Mantiq al-Muzaffar

Logic

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Introduction

The Necessity of Logic

Allah has created the human race with speech as part of its essential nature, and made the human tongue a tool by which to speak. Yet in spite of this, the human being needs something to erect his speech and make it sound; something that will allow his words to conform to the language which he knows, to the forms of its vocal expressions, and its bases. As such, the human being will initially need a guide which will habituate him to the norms of language, and secondly, he will be in need of a canon of principles which will immunize his tongue from error. This is the knowledge of grammar and morphology.

In a similar fashion, Allah has created the human race with thinking as part of its essential nature, and he has bestowed upon humankind the faculty of rational thinking. Yet in spite of this, we find that people commit a great number of mistakes in their thinking. They believe that things are causes which are not causes, and believe things are conclusions which are not conclusions. People believe that something is a proof which is not a proof. They believe in something false, or may even believe in something true but based on false premises. As such, a human being is always in need of something to correct his thoughts and guide him to the path of sound derivation. It has been mentioned by many that the science of logic is a tool by which the human being may immunize himself from errors, and which will give human beings how to speak *per se*, but rather teach him how to speak *correctly*, so logic does not teach the human being how to think; rather, it gives human beings a means for correcting their thoughts As such, our need for logic is only for the sake of correcting our thought. And this is, indeed, a momentous need!

If you would say: Human beings study logic, yet they still make mistakes. As such, there is no benefit in logic. We would say to you: People study logic and morphology, and yet still make mistakes in speech. The only reason for this is that the student studying such a science has not become sufficiently proficient in that science. and has not taken heed of its principles when they are needed. This, or such a person makes an error in his application of logic, and fails to be correct.

A Definition of the Science of Logic:

Because of this, logic is defined as: "A canonical tool. If one takes heed of this tool, he will have his mind immunized from error." Examine the word "takes heed", and understand the secret in it, just as we have already described: it is not that every person who studies logic is immunized from error in his thought, just as everyone who studies grammar and morphology is not immunized from error on his tongue. Rather, one must take heed of and observe the principles and its when needed. By this, a person will immunize his mind and tongue [from error].

The Tool of Logic:

Now look at the word "tool" in this definition, and reflect upon its meaning. You know that logic is a division of the practical sciences, which is used to obtain a certain purpose. It is not the same as epistemology; its only task is to clarify the general paths which will allow us (by means of our thoughts) to grasp realities which were previously unknown. Similar is the case to algebra, which studies the paths by which a mathematician may unravel equations and grasp previously unknown quantities.

A more clear explanation would be: the science of logic teaches you the general principles for correct thinking, so that your mind will think correctly in all sounds. It will teach you in every shape, and organize your thinking in such a way that it will lead from images present in your mind to things which are hidden from you. As such, this science is defined as a scale or measure, as well as the custodian of sciences (even algebra, to which we will compare this knowledge, insofar as algebra bases its method of analyzing its problems and propositions on logic).

Knowledge [`ilm]

We have already stated: Allah the Exalted has created the human race, by its essential nature, to think, and has given the human being the capacity to obtain knowledge through the power of his intellect. In this way, the human being is distinguished from all. There is no problem for us to explain the sources of this distinction with regards to the knowledge will study, in order to define exactly what knowledge is and to explain its relationship to logic. And so we say:

1) The moment a human being is born, his soul is free from every thought and actual knowledge, except for his inherent capacity [for thought]. When he develops and awakens, he looks, hears, tastes, smells, and touches, and we see him sensing everything that is around him, effecting him in the relevant way. His soul responds to these things, and we see that his previously empty-soul becomes occupied with something entirely new, that which we call *knowledge*. It is a sensual knowledge, nothing different than the soul's five-fold sense-perception of things (the five senses being sight, hearing, smell, taste, and touch). This is the first stage of knowledge, and the starting capital for all sciences possessed by the human race. All other animals share this capacity, at least those that possess some or all of these senses.

2) After this, the faculties of the child begin to develop, and his mind begins to work on the forms of sense-perceptions preserved in his mind. He begins to relate these images to each other: this thing longer than that thing, this light is brighter than that light, and so forth. Some of these images are synthesized along with other thoughts, in compositions that have no existence in the outside world. For example, he may synthesize various images about things which he has not seen, but has heard about, and so imagines a town which he has never seen, synthesized from already-known mental images of the towns he has actually witnessed. This knowledge is called imaginary knowledge [`*ilm khyālī*], and it is achieved by human beings through the faculty of *imagination* [*khayāl*]. But in this regard, man is still on the same level as some animals.

3) Then, the child's perceptions begin to widen, extending beyond sense-perceptions. He will grasp partial meanings that have no matter or measure such as love for ones parents, or enmity towards those that make him angry, or the fear of frightened people, the sadness of the bereaved, or the joy of the happy. This knowledge we can term *estimative* knowledge [`*ilm wahmī*], something (like other animals) achieves through the faculty of *estimation* [*wahm*]. It is through this power that the human being becomes distinguished from the animal, only has the power of estimation to grasp things, doing what it can with this faculty, with limited ability.

4) After this, man uniquely surpasses the animals by means of the faculty of intellect [`aql] and thinking, for which there is no limit. He will carry on in this way, by the guidance of his five senses, the imagination, and the faculty of estimation. He will become able to distinguish between what is correct and what is incorrect, and to derive universal meanings from particulars, and to comprehend these meanings. He is able to compare them with each other, and arrive at new knowledge. He can infer and make judgments, and do whatever his reason and thinking wills. This is *knowledge* [`*ilm*]. The knowledge, which is achieved by the human being via this faculty, is complete knowledge, and it is what makes a human being a human being. In order for a person to develop and perfect this faculty, sciences have been established and arts created, and through which the various classes of humanity become distinguished, and through which human beings differ from one and other. The knowledge of logic has been established in order to organize the functioning of this rational faculty, for fear that it might be influenced by the [lower] functions of imagination or estimation, and by deviating from its straight path.

The Definition of Knowledge:

You may ask: what is the means by which the human being obtains these perceptions? We have already helped clarify the answer to this question through what has been discussed concerning the perceptions of certain things. To clarify things further, we would ask you to look at whatever is right in front of you at the this moment, and then to close your eye and turn your soul towards that thing. You will find that it is as if you have not closed your eyes and continue to look at whatever is in front of you. The same is true, for example, if you listen to the ticking of your clock, and then cover up your ears and cast your soul's hearing towards that thing. You will sense something in your soul, as if you

had not covered up your hearing. The same applies for every sense. If you test things like this and analyze them carefully, it will be easy for you to know that both perceptions and knowledge are nothing but the *imprinting* [*intibā*'] of images within your soul. You will also know and that there is no difference between any of your perceptions on any of their levels. It is just like the imprinting of an image in a mirror. For this reason, knowledge is defined as: "The presence of something's image in the intellect."

Conception and Assent [Taśawwur and Taśdīq]:

When one draws a triangle, there arises in the mind an image of it, and this image is your knowledge of the triangle. We call this kind of knowledge a conception [*taśawwur*]. It is a bare conception, and there does not follow from it any kind of determination or belief. If one apprehends the angles of the triangle, and there arrives in the mind another image [as a result of joining these angles], this other image is also considered to be a bare conception. Or say that one draws a horizontal line, and above it a vertical line that intersects it, creating two base angles. The two angles and two lines will be engraved in your mind, and this is also a kind of bare conception.

But suppose that one desires to join these two base angles [by creating a hypotenuse] and to then form a triangle, and one then asks himself: Are the two base angles of equal length? Suppose that this person doubts the equality of the two angles. There arises in his mind an conception about their equality. This conception is a simple conception as well. But if it is proven to him that the equality of the two angles, a new situation is obtained, different from the antecedent situation. This new situation is your perception of this relationship's accordance with reality, necessitating a judgment in the soul, a agreement to this perception, and an assent to perception wherein one makes a judgment and assent about the reality of something [not necessarily an empirical assent]. This situation is referred to as an assent [$ta\dot{s}d\bar{t}q$]. This is because the perception necessitates an *assent* of the soul and a agreement. We give it this name because it is a necessary part of the concept.

As such, the perception of a triangle's angles, and the perception of the two base angles, and the perception of an equality between them, are all classified as *bare conceptions*. There does not follow from them any judgment or assent. However, the perception that this conception of equality is *correct* and corresponds to actual reality, is an *assent*. The same is also true if you perceive that relationship expressed by some kind of predicative statement is wrong, this is also a kind of assent.

