (iii) ontological argument (Mullā Sadrā, as the most leading *Shī'ī* philosopher, as well as Muhammad Hussayn Tabātabāyī, as the most famous contemporary Iranian Islamic philosopher, have given their ontological argument as addendum of the verse 53rd of *Fussilat*),
 - (iv) argument from human primordial (innate) disposition,
 - (v) argument from absolute pure being, vi) mutual hindering or mutual antagonism argument (*Tamāno'* argument),
 - (vii) arguments on the basis of causality or motion and change, comprehensive harmony of the universe . . . , and
 - (viii) denying the idolaters' and polytheists' arguments as being fallacies;
- (5) There are two terms in *Qur'ān* that have been interpreted by some logicians as logic: *Mīzān* (Scales), and *Qistās* (Balance).

The word *Mīzān* (Scales) has been used 9 times in *Qur'ān*, in 2 times of which it is accompanied by "*al-Kitāb*" ("the Book"), being sent by God (42: 17 and 57: 25). One of the meanings of *Mīzān* is "criterion". Ibn Sīnā (c. 980 –

June 1037) has regarded logic as “*Mizān*”. Al-Ghazālī has made use of the term “*Mizān*” for naming the various syllogisms appeared in *Qur’ān*.

Mullā Sadrā, agreeing with al-Ghazālī, has interpreted “*Mizān*” as

- (a) “rational criterion” in general and
- (b) logic in particular. Muhammad Husayn Tabātabāyī (16 March 1903 – 7 November 1981), has chosen the title “*Al- Mizān*” for his “*Qur’ānic Commentary*” that has been considered by a majority of scholars as the most comprehensive and important *Shī’ī Qur’ānic* commentary over the past 1400 years.

Qistās (Balance) has been used 2 times in *Qur’ān* in the form of the term “*al-Qistās al-Mostaqīm*” (=the Just Balance). Al-Ghazālī has chosen this term for his book on logic in which he has tried to show that one can see the various forms of syllogism in *Qur’ān* as the divine source of logic.

2.2.4. Attitudes Towards Some Apparent Contradictions in *Qur’ān*. Some scholars (belonging to both Islamic and non-Islamic society, from old ages to the present) have shown some contraries and contradictions among *Qur’ānic* verses concerning both theoretical theological issues and practical legal orders.

Muslim apologists have tried to show that

- (1) the contradictions and contraries are apparent, having no reality; and
- (2) there are some justified ways for believing in consistency among the verses.

The opponents have spoken of both some internal inconsistencies (among some parts of *Qur’ān*) and some contradictions between some verses and some scientific theories. Both opponents and defenders make use of the logical reasoning and principles of contradiction and identity to, respectively, criticize or justify such phenomena (via, e.g., recourse to metaphor or allegorical/exoteric interpretation).

There is a concept in *Qur’ān* that is used by Muslim apologists to solve the evident contradictions reflected in *Qur’ān*. This concept is “abrogation” (= *naskh*), according to which God has decided to reveal some verses that have superseded some earlier ones, so that one finds in the existing *Qur’ān* not only the abrogator (= *nāsikh*) verses but also the abrogated (= *mansūkh*) ones, bringing about some cases of evident contradiction between couple (abrogator-abrogated) verses.

The 106th verse of the Surah al-*Baqarah* confirms this phenomenon in a phrase that the critics usually do not regard it a justified explanation: “Nothing of our revelation (even a single verse) do we abrogate or cause be forgotten, but we bring (in place) one better or the like thereof. Knowest thou not that Allah is Able to do all things?” (*Qur’ān*, 2: 106)

The defenders, e.g. Muhammad Hussayn Tabātabāyī, had regarded the phenomenon of “abrogation” not an example of contradiction but an indication of “addition and supplementation” (Tabātabāyī, vol.1). Such a justification is repelled by the opponents, arguing that it is irrational to ascribe such a thing to a so-called omniscient and omnipotent “God”. They usually regard such an

explanatory concept as a way to justify the contradiction manifested in various couple contradictory verses appeared in the book attribute to God.

Finally, there are also some debates concerning Revelation and its relation to reason.

Here is one of the main fields of the old debate concerning

- (1) the nature of revelation,
- (2) its being real or fictional,
- (3) coherency or incoherency between reason and revelation, and
- (4) priority of reason and revelation with respect to each other.

