AVICENNA'S TREATISE ON LOGIC

AVICENNA'S TREATISE ON LOGIC

PART ONE

OF

DANESH-NAME ALAI

(A CONCISE PHILOSOPHICAL ENCYCLOPAEDIA)

AND

AUTOBIOGRAPHY

EDITED AND TRANSLATED FROM THE ORIGINAL PERSIAN

by

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I

INTRODUCTION

The Islamic philosophers, as I call them, (rather than the Arabic philosophers, since there were so many Persians, Turks, Spaniards, etc. among them) had a feature in common with the Christian philosophers of the Middle ages. They both endeavored to reconcile the Greek philosophy, mostly Aristotle's, with the dogma of their religion – in one case with the Koranic and in another case with the Biblical doctrine.

This attempt is explainable. Since the free inquiry after truth, which was the legacy of Socrates, could not be continued under the tyranny of religion which had prevailed for a long time both in the Post-Islamic Near-East[1] and Medieval Europe, either philosophical investigation should be harmonized with the so-called revealed truth or should be condemned as heresy.

The theologian Ghazali (1058–1111) a countryman of Avicenna, in his book *Tahafut al Falasifa* (*The Incoherence of Philosophers*) argued against philosophers' (such as Fariabi and Avicenna) attempts to reconcile Islamic doctrine with philosophy. How could, for example, the religious dogma of the creation of the world *ex nihilo* be reconciled with the ancient Greek belief that *ex nihilo nihil fit*? The debate on this issue was an example of a typical philosophical debate among Islamic philosophers. Omar Khyyam (–?–1123) in one of his quatrains mocks the whole issue:

Since our place is not secure in this world,
To live without wine and beloved is a big mistake.
How long, O philosopher whether the world is created or eternal!
When I go, let it be created or eternal.

[1] I am not suggesting that freedom of inquiry was tolerated in the Pre-Islamic Near East. Gibbon relates that after the closing down of the schools of philosophers by the Christian Emperor the unfortunate pagan philosophers took asylum in Persia. However, the intolerance of the Zoroastrians and the absolutism of the Persian kings were even worse. So the philosophers returned to Athens.

Or, how the belief in miracles could be compatible with the Aristotelian theory of scientific knowledge (the theory of Four Causes)? And, in general, how could faith live in harmony with reason? (The Augustinian question).

Gazali's answer is clear: faith and reason, i.e., philosophy, could not live in harmony (and so much the worse for reason) and those who tried to combine the two had failed.

Against Gazali, the Spanish philosopher Averroes (Ibn Roshed, 1126–1198) wrote his *Incoherence of "The Incoherence,"* (called in Latin *Destructio Destructionis*). He argued that most Islamic philosophers misunderstood the theories of Aristotle. Aristotle's doctrine truly understood is not incompatible with the Koran which contains philosophical truths in allegorical form.

There was, however, a part of Aristotle's work which stood in no need for reconciliation with any religious doctrine, namely pure logic. Whereas the Greek metaphysics, epistemology, ethics and politics had to be harmonized with religious dogma, as it was done in the case of Islam by Fariabi and Avicenna or in the case of Christianity by Augustine and Aquinas or in the case of Judaism by Maimonides or it would be doomed as sophistry and illusion, i.e., "incoherence," logic, being essentially a formal science needed no apology. This is recognized even by the anti-philosophical Ghazali who stated, "Logic is not their [philosophers] prerogative, and may be usefully employed by anyone."

Aristotle's work in logic which was called by his followers *The Organon* (an instrument) was translated into Syriac and Arabic and was available to Islamic philosophers.

The Organon consists of five logico-philosophical treatises, i.e. *The Categories* (classification of ultimate predicates), *The Topics* and *De Sophisticis Elenchis* (analysis of dialectical and sophistical, which both concern non-demonstrative reason), *De Interpretatione* or *On Exposition* (traces the possible varieties of the proposition), *Prior Analytics* (concerns demonstration and moods and figures of the syllogisms), and *Posterior Analytics* (concerns the conditions for demonstration).

These five treatises formed, together with a treatise by Porphyry called *Isagoge* (i.e. an Introduction to Aristotle's *Categories*) the so-called *logica vetus* (old logic). Sometimes two non-logical works of Aristotle's, namely, *Rhetorica* and *Poetica*, were considered to belong to the pre-philosophic curriculum.

In addition to *The Organon* some logico-philosophical works by Aristotelian commentators such as Alexander of Aphrodisias, Galen

and Boethius which contained some elements of Stoic logic were available to Islamic philosophers.

Islamic or "Arabic logic," as stated recently by Rescher, "like the rest of medieval Arabic science and philosophy is entirely Western and has nothing to do with "Oriental Philosophy." It developed wholly in the work of the classical Greek tradition as preserved in, and transmitted through Hellenistic Aristotelianism."[2]

The Islamic logicians mostly were compilers and interpreters of Aristotelian logic, namely of *The Organon*. Avicenna (980–1038) or Ibn-Sinna (son of Sinna), however, (though making ample use of Aristotelian and Stoic logic) argued that logic should not be taken as a mere commentary on Aristotle. In his book *Mantig al-Mashriqryyin*, (*Logic of the Eastern*), he argued against the logicians of the "School of Baghdad" whom he called "Occidentals":

> We do not worry to show a departure... from those philosophers enamoured 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.[3]

Avicenna in fact wrote many textbooks on logic and also made some minor departure from Aristotelian logic, (as we shall see in the comments to his Persian work on logic). However, Avicenna's work on logic being a concatenation of the schools of Western logic, namely the Peripatetics (who developed the logic of classes) and the Stoics (who created the logic of propositions) in no sense could be called original.

Rescher regards Avicenna as "the greatest, and perhaps the most creative logician of Islam."[4] Avicenna himself does not claim originality (except in one case concerning conjunctive syllogism. (See footnote p. 37.) In the Introduction to *Danesh-Name* in fact he states that "though never regarding myself as an expert in this science, (logic) I obeyed the order of my master in writing a logic book."

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[2] Nicolas Rescher, *Studies in the History of Arabic Logic*. University of Pittsburgh Press, 1963, p. 13. This statement, however, is too sweeping. Although "entirely Western" characteristic of Arabic logic is not a debatable thesis, this is not so concerning their science and philosophy. There are recognizable non-Western, i.e., Persian, Arabic and Indian elements in mathematics, metaphysics, chemistry and medicine in medieval Arabic or Islamic science and philosophy, despite their poverty. See, for example the history of Algebra, Chemistry (Persian *Kimmiya*) and Alcohol.

[3] *Mantig-al-Mashrigiyin*, published in Cairo, Egypt, 1910, pp. 2–4.

[4] *Ibid.*, p. 16.

Avicenna's most notable works on logic are contained in four Arabic books:

Shifa (*The Book of Healing*) mistakenly called in Latin *Sufficientia*
Isharat wa Tanbihat (*The Directives and Remarks*)
Mantig-al-Mashrigiyin (*Logic of the Easterns*)
and one book in Persian, *Danesh-Name Alai* (*The Book of Knowledge of Alai*).

Avicenna's books, or rather textbooks, on logic are quite similar in their form and content. For example, the content and form of Part One of *Danesh-Name* is almost identical with that of Part One of *Isharat* except that the former is a condensed form of the latter. There are also close similarities between *Isharat*, *Shifa* and *Nijat* on the topics of logic.

Danesh-Name is a concise philosophical encyclopaedia consisting of a treatise on logic, metaphysics, natural philosophy and three other subjects, i.e., geometry, astronomy and music.

Since this book was ordered by king Ezedin-Aladule-Dushmanziar, it was named after him *Danesh-Name-Alai*. There is no translation of *Danesh-Name-Alai* in English. I present here a translation of Part One of this book, "Treatise on Logic."

In this work I endeavor to provide as close a literary translation as I can manage except in a few cases which I footnote "untranslatable." My translation is based on "Treatise of Logic" published by The Society of National Monument, series 12, (Tehran, 1952), and edited by M. Moien and an earlier edition of the same book edited by Khurasani which contains an authentic but unfinished autobiography of Avicenna followed by his biography written by his pupil, Abu-Abid-Gorgani.[5]

In the following passages I present a translation of Avicenna's autobiography and biographical fragments written by Gorgani.[6]

A. Avicenna's Autobiography

"My father was from Balk. He migrated from there to Bukhārā during the reign of Nuh-Ibn Samani where he was a government official. He was appointed governor of Karmisan, a small village near Bukhārā, and there married my mother, Setare, who was from the town of Afshene.

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[5] This work is partially supported by an A. C. L. S. Grant-in-Aid.
[6] A Persian translation published by Khurasani at the beginning of *Danesh-Name*. My translation is from that text. The original text is in the British Museum. The Arabic text of which was printed in Avicenna's *Mantig-al-Mashrigiyyin* (*Logic of the Easterns*), Cairo, 1910. Also it is contained in various old histories.

There my brother and I were born. At a very early age I was sent to the town of Bukhārā to initiate my education. During a period of ten years I learned the Koran and the *belles-lettres*. I surprised everyone by my aptitude for learning the various sciences. My father belonged to the Ishmaeli sect. Often he discussed the Ishmaelian concept of the nature of the soul and the intelligence with my brother. I listened and thought, but was never convinced, and, although they tried to convert me to their religion, their efforts were useless. My father sometimes discussed geometry, philosophy and Indian arithmetic and it was he who sent me to a grocer to learn Indian numerals which I mastered quickly. At that time Abu Abdullah-Natali, a philosopher, came to Bukhārā. My father asked him to stay at our house in the hope that he would teach me some philosophy. I had already studied under the theologian Ishmael Zahed and was quite able to partake in theological discussion. I began the study of "Isagoge" (Porphyry) with Natali. I made an original inquiry into the problem of genus (which refers to the types of different things) which surprised my teacher. Natali, highly impressed by my talent, was afraid that my father would discontinue my studies. I was able to solve some logical problems which Natali himself was unable to solve. Since he had only a superficial knowledge of the subject, I continued to study logic by myself until I knew all there was to be known. I studied the five figures of Euclid with Natali and studied the remaining ones by myself. Then I took up "Almagest" (Ptolemy), and after a few pages my teacher was unable to instruct me further. He told me to solve the problems by myself and show him the results and this I did. In addition to gaining progress myself, I even helped Natali with many of his difficulties.

After some time Natali left Bukhārā. I continued my studies and began to collect books. I read Fusus[7] and other interpretations of Physics and Metaphysics. Day by day the doors of knowledge were opening for me. Then I began to study medicine, which I found was an easy subject for me. Soon I became so well known that many famous physicians came to visit me. I was also at that time practicing medicine, and I learned so much by experience alone that I impressed all of my colleagues. Meanwhile I continued my theological studies. At that time, I was sixteen.

For a year and a half, night and day, I was reading logic and studying the different branches of philosophy. When I was unable to solve any problem, I would go to the mosque and pray to God to open the closed

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[7] *Fusus al-Hikam* which is assumed to be written by Fariabi.

door to me. Then I would return to my study. When sleep was "overcoming" me, I would wisely drink a goblet of pure wine. This would bring intelligence to my mind and power to my body. Then I would resume my studying. Sometimes when sleep did overwhelm me I would solve the problems I was unable to answer before in my dreams! This happened often. In this way I continued until I was as learned in the subjects of logic, mathematics and physics as I am today. Then I began the study of metaphysics. I read the "Metaphysics" (Aristotle's). But I could neither understand the book nor the purpose of the author. Although I read the book forty times and knew it by heart, I was still unable to grasp its meaning. Completely disappointed in my attempts, I told myself that the book was unintelligible. Then one day, passing through the book bazaar I came upon a bookdealer who was auctioning a manuscript on the Metaphysics. I refused to buy the book, telling myself that there was no hope for a science which is unintelligible. But the dealer insisted that I buy the book because it was cheap and its owner was in need. So I purchased it for three darham (drachma). The book was "The Objects of Metaphysics" by Abu Naser Fariabi.[8] I hurried home and read it. With great pleasure I found the answer to my unsolved problems. The next day I gave alms to the poor in gratitude for his happy event. Then it happened that Noah-ben-Mansor fell ill, and his physician, being unable to help him, referred his patient to me. The king called me in his court and I used my knowledge and he recovered. Thus I gained his high favor.

One day I asked his permission to enter the royal library to study medical manuscripts. When I entered I found a mansion with many rooms and in each room were many boxes filled with books. The rooms were divided into different subjects – theology, Arabic poetry, etc. I studied the bibliography of old books and read a large number of them. The books that I found and read in that library were known to no one. I have never seen them since that time nor will I see them again.[9] The time I spent there proved invaluable to me. At eighteen I completed the study of all the sciences and since that time I have learned nothing new. The difference is that now I know more thoroughly what I knew in my youth.

In my neighborhood there was a man called Abul-Hussein-Arouzi. He asked me to write a book on various sciences. I did. The book was

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[8] Fariabi (870–951) wrote various commentaries on Aristotle. He is called "the Second teacher." Aristotle was called "the First teacher" by Islamic scholars. Fariabi tried to reconcile Plato and Aristotle. He refers to Plato as "Divine" and to Aristotle as "the First teacher."

[9] The library was burned and Avicenna's enemies accused him of the burning of the library.

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called "Majmo" and covered every science except mathematics. I completed it at the age of twenty-one.

Another neighbor from Karazm, Abubakra Bargy, who was unique in theology and virtue and a student in rational knowledge asked me to write a philosophical interpretation of Aristotle. Thus I wrote "al Hasel-val-Mahsul" in twenty volumes. On the subject of ethics I wrote "al-Beru-Val-Hsam" for him. My friend has the only copy of these two books.

It was at this time that I received word of my father's death, and I was forced to go to work for the government. Soon it became necessary that I leave Bukhārā and I moved to Gorgan. There I was awarded a sizeable pension by the wise minister of Karmazshah, Abul-Hussein-Suhali. From Gorgan I went to Nessaz and from there to a number of cities, finally settling back in Gorgan for a visit to Amir-Gabus-Ben Voshmgir. But meanwhile the king's army had revolted and the king was placed under guard in the fortress, where he later died. Because of this, I was forced to leave Gorgan once more.[10] But I soon fell ill and returned to Gorgan, where, in the midst of friends, I wrote a poem about my life (in Arabic) that begins with these lines:

> As I grew in knowledge, no more would Egypt have me,
> As my value rose, no one would care to buy me."

(Here ends the autobiography, dictated to his pupil Gorgani.)

B. AVICENNA'S BIOGRAPHY

(The following biographical account of the life of Avicenna was written by his loyal friend, Abul-Abid Gorgani and added to Avicenna's autobiography.)

"In Gorgan, there was a man who loved philosophy and his name was Abu Mohammed Shirazi. He bought for our master a house in his neighborhood. I was studying "Almajesty" under the master every day. He was dictating to me "al-Mukhtasar al-Awsat," a book on logic. He wrote for Abu Mohammed a book called "al-Arsad al-Kulliye" and many other books. One of these was the first book of his *al-Canun* "The Canon of Medicine."

The master happened to be in Ray at the time that Queen Syyedeh's

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[10] Avicenna refused to join the court of Sultan Mahmud. "There is reason to suppose that it was primarily for religious reasons that Avicenna refused to comply with the wish of Sultan Mahmud, whose strict orthodoxy and ruthless treatment of unorthodoxy had already become proverbial." *Avicenna, His Life and Works*, p. 64, S. M. Afnan. George Allen and Unwin, 1958.

son Majded-al-Dule was ailing. The master cured the son and gained their favor. He also wrote his book "al-Moad" there.

After the murder of Hallal Aben Bader Din Hasnoye and the defeat of the Bagdad army the master decided to join Shams al-Dule. So he went to Qazvin and Hamedan. But for some reason, he joined the ranks of Kadbanoiye. Soon Shams al-Dule, who was very ill with stomach trouble, asked our master's help. The master, after forty days and nights ministering to the king, at last cured him. As a result he received many gifts and gained the highest position at his court, even accompanying the king on his campaign to Germisan. However, the king was defeated in the battle and was forced to retreat to Hamedan. The king then appointed our master as his chancellor. It happened that a gang of soldiers who hadn't received their salary plundered our master's house one night, putting him in jail and even asking the king to have him murdered. They thought our master was responsible for their misfortune. The king refused their demands, but relieved the master of his office to ease the situation. The master was hidden for forty days in the house of a friend, until the king fell sick again and asked our master's help. After he had cured the king once more, the master was restored to his former position.

At this time I asked the master to write me an interpretation of Aristotle's books. He told me that he had no time for that, but said if I could be satisfied with a book about the rational sciences he would do that for me. I assented. Then he began the treatise on the natural sciences that was to form a part of the book later called *"Shifa."* Meanwhile, he was teaching me the *al Canon*, "The Canon of Medicine." He was so busy with his government duties that there was no time during the day for instruction, and the students gathered at night. I was studying *Shifa* and the others the *al-Canun*. As soon as we had finished our studying the singers and dancers would come. They would prepare a feast and the lecture room would be transformed into a drinking party.

After a while the king went to Taron to battle against Amir-Baha. The master, however, stayed in Hamedan. Again the king fell sick as a result of not following the master's prescriptions. His soldiers carried him to Hamedan but on the way he died. The people appointed his son to be his successor and asked our master to be the new king's minister. However, our master refused their offer, although in secret he was writing letters to Ala-Al-Duleh-Kaykavos asking permission to join the king's court.

The master found refuge in the house of Attar. While he was there, I asked him to finish the rest of *Shafa*. Then, in two days, without any reference books, he wrote the schema of his book in twenty notebooks, all from memory. Then he started to write. Each day he completed fifty pages until he had finished the chapters on physics and theology.

While he was writing on logic, Tahjal al-Dule ordered is arrest. They found him, jailing him in the fortress of Fardijan. The master wrote a poem about this incident. The first line is as follows:

"So certain is the fact of my entrance in this jail,
and all doubt about the question of my release."

He stayed four months in jail, during which time he wrote *al Hidayet* and a treatise about *Haiy ibn Yajzan* and a book on the subject of colic.

Then Alaed Dule vanquished Tahjalmolk. The latter asked our master to stay in Hamedan. At that time he finished the logic and added to the volumes of *Shafa* and one other work called *The Heart's Drudge*. But the master disliked staying in Hamedan, and one day he fled to Isfahan, disguised as a Darvish. His brother, two servants and I accompanied him. After many difficulties we were met by friends with clothes and fresh horses for us.

Alaed-Dule payed tribute to our master by ordering all the great scholars and scientists from near and far to come to the courts and participate in discussions with my master.

While he was in Isfahan, he completed *Shafa*. In Euclidean geometry and music he had some new ideas. He added ten new figures in perspective to "Almajesty." He had original ideas on astronomy and music, those on the latter being quite new indeed. He had now finished all parts of *Shafa* except those chapters on botany and biology.

One night during the campaign of Alaed-Dule in Hamedan we had a long discussion over the defects of the various calendars. The king ordered our master to study astronomy, and gave me sufficient funds for the construction of an observatory. We solved many difficult problems but owing to the troubles and confusion of the battle we were unable to finish our work. Later our master wrote the book *Danesh-Nameh-Alai* in Isfahan.

One of the strange things about my master was that during the twenty-five years that I was with him he was unable to finish evaluation of those books which he liked to read most. Instead, he was only able to glance at them cursorily, due to lack of time.

One day in an assembly of scholars held in the presence of the king, Abu-Mansur-Jabaei was lecturing on philology. Our master expressed his opinion, but was told that being only a philosopher he had no right to express an opinion on philology. This event so hurt my master's feelings that he devoted three years of study to the subjects of grammar and philology. He ordered from Korasan a book called *Tazhibal Logat* by Azhari and he studied the subject so well that no one could surpass him. He wrote three long poems full of old words and three books, each in a different style. He had the books bound in leather and made to look very old, and then made his an agreement with the king. The king, playing his part, presented these books to Abu-Mansur and told him he had found them while hunting, and ordered Abu-Mansar to study the books and inform him of their style and author. Abu-Mansar was unable to do so. In accordance with the plan, our master lectured on the books and answered Abu-Mansur's difficulties. Thus Abu-Mansar who was very proud of his knowledge was thoroughly embarrassed and forced to apologize to our master. After this, the master wrote *Liesan-al-Arab*, a unique book on Arabic philology.