Here we will offer an admonition. If you observe what has already been said, it will become clear to you that "conception," "perception," and "knowledge" are all vocal expressions for one meaning, namely: the presence of the image of something within the intellect. An assent is also a kind of conception, except that a judgment follows from the conception, as well as a contentment in the soul, and an assent. However, because of the distinction between a bare conception (i.e., an conception from which no judgment follows) and an conception for which a judgment follows, we call the first an *conception*. This is because it is a pure conception, simple, and bare. It merits being called an *conception* without any qualification. However, we refer to the second as an assent because a judgment and assent follows it. We give it this name because it is a necessary part of the concept.

However, if you would use the term "absolute assent" ($ta\dot{s}d\bar{i}q mutlaq$), then this term encompass both kinds of conceptions: the simple idea, and the concept for which their follows a judgment (i.e., an assent).

How Are the Conception and the Assent related?

There is only one import involved with the assent. This is the relationship existing in a predicative sentence, alongside of a judgment about whether or not this sentence is in accordance with reality or not. Whereas with the conception, the relation may be one of the following four:

1) A singular conception. This would be just a noun ['ism] or a verb ([fi'l] referred to in logic as a word [kalimah]) or a particle [referred to in grammar as a harf, but in logic as [$ad\bar{a}h$].

2) Predicative relationships (*an-nisbah fī khabr*). but with doubt about it or estimation about it, without any assent. As example would be our conception about Mars not being in motion, if somebody said: "Mars is not in motion."

3) Non-predicative relationships, such as commands, prohibitions, questions, and so forth. These are all things for which there is no [external] actuality beneath them, and so there is no possibility of them according to reality or what. As such, there is no assent or agreement in this either.

4) Incomplete compositions, such as a genitive possessive constructs, or its equivalents in a relative clause, or between an adjective and the noun the adjective describes, or between the two ends of a conditional sentence. In all of these, no assent or agreement follows from the conception. So for example, when Allah the Exalted says: "If you were to try and count the blessings of Allah, then you could never reckon them."¹ The conditional phrase "If you were to try and count the blessings of Allah, then you could never reckon therm" is also made known through being an conception, and what follows the consequent [*jazā*'], namely "then you could never reckon therm" is also made known through being an conception. In this context, they are both known as conceptions because they occur as the conditional sentence, then each one would become known through being assents. Furthermore, the statement "blessings of Allah" also becomes known through being an conception, in the way of a genitive construction. The totality of the sentence, however, becomes known through being an assent.

Divisions of the Assent:

There are two divisions of the assent: certainty $(yaq\bar{n}n)$ and probability $(\bar{z}ann)$. The assent assumes a preponderance of belief about whether or not the statement is true or not, whether or not there is only a chance $(i\hat{h}tim\bar{a}l)$ that it may be true or not, or whether there is a certain determination as to whether the proposition is true. If the possibility of the predicate being false is completely denied, then we call this certainty. But if there is a weak possibility of the predicate not being true, then we call this probability.

We will elaborate on the situation further. If you are presented with a certain predicative proposition, then you will react to this in four possible ways. You may decide that this proposition can only be true or only be false, or you may accept that the possibility that it *could* be true or *could* be false. The first is certainty. The second case, however, can take three possible forms. Either the proposition could be equally true or equally false, or there could be a higher probability of it being true or a higher probability of it being false. If they are equal, we call this *doubt (shakk)*. If there is a preponderance of belief [but not certainty] regarding the truth of the statement, we call this *probability [zann]*. If there is a preponderance of belief about it being false, we call this *estimation (wahm)*.² Estimation is one of the categories of ignorance (*jahl*), and it is the opposite of probability. These, then, are the four possible situations (and there is no fifth possibility):

1) Certainty $(yaq\bar{i}n)$. This is a complete assent of whatever is the import of the predicative proposition, without any possibility of it being false; or there is a complete assent of that proposition's falseness. This is the highest form of the assent.

2) Probability (*žann*). This is the likelihood of the predicative proposition being true. This is the lowest form of the assent.

3) Estimation (*wahm*). This where one holds some possibility for the statement being true, but his belief falls on the side of its negation.

4) Doubt (shakk). This is where the likelihood of the predicate's truth or falsehood is considered equal.

An admonition: You should understand two things from what has been said. The first is that estimation and doubt are *not* kinds of assent; in actuality, they are kinds of *ignorance*. The second is the probability and estimation always stand in a reciprocal relationship: if you have an estimation about the soundness of a given propositional statement, this means that you have a probabilistic belief (*žann*) about it being false. And if you have an estimation about the statement being false, then you have a belief about it being true. As such, the probabilistic belief about one possibility [of the statement being

¹ 16:18

 $^{^2}$ This kind of estimation clearly differs from the kind of estimation referred to previously. That kind of estimation, as we have seen, is shared by animals (the example of the sheep and the wolf), and clearly animals do not have any conception of the calculus of probability. However, since the same Arabic term is being used, namely *wahm*, we have chosen to translate the word in the same way throughout. The reader of the text will have to be careful to determine what kind of *wahm* is being discussed, based upon the context. This may seem problematic, but the same would be the case for the reader of the Arabic text.

true or false] is an estimative belief about the other possibility.

Ignorance [jahl] and its Divisions:

Ignorance is nothing but the lack of knowledge, but where there nonetheless remains the *capacity* [or possibility] for knowledge. In animate objects and non-speaking animals cannot be called "ignorant" or "knowledgeable" in any way. Ignorance is like being blind. One is without sight, but a blind being is someone or something that normally would be able to see. As such, we would not call a rock "blind." The contradictory relationship between "blindness" and "sight" is a kind of opposition of privation and possession. We can say that knowledge and ignorance are based on the presence or absence of a given faculty.³

Ignorance has two divisions, insofar as ignorance is always contrasted to knowledge. Sometimes it is reciprocal to an conception and sometimes to an assent. It is correct to use the terms conception-ignorance and assent-ignorance. We can further divide ignorance, and say that there are two kinds: simple ignorance and compound ignorance. In reality, it is only conception-ignorance that can be divided in this fashion, and so we can really only subdivide ignorance into conception-ignorance and assent-ignorance. As far as the conception-ignorance, it is always simple ignorance, as will be discussed.

1) Simple ignorance [*jahl baseet*]: This is a situation where someone is ignorant about a thing, but he is aware of his ignorance, and knows that he does not know. So we may know that we are ignorant about the motion of Mars; we may not know whether or not Mars is in motion, but at least we know that we don't know, and so in reality we only have one kind of ignorance.

2) Compound ignorance [*jahl murakab*]: This is ignorance about a thing, but combined with ignorance about ones ignorance. Such a person believes that he has knowledge where he does not. In this case, one does not know that one is ignorant. All the people with false beliefs would fall into this category; they believe that they are knowledge about the reality of things, but are ignorant in reality.

We call this compound ignorance because it is actually two kinds of ignorance joined together: ignorance about reality, and ignorance about ignorance. This is the ugliest and most base kind of ignorance. This kind of ignorance can only occur in the realm of assent, since such an ignorance is always accompanied by some kind of belief.

Compound Ignorance is Not Part of Knowledge

There are those that contend that compound ignorance is actually a kind of knowledge, since it is predicated upon some sort of belief, even though it is a belief that is in contrast with reality. But when we analyze knowledge in a refined fashion, we will see the distance these claims have from reality, and that such a claim is itself a kind of compound ignorance. The meaning of [our definition of knowledge] "the presence of something's image in the intellect" is that there is present within the mind an image that is *the same* as the thing it represents. Whereas, if there is present an image in the mind of something else that only presumes to be an actual image of the thing, then the thing is not present in the mind. In actuality, the presence of some *other* thing is in the mind, and so therefore one does not have actual knowledge of that thing. Someone who believes that the Earth is flat, for example, then he does not have in his mind an image of what is actually true, namely that the Earth is round. What is in his mind is another image, something that he only imagines to be true, but is in fact not so.

In reality, if someone has compound ignorance, they falsely image that their ignorance is knowledge, even though it is not knowledge. Since knowledge and ignorance are opposites, how could ignorance be included under the categories of its opposite? Belief does not turn reality to dust. A person may see a shadow and believe that it is a human being, whereas in fact it is not a human being. But his mere belief does not in any way make that shadow an actual human being.