2.3. Transmission of Aristotelian and Stoic Logic into Islamic World and Development of Islamic Logic

The new religious Islamic society had its own appropriate needs in argumentation and reasoning concerning various issues, questions, and problems in the fields such as theology, ideology, teaching the doctrines, and both derivation and justification of practices within the framework of Islamic legal principles and norms. In spite of some antagonistic attitudes towards logic in Islamic society, surely there is no other religious society in the history that can be comparable with this society in such a need and making use of logic. We try to give a short account of entering logic into this society particularly in connection to religious prescriptions for using logic.

2.3.1. Development of Islamic Logic. One may see the perspective of Islamic logic in its historical development as follows:

- (1) the introduction of Greek logic into the neighbors of Arabic region,
- (2) the introduction of Greek logic into the Islamic world,
- (3) translation of Greek logic into Arabic language,
- (4) the elements of Indian and Iranian tradition of logic entered into the Islamic world,
- (5) assimilation of imported logic,
- (6) genuine achievements in logic and logicography, and
- (7) introducing logic into the so-called Islamic sciences

During the great movement of translation in Islamic world, Aristotle's books, in particular his books on logic, were translated from Greek and / or Syriac into Arabic.

His *Organon*, consisting of six treatises, was accepted as the book related directly to logic:

- (1) *Categories*,
- (2) *On Interpretation*,
- (3) *Prior Analytics*,
- (4) *Posterior Analytics*,
- (5) *Topics*, and
- (6) *Sophistical Refutations*.

These treatises, as well as *Poetics*, *Rhetoric* and Porphyry's *Isagoge* were accepted as the classical parts of an Aristotelian 9-partite logic in Islamic world. Ibn Sīnā has had the leading role in such an attitude towards

Aristotelian logic, as one may see the manifestation of such an effort in his *as-Shifā* (see Ibn Sīnā, 1374 Solar *Hejirah*). Moreover, Islamic logicians became familiar with Stoic logic as well as some theories in linguistics (for a good introduction to logic in Islamic world see [22], and [33, 34]).

2.3.2. Muslims' Innovations in Logic. There are some innovations in the works of some Muslim logicians some reports of which may be found in various papers and books written by Muslims or non-Muslims of the West and East.

The main innovations encompass issues such as

- (1) the nature, aims, and tasks of logic;
- (2) the relation of logic and language;
- (3) overlapping of logic and metaphysics in some subject matters;
- (4) the elements and structure of logic;
- (5) changes in logicography;
- (6) some exact analyses of topics such as propositions and syllogisms;
- (7) study of hypothetical syllogism; and
- (8) introducing temporal modal logic.

There is no appropriate opportunity in this paper to give a comprehensive report on the innovations and achievements of Muslim logicians (for a short account of Ibn Sīnā's innovations in the structure of the system of logic and logicography see Akrami 2015).

2.4. Logic in Jurisprudence and the Science of the Principles of Jurisprudence

Prima facie, logic, as the science of thought and correct reasoning, was extensively welcome in Islamic world, from logicians, theologians, and philosophers to *Qur'ānic* commentators, Jurisprudents, and the scholars working on the fundamentals and first principles of jurisprudence. All of the schools of jurisprudence that believe in some sort of deriving the religious verdicts from *Qur'ān* and the Immaculate's sayings (either directly or indirectly), or from other relevant principles or rules or verdicts, have been in need of using logic in its extensive form. There is a rich literature of applying logic in both *Sunnī* and *Shī'ī* jurisprudence. Similarly, one may find that the theoretical theologians of both *Sunnī* and *Shī'ī* schools have had a deep and extensive interest in logical bases of their speculative debates and argumentations.

3. Qur'ānic Reading of Logic in Islamic World as a Specific Trend in Some Leading Muslim Theologians and Metaphysicians

Logic has had a central place in Islamic world of thought, having a strong connection with metaphysics, theology, mathematics, natural philosophy, *Qur'ānic* commentary, ethics, and jurisprudence. We give an account of logic in both leading classic philosophers and a leading classic anti-philosopher such as al-Ghazālī.

All important philosophical systems have made use of logic.