Our master wrote many treatises on experimental medicine which he intended to publish in addition to his *Canon* but unfortunately they were destroyed. One of his observed experiences was this: one day, suffering from a severe headache, he conjectured that a substance was trying to penetrate his brain and he applied ice to his head several times until a resistance was built up against the substance. Another time he prescribed a drug made of sugar for a woman suffering from tuberculosis, to counteract the feverish effect of a drug he had administered as a depressant. Thus she recovered.

Some scholars in Shiraz were studying his book on logic called *al-Moktasar-al-Asghr* and they found certain difficulties which they were unable to solve. They then dispatched a messenger with a list of their problems, and upon receiving them, our master ordered me to bring him paper. He stayed awake all night solving the problems by candlelight. In the early morning I found him praying, and on the prayer rug I saw the manuscript with the solutions to all the problems. Everyone was astonished.

Our master invented various astronomical devices and wrote treatises on Ptolemy's astronomy. When King Massud captured Isfahan our master's home was plundered and many of his writings, including the book of *Ensaf*, which was on astronomy, were destroyed.

The master was very strong and potent, indulging in sexual inter-

course with women. But this weakened his body. In the year when Alaed-Dule fought Tash Farrash at the gates of Kark, the master was attacked by the colic. Because of his eagerness to cure himself, being afraid the king might suffer defeat, in which case his sickness would not allow him to travel back, he purged himself eight times in a single day ...In the company of Alaed-Dule, he went towards Idzegh where the epilepsy which sometimes follows colic manifested itself. Despite this, he continued to treat himself ...He took mithridate for the epilepsy, but one of his slaves being afraid to be punished for a theft went and put a great quantity of opium and he consumed the mixture...

In this state the master was brought to Isfahan, where he continued to look after himself... He was incautious and indulged in sexual activity. While sick he went with the king to Hamedan. The same sickness revisited him. When he finally reached Hamedan he knew that his strength was exhausted and no longer adequate to repel the disease. He therefore gave up treating himself saying, "The manager who used to manage me is incapable of managing me any more; so it is no use trying to cure myself." After some days he died, being 58 years old. He was born 370 and died 428 Hejri (corresponds to 980–1038 A.D.) and was buried at Hamedan."

II

PART ONE OF *DANESH-NAME ALAI*
(A CONCISE PHILOSOPHICAL ENCYCLOPAEDIA)

"Thanks and salutation to God, the creator and bestower of wisdom – salutation to his chosen messenger, Mohamed Mostafa – his family and friends.

I received the great order of our master, the just King Ez-Din Ala-Dule Abu-Jafar Mohamed ibn Dushmanziar. May his life be long and his fortune increase – the master who provided me with all the objects of my desires such as security, magnanimity – engagement with science and presence in his court – to compose for him and his courtiers a very concise book in Persian (Duri)[1] on five traditional and philosophical sciences, namely:

First on the science of Logic which is the science of scales (or canon).[2]

[1] "Duri" is the first form of the Persian written language. It was the language of rulers at the end of the Sasanian epoch (before the Arabic conquest of Persia) and later developed and was used in the court of the Sasanids in northern and eastern Persia.

[2] "Logic which is the science of scales (or canon)," "Logic which is a pure (higher) and formal science," "There is a method by which one can discover the unknown from what is known. It is the science of logic. Through it one may know how to obtain the unknown from the known. This science is also concerned with the different kinds of valid, invalid, and near valid inferences. The science of logic is the science of scales."

"And no science which cannot be examined by the balance of logic is certain and exact. Thus, without the acquisition of logic, nothing can be truly called science." *Danesh-Name.* In his Arabic *Shifa* Avicenna calls Logic an instrument *ala* of science. In *Najat* he writes that "Logic is to speculation as grammar is to discourse and prose to verse."

"Logic is an instrument common to all sciences. It is a method for discovery of the unknown from what is known," p. 12.

Finally, in the same book he provides a clear answer to the old and vacuous debate whether logic is a part of philosophy or only a tool of philosophy.

"If we mean by 'Philosophy' only the science of whatever exists in reality or in the mind, logic is not a part of philosophy. Logic can be an instrument. If one applies the word 'Philosophy' to all speculative research, logic then is a study of a part of Philosophy while serving as an instrument for other sciences."

By calling logic 'an instrument' Avicenna follows the Aristotelian logicians who designated the word 'Organon' meaning "instrument,' to refer to Aristotle's logical treatises.

By calling it 'scales' Avicenna means that logic weighs the validity and soundness of any argument and since arguments, proofs and demonstrations are an essential part of any science, science (including mathematics) is presupposed by logic. Avicenna shows how various syllogisms are used in Euclidean geometry. See "The Compound Syllogism." The word 'logic' in

Second on Natural Philosophy which is the science of sensible objects – moving and growing.

Third, the science of Astronomy – Cosmology – the essence and form and movement of skies and stars, as it is reported and examination of these reports.

Fourth, the science of Music and discussion of modes, melodies, harmonies of songs.

And the Fifth, Metaphysics, discussion of those things which are outside of Nature.

Our plan started with the subject of Logic which is a pure (higher) and formal science and gradually led to less pure and formal sciences (lower), (unlike the prevailing custom). It was possible to start with less formal and lower sciences.

Thus I, the servant, though never regarding myself as an expert in this science, obeyed the order of my master hoping that with God's help I could bring it to a successful completion.

The Purpose and Use of Logic

There are two kinds of cognition: One is called intuitive or perceptive or apprehensive (Tasāwor in Arabic). For example, if someone says, 'Man,' or 'Fairy,' or 'Angel,' or the like, you will understand, conceive and grasp what he means by the expression. The other kind of cognition is judgment (Tasdiq in Arabic). As for example, when you acknowledge that angels exist or human beings are under surveillance and the like.

Cognition can again be analyzed into two kinds. One is the kind that may be known through Intellect; it is known necessarily by reasoning through itself. For example, there are the intuitive cognitions of the whatness of the soul, and judgments about what is grasped by intuitive cognition, such as, the soul is eternal.

The other kind of cognition is one that is known by intuition. Judgments about these intuitions, however, are made, not by Intellect, or by reason but by the First Principle. For example, it is known that if two things are equal to the same thing then those things are equal to each other. Then there is the kind of cognition known by the senses, such as, the knowledge that the sun is bright. Also, there is the knowledge that

its modern sense was used by Alexander Aphrodisias 500 years after Aristotle. The Arabic word 'Mantiq' which is used for 'logic,' is a construction of 'Notq' which means 'speech' in Arabic.

is received from authority such as those received from sages and prophets. And the kind that is obtained from the general opinion and those we are brought by it, for example, that it is wrong to lie and injustice ought not to be done. And still other kinds – which may be named later.

Whatever is known by Intellect, whether it is simple intuitive cognition, or judgment about intuitive cognition, or cognitive judgment, should be based on something which is known prior to the thing, (a posteriori).[3]

An example of an intuitive or perceptual cognition is this: If we don't know what 'man' means, and someone tells us that man is an animal who talks, we first have to know the meaning of 'animal' and 'talking,' and we must have intuitive cognition of these things before we can learn something we didn't know before about man.

An example of a judgment acquired by Intellect is this: If we don't know the meaning of 'the world was created,' and someone tells us that the world possesses color, and whatever possesses color is created; then, and only then, can we know what we didn't know before about the world.

Thus, whatever is not known but desired to be known, can be known through what is known before. But it is not the case that whatever is known can be a ground for knowing what is unknown. Because for everything that is unknown there is a proper class of known things that can be used for knowing the unknown.

There is a method by which one can discover the unknown from what is known. It is the science of logic. Through it one may know how to obtain the unknown from the known. This science is also concerned with the different kinds of valid, invalid, and near valid inferences.

The science of logic is the science of scales. Other sciences are practical, they can give direction in life. The salvation of men lies in their purity of soul. This purity of soul is attainable by contemplating the pure form and avoiding this-worldly inclinations. And the way to these two are through science. And no science which cannot be examined by the balance of logic is certain and exact. Thus, without the acquisition of logic, nothing can be truly called science. Therefore, there is no way

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[3] The epistemological theory on various classes and sub-classes of cognition is not part of logic proper. Though it leads to a logical point concerning the deducibility of "the unknown from what is known." Avicenna states the same opinion also in *Isharat*. "In the acquisition of the sciences, we use intuitions or judgments. One calls ordinary discourse explicit through the formation of an intuition. One calls it proof through the elaboration of a judgment. Explicit discourse can be either definition or description. Proof is either syllogistic or inductive." *The Purpose of Logic*, p. 3.

except learning the science of logic. It is characteristic of the ancient sciences that the student, at the beginning of his study, is unable to see the use or application of the sciences. This is so, because only after a thorough study of the whole body of science will the real value of his endeavor become apparent. Thus I pray that the reader of this book will not grow impatient in reading things which do not appear of use upon first sight.

The Beginning of the Science of Logic, and a Discussion of What is Called Simple Expressions and Simple Meanings

It should be known that there are two kinds of expressions: One is simple, the other compound.[4] A simple expression is one which has no part signifying a part of the meaning of the expression, i.e., 'Zid,' 'Mohammed,' 'Man,' and 'Wise.' A compound expression is one which has some part of it denoting some part of the meaning of the expression, such as when you say, "Human beings are wise," or "The wise people." An inquiry into the nature of compound expressions first requires a discussion of the nature of simple expressions.

A Discussion of Simple and Compound Expressions

Every simple expression is either universal or individual. A universal expression is one whose meaning applies to many entities. For example, 'man' signifies the same meaning when applied to Zid, Omar and Mohammed. However, even if a universal expression applies to only one entity it can be used in such a way as to indicate many entities, since it is possible to imagine, by understanding the meaning of that term, many other entities. For example, by knowing the meaning of 'sun' and 'moon,' you can imagine many suns and moons.

An individual expression is one which signifies a single entity. It is such that it cannot be imagined that the same expression could be applied to many entities. When you say 'Zid,' 'Zid' signifies only Zid. If you call some other entities 'Zid' you are giving the term another meaning. The business of the scientist is not to deal with individual expressions and their meanings, but to investigate the nature of universals. No doubt, each universal has many particular instances.

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[4] The topic of simple and complex expression and universal or individual or common name and proper name corresponds to Aristotle's statements in the *Categories*.

A Discussion of Essential and Accidental Universals

The universal contains its particulars either (a) essentially or (b) accidentally. The Essential Universal and its Particulars are apprehended if, at least, three conditions are fulfilled:

(1) The particular has meaning. Thus, if you know the meaning of 'animal,' 'man,' 'number,' and 'number four,' you cannot help knowing the meaning of the expressions, 'man is an animal' and 'four is a number.' But if you add 'exists' or 'is white' to the word 'animal' and 'number,' you will not understand the meaning of the resulting expressions "man exists," "number four exists," or "man is not white" or "man is white."

(2) The existence of the Essential Universal is prerequisite for the existence of its Particular. For example, there should first be animal in order that animal be man, and first there should be number in order that number be four, and first there should be human being in order that human being be Zid.

(3) Nothing gives meaning to a particular, rather its meaning is derived from its essence. For example, nothing makes human being animal, and nothing makes four number, except its essence. For if it were otherwise, if the essence of a thing did not exist, there could be a man which is not animal, and there could be four, but no number; but this is impossible.

To further elaborate what has been said, take the saying "something may make some other thing." Its meaning is this: a thing can not be in its essence another thing, but only could be that other thing by means of something else which is accidental to it. If it is impossible for a thing to be what another thing is, nothing could make it that thing. That thing which makes man, man, makes animal, animal. But it does not make man, animal, since man in itself is animal, and four in itself is number. But this relation does not exist between whiteness and man. Hence, there should be something which makes man, white.

Thus, when every meaning has the above three characteristics it is essential. Whatever does not have all these characteristics is accidental. Accidental qualities are those which can never arise from the essence of a thing, not even by imagination. Therefore, they are unlike kinds of deduction that are made in the case of number thousand which is an even number or in the case of a triangle, the sum total of whose angles is equal to two right angles. An example of an accidental quality is laughter, an attribute of men. This problem will be discussed later on.

And I should have mentioned also that a human being has two characteristics: essential and accidental. His essential characteristic may be exemplified by his ability to speak, because this property is the essence of his soul. An accidental quality of his is laughter, because it is the character of man, on seeing or hearing a strange and unfamiliar thing, (unless hindered by instinct or habit), to perchance laugh. But before there be wonder and laughter there must be a soul for a man, in order that this soul be united with a body and man becomes a man. First, there should be a soul in order that there be a man; not first, there should be laughter in order that there be a soul. Thus, the characteristic which comes first is essential, and whatever does not come from a man is not essential, but accidental. When you say, "Zid is seated," "Zid slept," "Zid is old," and "Zid is young," these characteristics, without doubt, are accidental, no matter what their temporal sequence be.

A Discussion of Genus, Species, Differentia, and Common and Special Accidents

There are five types of Universals: Three are Essential, and two are Accidental. Essential universals fall into two groups. In the first group are those which answer the question "what kind of things are some entities?" What is being asked for is the meaning of the entity. The answer would be a definition of its essence. For example, when you ask, "What is man? cow and horse?", you will be told "animals." When you ask, "What is blackness, redness, whiteness?," you will be told "qualities." When you ask, "What is three, five, and ten?," you will be told "numbers." And when you ask, "What is Zid, Kaled, and Omar?," you will be told, "man." Thus "animal," "quality," "number," and "man," are answers to the question "What kind of things are they?" And when you ask which number is four?," you will be told, "It is a number which when twice divided is one." And "Which animal is man?," you will be told, "Talking animal." Thus an Essential Universal answers the question, "What is that?"

In the other group fall those Essential Universals which answer the question "What thing is?." This question is more general and more special than the first question which is a definition of essence. For example, solid is more general than animal, and more special than substance. Animal is more general than man, and more special than solid. Likewise, number is more special than quantity, and more general than even. Evenness is more special than number, and more general than

four. Four is more special than even, and more general than this and that particular four. Thus, whatever is the more general is the more special genus. Whatever is the more particular universal is the general species.

There are some things that are both genus and species. And there are other things that are only genus; they are not under any species. Take, in the above example, substance, quantity, and quality. They are not the genus of any species. This is so, because, under these categories, there is no Essential Universal which is an answer to the question, "What is that thing?" Rather, under these categories, there are only particulars, such as man, four, and blackness. There is no substantial difference between this blackness and that blackness. The difference that could exist would be in external conditions. For example, the blackness of the crow is different from the blackness of the pencil. The crow and the pencil are things outside the quality of blackness. The blackness of the crow is not the essential attribute of blackness itself, in spite of the fact that this blackness could not be separated from the crow. However, in the imagination, it could be separated. Thus, the difference between Zid and Omar is that Zid is taller and whiter than Omar, that he is the son of another, and was born in another town. These qualities are all accidental attributes. The nature of the species that cannot be a genus can now be understood. This kind of species is called a Species of Species. It is the species of all the species which come under it. Thus, it is understood why the essential universal is either genus, species, or differentia.

The Accidental Universal can belong either to a particular universal or to more than one universal. An example of the former is laughability. An example of the latter is movement, which moves men and other things, or blackness which belongs to the crow and other things. This universal is called Common Accident.

Thus, any universal term is either genus, such as animal, or species, such as man, or differentia, such as the ability to talk, or proper, (special), such as laughability, or common accidental, such as movement, blackness, and whiteness.

A Discussion of the Nature of Definition and Description

The purpose of definition is to know the true essence of a thing.[5] Dis-

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[5] This corresponds exactly to Aristotle's definition of 'definitions.' Definition is "a phrase signifying the essence of a thing." *Topics* (101, p. 37).

"Definition is said to be the statement of a thing's nature." (*Posterior Analytics*), 10.

tinction follows from definition (Limitation). The purpose of a description is to denote a thing; description may be given even when the true essence of a thing may not be known. And to denote a thing is to separate that thing. Definition is a description of the essence of a thing.

To define something is to find something which is closest to that thing, such as animal which is closest to man. Then find that thing's essential differentia, such as the ability to talk. Then define 'man' as an animal who talks. 'Four' can be defined as that number, which when twice divided, is reduced to one.

Description is exemplified by the following: man is a crying and laughing animal with wide nails: four is a number which when multiplied by itself results in sixteen: or four is a number that is a result of multiplying two by two.

There are four possible mistakes that could be made in defining and describing. All four possibilities could be realized by violating the following principle: All known things ought to be made known by means of something more knowable than themselves.

The four mistakes are the following:

(1) To use the thing being defined in the definiens of the definition (circular definition). For example, consider the meaning of 'time' when defined as a duration of movement. Obviously duration and time are the same thing. And one who cannot understand the meaning of 'Time,' will not know its meaning any better when defined in terms of an equally obscure concept of duration.

(2) To define something by means of another thing similar to the first in respect to clarity and obscurity. For example, when you define 'blackness' as that color which is the opposite of whiteness. This definition is not any better than a definition of 'whiteness' as the opposite of blackness. For whiteness and blackness are similar to each other in respect of clarity and obscurity.

(3) To define something by using another thing which is more obscure than the thing to be defined. For example, when you define 'fire' as a material object resembling psyche. Surely psyche is a less clearer notion than fire.

(4) To define something by means of a thing which cannot be known unless defined itself. Such as when you define 'sun' as that planet which shows in the daytime. 'Sun' is defined in terms of day; yet people define 'day' in terms of sun. In fact, day is the time during which the sun rises. Thus, if it is hard to define 'sun,' it is harder to define 'day.'

The four pitfalls, enumerated above, should be avoided in any definition or description.

A Discussion of Names, Terms, and Prepositions

Every simple expression is either a name, a verb, or a preposition. The grammarian calls those expressions verbs which the logician simply calls terms. Both names and terms have a complete meaning. Such as when someone asks, "Whom did you see?" and you say, "Zid," this is a complete answer. If someone asks, "What was Zid doing?" and you answer "Walking," this answer also is complete. But prepositions do not have a complete meaning. For example, if someone asks, "Where is Zid?" and you answer, "in" or "on", this is not a complete answer, unless you say, "He is in the house" or "On the roof."

Names and terms can be distinguished. Names, such as 'man' and 'friendship,' signify meanings without referring to temporal sequence. But the expressions which grammarians call verbs have both meaning and temporal significance. For example, 'struck' means that someone struck in the past time.

If when someone asks, is 'day' or 'yesterday' a name or a term, you answer that they are names, your questioner may object that since there is a time element in the words 'yesterday' and 'today,' they should be called terms rather than names. The answer to the objection is this: Not any word which signifies a time sequence is a term. For first a word should signify a meaning, and then a time element. For example, when you say 'struck,' the term first refers to the verb strike, and second it refers to a period in time. But the word 'today' itself signifies a part of time. It does not first signify a meaning and then refer to a time sequence. So much for simple expressions. Now we are going to discuss compound expressions.

On Proposition

Compound expressions are made up of simple expressions. There are many kinds. One type is called Proposition or 'statement' or 'affirmative speech.' A proposition is a compound expression which, when hearing it uttered, you can ask yourself whether the expression is true or false.[6] For example, when someone says, "In this community we have

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[6] Avicenna's definition of 'proposition' in terms of truth and falsity corresponds to Aristotle and the Stoics.