Axiomatic Knowledge [`*Ilm Źarūrī*] and Reflective Knowledge [`*Ilm Nažrī*]

We can divide Knowledge into two divisions:

1) Necessary (or Axiomatic [badīhī]) Knowledge, and this knowledge is one that does need recourse to

³ A logical division that will be discussed later.

acquired knowledge, reflection, or thought. It is obtained without any choice, and from axioms which are accepted spontaneously without any hesitation. An example would be our conceptions of existence and non-existence, and our assent that the whole is greater than the sum of its parts, or that two contradictories cannot be joined, or that the sun has risen, or that one is half of two, and so forth.

2) Reflective Knowledge. In this type of knowledge, it is necessary to base one's belief on some sort of acquired knowledge, reflection, or thought. An example would be our conceptions about the existence of the spirit, or electricity, and our assents about whether the Earth is stationary, or if it orbits on its own axis, or orbits around the sun. This type of knowledge is also referred to as acquired knowledge [`*ilm kasabī*].

An Explanation of the two types of knowledge: Certainly, the knowledge of some affairs can be obtained without reflection or thought. All that is needed is for a person to turn his soul towards something in any of the ways that we will discuss below, and he will have no need for any kind of thought as an intermediary to obtain this knowledge. We have given examples of such things. This is known as necessary or axiomatic knowledge, whether or not this knowledge takes the form of an conception or takes the form of an assent. There are other affairs, however, which the human being cannot grasp easily. He must make recourse to reflection, intellectual work, and to rational equations like those of algebra. Through this, he is able to move from what is already known to that which is not known. He would be unable to do this immediately, without this pre-existing knowledge, and the organization of this knowledge in a sound and correct fashion. This is what we call reflective or acquired knowledge.

An Explanation of Axiomatic Knowledge

We have said: necessary knowledge is that which does not require thought or reflection. We have already indicated that this requires some way of turning the soul towards the things [to be grasped], and this requires some explanation:

A thing may be axiomatic, but a human being may be unaware of it, owing to some manner of inattention in his soul. It is not necessary, then, that every person be aware of all the axioms, and if a person is ignorant of an axiom, that does not mean it is not axiomatic. We can outline the causes $(asb\bar{a}b)$ which will allow one to understand axioms in the following state:

1) Attention: This is something universally needed for all axioms. Someone who is not properly paying attention things can be ignorant of even the most obvious truths.

2) Health in the mind. This is an unchangeable cause as well. A person may be ill in his mind and doubt in the most manifest of truths, or not understand them. This kind of malady can derive from a physical deficiency, or accidental illness, or a bad upbringing.

3) Health in senses. This only applies to axioms that rest upon the five senses, i.e., the senseperceptions themselves. A blind person or someone weak in his eyes will have difficulty in understand visual perceptions, as would a deaf person in trying to understand auditory perceptions, or someone without taste in taste perceptions.

4) Lack of confusion. Confusion results from the mind using false evidences to deny an axiom, and is ignorant of his fallacies. As a result, he doubts one of the axioms, or denies it. This happens quite often in the philosophical sciences as well as the rhetorical sciences. As an example, it is axiomatic to the intellect that existence and non-existence are contradictories, and that two contradictories cannot be joined to each other, nor can they both be denied of the same thing. However, some of the theologians have entered into confusion about this axiom, and they believe that there is a kind of intermediary state between existence and non-existence known as \hat{hal} , and so they argue that something may neither be existent or non-existent. However, if you said this to someone with a sound mind, even if he was unable to prove its fallacious nature, he would still say that it is a "confusion that contradicts what is axiomatic).

5) Non-intellective (*ghayr* `*aqiliyyah*) operations. Many axioms require non-intellective operations: one may hear a report from many people, so many that it is impossible for them to have all conspired to lie about that thing; this would be one of the axioms of $taw\bar{a}tir$. Or one may do experiments, and this would be from the experimental axioms. Or a person may put effort into going to see another land, or

to hear a voice, and this would involve the axioms of sense-perception. In order to gain knowledge in these ways, a person may have to have considerable experience or trouble into something. Yet this does not change the fact that all of these types of knowledge would be axiomatic. The important criteria here is that a person does not need *thought* or *reflection* or any kind of intellective operation to arrive at these kinds of knowledge.

Definitions of Thought and Reflection:

We know, in accordance with what has already been discussed, that thought and reflection means: "the implementation of an intellective operation on what is known, in order to reach some kind of goal." The goal would be knowledge about things are hidden and unknown. We can express this in other words by describing thought and reflection as a "movement of the intellect between those things that are known and those things that are unknown."

We can analyze this in the following way: When the intellect is faced with a problem, something which is unknown, and he understands the way in which this thing is unknown, then his mind will make recourse to the things which he already knows, the things which are relevant to the problem at hand. At that moment, his mind will study the things it already knows, and will move back in forth in these things, through a process of *reflection (nažr)*. He will try to organize these things in his mind, and synthesize the various things that he knows in a way that will help unravel the problem. If he is able to this, and he is able to find what he needs in order to fulfill his purpose, his intellect will then move towards the solution. And this solution will be the knowledge of what was previously unknown, and he will unravel the problem.

The intellect, then, moves through five cycles:

1) Facing the problem.

2) Understanding the nature of the problem; it is possible that he may face a problem the nature of which is unknown to him.

3) A movement of the intellect from the problem to those things already known and preserved in the mind.

4) A second movement of the intellect *amongst* the things already known to the mind. This is done as a kind of search, and to synthesize those elements that will assist in unraveling the problem at hand.

5) A third movement of the intellect from those things already known and which the mind has been able to synthesize, towards the solution.

It is the last three cycles that which are thought and reflection proper, and so we can say that they are a "movement of the intellect between those things that are known and those things that are unknown." A human mind may move through these five stages without the human being actually realizing it. Generally, thought moves faster than the blink of the eye, even though most human thought must pass through these five stages. It is for this reason that we say that the human is created with an innate, essential capacity for thought.

However, the human being does have an intuitive faculty which does not require the first two movements. With this faculty, the human mind moves immediately from what is known to that which is unknown. This is the meaning of "intuition." The person who has a strong intuitive faculty is the quickest to find knowledge. In reality, this kind of intuition is a kind of spiritual inspiration [*ilhām*], and is the first level of such inspiration. For this reason, intuitive propositions are included amongst the axioms. This is because they are obtained with a single, sudden motion from what is known to what is unknown whenever a person faces a problem, without any kind of acquisition [of knowledge], nor any effort of thought. They do not require any knowledge of the problem at hand, nor do they require any recourse to the things alright known, nor to any search amongst those things known or to any synthesis between them.

For this reason, they say: One proposition may be axiomatic to one person and reflective to another. This is only because of the person's intuitive faculty, a faculty that does not have any need for reflection or acquisition (i.e., it does not need any recourse to the first two motions discussed above). The second person, however, is in need of the first three motions in order to understand the nature of the problem at hand.

A summary of the divisions of knowledge is as follows:

The Study of Logic:

This science of logic is needed for all reflective sciences, because logic is nothing but the aggregate of canonical principles necessary for thought and study. As far as necessary knowledge, they are obtained through their own selves, and they are the base capital for acquiring knowledge of the sciences, by which a person may purchase all of the reflective knowledge which he lacks. If a person learns a small amount of the reflective sciences, than his capital increases by the increase of his knowledge, and so he will be able to acquire even more knowledge. This is because the profit of a businessman usually increases along with the increase of his well. The same is true for the seeker of knowledge; everything which he learns will increase his intellectual wealth, and expand the scope of his trade, and multiply his profits. In fact, the trader in knowledge will always profit, unlike the trader in wealth.

The science of logic studies the means for synthesizing the knowledge that a person already has preserved in side of him, in order to reach a special profit: gaining knowledge about things which were previously unknown to him, and adding that new knowledge to the storehouse of knowledge already with him. As such, we will sometimes study knowledge-as-conception, in order to get to a new conception-knowledge; this will be the study of *definitions*. The second will involve knowledge-as-assent, in order to get new assent-knowledge; this will be the study of *proof*. The study of proof contains two parts: sometimes we will study the forms in which these proofs are constructed, and other times we will study the actual substance of its propositions. This latter study involves the five kinds of propositions.