The main philosophical systems are

- (1) Peripatetic Philosophy (with representatives such as al-Fārābī and Ibn Sīnā, largely Aristotelian in logic),
- (2) Illuminationist Philosophy (with Suhrawardī as representative, largely critic of Aristotelian logic), and
- (3) Transcendental Theosophist Philosophy (with a representative such as Mullā Sadrā).

3.1. Logic in Leading Classic Philosophical Systems

Peripatetic philosophy has made use of Aristotelian (and, in some cases, Stoic) heritage in logic and has extended it to new borders. Al-Fārābī has been one of the pioneers in logic and linguistic theory. He, adopting Aristotelian logic, has written significant commentaries on Aristotle's books and has had some innovative writings particularly on the relation of logic and language (for a study of al-Fārābī's logical writings and their Greek sources see [3, 24]; For an example of al-Fārābī's reading of Aristotle's philosophy see al-Fārābī: 1969).

Similar to the role played by St. John of Damascus in writing within the tradition of "the apologia for logic [...] in defense of logical studies [...] that worked powerfully for acceptance of this discipline among the Syriac-speaking Christians" ([34, p. 55]), al-Fārābī wrote a treatise in defense of logic on the basis of the Prophet's sayings. In his important book on classification of sciences, he has tried to locate logic among the techniques and sciences (see al-Fārābī: 1968) He called logic "the Header/Head of the Sciences" (for al-Fārābī's and Ibn Sīnā's position on the place of logic among science see al-Rāzī, p. 48). Ibn Sīnā, as the most leading logician in Islamic world over the centuries, has called logic "the Science of Scales", or "the Science of Balance" (Ibn Sīnā, 1353 Solar *Hejrah*: p. 10; for Ibn Sīnā's logic see [17] and [18]). Suhrawardī has criticized Aristotelian logic in various respects.

Al-Ghazālī, in spite of having a counter-philosophical view, has tried to show that logic has a divine origin (see below). His central place in Islamic world on the one hand, and his approach to logic and enthusiastic religious-support of it played an important role in acceptance of logic even within some radical religiously biased communities (for al-Ghazālī's attitude towards logic see [27]). Mullā Sadrā, as the most leading *Shī'ī* philosopher, has tried to combine philosophy, theology, mysticism and Qur'ānic doctrines. He has been influenced by al-Ghazālī in his reading *Qur'ān* in the light of logic. It may be said that he has passed al-Ghazālī in the field of tracing most of the elements of classical logic in *Qur'ān* as the "word of Allah"!

3.2. Counter-Logical Attitudes in Leading Muslim Scholars

One may find the most famous of anti-logicians among traditionalists who were offensive against Greek heritage and rational attitudes towards Divine Revelation.

There are some documents from the 3rd Islamic century (i.e. 9th Christian century) showing moderate or, even, radical disagreements with logic and its teaching or learning (e.g. Ibn Sharshīr or Nāshī-ye Akbar and Hassan Ibn Mūsā Nawbakhtī). There are some reports on accusing al-Fārābī of heresy because of his works on philosophy and logic.

Excommunication of Ibn Sīnāby al-Ghazālī is a fact reflected in his *Incoherence of the Philosophers* (*Tahāfut al-Falāsifa*). There was a widely used proverb to defame the logicians (indeed, the rationalists) in the age of flourishing of teaching and learning philosophy and logic: “whoever uses logic would become a libertine/impious” (“*Man Tamantaq-a Tazandaq-a*”).

According to Jalāl al-Dīn al-Suyūtī, philosophy, theology, and, above all, logic would weaken people’s faith. Thus he wrote a book to prohibit teaching and learning these disciplines: *al-Qawl al-Mashriq fī Tahrīm al-Ishtighāl bi al-Mantiq* (=“*The Uncontestable Verdict on the Proscription of Having a Preoccupation in Logic*”) ([35]).