"In fact, says Gellius, any full and complete thought that is so expressed in words that is necessarily either true or false is called 'proposition.'" *Stoic Logic*, B. Mates, p. 28.

reward and punishment," you may say that it is true. Or if someone says, "Man is a flying animal," you may say that this is not so. If someone says, "Whenever the sun rises there is day," you may say this is the case. If someone says, "One can see the stars in the bright sunlight," you may say this is not true. And if someone says, "Number is either odd or even," you may answer this is the case. "Numbers are either black or white," you may answer this is not the case. But if someone says, "Instruct me," the reply to this is not that it is not the case. Also, if someone says, "Come with me to the mosque," the answer to this is not that it is true or is not a lie.[7]

* Kinds of Propositions

There are three kinds of propositions: Categorical,[8] *Conjunctive Conditional*,[9] and *Disjunctive Conditional*.[10] An example of the first kind is: "Man is an animal" or "Man is not an animal." An example of the second kind is the following: "Because this is the case, that would be the case" or "If that is the case, this is the case." And not: "If this is the case or that is the case," then "This will be the case or that will be the case." An example of the third kind is: "It is either this or that" or "It is not the case that either this or that."

A Discussion of Categorical Propositions –
Affirmation and Negation, – Universality and Particularity

The character of the categorical proposition is such that by means of it it is possible to express a judgment that something is the case or is not

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[7] The assertion that not every sentence has truth-value is again Aristotle's, according to him neither prayer or propositions about future contingencies were true or false. "Every sentence is not a proposition, only such are propositions as have in them either truth or falsity. Thus a prayer is a sentence, but is neither true or false." *On Interpretation.* (17a)

Avicenna expresses the same opinion in more detail in *Isharat*:

"As with interrogation, supplication, explication, request, surprise and the like, the person who expresses them is not told that he is truthful or untruthful except accidentally." (p. 22). (References are to the Arabic pages of the Arabic edition, ed. Forget, Leyden, 1891).

[8] Categorical propositions correspond to Aristotle's A, E, I, O, propositions.

[9] Conjunctive Conditional corresponds to Stoic conditional proposition. Conditional is "a molecular proposition compounded by means of connective 'if.' For example, 'If it is day, it is day' or 'If it is day, it is light.'" *Stoic Logic*, Mates, p. 43.

[10] Disjunctive conditional corresponds to Stoic Disjunction, in exclusive sense.

Rendered symbolically, Avicenna's examples have the following forms:
  a. $(P \rightarrow Q)$
  b. $\sim (P \vee Q) \rightarrow (R \vee S)$
  c. $(P \vee Q)$
  d. $(\sim (P \vee Q)$.
taking $(P \vee Q)$ to mean $\sim (P \wedge Q)$.)

the case. For example, if the proposition, "Man is an animal" or "Man is not an animal" says what is the case, then it is affirmative. If what the proposition says is not the case, then it is negative. That part of the proposition about which we are making an assertion, for example, 'Man,' in the proposition "Man is an animal," is called the subject. That part of proposition which makes an assertion about the subject, such as, 'is animal,' in the proposition, "Man is an animal," is called the predicate. Both subject and predicate can be either simple or compound expressions. An example of a simple subject and predicate is in the proposition, "Man is an animal." An example of a compound subject and predicate is in the proposition, "Whoever does not chew his food will upset his stomach." Here, "Whoever does not chew food," is the subject, and "upset his stomach" is the predicate. It is possible to substitute a single letter for two compound expressions. For example, substitute "A" for the expression "whoever does not chew his food," and "B" for "upset his stomach," then you can say ("A is B.") This sentence will have the same meaning as the one substituted for. It is possible that either "A" or "B" be simple or compound.

If someone asks whether the sentences "Zid is without sight," and "Zid is not-at-home," are affirmative or negative, we will answer: affirmative. The expression "without sight" in the sentence "Zid is without sight" is an attribute and if its existence is proven, the proposition of which it is a part becomes affirmative. And if the attribute is shown not to exist, the proposition becomes negative. If we want to make the same proposition negative we may say, "It is not the case that Zid possesses sight." The difference between affirmative and negative propositions is that if Zid does not exist in the world perhaps you may still say that "It is not the case that Zid possesses sight," because it is not possible for anyone, who does not exist, to have sight. However, it is not proper to say that "Zid is without sight" unless Zid exists.[11]

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[11] On the basis of this statement Rescher argues that "Avicenna is thus committed to the thesis that if $\varnothing$ is a genuine predicate, then $\frac{\varnothing\ a}{E\ !\ a}$ is true, is a valid inference. ("E ! a" being construed as stating that a exists). And correspondingly an important difference must be drawn between assignment of a negation-predicate and the negation of a predicate assignment:

$$[\sim Q \rightarrow a\ E : a \sim [\varnothing\ a] \rightarrow (\sim E\ !\ a \vee [\sim \varnothing]\ a)$$

The proposition "Zayd is a being-that-does-not-see" is an affirmative one, as Avicenna rightly insists, and he lays it down that such a proposition's never true of a singular subject that does not exist." p. 73, *Studies in Arabic Philosophy*.

However, it is not clear at all whether Avicenna is committed to this thesis. But if he asserts this thesis he is wrong. For consider that we do make many true statements about Hamlet, without presupposing his existence. (See my book, *What Is In a Name?* Chapter II, Theories of Logicians, p. 32).

If someone asks us whether the proposition, "Zid is not without sight," is affirmative or negative, we will say that it is negative, because "without sight" is an attribute. The words "is not" negate the proposition. The expression "is not without sight" is called a negative attribute.

A subject is either universal or particular. For example, when you say, "Zid is a writer" or" Zid is not a writer," the subject of the first sentence is particular, the proposition is affirmative; the subject of the second sentence is also particular, but the proposition is negative.

Universal subjects are of two types. Either it is not known that the proposition is about some or all members of a class (indeterminate proposition).[12] For example, when you say, "Men move," it is not certain whether you are referring to some or all men. Even when you say, "Men do not move," it is not certain that you are referring to some or all men. Or, it is known whether the proposition is about some or all members of a class (determinate proposition). And what determines the quantity is called 'Sur.'[13]

The determinate universal proposition is divided into four groups. (1) There is the affirmative proposition about the whole subject. For example, "Whatever is a man is an animal" or "Every man is an animal." This type is called universal affirmative. And the word 'whatever' and 'every' is Sur. (2) There is the negative proposition about the whole subject. For example, when you say, "No man is mortal." And its Sur is "No." (3) There is the proposition which speaks affirmatively about some members of a class. For example, when you say, "Some people are writers." This proposition is called particular affirmative. And its Sur is 'Some.' (4) There is the proposition which speaks negatively about some members of a class. For example, such as when you say, "It is not the case that some men are writers." This kind of proposition is called particular negative. The negative expressions are "it is not the case," "not all," "not everyone," and "not each." Thus, when you say, "Not all people are writers" or "Not any man is a writer," or "Not each man is a writer," your proposition is particular negative.

Indeterminate propositions are always particular. For if you say, "Men are so and so," you may mean all men or some men, because all men can be called man and also some men can be called man. It is at

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[12] Once again Avicenna follows Aristotle. "By indefinite (I mean) that it does or does not belong, without any mark to show whether it is universal or particular, e.g., "contraries are subjects of some science," or "pleasure is not good." *Prior Analytics* (24a).

[13] In *Nijat* Avicenna states that "'sur' is the term which signifies the quantity of limitation, like *all* and *not one* and *some* and *not all*." Likewise in *Isharat* he writes "What determines the quantity of the proposition is called Sur, such as 'all,' 'any,' 'some,'" P. 22.

least certainly true that the proposition refers to some men, but it is not certain that it refers to all. If you say, "Some men are so and so," it is not necessary that some others are not so and so. If the proposition is about all, it is also about some. Nor is it quite certain that it is about all, but without doubt the proposition is about some.

Thus there are eight kinds of categorical propositions.

(1) Affirmative Particular
(2) Negative Particular
(3) Indeterminate Affirmative
(4) Indeterminate Negative
(5) Universal Affirmative
(6) Universal Negative
(7) Particular Affirmative
(8) Particular Negative.

(1) and (2) are of no use in the sciences. (3) and (4) should be avoided since they bring confusion.

Each categorical proposition is either necessary or contingent. For example, "Man is a body" is necessary: "Man is a writer" is contingent: "Man is an angel" is impossible.

There are two kinds of contingent propositions. The term 'possible' has two meanings. 'Possible' may apply only to those things which are not impossible. The class of contingent statements falls under this kind of possible.

'Possible' may also refer to things which may exist or may not exist. This is called the 'Real Possible,' and contingent propositions do not fall under this class. In ordinary language the term 'possible' is used in the second sense.

A Discussion of the Disjunctive Conditional and the Conjunctive Conditional

Conditional propositions, like categorical propositions, (which are made up of subject and predicate), are composed of two, and only two, parts. One part is called the antecedent, the other, the consequent. For example, in the proposition, "If the sun rises, then there will be day," the expression, "if the sun rises" is the antecedent, and the expression, "it will be day" is the consequent. The disjunctive conditional[14] is a

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[14] Disjunctive conditional corresponds to Stoic disjunctive (P ∨ Q). However, from both examples and from the definition provided by Avicenna, it seems that he uses disjunction in an

proposition in which the antecendent can have one or many consequents. An example of one with a single consequent is: "This number is either even or odd." An example of one with several consequents is: "This number is either equal to that number or less than that number or greater than that number." The number of consequents may even be unlimited such as: "Every number is one or two or three or etc."

A difference between the antecendent and the consequent, on the one hand, and the subject and the predicate, on the other hand, is that the subject and the predicate can be single terms, but the antecedent and consequent can never be. Rather, the antecedent, "if the sun rises," and the consequent, "then there will be day," seem to be, but are not *bona fide* propositions. The presence of the word 'if' deprives the antecedent of being a proposition; "if the sun rises" is neither true nor false. And the consequent, "then there will be day" is also neither true nor false. Similarly, in the first example of a disjunctive conditional, the expression, "this number is either even," is not a proposition, because of the word 'either.' Nor is the consequent, "or odd" a proposition, because of the presence of the word 'or.'

Another difference between the antecedent and the consequent of the conditional, and the subject and the predicate of the categorical, is that it is possible to ask about a subject predicate proposition whether or not the predicate belongs to the subject. For example, when someone says, "Zid is alive," you may ask whether he is or he is not. But when someone utters a conditional, you can not ask whether or not the consequent belongs to the antecedent.

A difference between the conjunctive conditional and the disjunctive conditional is that the antecedent and consequent of the conjunctive cannot be placed in the position of each other without changing the meaning of the proposition. For example, the meaning of the sentence, "If the sun rises then there will be day," will not remain the same when the antecedent becomes the consequent and the consequent becomes the antecedent. But in the case of the disjunctive conditional, antecedent and consequent can be exchanged with each other without changing the meaning of the whole proposition. For example, changing the order

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exclusive sense (in Latin called *aut* and is distinct from the Latin *Vel* which is a separate word for disjunction in an inclusive sense corresponding to symbol 'v' in modern logic).

Avicenna states in *Danesh-Name* that "the disjunctive antecedent is not in harmony with its consequent, such as either odd or even in the sentence "'Every number is either odd or even.'"

Rescher states that "Sometimes, however, Avicenna's examples of disjunctions would be compatible with an inclusive construction of 'either...or'." P. 77, *Studies in the History of Arabic Logic*. I could not see any evidence for this claim.

of the antecedent and consequent, in the sentence, "This number is either odd or even," will make no difference in meaning.[15]

Another difference between the conjunctive and the disjunctive is that the conjunctive antecedent is in harmony with its consequent, such as the rising of the sun and the appearance of the day in the sentence, "If the sun rises then there will be day," while the disjunctive antecedent is not in harmony with its consequent, such as either odd or even in the sentence, "Every number is either odd or even." Affirming a conjunctive consists in determining whether harmony exists between antecedent and consequent. Negating a conjunctive consists in denying the existence of harmony between antecedent and consequent. For example, when you say, "It is not the case that when the sun rises night comes," it is possible, that both antecedent and consequent will be negative, but the whole proposition be affirmative, because the judgment is about the existence and harmony between the non-existence of day and the non-appearance of the sun.

The indeterminate conjunctive can be illustrated by the sentence, "If or when the sun rises, then there will be day." (You are not saying 'always,' 'whenever,' or 'sometimes.') If 'whenever' is used instead of "if or when," the statement becomes a universal affirmative. Or if you say, "Sometimes when the sun rises there are clouds," the proposition becomes particular affirmative. And if you say, "It is never the case that when there is a sun there is night," the statement is universal negative. And if you say, "It is not the case that whenever there is sun there are clouds," the statement is particular negative. There might also be a universal conjunctive with both of its particulars. For example, the statement, "Whenever some people are writers then some animals are writers," is universal, because of the presence of the word 'whenever.'

The affirmation of the disjunctive consists in proving the existence of disharmony between the parts of the proposition. For example, when you say, "Either this or that...," the negation consists in denying the existence of disharmony between the parts. For example, when you say, "It is not the case that number is either even or white, but it is either even or odd." A universal disjunctive expresses that the disharmony between the parts is existing forever. Such as, when you say, "It is always this or that." A particular disjunctive expresses that disharmony

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[15] This amounts to the assertion that in disjunction (like conjunction), the order of disjuncts is immaterial, e.g. "P ∨ Q" could be rendered "Q ∨ P" without changing the truth-value of the disjunct. Whereas in conditional the order is essential, i.e., "P → Q" differs from "Q → P."

sometimes exists between the parts. Such as, when you say, "Sometimes people are in the boat or are drowning in the sea" (and this when they are in the sea). The real disjunctive is one which expresses a disharmony as existing in the very nature of the antecedent and consequent, (or consequents), themselves: its affirmation or denial does not stand outside its parts. For example: when you say, "This number is either equal to this number or more or less than this number."[16]

A Discussion of Contradictory Propositions

The contradiction of a proposition is a proposition which is opposed to the first proposition with respect to affirmation or negation. If the proposition is affirmative, its contradictory will be negative. If the proposition is negative, its contradictory will be affirmative. One of the contradictory propositions must be true, and the other false.

The requirements of contradictories are:

(1) The meanings of the corresponding subjects, predicates, or antecedents, and consequents, in the two contradictory propositions, must be the same. Otherwise, there will be no contradiction. Take the statements, "The little lamb has a father" and "The little lamb hasn't a father." These propositions are not contradictory because "little lamb" in the first refers to an animal, and in the second refers to a con-

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[16] Rescher states that, "So far as I have been able to determine, Avicenna is the first writer in the history of logic to give an analysis of hypothetical and disjunctive propositions that is fully articulated with respect to quality and quantity." *Studies in the History of Arabic Logic*, p. 83.

Rescher provides a symbolic rendition of Avicenna's classification of quantified conjunctive and disjunctive conditionals.

1. "Always when the sun has risen it is day" is an A proposition (Universal affirmative): $(t) (At \rightarrow Ct)$
2. "Never, when the sun has risen, it is night" is an E proposition (Universal negative): $(t) \sim (At \wedge Ct)$.
3. "Sometimes, when the sun has risen, it is cloudy" is I proposition (Particular Affirmative): $(\exists t) (At \wedge Ct)$.
4. "Sometimes not, when the sun has risen, it is cloudy" is an O proposition (Particular Negative): $(\exists t) (At \wedge \sim Ct)$
5. "Always, either a number is even, or it is odd" is A proposition (Universal affirmative): $(t) (At \wedge \vee Ct)$
6. "Never, either the sun has risen, or it is day" is E proposition (Universal Negative): $(t) \sim (At \vee Ct)$
7. "Sometimes: either Zaid is in the house or Omer is here" is I proposition (Particular Affirmative): $(\exists t) (At \vee Ct)$
8. "Sometimes not: either a fever is "Bilious," or it is "sanguine" is O proposition (Particular negative): $(\exists t) \sim (At \vee Ct)$.

All examples of these eight forms appear both in *Danesh-Name* and *Isharat*. Rescher in every case gives reference to both books. However, examples of category 7 and 8 do not appear in *Dabnesh-Name*.

stellation of stars. An example of propositions with ambiguous predicates is: "The man is reaching his end" and "The man is not reaching his end." The two propositions can not be considered contradictories, if, in the first, "end" means termination of life, and in the second, "end" means aim or purpose. Here the mistake is obvious. However, in many sciences such a confusion is not so apparent.

(2) The two contradictories must express the same meaning with regard to the actuality and potentiality of their terms. For example, if one says, "The man is dying," and another says, "The man is not dying," the former, by his statement, might mean that the man is potentially dying, and the latter might mean that the man is actually or presently dying.

(3) Those expressions which complete the meaning of the propositions must be the same. For example, if someone says, "Ten is a greater number," and another says that, "Ten is a lesser number," the two propositions will not be contradictory to each other, if by 'greater' is meant greater than nine, and by 'lesser' is meant lesser than eleven.

(4) The temporal and spatial reference of the two contradictory statements must be the same.

(5) The word serving as subject in one statement must be the same one serving as subject in the contradictory statement. The same should be true of predicates. Thus, if, in two contradictory statements, the subjects are universal, then one of the propositions should be universal, and the other should be particular. Otherwise, it would be possible to have two false universal propositions. Take for example, the sentences, "Each man is a writer" and "No man is a writer"; both are false. An example of the two false particular statements is: "Some men are writers" and "Some men are not writers." The contradictory of "every" is "not every," and the contradictory of "no" is "some."

If all of the above conditions are satisfied for any two contradictory statements, one will be true and the other will be false.

A Discussion of Conversion

Conversion is a process which involves exchanging with each other, in a proposition, subject and predicate, or antecedent and consequent, without changing the meaning of the proposition.

The conversion of the universal negative is an universal negative. For example, take, "No man is immortal" and "No immortal is man."

The proof that the universal negative can be converted into a universal negative is as follows:

If it is true that "no F is B" then it is true that "no B is F."
Otherwise, the contradictory of the latter, "some B is F," is true.
Let us call that "some B," H.
Thus H is that B which is F.
Thus H is both F and B.
Thus there is an F which is B
But we already said that "no F is B."
Therefore, it is impossible that "some B is F" is true.
Thus, if "no F is B" is true, then "no B is F" is true.

However, the conversion of the universal affirmative is not a universal affirmative. If you say, "Every man is animal," you cannot say, "Every animal is man." The conversion of a universal affirmative is a particular affirmative. For example, if it is so that "all F are B" then it is necessary that "some B is F." Otherwise, "no B is F," but it was assumed that "all F are B."

The conversion of the particular affirmative is a particular affirmative. Such as, when you say, "some F are B," the converted proposition is "some B is F."

There is no conversion for the particular negative. It is possible to say, "Not any animal is man," but not, "Not any man is animal."

On Knowing the Syllogism

There are different methods of gaining knowledge. The methods for attaining intuitive or perceptive knowledge are definition and description. The methods for attaining rational knowledge involving the use of judgment and reasoning are deductive or syllogistic reasoning, inductive reasoning, and analogical reasoning. Reasoning from what is given to what is not given is a sub-class of analogical reasoning. The most reliable kind of reasoning is syllogistic reasoning. And of all syllogistic reasoning the most certain is the *Demonstrative Syllogism*.

Let us begin with a definition of syllogism. A *syllogism* is a discourse in which, if some statements are accepted, some other statements necessarily follow from them.[17] For example, if the two propositions,

[17] Avicenna's definition of "syllogism" is Aristotle's. "A syllogism is a discourse in which from certain propositions that are laid down something other than what is stated follows of necessity." *Prior Analytics* I 1 (24b 18).

Kneale argues that, "This definition is wide enough to cover almost any argument... valid. But... when he (Aristotle) is speaking more precisely he says that every syllogistic

"Every extended thing has shape" and "Every shaped thing is created" are accepted, then the statement, "Every extended thing is created," necessarily follows. Also, if someone says, "If the world has form then the world is created" and "The world has form," then it necessarily follows that "The world is created." This is so because the discourse is made up of two propositions, which if accepted, another proposition necessarily follows, (even though the derived proposition is identical to part of one of the premises.)