Semiotics

The Need for Studying Semiotics

There is no doubt that the logician does not fulfill his basic purposes except through meanings; yet the logician cannot do without a study of the vocal expressions (alfaz) which lead to these meanings. It is obvious that making oneself understood to people and the conveying one's thought to other can only be done through a language. However, vocal expressions can be changed and mixed up, in a way that prevents them from being fully comprehended. As such, the logician needs to study vocal expressions from a general angle, without dealing with the particularities of a specific language. This is necessary for him to be properly understood, and so that there will be a proper correspondence between his own words and the words of others. As such, we would say (from a general perspective): Logic is a general science that is not associated with any particular language. Nonetheless, there might be an occasional to study things which are particular to the language being used by this logician. But he may also be able to do without such a study, relying only upon the general principles of language.

This is the logician's need for studying vocal expressions, insofar as he needs such a study to make himself understood to others. However, the logician has another need as for this study as well, which is related to himself and himself alone. This need is far greater and far stronger than the first need. In reality, it is probably the actual reason for including semiotics in the study of logic. We will explain this by first offering a useful introduction. Based on this introduction, we will then discuss the basic need that all human beings have towards semiotics and the knowledge of semiotics. And so we say:

There are four modes of existence: two of them are actual modes of existence, while two of them are only expressive modes of existence.

1) External existence, such as your own existence, or the existence of a thing the things around you and so forth, including individual human beings, animals, trees, rocks, the sun, the moon, the stars, and all the other things which have external existence, which one could not possibly enumerate.

2) Mental existence. This is our knowledge of an external thing, as well as concepts. We have said previously: The human being that a faculty by which the images of things may be imprinted on him, and this faculty is known as "the mind" (*dhihn*). The actual impressions therein are called mental existence, which is the same as knowledge [`*ilm*].

Both of these are real existence, because they are not based on some kind of intentional association (waža) determination, nor is their existence nominal.

3) Vocal Existence. Vocal existence means this: Insofar as the human being is a social being by nature, and is required to work with others and make himself understood others, he therefore needs a way of conveying his thoughts and making his thoughts understood to others. The most basic way of doing this is to actually take something from external reality and present to other, in order to give another a sense-perception of that thing. This method of making oneself understood will require great burden, insofar as it is impossible to use this method to convey an understanding of most things and most meanings. This is because some things have no external existence, while other things [while having external existence], it is nonetheless impossible to make them present to another. As such, Allah the Exalted has inspired the human race to establish an easy and immediate way of making oneself known. He has blessed the human being with the power of words and speech, the ability to separate different letters, and to form these letters into words. With the passage of time, human beings felt the need to establish a special expression, which would allow them to make themselves understood. This would allow one to make a meaning present [to another] through vocal expressions, instead of having to bring the actual thing every time.

In order that you, dear reader, may be able to understand this expression, I will repeat it to you: "allowing one to make a meaning present [to another] through vocal expressions, instead of having to bring the actual thing every time." Contemplate this well! Know that this "making present" is only possible through the forging of a strong relationship between vocal expressions and meanings, and to form these relationships in the mind. This fixed relationship derives from knowledge of the way these words have been coined, and from frequent use of these words. Through this, such a firm relationship is obtained, so much so that the vocal expression and the meaning are united. If a speaker makes present a given expression, it is the same as if he brought the actual meaning to the one listening

to him. As such, there is no difference between externally bringing the actual meaning, and bringing the vocal expression which has been established for this meaning. In both situations, the mind of the listener will be conveyed to the meaning. Because of this, it is possible that the mind of the listener may be conveyed to the meaning, while he is actually unaware of the specific phrase and its special characteristics, as if he never heard the phrase at all. This is true, even though the conveyance of his mind from this vocal expression to that meaning does not occur except through hearing the expression.

The gist of all this is that the [semiotic] relationship unites the vocal expression and the meaning, making it like a single entity. If one finds the expression, it is as if one finds the meaning. For this reason, we say "the existence of the vocal expression is the existence of the meaning." However, this is a kind of vocal existence, meaning that the thing which actually exists is the phrase and nothing else. Attributing the existence of the vocal expression to the existence of the meaning is, in fact, purely metaphorical, derived from this relationship, which itself derives from the actual coining of the expression.

This relationship and unity is born witness by the way that ugliness and beauty are transferred to vocal expressions, and vice-verse. The name of the beloved is the sweetest vocal expression for the lover, even though it could be a bestial vocal expression which irritates the ears and the tongue. And the name of the enemy is the ugliest of names, even if this vocal expression itself is rather pleasant. Whenever this kind of relationship is increased, the mental conveyance is increased, and so we see variation in the ugliness of an vocal expression and the ugliness of the meanings. For example, the terms for the sexual organs of people; frequent use of these vocal expressions is uglier than infrequent use of them. In fact, there may be no ugliness in these terms at all. Similar is the case for colorless terms or sweet terms; they may have a beauty which we would not find in the vocal expression themselves.

4) Written Existence. An explanation of verbal existence: Verbal statements, by themselves, are not sufficient for fulfilling the needs of human beings, because one can only use verbal statements to express meaning to people who are actually present. As for those who are absent or those who have not yet come, there must be another means to for people to make themselves known. As such, the human race decided to create lined engravings in order to make present his [verbal] vocal expressions, the vocal expressions which indicate upon meanings. This would be an alternate means of making things known, instead of speech. As such, a written line is the existence of an expression, such as we have said that an vocal expression is the existence of meaning. And so we can say that "the existence of the written line is the existence of the vocal expression and the existence of the meaning as well." However, this is only written existence, since the only actually existing things is the writing itself. Attributing existence to the vocal expression and the meaning is metaphorical, based on an intentional determination, just as attributing the existence of an vocal expression to a meaning is also metaphorical, based on an intentional determination. As such, writings makes vocal expressions present, and vocal expressions make meanings present to the mind, and the mental meaning indicates upon an external existence. It should then be clear that vocal and written existence are metaphorical and nominal based on an intentional association, and common usage.

Concluding Remarks from the Introduction

You have listened to this rather long explanation, and our intention in it was to make clear to you the meaning of "vocal existence." We have understood that the relationship between an vocal expression and meaning is based upon the creation of a firm bond between them, as if they were a single entity. If the vocal expression is made present through speech, it is just like the meaning itself has been made present. Based on this, you can now understand how this relationship will affect the way a human being thinks to himself. Have you not seen that, whenever you make some meaning present to your mind, you must make present some kind of vocal expression as well? In fact, there is even more to this situation: the conveyance of your mind from a meaning to another the meaning is always through the use of vocal expressions in the mind and the depictions of these forms. We find that such vocal expressions are not normally separated from our thought in any issue; we always imagine and form images of these vocal expressions. It is as if we speak to our own souls and whisper to them through imaginary phrases. These vocal expressions are formed in our minds, and it is only on the bases of these vocal expressions that we form meanings and the details of these meanings. It is just like we were speaking to someone other than ourselves.

The great scholar Tusi said in his Sharh Ishārāt, that:

Mental conveyances may occur through mental statements, and this is because of the strength of this kind of relationship. This shows the nature of the relationship between an vocal expression and its meaning in the mind.

Because of this, whenever we make mistakes in our mental expression, or the states of these vocal expressions changes, this will affect our thoughts and the process of mental conveyance. This is because of the aforementioned reason. As such, if the seeker of knowledge wishes to organize his thoughts in a sound fashion, then he must perfect his knowledge about the states of vocal expressions from a general perspective. And so it is necessary for the logician to discuss them in preparation for the actual study of logic, and use them in a way that will allow him to think properly.

Signification [dalālah]

Defining Signification:

If you hear a knock on your door, your mind is immediately conveyed (without a doubt) to the conception that there is someone at the door who wants your attention. This is for no other reason than this knock on the door reveals to you the existence of a person who wants your attention. As such, one can say: The knock on the door *signifies* the existence of that person. The knock on the door is a *signifier*, and the existence of the person calling you is *signified*. These attributes which come about through the process of *signification*. This is how we describe every situation where something existent conveys your mind to the existence of something other. The first thing we refer to as the signification. In order to make this clear, then, we define signification as the state where "the existence of one thing, if you are aware of its existence, conveys your mind to some other thing."