Muslim scholars’ proscriptive attitudes towards reason and reasoning in general and Greek logic and rationalism in particular have an interesting and instructive long history from early Islamic era up to contemporary Islam. One may give a sketchy list of some leading scholars who have tried to criticize and reject logic as manifested largely in Aristotelian logic: the *Mu’tazilīs* such as Abū Sa’īd Sīrāfi, ‘Abd al-Jabbār, Jabbāyī, and Abu al-Qāsim Ansārī, the *Ash’arīs* such as Baqilānī, the *Shī’īs* such as Hassan Ibn Mūsā Nawbakhtī (one of the most leading scholars who has an important role in consolidation of *Imāmī* school of theology, with a book under the title *ar-Radd ‘alā Ahl al-Mantiq* (= *Refutation of the Logicians*), the *Salafīs* such as Ibn Taymīyyah (with a book under the title *Nasīhat Ahl al-Īmān fī ar-Radd ‘alā Mantiq al-Yūnān* (= *Advice to the Believers in Refutation of Greek Logic*), in which argues against usefulness of syllogistic logic (not, of course, against its validity)). It must be said that some critics of Aristotelian syllogism (e.g. Fakhr ad-Dīn Rāzī and, even Ibn Taymīyyah) have defended some kind of inductive reasoning.

Nevertheless, logic has been widely accepted and welcome by the majority of various leading theological and legal schools of Islamic world, so that many of the scholars from both metaphysical and Islamic legal traditions have written books on logic, either as encyclopedic and textbooks or as treatises with some innovations.

3.3. Our Case Study: al-Ghazālī as A Classic Anti-philosopher Logician, and the Implications of His Attitude

There have been some leading scholars in Islamic community who have had an antagonistic attitude towards Greek sciences, particularly Greek philosophy. Some of them have disagreed with logic too. Some of the anti-philosophers have accepted logic as an important and, even, necessary tool for reasoning in various fields, in particular theology and jurisprudence. Al-Ghazālī may be considered as the most leading anti-philosopher who had made an enthusiastic defense of logic in the framework of his own reading of the sacred texts. We try to give a short account of his views on logic in the light of *Qur’ān*.

3.3.1. Al - Ghazālī on the Relation of Logic and *Qur’ān*. Al-Ghazālī, adopting the Greek heritage in logic as presented and extended by Muslim logicians (particularly by Ibn Sīnā), is a good case for

- (1) the most leading theologian and religious authority in *Ash’ari* school, the only person who had the title *Hojjat al-Islam* (=“Proof of Islam”),

- (2) the most leading anti-philosopher all over the Islamic world,
- (3) one of the most proponents of logic who has written some books on logic, for one of which he has borrowed a Qur'ānic phrase as the title: *al-Qistās al-Mostaqīm* (=“the Just Balance”), appeared in *Qur'ān* 17: 35 and 26: 182).

This book is the most leading example of “the Islamization of logic”, in which al-Ghazālī tries to show that logic, as introduced in its mainstream manifestation in Islamic world, is rooted in Divine Revelation (i.e. *Qur'ān*).

We give below an overview of al-Ghazālī's main theses on the relation of logic and *Qur'ān* (for details of al-Ghazālī's views on logic and syllogism in the light of reflections on *Qur'ān* see and al al-Ghazālī's *al-Qistās* and 'Azmi's *al-Ghazali's Views on Logic*).

- (1) He searches for “certain knowledge” and tries to find the *Qur'ānic* genuine criterion for certainty.
- (2) He pays a great attention to the epistemological grounds of certainty.
- (3) He speaks of the relation of certain knowledge and logic, as well as and the method of achieving it.
- (4) He believes in the role of syllogism in achieving certainty.
- (5) He studies the relation of theology (= *Kalām*) and certainty.
- (6) He tries to shows *Qur'ān*'s classification of the kinds of arguments according to the different classes of people.
- (7) He argues for the necessity of derivation of general rules of Islamic jurisprudence from revelation on the basis of the *Qur'ān* and the Prophet's using logic and other rational tools in his sayings and practices.
- (8) He derives five types of syllogism from *Qur'ān*, calling them the criteria of *Qur'ān* (its *Qur'ānic* term is *Mizān* which is interpreted by al-Ghazālī as the logical rule of inferences). According to al-Ghazālī (and, following him, Mullā Sadrā) there are three primary kinds of criterion in *Qur'ān*:
 - (i) the criteria of “equivalence” (*Ta'ādul*),
 - (ii) the criterion of “concomitance” (*Talāzum*), and
 - (iii) the criterion of “opposition” (*Ta'ānud*); the criteria of equivalence is itself in three sub-kinds: Major, Middle, and Minor.
- (9) According to al-Ghazālī (and, following him, Mullā Sadrā), in the process of teaching logic to humankind, God and Gabriel and Prophet are, respectively, the first teacher, the second teacher, and the third teacher ([30], vol.9, p. 300).