There are two kinds of syllogisms: *conjunctive* and hypothetical.

The *Conjunctive Syllogism* consists of two propositions which share only one part in common. From these propositions can be deduced a proposition which is composed of those parts not shared in common by the first two propositions. For example, from the propositions, "Every body has form" and "Every form is created," it follows that "Every Body is created."

In the above example, the term 'form' is the *Middle Term*. 'Body,' being the subject of the last statement in the syllogism, is called the *major term*. 'Is created,' being the predicate of the last statement in the syllogism, is called the *minor term*. The first two statements of the syllogism are called *premises*. The last statement is called the *conclusion*. The proposition which contains, as a part, the subject of the conclusion, is called the *minor premise*. The proposition which contains, as a part, the predicate of the conclusion, is called the *major premise*. The joining of the two premises is called *conjunction*. The form of the conjunction is called *figure*.

There are three kinds of figures: (1) The First Figure. The middle term is the predicate in one premise and the subject in another. (2) The Second Figure. The middle term is the predicate of both premises. (3) The Third Figure. The middle term is the subject of both premises.

In a hypothetical syllogism the middle term occupies similar varying positions.

There cannot be a syllogism consisting of two negative premises, or of two particular premises, or of a negative minor premise and a particular major premise.[18]

conclusion follows from two premises which relate the terms of the conclusion of a third term called the middle." p. 67, W. & M. Kneale, *The Development of Logic.*

Avicenna's examples of syllogism show that he uses 'syllogism' in a broad sense covering such arguments as Modus Ponens, i.e., If {(P → Q) ∧ P} → Q.

Aristotle, however, ignored the conditional form of proposition in his classification and dealt with categorical in his theory of syllogisms.

[18] In discussing conjunctive syllogisms – terms, moods and figures, proofs, Avicenna follows Aristotle.

Moods of the Syllogism for the First Figure

The First Figure has two advantages over all other figures. (1) It needs no proof. (2) A conclusion can be deduced from each of its moods. That is to say, there is a conclusion for the universal affirmative, the universal negative, the particular affirmative, and the particular negative. Whereas, for the Second Figure, there can be no universal affirmative as conclusion. And, in the Third Figure, there is no universal conclusion at all.

Two conditions must be satisfied for the First Figure of the conjunctive syllogism. (1) The minor premise should be affirmative. (2) The major premise should be universal. If both conditions are not satisfied, it is possible to deduce a false conclusion from two true premises. And then there would be no syllogism.

There are four moods of syllogism for the First Figure:

(1) The *first mood* consists of two universal premises. For example, if "every F is B" and "every B is H" then it follows that "every F is H." "Every extended body has color" and "Every colored thing is created," hence "Every extended body is created." Note that here the conclusion is universal.

(2) In the *second mood* both premises are universal and the major one is negative. For example, if "every F is B" and "No B is H" then it follows that "No F is H." "Every extended body is colored" and "No colored body is uncreated," then "No extended body is uncreated."

(3) In the *third mood* the major premise is universal affirmative and the minor premise is particular affirmative. For example, if "some G is N" and "each N is A," then it follows that "some G is A." If "Some substances are spirits" and "Each Spirit has a form" then "Some substances have form."

(4) In the *fourth mood* the minor premise is particular affirmative and the major premise is universal negative. For example, if "some G is N" and "no N are M" then "some G is not M." If "Some substances are spirits" and "No spirit is a body," then "Some substances are not body."

Moods of Syllogism for the Second Figure

The requirements of the *Second Figure* are: (1) One of the premises should be affirmative and the other negative. (2) In every case, the major premise should be universal.

There are four moods of syllogism for the Second Figure.

(1) In the *first mood* both premises are universal and the major one negative. For example, if "every F is B" and "no H is B" then it follows that "no F is H." Proof of the foregoing is this: If "no H is B" is true, its conversion, "no B is H," is true. Then it follows from our premises that "no F is H."

(2) In the *second mood*, both premises are universal and the minor negative. For example, if "no F is B" and "every H is B" then it follows that "no F is H." The syllogism can be proven in the following way: Convert the minor premise and interchange the premises, then the syllogism, "every H is B" and "no B is F" then "no H is F," follows. The conclusion, "no F is H" will then follow by conversion.

(3) In the *third mood*, the minor premise is particular negative and the major premise is universal negative. For example, if "some F are B" and "no H is B" then it follows that "some F is not H." By converting the major premise the conclusion will follow according to the fourth mood of the First Figure.

(4) In the *fourth mood*, the minor premise is particular negative and the major premise is universal affirmative. For example, if "some F are not B" and "each H is B" then "some F is not H." This syllogism cannot be proven by conversion, because the minor premise, a particular negative, is not convertible. Also, since the major premise, a universal affirmative, when converted, results in a particular proposition, no syllogism is possible because of the existence of two particular premises. However, there are two other kinds of proof for this syllogism. One is called proof by supposition, the other is called proof by reduction to absurdity.

Proof by Supposition:

Let us call that some F which are not B, 'N.'
We can say then, "no N is B."
Since "every H is B, it follows that "no N is H."
We can say, "some F is N," and "no N is H," then it follows that "some F is not H."

Proof by reduction to Absurdity:

Assume, our conclusion, "some F is not H," is false.
It follows that "all F are H."
And since "all F are H" and a premise is "every H is B," it follows that "all F are B."
But this is impossible, by our premise, "some F is not B."
Therefore, "some F is not H" is true.

Moods of Syllogism for the Third Figure

The minimum requirement for the Third Figure is that at least one premise be universal and the minor premise be affirmative.

There are six moods of syllogism for the Third Figure:

(1) In the *first mood*, both premises are universal and affirmative. For example, if "every B is F" and "every B is H" then "some F is H." Taking the premise, "every B is H," and the conversion of the minor premise, "some F is B," the conclusion, "some F is H," follows according to the third mood of the First Figure.

(2) In the *second mood*, both premises are universal and the major one negative. For example, if "every B is F" and "no B is H" then "not every F is H." By converting the minor premise, the conclusion follows according to the third mood of the First Figure.

(3) In the *third mood*, both premises are affirmative and the minor one, particular. For example, if "some B is F" and "every B is H" then "some F is H." By converting the minor premise the conclusion, "some F is H," follows according to the third mood of the first Figure.

(4) In the *fourth mood*, both premises are affirmative and the major one particular. For example, if "every B is F" and "some B is H" then "some F are H." By taking "every B is F" and the conversion of "some H is B," the conclusion, "some H is F," follows. Then, by converting the conclusion, "some F is H" results.

(5) In the *fifth mood*, the minor premise is universal affirmative and the major premise is particular negative. For example, if "every B is F" and "some B is not H" then "some F is not H." This proof cannot be demonstrated by conversion because the major premise is particular negative. However, it can be demonstrated by means of proof by supposition and proof by reduction to absurdity.

Proof by Supposition:
> Let that B which is not H be called 'N.'
> So, "no N is H."
> Since "every B is F" and we can say that
> "some B is N," then "some F is N."
> And since "some F is N" and "no N is H"
> then it follows that "some F is not H."

Proof by Reduction to Absurdity:
> Assume that the conclusion, "some F is not H,"
> is false.
> Then it follows that "every F is H."
> And since "every F is H" and "every B is F,"
> the conclusion follows that "every B is H."
> But this is impossible, by our premise,
> "some B is not H."
> Thus, it is true that "not every F is H."

(6) In the *sixth mood*, the minor premise is particular affirmative and the major premise is universal negative. For example, if "some B is F" and "no B is H" then "some F is not H." By converting the minor premise, the conclusion will follow according to the fourth mood of the First Figure.

The other two figures of the conjunctive syllogism can be demonstrated in a manner like that above.

The Hypothetical or "Exceptional" Form of the Conjunctive Syllogism

The hypothetical syllogism consists of one conjunctive and one hypothetical premise. For example, "If x has a fever then x's pulse beats fast" is the con*junc*tive premise, "But x has fever" is the hypothetical premise, then "x's pulse beats fast" is the conclusion.

There are two types of this syllogism. In one the hypothetical premise is identical to the antecedent of the conjunctive premise, and the conclusion is identical to the consequent of the conjunctive premise. This type syllogism was illustrated by the last example.

In the other, the hypothetical premise is the contrary of the consequent of the conjunctive premise. Considering the last example, "x's pulse does not beat fast" will be the conclusion if the hypothetical premise, the contrary of the consequent of the con*junc*tive, is "x has no

fever." But if the hypothetical premise is the contrary of the antecedent, for example, "x has no fever," it does not follow that "x's pulse beats fast" or that "x's pulse does not beat fast." And, if the hypothetical premise is identical with the consequent of the conjunctive, for example, "x's pulse beats fast," it does not follow that "x has a fever" or that "x has not a fever."

The Hypothetical Form of the Disjunctive Syllogism

When the disjunctive premise is composed of only two parts, and the hypothetical premise is identical to one or the other part, then the conclusion will be the contrary of the part of the disjunctive not taken as a premise. For example, "This number is either even or odd," "But it is even," it then follows that "It is not odd."[19] Again, "This number is even or odd," "but is odd," therefore "It is not even." When the hypothetical premise is contrary to one or the other part of the disjunctive, the conclusion will be identical to the part of the disjunctive not taken as a premise. For example, if the hypothetical is "But is not odd" the conclusion will be "It is even." Again, if the hypothetical is "But it is not even," the conclusion will be "It is odd." (What I have said, however, is true only of "true disjunctives. With regard to "unreal disjunctive" there are some exceptions to the principles I have laid down.)

When the disjunctive premise has more than two parts and the hypothetical premise is identical to one of these parts then the conclusion will be the negation of the other parts. For example, "This number is either greater than that number or is less than that number or is equal to that number," "But this number is greater than that number," therefore "This number is not equal to or less than that number."[20] Also, when the hypothetical premise is contrary to one part of the disjunctive the conclusion will be an assertion of the other parts of the disjunctive.

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[19] The example corresponds to $\{(P \lor Q) \land P\} \to \bar{Q}$, which is not valid if we take disjunction in its inclusive sense. However, it is valid if we take disjunction in its exclusive form which corresponds to $\{\sim (P \land Q) \land P\} \to \bar{Q}$.

"True disjunctive" as Avicenna calls it corresponds to exclusive and "unreal" corresponds to inclusive disjunction.

[20] The form of the argument is:

1. $(x > y) \lor (x < y) \lor (x = y)$
2. $(x > y)$
$$\overline{(x \neq y) \lor (x < y)}$$

The Compound Syllogism

Not all conclusions follow the different modes of syllogism for the various figures I have already discussed. Not every argument has two premises. For it is possible, in deductive reasoning, to use the conclusion of a two premise argument as the premise in another argument, ad infinitum. Not every deductive argument has all premises expressly stated; some premises are implicit for the sake of brevity. But these kinds of argument, and all others, are reducible to the Six Figures of the syllogism. For example, consider the first figure in Euclid: Taking a line AB, it can be proved that there exists a triangle whose two sides are equal to its base line AB, that is to say, the triangle is isosceles. Take a point A, on line AB, as the center point of the compass. Then open the compass as wide as line AB, and draw a circle around point A. Now, draw a circle with point B, on line AB, as the center of a circle whose circumference passes through point A, on line AB. The two circles will necessarily cut each other at point C. Draw a straight line from point G to A and from point G to B. The triangle among points A, B, and G is isosceles.
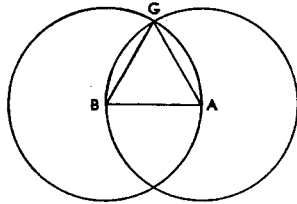
The proof of the demonstration is as follows: Line AB is equal to line AG because both are lines drawn from the center of the same circle. The same is true of BA and BG. BG is equal to AG because each is equal to AB. Thus, the triangle, constructed out of line AB, isosceles.

This Euclidean argument employs all four syllogisms of the First Figure. (1) Sides AB and AG are straight lines drawn from the center of the same circle to its circumference. Every straight line drawn from the center of a circle to its circumference is equal. Thus, sides AB and AG are equal. (2) The second syllogism could be stated in a manner like that above for sides AB and AG. (3) Sides AB and BG are both equal to line AB. Two lines which are equal to the same line are equal to each other. Thus, AB and AG are equal. (4) Figure ABG, which has as its base line AB, is bounded by three equal lines. Whatever is bounded on all

sides by three equal lines is an isosceles triangle. Thus, figure ABG, which has line AB as its base, is an isosceles triangle.

The Syllogism of Reduction to Absurdity

One type of compound syllogism is the argument by reduction to absurdity. The difference between the syllogism of reduction to absurdity and the straight forward syllogism is that the former proves its conclusion by assuming its contrary and then deducing a contradiction, thus showing that the contrary is impossible. The argument is composed of two syllogisms. One is a kind of odd conjunctive syllogism which I first discovered.[21]

Another type of compound argument is the hypothetical or exceptional syllogism. For example, taking "Every F is B" as a conclusion and assuming it to be false, and knowing that "Every H is B," then it is necessary that "Not every F is H." But this is impossible, since it is the contrary of what has been asserted, for example, that it is impossible, hence, "Every F is B" must be true.

Many people use numerous steps to prove that the hypothetical syllogism is valid. Aristotle hinted at what I said. He mentioned that the syllogism of reduction to absurdity is derivable from the conditional syllogism.

An example of an argument which is a combination of a conditional conjunctive and a categorical is the following. If the statement, "every F is B" is false, then "not every F is B" is true. And, "every H, without exception, is B." Then, it follows that if "all F are B" is false then "not every F is H." Now, take the conclusion, "all F are B" is false then "not every F is H," as a premise. But "every F is without exception H." (This is hypothetical). Then the conclusion follows that "every F is B" is not false, therefore, it is true.

If the contrary of the conclusion's antecedent is taken as true, and conjoined with a premise accepted by all as true, the conclusion will then be true. For example, if "every F is H" and "each H is B" then it follows that "every F is B." Usually, however, reduction to absurdity is a shorter method of proof.

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[21] The same claim is made in *Isharat*. "This division is according to what we verified ourselves." p. 64.

On Induction

Induction, being a true proposition about every member of a class, has a universal character. For example, "All animals, when they chew, move their lower jaw." The judgment would be certainly true if it could be shown to be true about all members of the class. However, most universal propositions are only contingent because most people, when making inductive propositions, report the characteristics of only some particulars, and it is possible that there may exist some particulars, never observed by them, without those characteristics. An example is the belief that "The crocodile moves only his upper jaw when chewing." The Sophists frequently employ the inductive argument.

Discussion of Analogy

Argument by analogy is weaker than induction. It is a proposition about the particulars of a class based on observing things similar to those particulars. For example, "The soul is a power which ceases to exist after the death of the body, just like sight which ceases to exist after the destruction of the eye." This argument is often used in politics and theology. But the proposition is never certain, because it is possible that a proposition about one class of particulars will be contrary to a proposition about a class of similar particulars. For there are many things which are like each other in some respects and unlike each other in other respects. But even though analogy can never give us certainty it can provide us with some kind of satisfaction.

On Sophistic Reasoning from Known to Unknown

The Sophists used reasoning by analogy until they were forced to recognize that the argument did not yield necessary conclusions.[22] Some tried to defend the argument by claiming that they were looking for a cause. For example: They took a proposition such as, "There is a maker for every house." The word 'house' was referred to as known, 'maker' as unknown. Then they looked at the sky and observed that it was a body with form and shape. So they said that the sky is a thing which has been made. But they didn't say that sky was created because it is

[22] This corresponds to Aristotle's statement that the subject of his treatise *De Sophisticis Elenchis* is "dialectical reasoning," which is defined as "reasoning which proceeds from opinions that are generally accepted and opposed to demonstrative reasoning."

aimilar to a house, for they knew that things which have something in common do not necessarily have all things in common. They asserted, however, that the reasons why they can say a house is created is because a house is a body with form and shape, and whatever has the characteristics of form and shape is created.

The above argument can be analyzed as follows: The Sophists used reasoning by conversion and rejection. They say, "We observe that whatever has form and shape is created and whatever lacks form and shape is uncreated." The argument is very weak. It is possible that there might exist something contrary to what they have observed. Also, it is possible that though most things are created, the sky is an exception. And, many things have unique characteristics.

More intelligent people discovered a better argument. They took what they called 'known' and enumerated all its properties. The object house was chosen and all properties were listed. A house is a body, a substance, has form, exists, and also, is created. It is created, not because it exists, for otherwise every existent being would be created, and not because it is substance, for otherwise every substance would be created, but because it is a body which has form and shape. Every body which has form and shape is created. Thus, the sky is created.

This argument, though it sounds cogent, is not certain. There are many ways of showing its flaws. I will mention only the most apparent errors.

(1) It is possible that a judgment about what is called "known" is not a causal judgment, and an entity, like a house, is unique.

(2) It is not easy to enumerate all the properties of an entity. A reason should be given to show that all characteristics have been listed. To this objection the Sophists reply that if any characteristics remain unmentioned, it is up to the critic to mention them. Also, they say if, perchance, a property was not noticed it will not long remain so; for, if there were an elephant here, both of us would see it, its existence could not be denied. However, this reasoning is fallacious. Because, not all properties of an entity are observable to all people at the same time.

(3) All the characteristics of an enity might be known, i.e., that a house has only three properties, but from this it cannot be inferred that for every property there is a specific cause. It might be known that the house was built, but from this it cannot be known who were its builders. There may be many causes of a single event, i.e., blackness may be caused by burning or spilled ink, or number ten may result from adding six and four together.

(4) Even if it is granted that the entity has only the specific characteristics enumerated and it is proved that these characteristics were not caused by any known series of events, it is still not certain that the cause remaining after all others have been eliminated can be assumed as *the* cause of the characteristics. It is true that some like things have the same cause, but it is not true that every like thing has the same cause.

A Discussion of the Form and Matter of the Syllogism

The *form* of the syllogism is the composition existing between the premises. The *matter* of the syllogism is its premises. The more certain the premises are the more certain the syllogism. There is one *form* for all syllogisms. But there are many different kinds of premises. Many syllogisms have premises which are not quite certain. There are two sorts of premises. (1) Those which are the conclusions of syllogisms. They are true or assumed to be true. (2) Those which are original premises of syllogisms which have as their conclusions what, in other syllogisms, are taken as premises. These original premises are not derived from any other premises. If true, then whatever is derived from them will be true. And if false, whatever is derived from them will be uncertain.

A Discussion of Premises

There are thirteen kinds of non-derivable premises.

(1) *First Principle premises.* They are known by the First Intellect and cannot be doubted. No one can even remember doubting them in the past. If a person imagines that he came into the world knowing nothing except the meaning of two parts of a First Principle premise and he was asked to doubt the truth of the premise he would not be able to do so. For example, if a person knows by intuition the meaning of 'whole' and 'part' 'greater' and 'lesser,' then he cannot help knowing that "the whole is greater than its parts," and that "things which are equal to the same thing are equal to each other."

(2) *Perceptual Premises.* They are apprehended through the senses, such as, the sun rises and sets, and the moon wanes and waxes.

(3) *Experimental Premises.* They are not known only by pure reason or only by pure sense, but are known by means of both. Such as, when we discover through the senses that certain things always have the same characteristics and we know by reason that the occurrence of these

characteristics did not happen by chance. An example is "knowing that fire burns."

(4) *Testimonial Premises.* They are accepted by reason because they are testified to by many. We know, although we haven't been there, that Baghdad and Egypt exist. If, however, the report is doubted, it cannot be regarded as testimony. The more testimony we have, the more certain we are.

(5) *Premises which contain syllogisms.*

(6) *Premises known by custom.* They are the notions which people learn in their early childhood. They are not known by reason but rather are derived from the general constitution of man, i.e., shame, mercy, etc. Or they may be known by induction, or be based on some notion which people generally are unaware of, i.e., the ideas that "it is necessary to be just," that "one thought not to tell a lie," and that "God is omnipotent." These premises may be true like the examples given above. Their truth, although questionable, can be known by reasoning. Some of these premises are false except under certain conditions. For example, it should not be said that God is omnipotent unconditionally for God cannot do what is logically impossible.