The Divisions of Signification

There is no doubt that the movement of the mind from one thing only occurs through a cause. This is cause is nothing other than the firm bond existing between two things in the mind. This relationship also has a cause, which is knowledge of the necessary relationship between these two things outside of the mind. It does not matter whether this associate is essential, or natural, or has been determined by some particular person. Based on this, we would divide signification into three classes:

1) Rational Signification [*dalālah* `*aqliyyah*]. Rational signification occurs when there is an essential relationship between the signifier and the signified in terms of their external existence. An example would be cause and effect. If a human being knows, for example, that the morning light of the sun is the effect of the sun's rising, and if he sees this light on a wall, his mind will be conveyed to the rising of the sun without any doubt. As such, the morning light signifies the sun through rational signification. Another example would be hearing somebody speak from behind a wall; we would then know that there is someone speaking present there.

2) Natural Signification [*dalālah taba`iyyah*]. This is a relationship between two things that is natural, and by this I mean something that the nature of human beings would necessitate. This time of signification will vary with the differences of human being. It is not like the relationship of cause and effect, in which there is no disagreement. There are many examples of this kind of indication. The nature of would indicate that the vocal expression "Agh!" comes when people are in pain. Other types of natural indication would include people cracking their fingers, or yawning when they are bored, or playing with something he has with him, or fiddling with ones beard or nose, or placing his fingers between the tops of his ears when he is thinking or yawning when he is tired. If a person is aware of these connections, then his mind will be conveyed from one of the two necessary terms to another. Whenever someone hears someone else say "Agh!," then their mind is conveyed to the person making this sound, and they know that this person is in pain. And if a person sees someone playing with his rosary, then they know that this person is thinking.

3) Determined Signification [*dalālah waža`iyyah*]. This is a necessary relationship between two things that derives from some kind of intentional determination of meaning, that the existence of one thing indicates on the existence of another. An example would by lines, for which it has been defined that they should indicate upon certain vocal expressions, or like the sign language of mute people, or the symbol of lighting or radio waves, or mathematical and engineering symbols, or any of the symbols found in other sciences. Also included in this are the vocal expressions which have been signifiers for the intentions of the soul. If a person is aware of these necessary relationships [between signifiers and signified], then his mind will be conveyed to the signified.

Divisions of Determined Signification:

Determined is divided into the following divisions:

1) Vocal Signification [*dalālah lafžiyyah*]. This occurs if the determined signifier refers to an expression.

2) Non-vocal signification [*dalālah ghayr lafžiyyah*]. Signification that do not use an expression. This is the kind of signification that does not use any expression, such as non-verbal indications or written lines, or engraves, or the symbols used in sciences, or road signs that indicate distances, or signs that indicate the directions to certain places or cities, and so forth.

Significations That Use Vocal expressions

From our antecedent discussion, we know that the cause of the vocal signification of a meaning is the result of a strong link between the vocal expression and the meaning. As you know, this relationship arises from a determined relationship between them, and the knowledge a person has of that relationship. Based on this, we can define vocal signification as: "a situation where the knowledge of an expression issuing from a speaking subject necessitates knowledge of meaning intended by that speaking subject." There are three distinct types of vocal signification:

1) Correspondence [*muţābiqah*]. This is when a vocal expression indicates completely on the meaning that is established for it and completely accords with it. An example would be the statement "book," which would include all of its pages and engravings, and its cover. Another example would be using the vocal expression "human being" to indicate upon the human being in his entirety, as a rational animal. We call such a statement "complete" because of the perfect accordance between the vocal expression and the meaning.

2) Implication [*tažammun*]. This kind of statement indicates upon part of the meaning of something, and this meaning is part of a wider, more comprehensive meaning. An example of this would be to use the statement "book" to refer only to its paper, or only to its cover. Or if one uses the phrases human being, but only meaning the human being as an animal, or as a rational (but not both), and so forth. And so if you buy a book, the seller will know that the cover is included in it; but if you only wanted the paper, the seller would argue with you that the signification of the vocal expression "book" includes the cover. We call this "implied" indication. It is derived from direct signification, since signifying a part is subsidiary to signifying a whole.

3) Necessitated [*iltizām*]. Here, a person would use a vocal expression to indicate upon a meaning different from the meaning actually determined expression; there is a close relationship between the two [meanings], but the second meaning is nonetheless external to essence of the first meaning. An example would be using the word "inkwell" to refer to a pen. If someone seeks an inkwell from, and did not clearly say a pen, then you would come and bring him an inkwell and nothing else, this person might chastise you saying that seeking an inkwell is sufficient fro one to understand that one was, in fact, seeking a pen as well. We call this forced indication. This type of signification is also derived from direct signification, because the signification of something which is foreign to the actual meaning under discussions will come only after indication upon the actual meaning.

Conditions of Necessitated Signification:

One of the conditions for this type of signification is that the necessary relationship between the meaning of the vocal expression and the meaning of the external meaning be found in the mind. No kind of pure, external necessity will suffice, and there must be a fixed meaning in the mind. Otherwise, there is no way for the mind to be conveyed from the vocal expression to the meaning itself. In addition, it is also required that the necessary relationship between them be obvious, insofar as the mind must have a conception of the phrase in its mind, which will then be conveyed to the thing necessary for it, without any intermediate term.

The Division of Expressions

Insofar as expressions have meanings associated with them, they are normally divided into a number of types. This division does not take into concern any specific language, and it is one of the most important discussions we can have when studying signification. Here, we will mention the most important of these divisions, which are three. Expressions can be divided in this way, in line with the various ways that one can look at the relationship between expression and meaning. An expression may be singular and apply only to one meaning, or it may have multiple meanings, or one may look at the expression as a "general expression" (*lafź muţlaq*) without regard to its meaning being singular or multiple.

Division #1

A single expression will indicates on its meaning by any one of the three forms of signification outlined before. This is because the expression may a single expression for a single meaning in which case we call it *mukhtaśś*, or it may have multiple meanings. If it is multiple, then it has four categories: *mushtarak*, *manqūl*, *murtajal*, *ĥaqīqah*, and *majāz*. These are those five categories:

1) Monosemic [*mukhtaśś*]. This kind of expression has only one meaning associated with, like word $\hat{h}ad\bar{a}d$ [iron] or the word $\hat{h}iw\bar{a}n$ [animal].

2) Polysemic [*mushtarak*]. This kind of expression possesses multiple meanings, and it is correct to use this word for all of these meanings. Furthermore, one meaning does not have anymore precedence over another meaning;. An example is the word `*ayn*, which has many meanings [in Arabic], such as eye, a water well, to gold, and more. There are many polysemic words in the Arabic language.

3) Derived [manqūl]. This is a statement which has different meanings as well, and all of them are in use, just like the polysemic expression. However, there has been a kind of separation from the first meaning to a secondary meaning, and this secondary meaning is what has entered into the common usage. The development of the second meanings arises as the result of some kind of commonality between the old meaning and the new. An example is the word salat. Originally, this meant "prayer," in the sense of supplication. However, with the advent of Islamic law, this word has come to describe a special series of actions, from standing, to bowing, to prostrating, owing to the commonality between these actions and the literal meaning of "prayer." This has become the primary meaning of the word now. Another example would be the word *hajj* (pilgrimage), which was originally determined to refer to any kind of journey; but gradually, the expression came to refer to the specific journey towards Makkah, a journey with specific actions and taken at a designated time. Most derived words are to be found in law and amongst the masters of scientific and artistic discipline. As such, a derived word may compared to the one who caused its derivation. So a word that has changed in common usage would be called a "common derived" word. If it is only changed as a result of special usage, and can be called a "law-derived" word, "a grammatical-derived" word, "a philosophy-derived" word, and so forth.

4) Developed [*murtajal*]. This is just like the derived word without any different, except that there is no real similarity between the two meanings. Most personal names fall under this category.

5) Literal and Metaphorical [$haq\bar{q}ah$, and $maj\bar{a}z$]. This is a statement which has many meanings, but only one of those meanings has been intentionally determined for this expression. It may, however, be used to refer to other meanings, because of some commonalities between the first meaning and the second. However, the second meanings is not used frequently enough to say that the word *means* that thing. The first, actual meaning we call the "literal meaning," and the second one we call the "metaphorical meaning." Metaphorical expressions must always be used in a context which will make clear that the meaning intended is figurative and not literal.