3.3.2. Five Sound Syllogisms Adopted by al-Ghazālī. We may have a look at the 5 criteria. First of all we speak of two kinds of syllogism: “conjunctive” (= *iqtirānī*) and “exceptive” (= *istisnā'i*).

In Islamic logic, syllogism is a form of deductive inference in which two premises, taken jointly, give rise the conclusion (a statement that cannot be more general than the premises).

According to the explicit/implicit presence of the conclusion or its contradictory in the premises, the syllogism is divided into two kinds: conjunctive syllogism and exceptive syllogism.

Conjunctive syllogism is composed of two premises and a conclusion, so that the conclusion or its contradictory does not exist explicitly/actually in one of the premises but is distributed implicitly/potentially in them.

Predicative conjunctive syllogism is a syllogism both premises and conclusion of which are predicative statements in which a predicate is predicated to a subject.

Thus, each part of the three parts of a predicative syllogism contains two predicative terms such that each of the premises has one term in common with the conclusion.

Accordingly, one finds three terms in a predicative syllogism:

- (a) Minor Term, being the Subject of the Conclusion,
- (b) Major Term, being the Predicate of the Conclusion (it is more general than the minor term as the subject), and
- (c) Middle Term (or Common Term, which connects the subject and the predicate of the conclusion), being a Subject or Predicate repeated in both Premises, which is eliminated in the Conclusion.

Each of the premises is in the form of one of the four forms “All S are P” (with the code A), “Some S are P” (with the code I), “No S are P” (with the code E) or “Some S are not P” (with the code O), where “S” is one term and “M” is another. “All S are P”, and “No S are P” are called *universal* propositions; “Some S are P” and “Some S are not P” are called *particular* propositions. A set of statements that have no Middle Term (or Common Term), cannot give rise a conclusion. Such statements are called the “Strange Statements”.

According to the various positions of the Middle Term, predicative conjunctive syllogism may appear in four figures (figure is the conjunctive syllogism according to the position of the middle tem with respect to two premises):

- (1) the 1st figure, in which the middle term is the predicate of minor premise and the subject of major premise;
- (2) the 2nd figure, in which the middle term is the predicate of both minor and major premises;
- (3) the 3rd figure, in which the middle term is the subject of both minor and major premises; and
- (4) the 4th figure, in which the middle term is the subject of minor premise and the predicate of major premise (this figure does not exist in Aristotle’s *Organon*);

Exceptive syllogism (having been elaborated by Ibn Sīnā in *ash-Shifā*) is a kind of syllogism in which the conclusion or its contradictory exists explicitly/actually in the premises, and one of its premises is “hypothetical”, either “connective” or “separative”. This kind was discussed for the first time by Theophrastus (after Aristotle’s death).

The premise containing the conclusion must be a conditional statement. The other premise is an exceptive statement containing a word showing an exception. One of the conditional/hypothetical sides or its contradictory is excluded so that its contradictory is proved. According to conjunctivity or disjunctivity of the conditional premise, the exceptive syllogism is divided into two sub-kinds: conjunctive and disjunctive.

3.3.3. *Qur'ān's Five Criteria According to al-Ghazālī.* In al-Ghazālī's view, the five *Qur'ānic* criteria that are in accordance with three first figures of predicative/categorical syllogism and two exceptive syllogisms are as follows:

- (1) The major criterion of equivalence: the first figure of categorical/conjugate syllogism. One of the examples of this criterion in *Qur'ān* is the Ibrahim's argument against Namrūd (*Baqarah*: 258).
- (2) The middle criterion of equivalence: the second figure of categorical/conjugate syllogism;
One of the examples of this criterion in *Qur'ān* is the Ibrahim's argumentation for recognizing God as the real and true deity (*al-An'ām*: 76–77).
- (3) The minor criterion of equivalence: the third figure of categorical/conjugate syllogism.
One of the examples of this criterion in *Qur'ān* is the refutation of the Jews' claim against the prophecy of Muhammad, using the fact of prophecy of Musa as a man (*al-An'ām*: 91).
- (4) The criterion of concomitance: connective exceptive syllogism, the conclusion or its contradictory of which exists explicitly and one of its premises is hypothetical, either conjunctive or disjunctive; One of the examples of this criterion in *Qur'ān* is 22nd verse of the Sūra *Anbīyā'* in which it is argued for oneness of Allah.
- (5) The criterion of opposition: separative exceptive syllogism.
One of the examples of this criterion in *Qur'ān* is an argument for the claim that *Qur'ān* is the word of God, otherwise one would find many discrepancies in it (*an-Nisā'*: 82).