(7) *Premises derived from the imagination.* These premises are false but have a powerful influence on the psyche, so much so, that it is not easy to cast doubt on them. They are of two kinds: One cannot be proved or disproved by reason. The other kind is one which the imagination regards falsely as a perceptual premise. It is more than perceptual. Thus, it cannot really be given to the imagination, since only what is perceptual can be imagined. No wonder we cannot have an image of our imagination!

(8) *Premises Known by Authority.* These premises are accepted by everyone because they have been uttered by wise men. Yet, they are neither as true as First Principle premises, or as true as Perceptual premises.

(9) *Implicative Premises.* These premises are the ones which a person deduces from the argument of an opponent and uses against him without considering their truth or falsity.

(10) *Dubious Premises.* These premises are false, but they may be made to appear self-evident by one's opponent in argument.

(11) *Premises which appear to be accepted by custom.* These premises, at first sight, appear to be taken as true by all people. An example is the belief that one ought to help his friend whether he is in the right or the wrong. On first thought, a person may believe that this opinion

is the right one under all conditions. But the truth is that the principle is contrary to another universally accepted opinion that no one ought to help the unjust, whether friend or enemy.

(12) *Premises raised by our suspicions and fears.* These premises are based on our fears and suspicions which reason tells us are groundless. For example, we know that "x" has a correspondence with our enemy, therefore "x" is our enemy.

(13) *Premises raised by emotions.* These premises, though known by reason to be false, are induced by our passions. For example, the effect produced in a person when someone says that what you are now eating will not make you bilious.

The Function of Premises in the Deductive Sciences

First Principle, Perceptual, Experiential, and Testimonial premises are used in syllogistic reasoning. This kind of reasoning gives certainty and truth.

Premises based on authority and custom are used in dialectic. This sort of reasoning has four advantages. (1) One can defeat, in argument, those people who pretend to have knowledge, but who are really ignorant of the premises of their argument. (2) One can demonstrate truth to those who do not understand syllogistic reasoning. (3) It is often the case that students of the minor sciences, like medicine, geometry, and natural science, take on faith the principles of their science. The teacher of metaphysics, the science of sciences, can show these students, by means of dialectic, how the premises of their sciences are derived from metaphysics. (4) One can show what things taken to be true, are false, and what things taken to be false, are true. In so doing, one can alert the student to errors and deficiencies in argument.

However, since the aim of this book is the discovery of truth, there will be no further discussion of dialectic.

Dubious premises and those inspired by the imagination are used in sophistical reasoning. This argument gives no knowledge.

Premises known by authority, and those which appear to be known by custom, and those based on our fears and suspicions, are employed in the science of rhetoric. This science is used both by politicians and theologians.

Premises inspired by emotion are used in poetic reasoning.

More Discussion on Reasoning

Every deductive science is composed of three parts: *Subject, Essence,* and *Principles.* The *Subject* of a science is the matter which is observed in that science, such as, "body" in medicine, "measurement" in geometry, "number" in arithmetic, and "song" in music. The student should know, at least, the definition of the *Subject* of the science which he is studying. The *Essence* of a science or its essential characteristics are those which are inside the *Subject*, not outside it, such as, the characteristics of the triangle. Other examples are: oddness and evenness, the essential characteristics of number, and harmony and disharmony, the essential characteristics of music. In each science, first, it is necessary to know the definition of the *Essence*, before it is possible to have knowledge of the existence of the essential characteristics. The *Principles* are the fundamental elements of a science and must be learned by the student before advancing further in his study.

Types of Problems in the Deductive Sciences

The problems of the deductive sciences belong to the *Subject* or the *Essence* of the science. If the problem belongs to the *Subject* of the science, it is a part of the *Subject* itself. For example, in arithmetic, a number (x) is half of the sum of two numbers, if one of the two numbers is lesser than number (x) by a number (a) and the other number is greater than number (x) by a number (a). Thus, 4 is half of $5 + 3$ and $6 + 2$, and $7 + 1$, and 5 is half of $6 + 4$, $3 + 7$, and $2 + 8$. Or, it is the *Subject* of the science. For example, in arithmetic, taking any number (x) half of the number (x) would be one fourth of number (y), when number (y) is the result of multiplying number (x) by two. Or, it is a kind of the *Subject* of the science. For example, in arithmetic, 6 is a complete number, for 6 is a kind of number. The problem is a part of the *Subject* with an effect, such as in geometry it is said that the intersection of two straight lines will produce two angles, or that the sum of angles of any triangle is equal to the right angles.

An Interpretation of the Word 'Essential' as used in the Premises of the Deductive Sciences

'Essential' sometimes means what arises, without the help of anything else, from the essence of a thing, or what is part of the definition of the

Subject, or is a definition which contains, as a part, the *Subject*. The *Essence* of the *Subject* of an art is part of the art, not a part of something which is more general than the art. For example, since the movement of man is, not because of man, but because of body, (and body is more general than man), it is not the essence of man....[23]

The *Subject* is the *Essence* of the problems of the rational sciences. The *Subject* never expresses what is not essential. For example, the geometrician qua geometrician never cares whether the straight line is better, more beautiful, or in opposition to the curved line, for beauty or opposition are not essential to a line, and they are not part of the definition of the science of geometry. Rather, beauty is a part of the *Subject* of Aesthetics and opposition is a part of the science of dialectic. Thus, the *Subject* of a problem in the deductive sciences is the *Essence* of the science.

Kinds of Principles in Reasoning

There are four *Primary Principles* in the deductive sciences: (1) *Definition*. For example, the definition of point, line, and plane, in Euclid. (2) *Axioms*. For example, take the Euclidean axioms, that the halves of two equal things are equal to each other, and that the subtraction of equal amounts from equal numbers results in amounts equal to each other. (3) That part of the *Subject* which is taken on faith. Its truth, although never certain, is ascertained via other sciences. Sometimes, this part of the *Subjects* is controversial. (4) That part of the *Subject* which ought to be accepted but cannot be proven. For example, in geometry, the principle that for every point a circle can be drawn with that point as its center....[24]

A Discussion of Species of Syllogism

There are different species of syllogism. One is called "real." It is about the "Quiddity" or "whatness" of things. The other is concerned with the "state" or "existence" of things.

'Whatness' has two different meanings. Either it means what the thing described is in itself or what causes a person to reason a certain way. For example, if someone asks a person what reasons he has for believing that the statement, "There is a fire somewhere," is true, he

[23] Untranslatable.
[24] Untranslatable.

may say because he sees smoke. This answer is perfectly satisfactory, though it is not an answer to the question about the nature of fire and the cause of its existence. However, if a person asserts that "Something must be burning there," and someone asks, "What reason do you have for so believing?," and the person answers that "There is a fire there" and "Whenever there is a fire things burn," there are expressed, in the last two statements, the two different meanings of 'whatness.'

The requirement of the "real" syllogism is not, what the logicians assume, that the middle term be the cause of the major term. For example, that the term 'fire,' in the last syllogism, is the cause of burning. The middle term is not the cause of the major term but is the effect of it. Consider the statements, "Man is animal" and "Each animal is a body"; body is the cause of animal and animal is not the cause of body. But to be animal is a cause for man has a body; this is so, because body belongs to animal, and man is an animal, and man is a body. If there were an animal without a body, man could be without body.

A Discussion of the Different Kinds of Scientific Statements

There are four kinds of scientific questions.[25] (1) One is a question about the "existence" or "non-existence" of things. (2) Another is about the "whatness" of things. (3) And another is about the "whichness" or "thatness" of things. (4) Also, there is the question about the "cause" of things. However, there are no questions, in scientific discourse, about "quantity," "quality," "time," or "space."[26]

Question (1) is analyzable into two other questions. (1a) One asks "whether or not x exists?." (1b) The other asks, "What is x?"

Question (2) is also divisible into two other questions. (2a) This question asks about the meaning of a term. For example, "What do you

[25] Rescher states that "*For Avicenna's tabulation of questions is in fact derived from Aristotle's categories*, duly augmented by the five predicables of Porphyry. There can be no doubt of this, in the face not only of the parallelism of the concepts at work here, but also of the close correspondence of the Arabic terminology at issue in discussion of categories." p. 51, "Avicenna on the Logic of Questions" in *Studies in Arabic Philosophy*.

It seems to me that Avicenna's classification of questions, which is discussed under the heading *A Discussion of the Different Kinds of Scientific Statements*, both in *Isharat* and in this book has nothing to do whatsoever either with Aristotle's Categories or recent queries on the Logic of Questions. It is rather a restatement of Aristotle's discussions of scientific knowledge in terms of knowledge of the Four Causes.

"We think we have scientific knowledge when we know the cause, and there are four causes: 1) the definable form, 2) an antecedent which necessitates a consequent (the material cause), 3) the efficient cause, 4) the final cause." *Posterior Analytics*, Bk. 11, Ch. 10, 94a).

[26] Again Avicenna's exclusion of questions about "quantity," "quality," "time," or "space," from the domain of scientific question corresponds to Aristotle's theory that there could be no knowledge of accidentals.

mean by the term "triangle?'" (2b) And this question asks, "What is triangle in its essence?"[27]

Question (2a) is prior to question (1), because before it can be known whether or not a thing exists, it is necessary to know the meaning of that thing. And question (1) is prior to question (2b), because before it can be known what a thing is, it is necessary to know whether or not that thing exists. The answer to question (2) is an interpretation or definition of *Essence*. The answer to question (3), the question about "whichness," is a statement about differentia or particulars.

Question (4), the question about "causation," involves two other questions. One asks (4a), "Why did you say that?;" the other asks (4b), "Why does it exist?"

The answers to questions (1) and (4) involve judgment and reasoning. Answers to questions (2) and (3) involve intuition or perception.

Advice on Avoiding Fallacies in Reasoning

In the previous chapters on definition, description, and syllogistic reasoning, different ways of avoiding fallacies were discussed. In this section, general information will be given regarding fallacies.

(1) Acquire the habit of practicing with syllogisms in order to learn what argument is a syllogism and what kind of syllogism it is.

(2) Analyze every syllogism into its terms. Then observe whether the middle term is in the same mood in each premise. If this is not so, no syllogism exists. For example: The conversion of the proposition, "No house belongs to man" into "no man belongs to house" is incorrect. This is so, because it was not recognized that in the first proposition, "No house belongs to man," the subject is "house" and the predicate is "belongs to man" and that to convert something involves the exchange of the *complete* subject with the *complete* predicate. The proper conversion is "Nothing which belongs to a man is a house."

[27] Note the similarity with Aristotle:
"Since definition is said to be the statement of a thing's nature, obviously one kind of definition will be a statement of the meaning of the name, . . . A definition in this sense tells you, e.g., the meaning of the phrase "triangular character." When we are aware that triangle exists, we inquire the reason why it exists." *Posterior Analytics*, Bk. 11, Ch. 8 93b.
Rescher states that, "It would seem that Avicenna's pointed formulation of the matter (distinction between question of the nature of things, and the meanings of words) represents a decisive step towards the later distinction between nominal and real definition." P. 50. "Avicenna on the Logic of Questions."
The distinction already stated by Aristotle in *Posterior Analytics* which was read by Avicenna. "That definition does not prove that the thing defined exists. . . For definitions do not carry a further guarantee that the thing defined can exist." Bk. II, Ch. 7, (92b).

(3) When analyzing a syllogism see that no opposition exists between the two parts of the conclusion and the major and minor premises.

(4) Whenever there are identical terms see that they denote the same meaning. It is often the case that the same terms have different meanings.

(5) Whenever there is a pronoun used in discourse see that the pronoun clearly refers to its proper noun.

(6) Avoid using propositions which are ambiguous and general. Thus one may say rightly that the friend of your enemy is not your friend. But it does not follow necessarily that a friend of your enemy is your enemy or never a friend of your enemy is a friend of yours. Do not take them as universal.

(7) Examine the premises of every argument. If they are not true, the conclusion may not be true.

(8) Avoid ambiguous or problematical premises like the proposition, "There should be a mover for everything that moves because nothing can be self-moved."

Do not state in the premise a statement which is identical to conclusion.

(9) Avoid circular explanations like the following: A person says, "The reason why the soul is immortal is because it is always moving," and another asks, "Why is it always moving?" The person explains, "Because it is immortal."

(10) Do not take a premise which is believed by custom to be a First Principle. Only when premises are completely certain and the deduction valid can those people who seek the truth, the philosophers, ascertain the conclusion.

Let peace be with those who seek the truth. This is the end of the book of logic. Henceforth, I will talk about metaphysics, that is, theology."

<div align="center">End of A Treatise on Logic</div>

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Was Ghazālī an Ash'arite?*

NAKAMURA, Kojiro

I. Introduction

It has been generally taken for granted that Ghazālī (1058–1111) was an Ash'arite theologian. This has become, however, increasingly questionable, at least to the present writer. The aim of this article is to explain why and whence it is so.

As is well-known, there is a minor treatise entitled *al-Maḍnūn al-Ṣaghīr*[1] attributed to Ghazālī. Some scholars regard it as spurious, and others treat it as one of his writings.[2] Among the latter group, D. B. Macdonald in particular highly evaluates its notion of spirit as an incorporeal substance occupying no space (*lā mutaḥayyiz*), and regards it as a turning point in the development of the traditional conception of spirit in Sunnī theology.[3]

Meanwhile, in his article "The Authenticity of the Works Attributed to al-Ghazālī" (*JRAS*, 1952, pp. 24–45), W. M. Watt proposes three criteria of authenticity for the works attributed to Ghazālī, one of which is Ghazālī's concern to be orthodox (Ash'arite), and tries to classify them and to clarify their later interpolations accordingly. Thus Watt draws the conclusion that *al-Maḍnūn al-Ṣaghīr* is unauthentic for five reasons.

Summarizing the argumentation in the *Maḍnūn*, Watt says, "The author has been saying that the Prophet forbade the revealing of the nature of the spirit . . . , because the minds of the common people cannot appreciate such things; the Karrāmīyah and Ḥanbalīyah consider God a body; those a little superior denied corporeality but affirmed direction (?=position)" (p. 36), and he quotes from the *Maḍnūn*:

> The Ash'arīyah and the Mu'tazilah advanced still further beyond these ordinary men and affirmed an existent which had no direction. Question: Why may not this mystery (sc. of the spirit) be revealed to such people? Answer: Because they hold that these attributes can belong only to God; if you mention this (spirit) to some of them they regard you as an infidel and say you are characterizing yourself by an attribute which is peculiar to God, and that you are claiming Divinity for yourself. (*ibid.*)[4]

And he says, "There is no evidence from admittedly genuine works that al-Ghazālī ever to this extent dissociated himself from the Ash'arīyah" (*ibid.*).[5]

This is Watt's argumentation. I have some queries and questions in respect of the other criteria as well. But I will take up only one of them in this article, namely, the question of Ghazālī's Ash'arism. Did Ghazālī remain an orthodox Ash'arite, or did he step out of traditional Ash'arism so that it is not possible any more to take it as a criterion?[6]

II. Ghazālī's Own Testimonies

It is proper to start with examining how Ghazālī considers himself. Generally speaking, first of all, according to the impressions we have from his writings and sayings, he was born with an extraordinary intellectual ability, and was confident and proud of it (see, for example, his *Munqidh*). Hence his words toward some one inferior intellectually or heretical become sharp and poignant, and his attitude becomes despising and scornful as if looking down on him (see, for example, *Faḍā'iḥ al-Bāṭinīyah*).

This is evident from the following remark by one of Ghazālī's contemporaries, 'Abd al-Ghāfir al-Fārisī:

> I visited him many times, and it was no bare conjecture of mine that he, in spite of what I saw in him in time past of maliciousness and roughness towards people, and he looked upon them contemptuously through his being led astray by what God had granted him of ease in word and thought and expression, and through the seeking of rank and position, had come to be the very opposite and was purified from these stains.[7]

This testimony emphasizes Ghazālī's radical change after his conversion to Sūfism. As far as we can gather from his "Autobiography" (*Munqidh*) written late in his life, however, his trait of self-confidence is still evident in his style. Would such a self-confident man as Ghazālī ever remain satisfied with being a mere epigone of al-Ash'arī?

Indeed Ghazālī writes in one of the works composed toward the end of his life, *Faysal al-Tafriqah*, as follows:

> Verily I see you, O bewildered brother and faithful friend, inflated with anger and divided in thoughts, on hearing a group of people blame me out of envy at what I wrote about the secrets of the religious practices. *They allege that there are in those writings some points which contradict the teachings of the early authorities and the master theologians; that it is unbelief* (kufr) *to deviate even a little from the teaching of al-Ash'arī; and that it is an error and perdition to differ even in a small matter from him.* Relax, O faithful and bewildered brother! Do not press your bosom with it. Calm down. Forbear what they say and leave them alone

smartly. Despise those who are envious and speak ill of others. Disregard those who know nothing about unbelief and heresy. (p. 127; emphasis added here and below)

Ghazālī also says in the same work:

If someone says that unbelief means the denial of the teachings of al-Ash'arī, or the Mu'tazilites, or the Ḥanbalites, or any other, he is, you should know, unexperienced and stupid, bound by *taqlīd* (blind following). It would be a waste of time to try to remedy him. . . . If al-Bāqillānī (d. 1013) contradicted al-Ash'arī (d. 935), why would it be al-Bāqillānī rather than al-Ash'arī who is an unbeliever? Why is one of them right, and the other wrong? Is it due to antecedence in time? If so, then the Mu'tazilites are anterior to him (al-Ash'arī) and therefore they must be right. Or is it due to the difference in virtue and knowledge? If so, then by what sort of scale and measure can one know the amount of virtue so that it may become evident to him that no one is more virtuous than the followed (*matbū'*) and imitated (*muqallad*)? (pp. 131–32)

In the *Arba'īn* we find the following passage:

Probably you say that I fabricated the assertion contradictory to what is well-known (*mashhūr*) and disavowed by the majority, since I claim that the various kinds of punishment in the Hereafter are known by the light of spiritual insight (*baṣīrah*) and illumination (*mushāhadah*), which are far beyond the level of the blind imitation of the Divine Law. If it is so, you ask whether I can narrow down the kinds and details of the punishment. Know that it cannot be denied that I differ from the majority. How can it be denied that the traveller [after truth] differs from the majority? (p. 289)

Ghazālī also says in the *Mīzān*, after explaining the meaning of "school" (*madhhab*):

. . . . therefore, stop relying on the schools, and seek the truth by way of demonstration (*naẓar*) so as to be a master of a school (*ṣāḥib madhhab*). Do not follow a guide like a blind man so that he may lead you along the way while there are a thousand similar guides around you, calling out to you that he has ruined and misguided you from the right path. (p. 409)

Ghazālī explained his attitude in the presence of the calumniators in Ṭūs:

With regard to theoretical matters (*ma'qūlāt*), there are [for me] the way (*madhhab*) of demonstration and what logical argument requires. As for legal matters (*shar'īyāt*), there is the way of the Qur'ān. I never follow (*taqlīd namī*

konam) any one of the Imāms. Neither Shāfiʿī has any claim upon me, nor Abū Ḥanīfah has any right upon me.[8]

All these statements by Ghazālī lead us to the conclusion that he was quite an independent theologian, not a faithful follower of traditional Ashʿarism. It is, therefore, far from being surprising that he could have deviated from it whenever he deemed necessary.[9]

III. Ghazālī's Own View of Ashʿarites

Let us next consider what Ghazālī himself thought about the Ashʿarites or the Ashʿarite school. The following are a few comments found in his major works:

(a) Perhaps you may say, "Your (Ghazālī's) words in this book are divided into those which conform to the school of the Sūfīs and those which conform to that of the Ashʿarites and some theologians (*mutakallimīn*). The words are understood only according to a particular school. Which one of these schools is right? (*Mīzān*, p. 405)

(b) Bring any simple theoretical question to the Muʿtazilite masses. They will immediately accept it. But if you say that it is [from] the Ashʿarite school, then they set back and refuse to accept it, and *vice versa*. (*Iqtiṣād*, pp. 168–69).