Admonitions:

1) It is not correct to use polysemic or metaphorical expressions in order definitions or demonstrations, unless the context makes the intended meaning clear. The derived and developed meaning is also so like this, if the new meanings have not completely displaced the older meanings. If the old meaning has been completely displaced, however, then this is sufficient for making it clear that the intention is the

new meaning, rather than the old. In any case, however, it is best for a person to avoid figurative language in any kind of scientific discourse.

2) The derived meaning has two sub-categories. The first $ta y \bar{y} n \bar{i}$ and the second is $tu a y y i n \bar{i}$. The derivation of the meaning may be something done by decision and choice, as is the case with most of the derived words used in sciences and arts. In this case, it is classified as $ta y \bar{y} n \bar{i}$, insofar as it has been the result of a specific decision. At other times, however, the derivation may not have come from any speaking person. However, a large number of people began to use the word in a way different from its original meaning, however without any intention of coining a new meaning for the expression. This usage becomes more and more common, until the figurative meaning takes precedence over the original meaning in the minds of people. At this point, when people here the figurative meaning it becomes the same as if they've heard the literal meaning, and they do not need any kind of context do indicate the meaning of the word. Through this frequent usage, a mental connection is made between the expression and the meaning, and so the expression then becomes an actual, literal term for the intended meaning. This is manqūl tu ayyinī.

<u>Synonymity [tarāduf] and</u> <u>Dissonance[tabāyun]</u>

When we compare one expression to another, then these expressions will always relate to each other in one of two ways:

1) That there all determined for the same meaning. In such a case, they are synonyms [*mutarādifah*], being synonymous with each other. We can define synonymous words as being "multiple words which share a single meaning."

2) Each word may be determined for a specific meaning, in which case the words are disparate [*mutabāyanah*] in relationship to each other. Dissonance can be defined "as the state where the multiplicity of meaning is equal to the multiplicity of expressions." This meaning of "disparity" is different from the kind of "disparity" that will be discussed in the chapter on logical relations. Here, dissonance only refers to the dissonance existing between expressions, insofar as their meanings are different; however, the meanings themselves may not be conceptually disparate from each other, insofar as individuals which would be classified under one meaning may also be classified under another meaning. It is also possible that all the individuals of one class will be the same as the individuals of another class, yet the expressions used to denote them are disparate. For example, the word "human" and the word "rational" have disparate meanings, because the concept of "human" is not the same as the concept of "rational." However, all rational beings are human and vice-versa.

Divisions of the Disparate Expression: Similarity, Dissimilarity, and Opposition

We have mentioned previously that disparate expressions are those in which the multiplicity of meaning is equal to the multiplicity of expressions, which means [simply] that they have difference meanings. The ways in which these various meanings can differ from each other have various subdivisions. A similar set of classification also applies to the differences between expressions them, insofar as they are related to meanings. There are three ways in which meanings can be disparate: similarity [*tamāthul*], difference [*takhāluf*], and opposition [*taqābul*]. With regards two differing expressions, one may consider them insofar as they have a certain external commonality between them, sharing in a single reality. Then we would classify them as similar [*mithlān*]. Or, one may ignore what they have in common, even though they may or may not have a certain common quality. If one dos not observe their commonality, then there are two ways that one can look at their difference: either they are so different that they cannot united in a single place at the same time, and have some kind of antagonism with each other. In such a situation, they are *opposed* to each other [*mutaqābilān*]. If this is not the case [i.e., they could both be predicated upon one thing at the same time], then they are [merely] *dissimilar* to each other [*mukhtālifān*]. This requires some explanation:

1) Similar expressions. This is a case where the two meanings share an aspect of commonality, and we consider them in terms of their commonality. An example of this would be the name Muĥammad and the name Ja`far; these are two different names for two people, two people who both share the property of "humanity." Or one can say "human" and "horse," and these would be similar insofar as they both refer to entities that share the property of "animality." However, if we ignore the fact that Muĥammad and Ja`far both share in "humanity," and look instead towards their specific essences, then we will see that [from this standpoint] they are also dissimilar to each other. The same would apply for human being in horse; they are dissimilar insofar as a human is a human and a horse is a horse. This will be explained below.

Such commonality and similarity, if it is a similarity on the level of species [*nau*'] (such as the relationship between Muĥammad and Ja'far) then we refer to this simply as similarity. However, if the similarity is on the level of the genus [*jins*] (such as the commonality between human beings and horses) then we refer to them as "similar *in genus*" [*mutajānisān*]. If the similarity is a similarity of manner and form, we say that they resemble each other [*mutashābihān*]. The word "similar," however, is general for all these terms.

2) Dissimilar expressions. Here, we consider the two meanings insofar as they are different from each

other. In this case, there is no prohibition on them both being predicated upon the same thing at the same time, so long as they are merely attributes. Examples of this would be "human being" and "horse," observed insofar as they are "human being" and "horse," not insofar as they share in the property animality. Other examples would be water and air, fire and dirt, the sun and the moon, the sky and the earth, and so forth. The difference may be in the individual person, such as Muhammad and Ja`far, while these two persons may be part of the same species (namely human beings). However, in this case we do not observe the commonality between the two terms. The similarity could also be on the level of genus, even though they may share some common, accidental properties. An example would be cotton and snow, which are both white [an accidental property]. However, in this case we do not observe the commonality. Based on this, it should be clear that in the example of Muhammad and Ja`far that they are dissimilar from the standpoint of their individual personhood, and similar from the standpoint of their species (humanity). The same can be said of human beings and horses. They are different from the standpoint of the first's "humanity" and the second's "horse-ness", but they are similar insofar as they are both animals. It should also be clear that dissimilarity is not unique to things which can joined together. In the aforementioned examples, it is not usually possible for both expressions to be predicated one thing. Technically, however, they are completely opposed to each other, nor are they similar. It is also possible for dissimilarity to subsume opposition, and so it is possible to say that two opposed things are (technically) also dissimilar things.

3) Opposition. These are two meanings which are antagonistic to each other, and cannot be predicated on the same thing, from the same perspective of looking at that thing, and at the same time. Example would be "human" and "not-human," "seeing" and "blind," "being a father" and "being a son," or "black" and "white." The condition that something two opposing concepts cannot be predicated on the same thing would apply, for example, to black and white. Blackness and whiteness can both exist together, such as white paper with black ink [but cannot be predicated on the same thing]. The condition that two opposing concepts cannot be predicated on the same thing]. The condition that two opposing concepts cannot be predicated on the same thing in terms of perspective would be the of "being a father" and "being a son." It is possible for someone to be both a father and son, insofar as from one perspective he could be one man's son and from another perspective be another person's father. The condition of time would apply to something like "heat" and "cold," since something can be both hot and cold, but at the same time. At one moment a body may be cold, and then in a later moment it may be hot.

Divisions of Opposition

There are four kinds of opposition:

1) Contradictories (*taqābil an-naqīžain*), or the contradiction of negation and affirmation. For example: "human" and "not human," "black" and "not black," "luminous" and "not luminous," and so forth. With contradictories, one contradictory is existing and the other is non-existent. It is axiomatic that they cannot be predicated on the same thing at the same time, nor can they be simultaneously denied of the same thing. There is no middle term between contradictories.

2) The opposition of privation and possession [*taqābul milkah wa `adm*]. An example of this would be blindness and sight, being married and being single. Sight is a kind of possession, and blindness is a kind of privation. It is not possible to speak of blindness outside of the context of sight, because blindness is not merely the total absence of sight; it is the absence of sight in something which should normally be able to see. The same is true of "being married" and "being single." Being single is not the absence of marriage completely; it only applies to things which could normally be married. They are not like contradictories, since contradictories cannot be united in nor simultaneously denied of the same thing. Contradictories which are opposed to each other in the relationship of privation and possession and can be simultaneously denied of the same thing, even though they cannot both be predicated of the same thing. A rock is neither able to see nor is it blind, nor is it possible for a rock to be married. As such, the opposition of privation and possession is a relationship where one contradictory is existing and the other is non-existent; they cannot be simultaneously predicated of the same thing, but they can be simultaneously denied.

3) Contrariety [*taqābul až-židain*]. Example would be hot and cold, black and white, blessedness and wretchedness, bravery and cowardice, or lightness and heaviness. Contraries are two reciprocal entities, related to a single object. which cannot be simultaneously predicated on the same object, and for which the intellection of one does not depend on the other. By saying reciprocal and related to a single object,

it becomes clear that contraries can only be attributes. As such, "human" and "horse" are not contraries, nor is "animal" and "rock" or anything like this. All of these things have dissimilar relationships to each other [as opposed to oppositional relationships], as we discussed before. By saying that the understanding of one does not depend on the other, we distinguish this kind of relationship from the relationship of *correlatives*. As will be discussed next, the relationship of correlatives is one where the intellection of one depends on the other.