3.3.4. *Mullā Sadrā and the Five Criteria.* Mullā Sadrā has adopted al-Ghazālī's attitude towards logic in *Qur'ān* and manifestation of the fundamentals of syllogism in it. His confidence to both the authoritative texts of Islam and logic as elaborated by Ibn Sīnā (on the basis of Greek logic, particularly Aristotelian logic) is seen in the following quotation, as a significant testimony of an attempt to find a strong justification for classic logic in Religious texts, on the one hand, and a strong evidence for rationality of such texts on the other hand: "If someone gets knowledge of the five criteria that God has revealed to His Prophet, (s)he will be certainly guided; and if someone does not make use of them and acts arbitrarily, (s)he will be aberrant." (Mullā Sadrā, 1366 Solar Hejrah, vol. 1, p. 553–554).

Such a position is an indication of entertaining logic that has been Islamized and established by al-Ghazālī and has been continued in Islamic culture, including in *Shī'ī* culture of Iran. Such a view on logic has had some positive

and negative implications for both logic itself and other fields such as theology, metaphysics, *Qur'ānic* commentary, and Jurisprudence.

3.3.5. The Positive and Negative Roles of al-Ghazālī's and Mullā Sadrā's Attitude. Al-Ghazālī's attitude and, following him, Mullā Sadrā's attitude could have the role of a double-edged blade. Such an attitude has played a positive role in giving a warm welcome to logic in Islamic *Sunnī* and *Shī'ī* seminaries. However, dogmatic and relatively superficially deriving the fundamentals of logic from a so-called sacred revealed text might play a negative role in withholding any attempt to change basically the adopted logical system.

Now, the defenders of the attitude of an *Ash'arī* anti-philosopher such as al-Ghazālī as well as those of the attitude of a *Shī'ī* theosophist like Mullā Sadrā have a great responsibility concerning the negative role of such an attitude. They should take a clear position on the relation of *Qur'ān* and Modern Logic with its growing achievements in new fields.

One may speak of various approaches towards such a problem:

- (1) There may be some anti-logician Muslims (or the Muslims disagreeing with logical reading of *Qur'ān*) who will emphasize on "irreconcilability of logic and *Qur'ān*", insisting on the superior status of *Qur'ān* to be compared with logic as a man-made discipline;
- (2) There may be some irreligious people who will find an evidence for "antagonism between logic and *Qur'ān*", insisting on illogicality and irrationality of *Qur'ān*;
- (3) There may be some dogmatic apologists insisting on classical syllogism as the genuine manifestation of logic inspired by God and reflected in *Qur'ān*;
- (4) There may be some religious modernists who insist on "reconcilability of logic and *Qur'ān*", trying to find examples of modern logic in *Qur'ān*; and
- (5) There may be some religious modernist who will be indifferent towards the relation between logic and *Qur'ān* with a slogan "anything goes", having no particular distinct position concerning existence or non-existence of a plain relation between them.

3.4. Logic as a Part of Curriculums in Schools and Professions

Logic, at least as a trustworthy instrumental science, has been a widespread introduction to all rational, argumentative, and inferential sciences all over the Islamic world (except within some small circles adversary of the Greek tradition and opposing to using reason in reading religious texts).

Accordingly, one may easily understand the importance of logic in curriculums of all schools, particularly in all over Persia, so that it has been widely taught and learned in the most of the religious schools on the basis of Ibn Sīnā's, Suhrawardī's, Tūsī's, Abharī's, Qutb ad-Dīn Rāzī's, Taftāzānā's, and 'Allāmah Hellī's books. This tradition has been continued up to now powerfully, as one may find a lot of books on traditional logic published in Qum after the Islamic Revolution of 1979.

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