(c) *But there are a group of people who take the middle path. They open a gate to the* taʾwīl (*allegorical interpretation*) *in all that is related to the attributes of God, but accept the literal meanings as they are, denying the* taʾwīl, *with regard to the Hereafter. They are the Ashʿarites.* The Muʿtazilites go further than they . . . . (*Iḥyāʾ*, I, p. 103)

(d) . . . . because each group of people declare their opponent to be an unbeliever (*kāfir*) and connect with them the denial of the Messenger [of God]. Thus the Ḥanbalites declare that the Ashʿarites are unbelievers, alleging that the latter deny the Messenger in affirming "above" (*fauqa*) for God and His sitting on the Throne. The Ashʿarites declare the Ḥanbalites to be unbelievers, alleging that the latter are anthropomorphists. (*Faysal*, p. 175)

(e) The Ashʿarites and the Muʿtazilites, because of too much investigation, went so far as to admit the *taʾwīl* of many literal senses. *Those who are closest to the Ḥanbalites in matters of the Hereafter are the Ashʿarites* (*May God help them!*), *for they affirm most of the literal senses except a few.* The Muʿtazilites have gone much further in the *taʾwīl* than the Ashʿarites. Together with this, they (I mean the Ashʿarites) are compelled to use *taʾwīl* in matters. . . . (*ibid.*, p. 185)

(f) The Ashʿarites say: The accidents (*aʿrāḍ*) perish by themselves, and their duration (*baqāʾ*) is inconceivable; for if it were conceivable, their

annihilation (*fanā'*) would be inconceivable in that sense. As regards the substances (*jawāhir*) they do not last by themselves, but because of a duration which is additional to their being. So when God does not create duration for them, the substances will perish because of the absence of that which would make them last, . . . Another section of the Ash'arites say: The accidents perish by themselves, but the substances perish when God does not create in them motion or rest or combination or separation. When it has nothing of the sort, it cannot last and perishes. (*Tahāfut*, p. 130)[10]

(h) Question: Should the names and attributes applied to God be taken as they are or can they be interpreted by way of reason?

Qāḍī Abū Bakr (al-Bāqillānī) deems it possible to interpret them as long as the Divine Law does not prohibit it or says that the [literal] meaning is not applicable to God. As for those which have no restriction, it is possible. It is al-Ash'arī's view that they should be taken as they are, and it is impossible to apply to God the [allegorical] meaning of the description, except when it is permitted [by God]. Our standpoint is to divide [the matter] and say that what is reducible to the Name (*ism*) should be accepted with permission, and what is reducible to the Description (*wasf*) does not require permission for interpretation. (*Maqṣad*, p. 192)

It is certainly difficult to know from all these comments exactly what Ghazālī's attitude toward the Ash'arites is, but we can say at least that Ghazālī supports, and identifies himself with, the middle path of the Ash'arites, as is shown in passages (c)[11] and (e). On the other hand, attitude toward them is very cool, detached and even independent. He even differs from al-Ash'arī, as is seen in passage (h). This means that Ghazālī accepts any aspects of Ash'arism as long as he thinks they are true.

IV. Ibn Khaldūn's Testimony

How do other people, then, look upon Ghazālī in the history of Islamic theology? We will take up Ibn Khaldūn as their representative. Logic, one of the ancient sciences, says Ibn Khaldūn, was rejected in the beginning by Muslim theologians, but it became generally accepted later among the Muslims on account of the efforts of Ghazālī and Fakhr al-Dīn al-Rāzī (d. 1209).

It should be known that the early Muslims and the early speculative theologians greatly disapproved of the study of this discipline. They vehemently attacked it and warned against it. They forbade the study and teaching of it. Later on, ever since Ghazālī and the Imām Ibn al-Khaṭīb (al-Rāzī), scholars have been somewhat more lenient in this respect. Since that

time, they have gone on studying [logic], except for a few who have recourse
to the opinion of the ancients concerning it and shun it and vehemently
disapproved of it.[12]

Ibn Khaldūn thus highly evaluates the great role played by Ghazālī in the
acceptance of logic in the Muslim world.

Then he explains the reason why the Muslim theologians denounced logic,
and describes the transformation of Islamic theology since the time of Ghazālī.[13]
According to Ibn Khaldūn, the theologians invented the science of speculative
theology ('ilm al-kalām) in order to support the articles of faith (al-'aqā'id
al-īmānīyah) with rational evidence. Their approach was to use some particular
demonstration (adillah khāṣṣah). For example, they proved the createdness of the
world (ḥadath al-'ālam) by affirming that accidents exist and are created, that
bodies cannot possibly be free from accidents, and that something that cannot be
free from created things must itself be created (ḥādith). They also affirmed the
existence of primeval attributes (al-ṣifāt al-qadīmah) by drawing conclusions from
the visible (shāhid) as to the supernatural (ghā'ib). Then, they strengthened that
evidence by inventing basic principles (qawā'id wa-uṣūl) constituting a sort of
premise for the evidence. They thus affirmed the existence of the atom (al-jawhar
al-fard) and atomic time (al-zamān al-fard) and vacuum (khalā'), and denied the
concepts of nature (ṭabī'ah) and the intellectual construction (al-tarkīb al-'aqlī) of
essences (māhīyāt). Then came al-Ash'arī, al-Bāqillānī and Abū Isḥāq al-Iṣfarā'inī
(d. 1027), who were of the opinion that the evidence for the articles of faith is
reversible in the sense that the arguments for the articles of faith hold the same
position as the articles of faith themselves.

Now, logic (manṭiq) revolves around intellectual combination and the
affirmation of the objective existence of a natural universal (al-kullī al-ṭabī'ī) to
which must correspond the mental universal (al-kullī al-dhihnī) that is divided into
the five universals, namely, genus, species, difference, property, and general
accidents. The speculative theologians deny this. The universal (kullī) and
essential (dhātī) is to them merely a mental concept having no correspondence to
the outside reality. Thus, the five universals, the definition based on them, and the
ten categories are wrong, and the essential attribute is wrong. This means that all
the pillars of logic contradict many premises of speculative theology, and so the
early theologians vehemently disapproved of the study of logic. Recent theolo-
gians (muta'akhkhirūn) after Ghazālī, however, have disapproved of the idea of
reversibility of arguments and have not assumed that the fact that the arguments
are wrong requires as its necessary consequence that the thing proven by them be
wrong. They accepted the opinion of logicians concerning intellectual combina-
tion and the outside existence of natural quiddities and their universals. They
decided, therefore, that logic does not contradict the articles of faith, even though
it does contradict some of the demonstrative arguments for them. In fact, they
concluded that many of the premises of the speculative theologians were

wrong.[14]

According to this view of Ibn Khaldūn's, Islamic theology underwent a great change after Ghazālī. We see here an indication that Ghazālī took a step across the boundary of traditional Ash'arism. Now we will turn to examine concretely in which aspects he was innovative among the Ash'arites.

V. The Uniqueness of Ghazālī

1. The Theory of the Optimum (al-aṣlaḥ)

The Ash'arites generally deny optimism in opposition to the Mu'tazilites. Ghazālī also denies it in his "official" theological works. The *Iqtiṣād* is said to have been composed during, or a little before, his inner crisis that lasted for half a year in the fourth and last year (1095) after he came to Baghdad as professor of the Niẓāmīyah Madrasah, and it was written after the *Tahāfut*, a refutation of philosophy (*falsafah*).[15] Ghazālī says in this *Iqtiṣād*:

> It is not obligatory for God to consider the best (*ri'āyah al-aṣlaḥ*) for human beings. Rather God can do whatever he wills, and passes a judgement as He wishes, in contradistinction to the assertion of the Mu'tazilites, who circumscribe the acts of God and believe it God's obligation to consider the optimum. Their view is disproved by the demonstration which denies God's obligation and its disparity with actual reality. So we will show them that there are things in God's acts that we cannot but confess to be not good to men. (p. 184)

He then tells the famous story of the three brothers.[16] There are three brothers. One of them dies young. The second grows up and dies a Muslim. The third grows up, but dies an infidel and remains in Hell for ever. The former two brothers go to Paradise, but the second who grows up and does many good deeds occupies the highest rank in Paradise. Then the first brother who dies young asks God, "Why did you not let me live longer like my second brother so that I might occupy the same highest rank?" Thereupon God replies, "I let you die young so that you might not live longer to be an infidel and live in Hell for ever." Then the third brother protests to God, saying, "Then, why did you not let me die before I grew up to be an infidel?" How would God respond to this protest? So, says Ghazālī, optimism does not fit in well with actual reality. (pp. 184–85)

Let us next consider Ghazālī's theological attitude on this question in *Risālah al-Qudsīyah*, which he wrote while in Jerusalem for the inhabitants soon after he had left Baghdad following his conversion, and which was later incorporated into the *Iḥyā'* (Rub' I, Kitāb 2, Faṣl iii).

He (God) Most High does what He wills with His servants, and it is not

incumbent upon Him to do the best (*aslah*) for them, because of the reason we have already explained, namely, that nothing is incumbent upon Him; nay, obligation in relation to Him is inconceivable.[17]

And he cites the above-mentioned story of the three brothers and criticizes the Mu'tazilite optimism. Then he says:

> If it is argued that it would be evil (*qabīh*) and unworthy of His wisdom, while possessing the power to do the best for His servants, for Him to subject them to what earns them punishment, we would reply: The meaning of evil is that which does not suit the purpose [of man]. When a thing suits a man's purpose (*gharad*) and does not suit another's, then it is good (*hasan*) for him and evil for the other. Thus the murder of a person is an evil act to his friends, but good for his enemies. If evil means that which does not suit the Lord's purpose, then it is impossible, since He has no purpose at all. Likewise it is inconceivable that anything evil or injustice (*zulm*) should proceed from Him, since it is inconceivable that He should dispose of anybody's possessions other than His own. If it means, on the other hand, that which does not suit the purpose of another [beside the Lord], then why do you (the Mu'tazilites) maintain that it is impossible for Him? . . . . The Wise (*hakīm*) [in reference to Him] means the All-knowing (*'ālim*) of the realities of all things, and the All-powerful (*qādir*) means to complete their functions according to His Will (*irādah*). This being so, in what way could it be made incumbent upon Him to do the best to His servants? On the other hand, the wise among us (men) is he who seeks the best for himself so that he will earn praise in this world and reward in the next or to ward off evil from himself—all of which is impossible for God Most High.[18]

This is the argument of Ghazālī who takes the traditional Ash'arite (orthodox) position which denies optimism and emphasizes the Almightiness of God.

There is, however, another assertion in Ghazālī which seemingly affirms the theory of optimism. Here I quote this rather long, but important, passage from the *Ihyā'*:

> . . . . if God had created all creatures with the intelligence of the most intelligent among them and the knowledge of the most learned among them; and if He had created for them all the knowledge their souls could sustain and had poured out upon them wisdom of indescribable extent; then, had He given each one of them the knowledge, wisdom, and intelligence of them all, and *revealed to them the consequences of things and taught them the mysteries of the invisible world and acquainted them with the subtleties of divine favor and the mysteries of final punishments*, until they were made well aware of good and evil, benefit and harm; then, if He had ordered them to arrange this world and the

invisible world in terms of the knowledge and wisdom they had received, (even then) that act of arrangement on the part of all of them, helping each other and working in concert, would not make it necessary to add to the way in which God has arranged creation in this world and the next by (so much as) a gnat's wing, nor to subtract from it (by so much as) a gnat's wing; nor would it raise a speck of dust or lower a speck of dust; (their arrangement) would not ward off sickness or fault or defect or poverty or injury from one so afflicted, and it would not remove health or perfection or wealth or advantage from one so favored.

But if people directed their gaze and considered steadfastly everything that God has created in heaven and earth, they would see neither discrepancy nor rift.

Everything which God apportions to man, such as sustenance, life-span, pleasure and pain, capacity and incapacity, belief and disbelief, obedience and sin, is all of it sheer justice, with no injustice in it; and pure right, with no wrong in it.

Indeed, it is according to the necessarily right order, in accord with what must be and as it must be and in the measure in which it must be; and *there is not in possibility anything whatever more excellent, more perfect, and more complete than it.* For if there were and He had withheld it, having power to create it but not deigning to do so, this would be miserliness contrary to the divine generosity and injustice contrary to the divine justice. But if He were not able, it would be incapability contrary to divinity.

Indeed, all poverty and loss in this world is a diminution in this world but an increase in the next. Every lack in the next world in relation to one individual is a boon in relation to someone else. For were it not for night, the value of day would be unknown. Were it not for illness, the healthy would not enjoy health. Were it not for Hell, the blessed in Paradise would not know the extent of their blessedness. In the same way, the lives of animals serve as ransom for human souls; and the power to kill them which is given to humans is no injustice.

Indeed, giving precedence to the perfect over the imperfect is justice itself. So too is heaping favors on the inhabitants of Paradise by increasing the punishment of the inhabitants of Hell. The ransom of the faithful by means of the unfaithful is justice itself.

As long as the imperfect is not created, the perfect will remain unknown. If beasts had not been created, the dignity of man would not be manifest. The perfect and imperfect are correlated. Divine generosity and wisdom require the simultaneous creation of the perfect and the imperfect. Just as the amputation of a gangrenous hand in order to preserve life is justice, since it involves ransoming the perfect through the imperfect, so too the matter of the discrepancy which exists among people in their portion in this world and the next. That is all justice, without any wrong; and right in which there is no

caprice.

Now this is a vast and deep sea with wide shores and tossed by billows. In extent it is comparable to the sea of God's unity. Whole groups of the inept drown in it without realizing that it is an arcane matter which only the knowing comprehend. Behind this sea is the mystery of predestination where the many wander in perplexity and which those who have been illuminated are forbidden to divulge.

The gist is that good and evil are foreordained. What is foreordained comes necessarily to be after a prior act of divine volition. No one can rebel against God's judgement; no one can revise His decree and command. Rather, everything small and large is written and comes to be in a known and expected measure. "What strikes you was not there to miss you; what misses you was not there to strike you." (IV, pp. 252–53)[19]

Ghazālī also makes a similar assertion in the *Arba'īn* which was a near summary of the *Ihyā'*:

> Indeed, there is beside Him (God) no existent which is not created by His act and emanating from His justice in the best, the most perfect, the most complete and the most just way. Indeed, He is wise in His acts and just in His determination. (p. 19. Cf. *Imlā'*, pp. 71–72; *Mīzān*, p. 339)

How should we harmoniously understand the foregoing two groups of "contradictory" texts? According to al-Zabīdī,[20] commentator of Ghazālī's *magnum opus*, the *Ihyā'*, this problem began to be discussed among theologians even while Ghazālī himself was still alive, and the disputations lasted up until the end of the 19th century. Al-Zabīdī mentions the names of 32 participants in the arguments and four titles by anonymous authors. E. L. Ormsby has traced these disputations and analysed them in his book, *Theodicy in Islamic Thought: The Dispute over al-Ghazālī's "Best of All Possible Worlds"* (Princeton: Princeton University Press, 1984). Relying on this study, I will discuss this issue below.

According to Ormsby, the disputants are from the Mālikites, the Ḥanbalites and the Shāfi'ites (among whom are included both Ash'arites and non-Ash'arite conservative theologians). There are even Sūfīs included among them. The issue was first raised by those who suspected that Ghazālī's statements of the latter group which seem to affirm optimism would contradict traditional Ash'arite (orthodox) theology. That is to say, (1) If the present world is the best of all possible worlds, does it lead to narrowing down the almighty power of God (*ḥaṣr al-qudrah*)? (2) If the present world is the best of all possible worlds and is the result of divine necessary justice, then is it not the heretical view of the philosophers (*falāsifah*)? (3) Is not the thesis of "optimism" the heretical view of the Mu'tazilites?

As for question (1), Ormsby classifies "impossibility" (*istiḥālah*) into two types:

one is impossibility *per se* (*li-dhāti-hi*) (ex. affirmation of two contradictory things or propositions simultaneously), and the other is impossibility *propter aliud* (*li-ghayri-hi*), that is, "because of something else" (ex. affirmation of a lie or an injustice on behalf of God) (p. 157). The former impossibility is the real one, and it is impossible even for God. But no one can say that God is impotent for this reason. That God does not make better the present best world is the latter "impossibility," and this is also not due to any lack of capability on the part of God, but is due to His wisdom and will.

As for question (2), Ghazālī says that the best possible world is the result of necessary order, but this order is not what the philosophers call natural necessity (*ījāb dhātī*), but is due to divine predestination (*qaḍā'*). In philosophy, divine knowledge is the cause of all the emanations; beings emanate by degrees from God in accordance with perfect knowledge and necessary order in the perfect way. This is what the philosophers call providence (*'ināyah*). Thus the world shows a rational and necessary order, and as a result it is the most beautiful and wonderful world. Its existence results necessarily from the essence of God.

It is true that Ghazālī's view appears similar to this philosophical teaching, but there is also a difference between them; while the philosophers deny creation by free divine will, Ghazālī affirms it from the Ash'arite standpoint. Divine will in the case of Ghazālī, however, is necessitated by divine wisdom. Therefore, it is necessary "after the preceding wisdom."

As for question (3), Ormsby explains the difference between the optimism of the Mu'tazilites and that of Ghazālī. One of the two extremes in theodicy is the Mu'tazilite rationalistic position which affirms the best possible world and makes it obligatory for God to do so. The other extreme is the Ash'arite voluntaristic position which regards the world as a result of the unfathomable will of God and His acts transcending the rational judgement of man. According to this latter viewpoint, God does not care about whatever the result of His acts may be, and this is divine justice.

Ghazālī comes close to the Mu'tazilites in that he regards the reality as the best, but there is a great difference between them. First of all, according to the Mu'tazilites, each being has its own *raison d'être*. It is good and there is no injustice for each in the end, even though there seems to be apparently so. We simply cannot know it. For Ghazālī, on the other hand, things are not so: good is good, evil is evil, imperfect is imperfect, and pain is pain. But all being taken *in toto* at the cosmic level, they are the best as they are. Each individual is not the best, as the Mu'tazilites assert.

Furthermore, Ghazālī's notion of providence (*qadar*) remains opaque and inseparable from mystery in the eye of reason (but it is not so in the spiritual eye and Sūfī intuition), in contrast to that of the Mu'tazilites. According to Ghazālī, it is also not incumbent upon God to do the best to man. He is absolutely free. But He does the best simply out of His generosity and favor. Thus God always does the best to man in accordance with His wisdom, without limiting His attributes of

almightiness and freedom.

In conclusion, says Ormsby, Ghazālī's theodicy is "compatible with traditional Ash'arite theology" (p. 261) elaborated in his theological works; it is rather "a natural outgrowth" (ibid.) of this traditional theology under the influence of Sūfism, Mu'tazilism and philosophy.

We may make at this juncture some comments as to Ormsby's arguments. For instance, Ormsby, by proposing two types of "impossibility," gives a logical and harmonious explanation of Ghazālī's "optimism" and divine omnipotence (anti-optimism). This explanation certainly fits in well with the case of Ghazālī, since he himself makes the same classification of "impossibility."[21] But the problem is that, as Ormsby indicates, it does not apply to his antagonists who emphasize too much the almightiness of God to approve the differentiation of impossibility.

As for question (3), Ormsby, admitting the similarity between Ghazālī's "optimism" and the Mu'tazilite view, indicates differences between them too. One is that the former is cosmic and the latter individual. In my view, however, the best possible world is not known by ordinary people or by reason, but only by those who have "the mysteries of the invisible world" disclosed (see supra, pp. 8–9). That is to say, the world is the best and the most perfect only in the eyes of the Sūfī experts.