4) Correlatives [taqābul mutaźayifain]. Examples would include father in son, above and below, antecedent and following, cause and effect, creator and creation. If you observe these examples, you will see, firstly, that the intellection of one of these concepts requires the intellection of the other concept. If you intellect the concept "father" or "cause," then you must also intellect that a "son" for this father and an "effect" for this cause. Secondly, you will see that contraries cannot be predicated on the same thing, so long as that thing is observed from a single perspective. A person cannot be both father and son to the same person. However, he can be one person's father and another person's son. Similarly, it is not possible that something can be both above and below the same thing at the same time, but it can be above one thing and another thing. Thirdly, with regards to the opposing concepts in some of these examples, it is possible that both opposing concepts may be denied of the same thing. The Necessary Existent [God] is neither above or below anything, and a rock is neither a father nor a son. However, with some of these examples it is not possible to simultaneously deny them. Cause and effect is an example: everything that exists must either be a cause or an effect. As such, we can define contraries as "two existing things for which the intellection of one requires the intellection of another. They cannot be joined together in the same thing, so long as that thing is observed from a single perspective. However, they can be simultaneously denied of the same thing."

Single Words [*mufrad*] and Compounds [*murakab*]

Pure expressions (i.e., expressions viewed without any reference to the whether they are monosemic or polysemic) can be divided in two ways. The first is single words, and by this logicians mean different things. Firstly are those words that are not subdivided into parts [in Arabic words that only comprise a single letter, such as bi, meaning with, or qi, meaning "be careful" or "take heed"]. Secondly are those words which can be divided [into letters], but the individual portions of that word [the letters] do not indicate upon a portion of the meaning. Examples would include words like "Muĥammad," "upon," "read", "Abd Allāh," or "Abd Ĥussain." Let us look at the last two examples: when these names are understood as specific names for people, then by saying the word "Abd" [servant] and "Allāh" together you do not intend the actual meaning of these words ["servant of God" or "servant of Ĥussain;" as such, they are not compound words as far as logic is concerned, even though they can be subdivided into two words] Rather, the conjunction of these two words together signify an actual person. But this is not the same as, for example, the letter "M" in the name "Muĥammad" [the M meaning nothing in itself]. In other situations, one could say "servant of God", and by "servant" you mean the actual meaning of the word in its genitive construction with the name "Allāh." An example of this would be when we say "Muĥammad is the servant of God [`abd Allāh], and His Messenger." In such a situation, "servant of God" is being used as an adjective, and so the word is neither a name, nor compound, nor singular. However if you say "Muhammad is the son of `Abd Allāh", then `Abd Allāh is being used as a singular compound, being the name of Muĥammad's father.

For the scholars of grammar, however, when something like `Abd Allāh is used as the name of a person, then it is considered a compound word. This is because the grammatical point of view is different from the logical point of view. The grammarian looks at the word from the standpoint of its declension or non-declension. If an expression has only a singular declension or non-declension, then it is singular, but if it has two different declensions or non-declension (as the phrase `Abd Allāh does), then it is compound. But the logician only looks at the *meaning* of the word.⁴ As such the logician defines a singular expression as: "an expression whose subdivisions do not indicate upon a similar subdivision of meaning."

As for compound words, these are also referred to as "statements" [*qawl*]. It is an expression whose subdivisions do indicate upon a similar subdivision of meaning. If one says "Alcohol is harmful," then this statement comprises two parts: "alcohol" and "harmful."⁵ Each one of these parts indicates upon part of the meaning present in this compound. Another example would be the statement "Backbiting is the weapon of the weak." Though whole statement is a compound expression, and "weapon of the weak" is also compound.

Divisions of the Compound Phrase:

- 1) Complete and Incomplete [*tām* and *nāqiś*]
- 2) Predicative and Non-Predicative [khabr and inshā']

Complete and Incomplete [tām and nāqiś]

With some compound expressions, what is heard is sufficient [to convey] the meaning to the listener. When one makes such a statement, the listener does not wait or expect to hear something else, in order to make the statement complete. An example would be saying "Patience is bravery" or "If you understand, then do it." This is a complete compound statement, and it is defined as "a statement for which it is proper to be silent after it is said."

⁴ It is obvious that, even though logic has been previously defined as a science which transcends language, a great amount of discussion in this book involves issues that only arise in Semitic languages. To make this discussion intelligible, some Arabic nouns are declined, and some are not. For a grammarian, if in a conjunction of two words both words will always be declined together, then the expression is singular, otherwise compound.

⁵ As in Hebrew and Sanskrit, Arabic predicative sentences can do without the word "is," unlike in English and other European languages.

However, if one says: "If you understand..." and is then silent (i.e., without saying anything after this condition), then the person listening will be anticipating something else, and will feel that this statement is incomplete. He will expect the person to finish what he is saying. Such a statement is called an "incomplete compound," and it is defined as "a statement for which it is *not* proper to be silent after it is said."

Predicative and Non-Predicative [khabr and inshā']

Every complete compound expression will have an existing relationship [*nisbah qā'imah*] between its parts, or what is known as a complete relationship between its parts. This relationship may have an actual existence, apart from the expression. The expression, then, would merely be relating this reality to another, or unveiling it. If I tell you about some event that has occurred or will occur, such as rain coming from the sky, and say "rain is falling from the sky" or "it will rain tomorrow," than this is known as a *predicative* expression, a *proposition* [*qažiyah*], or a *statement* [*qawl*]. It is of no importance whether or not the predicative statement actually accords with reality. It may accord with reality, in which case it would be true [*sādiq*], or it may not accord with reality, in which case it would be true [*sādiq*], or it may not accord with reality, in which case it would be true [*sādiq*]. It is proper to judge the statement as true or false." It is predicative statements that the logician is most considered to study, and it is intimately related with the assent.

Other compound expressions, however, do not have any kind of internal relationship existing outside of the expression. In such a case, it is the expression itself which creates the relationship. This relationship would be created by the intention of the speaker. To make this more clear, we would say that in this kind of statement, the speaker creates the meaning through his compound statement. There is no reality beyond his statement, and as such there is no possibility for his statement "according" with reality or "not according with it." We call such a statement non-predicative. They are many types of this statement, such as

1) The command ['amr], like "Remember the lesson."

2) The prohibition [*nahī*], like "Do not sit in a gather of evil."

3) The question [*istifhām*], like "Is Mars not in motion?"

4) The vocative statement [nidā'], like "O Muĥammad!"

5) A statement of desire, like "If we had been given a chance, then we would have truly believed!"

6) A statement of surprise [ta`ajub], like "What danger the human being faces!"

7) A statement of covenant or contract, such as a contract of purchase, or rent, or marriage, like "I sell you this" or "I rent you this" or "I marry you."⁶

8) A statement of effectuation [' $iq\bar{a}$ '], such as the legal words used for expressing a divorce (so-and-so is divorced), or the freeing of a slave (my slave is now free), or the words used in creating a religious endowment.

The meanings underlying all these compound statements have no external reality outside of the expression themselves. They do not purport to present any information about an external reality, and so there is no possibility of them "according" with reality or not according with it. There beings are created [*tunsha' wa tuwajad*] by the expression itself. One therefore cannot describe them as true and false. As such, a non-predicative statement is defined as "a complete compound statement which cannot be described as true or false).

⁶ It should be understood that these examples can either be predicative or non-predicative. In English, such statements would usually be predicative insofar as they would be describing something like "I am, right now, selling you this thing." However, in Islamic jurisprudence, these are not considered to be predicative statements, since they do not refer to an already existing thing or state of affairs, but rather manifest the intention of the people involved in the contract.