Considering these points, we may say that Ghazālī's "optimism" is quite different from traditional Ash'arism, though it may yet be understandable in terms of a natural development from the latter, as Ormsby says.[22]

2. Atomism

For both the Mu'tazilites and the Ash'arites the Kalām is based on atomism. Body (substance) consists of atoms (jawhar fard). The atom is defined as "an indivisible part" (juz' lā yatajazza'u). It "fills space" (mutaḥayyiz), but does not have magnitude.[23] All its qualities including combination, separation, movement and rest are called accidents ('araḍ).[24] The atom is the substratum or locus (maḥall) where accidents reside, and is inseparable from them. An accident does not last even a moment. The Ash'arites admit this without exception, since if an accident were to last, it would require another accident of "duration" (baqā'), which would logically be impossible according to the Ash'arites, since an accident cannot be the substratum of other accidents. On the other hand, the Mu'tazilites admit exceptionally the duration of some accidents such as "duration" and others in order to approve the human responsibility for his acts and the justice of God with continuing power.[25]

In his work on official dogma, the Iqtiṣād, Ghazālī explains the atomism of traditional Ash'arism as follows (p. 24). He classifies, first of all, all beings into that which "fills space" (mutaḥayyiz) and that which does not. He subdivides the former into atoms and their composite, or a body (jism). Next, he subdivides the latter,

namely, that which does not fill space, into the self-subsistent (qā'im bi-nafsi-hi), i.e., God, and that which is not self-subsistent, i.e., accidents. A being's occupying space means that it is impossible for another to occupy the same locus (p. 41). In short, beings are either God or atoms (body) and accidents. This means that the human spirit or soul, angels and satans are all "subtle bodies."

But in Ghazālī's other writings, particularly the *Tahāfut*, we see some skeptical remarks about atomism, for example, in his criticism of the rational demonstration by the philosophers of the existence of the soul as an incorporeal, self-subsistent substance which "does not fill space, and is free from direction, neither inside nor outside the body, neither connected nor disconnected with it" (p. 252). According to the philosophers, he says, there are indivisible units (āhād) in rational cognitions; if the substratum (mahall) of these cognitions is a body, then it is divisible, and the rational cognitions must also be divisible. This is absurd. Therefore, say the philosophers, the soul as the substratum of the rational cognitions is incorporeal.

Against this demonstration, Ghazālī argues as follows:

> How will you (philosophers) disprove one who says that the substratum of knowledge is an individual atom which, although filling space, is indivisible? This idea is found in the theories of the theologians. It being adopted, the only remaining difficulty is that it may be regarded as improbable. . . . . *However, we do not like to make much of this point. For the question of the indivisible part has been discussed at very great length, and the philosophers have a number of geometrical arguments* against[26] *it which, if considered by us, would make the present discussion too lengthy.* One of these arguments may be related here. Say the philosophers: If the individual atom is between two other atoms, does one of its two sides come into contact with the same thing as the other does, or are the two things different? It is impossible that the two should be identical, for then the two sides of the atom would coincide. For if A touches B, and B touches C, then A will be in touch with C. If, on the other hand, things in contact with the two sides of the atom are different, that only proves multiplicity and division. *Such a difficulty cannot be solved without a lengthy discussion.* (p. 257)[27]

Concerning the same question, Ghazālī also says in another place:

> Should one say here: Why did you not counter these arguments by saying that knowledge subsists in an indivisible, although space-filling, substance —viz., the individual atom? We would answer: *The theory of the individual atom belongs to Geometry, and the explanation of the individual atom requires a lengthy discourse. Moreover, even that theory does not remove all the difficulties.* For it would follow that power and will should also be in the individual atom. Man's action is inconceivable without power and will. And will is inconceivable without

knowledge. The power of writing is in the hand and the fingers. But the knowledge of it is not in the hand; for in case the hand should be cut off, knowledge would not disappear. Nor is the will in the hand; for one can be willing to write, even when the hand is paralysed. If in such a case one fails to write, the failure is to be attributed to the absence of power, not to the absence of will. (p. 261).

All these remarks are made not by the philosophers in their refutation of atomism, but by Ghazālī himself. Certainly we cannot take them as clear evidence that Ghazālī was critical of atomism itself and forsook that dogma, but he might have felt that the theory of traditional atomism was going bankrupt. This appears most clearly in his view of the soul.

3. The Theory of the Soul

According to Ash'arite atomism, the human soul (nafs, rūḥ; dil, jān) is a combination of atoms and accidents, and is the same as other bodies in this respect. It is, however, a subtle body which is not perceived by the senses. Angels are similar in this regard.

A materialistic notion of the soul like this is common to most Mu'tazilites and orthodox Muslims at large, as well as Ash'arites. According to H. Stieglecker,[28] it is the widely accepted teaching among the Muslim theologians that the soul extends in three dimensions and occupies space and position. In this sense, the angels, the jinns and the satans are corporeal. Thus there is no immaterial, spiritual substance which occupies no space as the philosophers say.

Ibn Qayyim al-Jawzīyah, one of Ibn Taymīyah's disciples, says in his Kitāb al-Rūḥ:

> Further the soul (rūḥ) can be defined as a body (jism) different in quiddity (māhīyah) from the sensible body, of the nature of light (nūrānī), lofty ('ulwī), light (khafīf), living, which penetrates the substance of the [physical] limbs (jawhar al-a'dā) and runs in them as water runs in a rose and oil in an olive and fire in charcoal. As long as these limbs are sound, so as to receive the imprints proceeding from this subtle (laṭīf) body, it remains intertwined (mushābik) with them and gives them these imprints of sense and intentional (irādīyah) movement. But whenever these limbs are corrupted (fasada), through coarse admixtures (al-akhlāṭ al-ghalīzah) overpowering them, and become unable to receive these imprints, the soul separates itself from the body (badan) and is transferred to (infaṣala ilā) the world of souls ('ālam al-arwāḥ). (pp. 178–79)[29]

And he says that this is the only right teaching on the soul on the authority of the Qur'ān, the Sunnah, the Ijmā' of the Companions of the Prophet, reason and human nature (fiṭrah).

Now, according to Ibn Qayyim, the reason why most orthodox theologians regard the soul as a kind of body is "to affirm such attributes, acts and judgements of the soul as its movement, transference, ascendence, descendence, direct taste of benevolence and punishment, and of pleasure and pain, and its confinement, release and seizure, and its entrance and exit" (p. 201). On the other hand, they oppose the philosopher's notion of the soul as a simple being (*wujūd mujarrad*), "free from materiality and occupancy of space" (p. 195) and "a simple substance neither inside nor outside the world, neither connected nor disconnected with it" (p. 196), simply because it makes it impossible for such a soul to be lifted up to heaven, to be extracted [from the body] by the angel after death or during sleep, as depicted vividly in the Qurʾān and the Ḥadīth (cf. Q. 6:60, 93; 31:10; 32:10–11; 39:42; 56: 83–87, etc.).

According to Ibn Qayyim, most of the Ashʿarites do not admit the subsistence of an accident for two moments (*zamānayn*). And thus he says:

> A man's soul (*rūḥ*) of this moment is different from that of the previous moment. It is inevitably created anew for him, and next it changes and another soul is created. Then it changes and so on *ad infinitum*. Thus in an instance, or in a shorter time, a thousand or more souls alternate one after another. (p. 111)

This is obviously a description of the Ashʿarite view of the soul, and it is the same as the previous one in regarding the soul as material.

On the other hand, Ghazālī has some other comments in the *Tahāfut* which seem to supersede the traditional Ashʿarite view of the soul.

> . . . . (The theme of this chapter is) their (philosophers') inability to give a rational demonstration of their theory that the human soul is a spiritual substance which exists by itself; it is not space-filling (*lā mutaḥayyiz*); it is not body, and not impressed upon body; it is neither connected nor disconnected with body, as God is neither inside nor outside the world, or as the angels are. (p. 252/Kamali, p. 197)

Then, with regard to such a theory of the soul, Ghazālī describes his own view as follows:

> However, we intend to question their (philosophers') claim that by rational arguments they can know the soul's being a self-subsistent substance. *Ours is not the attitude of one who would not admit God's power over such a thing, or would maintain that religion actually contradicts this view. On the contrary, we will show in the discussion on Resurrection that religion lends its support to this view.* But we dispute their claim that the intellect alone is the guide in this matter, and that therefore one need not depend on religion in regard to it. (p. 256 / Kamali, p. 200)

Here Ghazālī definitely says that he affirms the philosophers' view on the soul in the *Tahāfut*. His only query is that the philosophers cannot prove it by rational demonstration.

Later on in the *Iqtiṣād*, however, he seems to recant such a view:

> We have dealt with this question in detail in *The Inconsistency of the Philosophers* (*Tahāfut al-Falāsifah*) and have gone so far in invalidating their viewpoint as to admit the survival of the soul which does not fill space in their view and to suppose that the soul will return to control the body, whether it is the same old body or not. *But that is an unavoidable thing which does not coincide with what we believe. Indeed, that work was composed so as to disprove their position, not to establish the right one.* (p. 215)

This confession by Ghazālī, however, does not seem to the present writer to reflect his real intention. The teachings expressed in the *Iqtiṣād* seem to be his official viewpoint as an orthodox theologian on behalf of the common people and the theologians.[30] As we saw in the discussion of optimism, Ghazālī expressed later on a seemingly contradictory view, and Ormsby explained this fact in terms of the change and development of his thought. However, considering the fact that the *Ihyā'* and the *Mīzān* where the theory of optimism is expressed were (begun to be) written respectively a little after the *Iqtiṣād* and around the same time toward the end of his stay in Baghdad,[31] and that his official theological viewpoint in a work from his final years, the *Iljām*, is no different from his early one, we may conclude that Ghazālī had two standpoints since a fairly early period: one was the official view of Ash'arism and the other was the teachings for the elite (for example, physical and sensuous pleasures and pains in the Hereafter belong to the former, and intellectual and spiritual joys and griefs to the latter; he admits both as real, but he personally commits himself to the latter, in contrast to the philosophers who deny bodily resurrection).[32] That is to say, Ghazālī officially supports the traditional Ash'arite view of the soul, while he is inclined privately or unofficially to the philosophical view of the soul (though not in philosophical terms).[33] We have to prove this thesis in his other writings.

Stating that the "soul" (*nafs*) is the "heart" (*qalb*), he argues in the following way (*Ihyā'*, III, pp. 2–4). The Arabic word *qalb* which means "heart" has two meanings: one is the "heart" (*al-laḥm al-ṣanawbarī*) in the physical and physiological sense and the other is the "heart" in the abstract sense of the mind. Ghazālī is obviously concerned with the latter meaning.

The heart is "something subtle (*laṭīfah*), divine (*rabbānī*) and spiritual (*rūḥānī*)" (III, p. 3), and it cannot be grasped by the senses. This heart is also called "the spirit" (*rūḥ*), "the serene soul" (*al-nafs al-muṭma'innah*) (Q. 89:27), "the precious substance" (*jawhar nafīs*), or "the noble pearl" (*durr 'azīz*) (I, p. 54). It is something other than the physical, sensible part of man, but is related to the physical heart in a way none but a few can know (III, p. 3). The heart is "that part of man which

perceives (*mudrik*), knows (*ʿālim*) and intuits (*ʿārif*)" (*ibid.*), while the body and the five senses are its vessel and instruments. In sum, it is the continuous entity in man and the subject which thinks, perceives and moves the body.

This "essence of man" (*ḥaqīqah al-insān*), however, has a divine dimension: it is "one of the secrets of God" (*sirr min asrār Allāh*), "one of subtleties of God" (*laṭīfah min laṭāʾif Allāh*)" (I, p. 54), or it is "of the *amr* of my Lord" (*min amr rabbī*), "a divine thing" (*amr ilāhī*) (*ibid.*). It is the "trust" (*amānah*) which God put in man, but the heavens and the mountains all hesitated and refused to accept it, when God tried to entrust it to them (Q. 33:72). In other words, it is something which distinguishes man from the animals, and the original purity which Adam had before he was expelled from Paradise. It is the real essence of man in the sense that it is something extraneous in the body. It is something other than human (*bashariyah*) in man. "The heart it is which, if a man knows, he indeed knows himself, he indeed knows his Lord" (III, p. 2). It is something which knows God (*al-ʿālim bi-Allāh*), which draws near to God (*al-mutaqarrib ilā-Allāh*), which strives for God (*al-ʿāmil li-Allāh*), which speeds toward God (*al-sāʿī ilā-Allāh*), and to which is disclosed what is in and with God (*al-mukāshaf bi-mā ʿinda-Allāh*). (*ibid.*).

In the *Kīmiyā*, a Persian abridgement of the *Iḥyāʾ*, composed toward the end of his life, Ghazālī says:

> .... that (*dil*) is a precious gem (*gōhar-i ʿazīz*) and is of angelic substance (*gōhar-i firishtigān*). Its original mine is the Divine Presence (*ḥaḍrat-i ilāhīyāt*), from which it is come, and to which it aspires to return. It has come here (to this world) as a stranger to do business and to cultivate. (p. 11)

In sum, the heart is something which makes possible the relationship between man and God so that man can know and love God.

The soul is thus the divine being which is totally different from the body. Then, is it identical to the soul of the philosophers, an immaterial self-subsistent substance? Frustratingly enough, we cannot draw any definitive conclusion from the foregoing evidence, for we cannot exclude the possibility that, even though the soul as Ghazālī views is certainly not a visible, coarse body, it may be a subtle, but special body. He carefully refrains from elaborating directly the issue in detail, saying that to do so is to step into the domain of revelation and has nothing to do with religious practice.

Then, what about these comments in the *Arbaʿīn*?

> The essence of the spirit (*ḥaqīqah al-rūḥ*) is yourself (*nafs-ka*) and your essence (*ḥaqīqah-ka*). It is that which is most hidden from you. It is such that you do not want to know your Lord so long as you do not know yourself, that is, your spirit, which is the characteristic of the *amr* related to God Most High in His words "Say: the spirit is of the *amr* of my Lord" (17:85). *It is not the subtle, material spirit (al-rūḥ al-jusmānī al-laṭīf)*. (p. 279)

It is now clearly stated that the soul is something related to God and is even not the subtle, material spirit. What, then, is "the subtle, material spirit"? It is, after all, subtle, spiritual vapor (*bukhār laṭīf*) running through the human body (III, p. 3). What is the soul (spirit), then, if it is neither a visible nor a subtle body?

> (Though your body perishes by death, you yourself remain.) That is to say, your essence by which you are yourself remains. For you are at present the same person who was in your childhood. Perhaps nothing of those bodily parts remains [up till now]. They have all resolved and been substituted by others through nourishment, and your body has totally changed, while you remain yourself. (*Arba'īn*, p. 282)

The soul (i.e., the essence of man) is said to be a permanent continuous entity, completely different from the human body. Is it a simple spiritual entity, then?[34] This interpretation, however, might be countered by saying that the meaning is simply that the atoms continue to be created instant by instant so that all the physical parts of the body are replaced and transformed by metabolism, while the soul remains a single atom, which keeps on being created and replaced one after another, but without transformation (cf. *supra*, p. 15).

Admitting that the relationship between the soul and the body (the physical heart) is the problem which baffles the human mind, Ghazālī writes as follows:

> The relationship resembles that of accidents to bodies and of qualities to the qualified, or that of the user of a tool to the tool, or that of something in a place to the place. (*Ihyā'*, III, p. 3)[35]

He seems to say that there is a relationship between the soul and the body, but it is not essential to the soul. They are totally different beings.

Ghazālī explains in the *Ihyā'* the intellect ('*aql*) which he identifies with the soul:

> The intellect does not change by death. What changes is the body and its members. The dead man thinks, perceives and knows pains and joys, since nothing of the intellect changes. The perceiving intellect is not of these members. It is something hidden (*bāṭin*), and has neither length nor width. It is that which cannot be divided (*lā yanqasimu*) in itself, and that which is the perceiver of things. If the bodily members of man are all scattered and do not remain except the cognitive part that cannot be divided (*al-juz' al-mudrik al-ladhī la yatajazza'u wa-lā yanqasimu*), then the thinking man remains completely. So does it after death, since that part does not dissolve by death and does not go out of existence. (IV, p. 487. Cf. *Arba'īn*, p. 280)

It could be supposed here that "that indivisible part" means nothing but the atom. But it does not. For an atom cannot exist alone according to the traditional

(Ash'arite) atomism; it only exists in combination with other atoms by way of the accident of "combination" (*i'tilāf*). By "indivisible" is not meant indivisibility on the material level of atomism, but on a level different from the material world. It means pure being with no relationship to space. This is clear from the fact that the soul belongs to the world of *amr* ('*ālam al-amr*).

Ghazālī divides the worlds into the world of phenomena ('*ālam al-mulk*) and the invisible world ('*ālam al-malakūt*).[36] These are also called respectively the world of *khalq* ('*ālam al-khalq*) and the world of *amr* ('*ālam al-amr*). The former is the world of volume and size, that of the objects of measure (*taqdīr*), and the latter is the world of what is beyond volume and size (*Iḥyā'*, III, pp. 370–71). In other words, the latter is "the world which God created once and for all and ever since remains in the same state without any increase nor decrease" (*Imlā'*, p. 187), and the world of angels and spiritual beings (*Jawāhir*, p. 11).[37]

In passing, Ghazālī says in the *Mīzān*, one of the works he wrote when he was under the strong influence of philosophy:

> You already know that the happiness of the soul and its perfection are to *have the realities of the divine things inscribed in it and to become so unified with them that it looks like them.* (p. 221)
>
> Suppose that the soul is the locus where divine knowledge is inscribed. There are two ways of doing so. . . . . The second way is to become prepared for receiving the inscription from outside. By "outside" (*khārij*) is meant the Heavenly Tablet (*al-lawḥ al-maḥfūz*) and the souls of the angels, for real knowledge is actually inscribed constantly. (p. 226)

"The souls of the angels" and "the Heavenly Tablet" in the above quotations clearly remind us of what the philosophers call "the active intellect" (*al-'aql al-fa'āl*), and "the unification (of the soul) with the realities of the divine things" also suggests the human intellect's becoming the acquired intellect (*al-'aql al-mustafād*) and being unified with the active intellect.[38]

Could we then not say that the soul here is indeed not "a subtle body" but an incorporeal, self-subsistent substance occupying no space (which is not an atom!)? And could we not suppose that Ghazālī's view of the soul did not essentially change thereafter, but that only his expressions became more careful?[39]

> We say: The meaning of the soul is what everyone indicates by saying "I" (*anā*). The scholars differ as to whether the meaning of the word is this visible body or not. As for the former, most people and many theologians think that man is this body. Everyone indicates himself only with the word "I." This is a wrong view as we shall show. Those who say that it is other than this visible body still differ: some of them assert that it is other than a body and not corporeal, but it is a spiritual substance which emanates upon this body, animates it and takes it as an instrument for acquiring knowledge so that its

substance may become perfect and cognizant of its Lord, knowledgeable of the realities of His intelligibles, and may become prepared therewith for returning to His Presence and become one of His angels in unending happiness.

This is a passage quoted from one of Ibn Sīnā's treatises on the soul.[40] Is there any difference between the foregoing descriptions of Ghazālī's conception of the soul and the notion of the soul expressed in the above quotation?[41]

VI. Conclusion

We have examined Ghazālī's views of optimism, atomism and the soul, and have come to the conclusion that they are very much different from, even contradictory in some points to, traditional Ash'arite theology.[42] Certainly Ghazālī himself never denies being an Ash'arite, but he is not satisfied with *traditional* Ash'arism and even becomes critical of it once in a while as an independent thinker. This makes his theological standpoint subtle and complex, and even difficult to pinpoint.

In my view, this has something to do with what Ghazālī often mentions as the two groups of people in the Muslim Community and his concern for both of them. They are the elite (*khawāṣṣ*), or the elite of the elite (*khawāṣṣ al-khawāṣṣ*), and the common people ('*awāmm*) including the theologians (*mutakallimūn*). Ghazālī himself, of course, belongs to the former group. And in his tremendous efforts to seek after truth as a member of the elite, he possibly stepped over the boundary of traditional Ash'arism in some respects. But as a leading theologian of the Community, he was also concerned for the salvation of the common people at large, and he dealt with this problem as an Ash'arite.

Therefore, it is not possible to take *a priori* traditional Ash'arism as a criterion for the authenticity of Ghazālī's works as Watt proposed. Our next problem is to investigate concretely in which respects and how far Ghazālī dissociates himself from traditional Ash'arism.

Ghazālī's Works (*Textes Reçus*) and Their Abbreviated Titles

Arba'īn=Kitāb al-arba'īn fī uṣūl al-dīn. Cairo: al-Maktabah al-Tijārīyah al-Kubrā, 1925.

Faḍā'iḥ=Faḍā'iḥ al-bāṭinīyah. Ed. by 'Abd al-Raḥmān Badawī. Cairo: al-Dār al-Qawmīyah, 1964.

Faḍā'il=Makātīb-i fārsī-yi Ghazālī bi-nām-i faḍā'il al-anām min rasā'il Ḥujjah al-Islām. Ed. by 'Abbās Iqbāl. Tehran: Kitābfurūshī-yi Ibn-i Sīnā, 1333 Sh.H.

Faysal=Faysal al-tafriqah bayna al-Islām wa'l-zandaqah. Ed. by S. Dunyā. Cairo: 'Īsa 'l-Bābi 'l-Ḥalabī, 1961.

Ihyā'=Ihyā' 'ulūm al-dīn. 4 vols. Cairo: 'Īsa 'l-Bābi 'l-Ḥalabī, n.d.

Iljām=Iljām al-ʿawāmm ʿan ʿilm al-kalām, in *Quṣūr al-ʿawālī* (Cairo: Maktabah al-Jundī, n.d.), pp. 239–301.

Imlāʾ=Kitāb al-imlāʾ fī ishkālāt al-Iḥyāʾ, in *Iḥyāʾ* (*op. cit.*), I, pp. 55–203 (margin).

Iqtiṣād=al-Iqtiṣād fī ʾl-iʿtiqād. Ed. by İ. A. Çubukçu & H. Atay. Ankara: Nur Matbassı, 1962.

Jawāhir=Jawāhir al-Qurʾān. Beirut: Dār al-Āfāq al-Jadīdah, 1973.

Kīmiyā=Kīmiyā-yi saʿādat. Ed. by Aḥmad Ārām. Tehran: Kitābkhānah wa-Chapkhānah-yi Markazī, 1334³.

Maqāṣid=Maqāṣid al-falāsifah. Ed. by S. Dunyā. Cairo: Dār al-Maʿārif, 1966.

Maqṣad=al-Maqṣad al-asnā fī sharḥ maʿānī asmāʾ Allāh al-ḥusnā. Ed. by F. A. Shehadi. Beirut: Dār al-Mashriq, 1971.

Mīzān=Mīzān al-ʿamal. Ed. by S. Dunyā. Cairo: Dār al-Maʿārif, 1964.

Munqidh=al-Munqidh min al-ḍalāl. Ed. by J. Salībā & K. ʿIyād. Damascus: Maktab al-ʿArabī, 1939³.

Tahāfut=Tahāfut al-falāsifah. Ed. by S. Dunyā. Cairo: Dār al-Maʿārif, 1966.

Notes

1) This work is also called *Risālah al-nafkh waʾl-taswiyah* or *al-Ajwibah fī ʾl-masāʾil al-ukhrawiyah*, and several manuscripts are extant. The present writer is now in the process of editing it.

2) According to M. Bouyges, such scholars as W. H. T. Gairdner, D. B. Macdonald, M. Asín Palacios and Carra de Vaux took it as authentic, while L. Massignon and W. M. Watt denied its authenticity (*Essai de chronologie des œuvres de al-Ghazali* [Beirut: Imprimerie Catholique, 1959], pp. 53–56). H. Lazarus-Yafeh also regards it as spurious (*Studies in al-Ghazzali* [Jerusalem: The Magnes Press, 1975], pp. 251, 256, etc.).

3) D. B. Macdonald, "The Development of the Idea of Spirit in Islam," *Acta Orientalia*, IX (1931), pp. 333–37.

4) *Al-Maḍnūn al-ṣaghīr* (in *Quṣūr al-ʿawālī* [Cairo: Maktabah al-Jundī, n.d.], pp. 347–62), pp. 352–53.

5) See also his arguments against the genuineness of the third section of Ghazālī's *Mishkāt al-anwār* ("A Forgery in al-Ghazālī's *Mishkāt*?" [*JRAS*, 1949], pp. 6–9).

6) In his recent articles, "The Non-Ashʿarite Shāfiʿism of Abū Ḥāmid al-Ghazzālī" (*REI*, 54 [1986], pp. 239–57) and "Al-Ghazzālī, disciple de Shāfiʿī en droit et en théologie" (*Ghazzâlî, la Raison et le Miracle, Table Ronde UNESCO, 9–10 Décembre 1985* [Paris: Maisonneuve et Larose, 1987], pp. 45–55), G. Makdisi tries to prove that Ghazālī was never an Ashʿarite from the very outset. He is not convincing, however, since he relies in his arguments mainly on transmitted narrations about Ghazālī. For example, in order to support his proposition, he quotes I. Goldziher's words to the effect that Ghazālī was attacked by an Ashʿarite in Maghrib and that, therefore, he was not a hundred-percent Ashʿarite ("Al-Ghazzālī, disciple de Shāfiʿī," p. 47). Judging from the context, however, what Goldziher means is not that Ghazālī was never an Ashʿarite, but that he was "no more a pure Ashʿarite, being influenced by Sufism." This view rather supports my standpoint (I. Goldziher, *Le livre de Muhammad Ibn Tumart, Mahdi des Almohades* [Alger: P. Fontana, 1903], pp. 37–38).

By analysing the third section of the *Mishkāt* in detail, H. Landolt tries to prove the Ismāʿīlī influence in it in his article "Ghazālī and 'Religionswissenschaft' " (*Asiatische Studien*, XLVI/1 [1991], pp. 19–72). This also supports my thesis that Ghazālī is quite a "unique" Ashʿarite, to say the least.

7) Quoted from D. B. Macdonald, "The Life of al-Ghazzālī, with Especial Reference to His Religious Experiences and Opinions," *JAOS*, XX (1899), p. 105.

8) *Faḍā'il*, p. 12 (D. Krawulsky [tr.], *Briefe und Reden des Abū Ḥāmid Muḥammad al-Ġazzālī* [Freiburg: Klaus Schwarz, 1971], p. 79).

9) Hence Ghazālī's severe and negative attitude to "*taqlīd*" (cf. H. Lazarus-Yafeh, "Some Notes on the Term 'Taqlīd' in the Writings of al-Ghazzālī," *Israel Oriental Studies*, I [1971], pp. 249–56).

10) The translation is based on S. A. Kamali (tr.), *al-Ghazali's Tahafut al-Falasifah* (Lahore: Pakistan Philosophical Congress, 1963), p. 59.

11) G. Makdisi, in an attempt to prove Ghazālī's "Sunnī traditionalism" sympathetic to Aḥmad b. Ḥanbal by quoting this passage and the one just preceding it, says that "it is therefrom concluded that the limit considered just and correct by the Ḥanbalites is that which was practiced by the pious ancestors and Ghazālī approves of it" (G. Makdisi, "Al-Ghazzâlî, disciple de Shâfi'î," pp. 48–49). H. Landolt criticizes Makdisi by quoting the subsequent passages which are to change totally "any impression of 'Sunnī traditionalism' ":

> The right middle between total decomposition (of sacred texts, *inḥilāl kullī*) and Ḥanbalite inflexibility (*jumūd al-ḥanābilah*) is a subtle and difficult point, which can be grasped only by those made successful by God. They perceive things through a divine light (*nūr ilāhī*), not through listening (to mere words). Once the hidden side of things (*asrār al-umūr*) is unveiled to them as it really is, they examine the traditional texts. They then confirm whatever is in agreement with their contemplation through the light of certitude, and apply *ta'wīl* to whatever is different (*wa-mā khālafa awwalū-hu*). (*Iḥyā'*, I, p. 104. Landolt, *op. cit.*, p. 37)

Commenting on this passage, Landolt says that Ghazālī's view "is not even in line with the 'orthodox' kind of Sufism" (*ibid.*). I agree with this interpretation. But when he says in regard to my cited passage (c) that "his (Ghazālī's) sympathies appear to lie not even with the Ash'arite, but with the most 'traditionalist' Aḥmad b. Ḥanbal" and affirms Makdisi's interpretation, I cannot agree with him, since the meaning of the passage is, I believe, the opposite.

12) Ibn Khaldūn, *al-Muqaddimah* (ed. by Quatremère. 3 vols. Paris: Benjamin Duprat, 1858), III, p. 113. The translation is based on F. Rosenthal (tr.), *The Muqaddimah* (3 vols. Princeton: Princeton University Press, 2nd ed., 1958), III, pp. 143–44.

13) Ibn Khaldūn, *op. cit.*, III, pp. 114–16.

14) *Ibid.*, pp. 144–46.

15) G. F. Hourani, "The Revised Chronology of Ghazālī's Writings," *JAOS*, 104/2 (1984), p. 294.

16) For this story, see R. W. Gwynne, "Al-Jubbā'ī, al-Ash'arī and the Three Brothers: The Use of Fiction," *The Muslim World*, 75 (1985), pp. 132–61.

17) A. L. Tibawi, "Al-Ghazālī's Tract on Dogmatic Theology, Edited, Translated, Annotated, and Introduced," *The Islamic Quarterly*, IX (1965), Arabic Text, p. 90, Tr., pp. 114–15.

18) *Ibid.*

19) The translation is based on Ormsby, *Theodicy* (see below), pp. 38–41.

20) Al-Zabīdī, *Itḥāf al-sādah al-muttaqīn bi-sharḥ asrār Iḥyā' 'Ulūm al-Dīn* (10 vols. Cairo: al-Maṭba'ah al-Maymunīyah, 1311 AH), I, pp. 31–34.

21) *Tahāfut*, pp. 243–49. As to Ghazālī's argument on causality, see in particular L. E. Goodman, "Did al-Ghazālī Deny Causality?" *Studia Islamica*, 47 (1978), pp. 83–120.

22) N. Calder, in his review of the book, does not agree with Ormsby and flatly states: "The root of the muddle lies in the fact that Gh. was not fully orthodox" (*BSOAS*, 49/1 [1986], p. 211).

23) Among the early Mu'tazilites, especially the Baṣrī branch, there were some who admitted size in an atom. But it was regarded as a geometrical point at least by the later Ash'arites. There were, of course, some like Abu 'l-Hudhayl who took the soul as an accident, and some who confined it to the accident of "life." In this case, a man becomes a complete *nil* after death (Ibn Qayyim al-Jawzīyah, *Kitāb al-rūḥ* [Beirut: Dār al-Kutub al-'Ilmīyah, 1979], pp. 93, 110). On this work, see F. T. Cooke, "Ibn Qayyim's Kitāb al-Rūḥ," *The Muslim World*, 25 (1935), pp. 129–44.

24) These four accidents are particularly important and are called "*akwān*" in distinction from the others (see, for example, al-Baghdādī, *Kitāb uṣūl al-dīn* [Istanbul: Maṭba'ah al-Dawlah, 1928], p. 40).

25) S. Pines, *Beiträge zur islamischen Atomenlehre* (Berlin: A. Heine, 1936), pp. 27–29.

26) The Arabic text is as follows: *wa-la-hum fī-hi adillah handasīyah yaṭūlu al-kalām* 'alay-hi. Kamali translates "the philosophers have a number of mathematical arguments *for it*" (p. 202). But I render it ". . . . *against it*" as S. van den Bergh does in *Averroes' Tahafut al-Tahafut* (2 vols. London: Luzac, 1969), I, p. 337.

27) The translation is based on Kamali, *op. cit.*, pp. 201–202.

28) H. Stieglecker, *Die Glaubenslehren des Islam* (Paderborn: Ferdinand Schöning, 1962), p. 661.

29) The translation is based on D. B. Macdonald, "The Development of the Idea of Spirit," p. 323. In passing, Ghazālī's teacher, Imām al-Ḥaramayn al-Juwaynī, writes, "The most evident for us is that the soul (*rūḥ*) is subtle bodies intertwined with visible bodies. God maintains their relationship by the orderly custom (*'ādah*) of sustaining the life of the bodies. When He separates them, death immediately follows life according to the custom" (*Kitāb al-irshād* [Cairo: Maktabah al-Khānjī, 1950], p. 377).

30) The aforementioned *al-Risālah al-qudsīyah* belongs to this category. M. E. Marmura takes this passage as it is, and does not regard the description in the *Tahāfut* as expressing Ghazālī's genuine view ("Al-Ghazālī's Second Causal Theory in the 17th Discussion of His *Tahāfut*," P. Morewedge [ed.], *Islamic Philosophy and Mysticism* [N.Y.: Delmar, 1981], p. 101). On the other hand, B. Abrahamov asserts that Ghazālī changed his view expressed in the *Iqtiṣād* in his later *Ihyā'*, and that the contradictions in the *Ihyā'* are a camouflage of this change ("Al-Ghazālī's Theory of Causality," *Studia Islamica*, 67 [1988], p. 91).

31) Hourani, "The Revised Chronology," p. 294.

32) See, for instance, *Ihyā'*, IV, p. 483, etc. Cf. H. A. Davidson, *Alfarabi, Avicenna, & Averroes, on Intellect* (N.Y. & Oxford: Oxford University Press, 1992), pp. 112–16.

33) It goes without saying that Ghazālī *did not deny* all the philosophical sciences. He accepted what he thought to be true such as logic and natural sciences (Cf. *Munqidh*, pp. 84–107). I am not saying here, however, that he was a disguised philosopher, but I mean that he came very close to philosophy in some respects. That is to say, it is necessary to look once again at Ghazālī's apparently orthodox thought expressed in non-philosophic terms against the background of philosophy (particularly Ibn Sīnā's) as Davidson did for the *Mishkāt al-anwār* (*op. cit.*, pp. 132–44). Naturally we must be careful, in this attempt, not to put too much emphasis exclusively on this aspect. See also S. Pinès, "Quelques notes sur les rapports de *l'Ihyâ' 'Ulûm al-Dîn* d'al-Ghazâlî avec la pensée d'Ibn Sînâ," *Ghazzâlî, la Raison et le Miracle*, pp. 11–16; B. Abrahamov, "Ibn Sīnā's Influence on al-Ghazālī's Non-Philosophical Works," *Abr-Nahrain*, 29 (1991), pp. 1–17.

34) Cf. *Tahāfut*, pp. 269–70. On this question about the continuity of the soul and the replacement of the whole body, see M. E. Marmura, "Ghazālī and the Avicennan Proof from Personal Identity for an Immaterial Self," R. Link-Salinger *et al.* (eds.), *A Straight Path, Studies in Medieval Philosophy and Culture: Essays in Honor of Arthur Hyman* (Washington, D. C.: The Catholic University of America Press, 1988), pp. 195–205.

35) On these metaphors, see Ibn Rushd, *Tahāfut al-tahāfut* (ed. by S. Dunyā. 2 vols. Cairo: Dār al-Ma'ārif, 1964–65), I, p. 206 (S. van den Bergh, *op. cit.*, I, pp. 67–68); O. Leaman, *An Introduction to Medieval Islamic Philosophy* (Cambridge: Cambridge University Press, 1985), p. 102.

36) To be more precise, Ghazālī posits another intermediate world between the two, called " *'ālam al-jabarūt*." On Ghazālī's cosmology, see my forthcoming article, "Imām Ghazālī's Cosmology Reconsidered" in *Studia Islamica*, and A. J. Wensinck, "On the Relation between Ghazālī's Cosmology and His Mysticism," *Mededeelingen der Koninglijke Akademie van Wetenschapen*, Afdeeling Letterkunde, Ser. A, LXXV (1933), pp. 183–209, which should, however, be read carefully today.

37) Ghazālī defends the indivisibility of the soul as follows in the *Kīmiyā*:
> The human soul (*dil*) has no magnitude nor volume. Therefore it cannot be divided. If it were divisible, there would be ignorance of a thing in part of it and knowledge of it in another part. And thus the person would be both a knower and a non-knower at the same time. This is impossible! (p. 12)

Compare this argument with the philosophers' fourth proof for the indivisibility of the soul in the *Tahāfut* (p. 262).

38) With regard to this unification, Ghazālī summarizes the philosophers' view as follows:
    Happiness is to be liberated from the necessity to care for the body and the requirements of the senses, when the soul has prepared itself to receive the emanation of the active intellect (al-'aql al-fa''āl) and has become habitutated to permanent union with it. But the body keeps on attracting and occupying the soul and prevents it from complete union. When the soul is freed from the occupation of the body by death, the veil and disturbance are removed and the union becomes permanent. (Maqāṣid, p. 373)
    For the philosopher's view of the intellect, see Davidson, op. cit., esp. pp. 49–58, 103–105; F. Rahman, Avicenna's Psychology (Oxford: Oxford University Press, 1952), p. 35; id., Prophecy in Islam (London: George Allen & Unwin, 1958), p. 12.

39) As the grounds for man's love of things, Ghazālī mentions direct or indirect conduciveness to his existence, beauty or goodness itself, and mutual inner relationship or similarity. Since God combines all these grounds, says Ghazālī, man's love of God is necessary and inevitable. Thus Ghazālī emphasizes the inner relationship (munāsabah) and similarity (mushākalah) between man and God (Iḥyā', IV, pp. 285–99). Furthermore, concerning the famous Ḥadīth derived from the Old Testament, "God created Adam in his image ('alā-ṣūrat-hi)," most orthodox theologians including Ash'arites emphasized divine transcendence so much that they interpreted "his image" as referring not to "God's image," but to "Adam's," while Ghazālī took it literally in the sense of "God's image" (cf. Mishkāt al-anwār [ed. by Abu 'l-'Alā 'Affīfī. Cairo: al-Dār al-Qawmīyah, 1964], Part I, p. 44; W. M. Watt, "Created in His Image: A Study in Islamic Theology," Glasgow University Oriental Society Transactions, 18 [1959–69], pp. 38–49).

40) Ibn Sīnā, Risālah fī ma'rifah al-nafs al-nāṭiqah wa-aḥwāl-hā (in Aḥwāl al-nafs [Cairo: 'Īsa 'l-Bābi 'l-Ḥalabī, 1952]), p. 183.

41) R. C. Zaehner says, ". . . . it seems fairly clear that the secret doctrine Ghazali speaks of is that the soul, in its total denudation of all qualities, is identical with God, and there are passages in the Kīmiyā and the Mishkāt which show that this conclusion is correct" (Hindu and Muslim Mysticism [N.Y.: Schocken Books, 1969], p. 163). But the matter does not seem quite so simple, as we have seen in the above.

42) According to recent studies, too, Ghazālī's conception of causality is more akin to philosophy than to the traditional Ash'arism. See W. J. Courtenay, "The Critique of Natural Causality in the Mutakallimun and Nominalism," The Harvard Theological Review, 66 (1973), pp. 77–94; L. E. Goodman, op. cit.; id., Avicenna (N.Y. & London: Routledge, 1992), p. 38; I. Alon, "Al-Ghazālī on Causality," JAOS, 100 (1980), pp. 397–405; B. Abrahamov, "Al-Ghazālī's Theory of Causality," Studia Islamica, 67 (1988), pp. 75–98; R. M. Frank, Creation and the Cosmic System: Al-Ghazālī & Avicenna. Heidelberg: Carl Winter, 1992.