Divisions of the Singular Word: Kalimah [word] 'Ism [Name] and 'Adāh [Prepositions]⁷

1) Kalimah

In grammar, this is referred to as a verb, such as "he wrote," or "he writes" or "write!".⁸ We can look at this type of phrase in three ways: first, it indicates upon radical that is made by contained in the letters "Ka," "Ba," and "Ta."⁹ Similarly, it indicates upon a single meaning, namely "writing." It is a meaning that refers to an independent meaning, which exists in and of itself. Secondly, distinctions appear within the shape of the statement, so that different significations are designated by the changing form of the word.¹⁰ As the shape changes, so does the tense indicated by the word. This temporal relationship exists between the meaning independent to the word [such as "writing"], and the subject performing the action. Furthermore, it introduces the concept of tense into this relationship. So "he wrote" relates a past event (writing), and attributes this event to the subject as having occurred in the future.¹¹ Based on this, we may conclude that the substantive meaning (*mādah*) which the three types of *kalimah* [past, present, and future] is something common to all these types. However, the form of the *kalimah* (the form which distinguishes one from another) changes, and this change indicates upon the meaning which is different in each type of *kalimah*.

As such, the correct definition for a *kalimah* is: "A singular expression which, in its substantive meaning, signifies an independent meaning, but whose form indicates upon a complete, temporal relationship between this meaning and the subject."¹² By saying a "complete relationship," we exclude nouns which are derived [from verbs], such as the active or passive participles, or those that indicate upon time or plane. In their substantive meaning, such nouns do indicate upon an independent meaning, and in their form do indicate upon the attribution of some act to a subject in time. However, they do this in an incomplete way.

<u>2) 'Ism</u>

An *'ism* is a singular expression which indicates upon an independent meaning in itself, but does not have any particular shape or form that indicates upon a complete, temporal relationship. Examples would be "Muĥammad" or "human being," and so forth. It may have a form that does indicate upon an *incomplete* temporal relationship, such as the active and passive participles, and nouns of time and place.

<u>3) Adāh</u>

In grammar, this is known as a preposition. It indicates upon a relationship between two terms, such as "in," which indicates upon a relationship of position, or "on" which indicates that something is above another, or "Is it?" [*hal*] which indicates upon a relationship of questioning. This relationship is *never* independent in and of itself; it does not exist outside of the two terms. As such, the $ad\bar{a}h$ is defined as a "singular expression which indicates upon a non-independent meaning."

Observations

Logicians include "incomplete" verbs $[af'\bar{a}l \ an-n\bar{a}qisah]$ such as the verb to be and its associates, under the category of $ad\bar{a}h$. This is because they do not indicate upon an existence outside of themselves, but rather only indicate upon a temporal relationship. As such, they will be in need of

⁷ Here, it is best to leave these words in the original, as they are not being used in their standard, linguistic meaning.

⁸ The past, present and imperative. These are the only three tenses of the Arabic verb.

⁹ The three root letters of the Arabic verb "to write."

¹⁰ By the adding of prepositions and suffixes, by changing of the vowels, and so forth.

¹¹ The Arabic present tense can be used to refer to something happening now, or in the future.

¹² As will be discussed below, prepositions (in both grammar and logic) are considered to have no independent meaning of their own, but only indicate upon relationships. In ' $us\bar{u}l$ fiqh (the principles of law), jurists divide words into only two kinds: nouns and prepositions. As for verbs, it is said that the "substance" of the verb is really a noun (the event or action that occurred or occurs or will occur, such as "writing"), while its form is prepositional (since the form of the verb does not indicate upon anything more than a *relationship* between the event and the acting subject).

another component to indicate upon what occurred. If somebody says "Muĥammad was standing", then the word "standing" is what indicates upon the event that occurred. Most grammarians consider these verbs, while some logicians refer to these expressions as *kalimah* of existence.

The Study of Universals [kullivāt]

The Universal [kullī] and the Particular [jūz'ī]

The human being creates concepts for those existing things which he experiences through sense perception, such as "Muĥammad, "this book" or "this pen." If we contemplate this, we find that all of these expressions indicate upon a single individual only. These are called "particulars" $[j\bar{u}z'\bar{\imath}]$. We can define a particular as a "concept which cannot be applied to more than one thing." If a human being sees many particulars, and compares them to each other, then he will find that they may all share in a certain attribute. A person would then derive a conceptual image which can be applied to all these particulars. This comprehensive concept [*mafhūm shāmil*] or derived [conceptual] image is a "universal" [*kullī*]. A universal can be defined as a "concept which can be applied to more than one thing." Examples of this would include "human," "animal," "mineral," and so forth.

A More Complete Definition of the Universal and Particular

It is not necessary that the individuals making up a universal category actually exist. The intellect form a universal concept which could theoretically be applied to more than one thing, while not deriving this concept from actually existing particulars. Such a person would only suppose existing particulars to which this universal could be applied. It may even be impossible for there to be any actually existing particular which corresponds to this universal. An example would be the concept "partner of the Creator" or the concept "co-existence of two contradictories." However, this does not mean that the concept is not a universal. Similarly, there may be universals for which there is only one existent which fits under this category. In such a case it may be impossible for there to be more than one individual which fits under this category. An example would be "the Necessary Existent" [God]. Nonetheless, the intellect does not prohibit supposing that there might be multiple individuals which fit under this category. Even if the concept "Necessary Existent" was a particular and not a universal, insofar as it must be based on other demonstrations for monotheism, and the very concept of monotheism makes it impossible for one to suppose multiple deities. The fact that this universal can only be applied to a single individual relies upon some other concept previous to this concept [i.e., the concept of monotheism]. But the concept of "necessary existence" itself does not automatically imply prohibit the possibility of applying this universal to more than one particular.

Based on this explanation, we must add another condition to our definition of universal and particular, so that it would be "a concept which can *theoretically* be applied to more than one thing" or a "concept which can *theoretically* be applied to only one thing."

Some admonitions: The meanings indicated by prepositions are entirely particular. As for verbs, there substantive meanings indicated upon something particular, while their form indicates upon something universal. As far as nouns, they can be either universal or particular. An example of a universal nouns would be the names for genera. An example of particular nouns would be the personal names of people, or indicative pronouns, or prepositions, or what have you.

Relative Particulars [jūz'ī iźāfī]

The particulars which we have studied so far are referred to as "true particulars." $[j\bar{u}z\,'\bar{i}$ $\hat{h}aq\bar{i}q\bar{i}]$. There is, however, another which is the "relative particular" $[j\bar{u}z\,'\bar{i}\,iz\bar{a}f\bar{i}]$. This something which is particular only in relation to something above it. As such, it may be a universal in and of itself, but is less universal than the wider universal which is about it. So we may find that the concept of "straight light" is a universal concept, derived from a number of individuals. Similarly, the concept of "curved lien" is also a universal concept, derived from another group of individuals. If we join these two concepts together, and set aside the differences between them, we discover another, larger universal which can be applied to both groups, namely the concept of "line." This third universal is larger than the previous two, just as those two universals are larger than the individuals which are subsumed under then. In such a situation, the individuals of the smaller category are particulars in relationship to that category. In the same, the two smaller universals, relative to the larger universals, are particulars of this larger universal category. As such, we would classify these as "relative particulars," not "true particulars." This is because, in reality, it is only a universal in and of itself. It is also possible to refer to true particulars, in relationship to the universal which is above it. This is true of every concept when it is compared to another concept larger then it: such a concept would be referred to as a relative particular. So "Zayd" is a true particular in and of himself, and a relative particular in relationship to animals. Animals, in turn, would be relative particulars with regards to organic matter, and organic matter in relationship to all physical bodies. The relative particular, then, may be defined as that which is "more specific from something else" or "a concept related to another concept which is wider in scope."

<u>Univocally Applicable Universals [mutawātī'] and Ambiguously Applicable Universals</u> [mushakkak]

Concepts may be divided into universally applicable universals [*mutawāţī*⁷] and ambiguously applicable universals [*mushakkak*]. If you analyze a universal such as "human being" or "animal" and so forth, and apply it to its universals, then you might not find any variation in terms of this concepts applicability to those individuals. `Umar, Khalid, and all other human beings are equal in terms of "humanity," and none of them is "more human" than the other. However, they may be disparate with regards to other attributes, such as height or color or strength and so forth. Such a universal is known as a *univocally applicable universals* [*mutawāţī*⁷].

However, there are other universal concepts such as whiteness or number or existence. When we analyze the way that these universals are applied to the individuals under that category, we find that they apply in a way completely opposite to the previous way. There is an inequality between the applicability of the concept to them, in terms of strengths or amount or essentiality or precedence. We see, for example, that the whiteness of snow is greater than the whiteness of paper, even though both of them are white. The existence of the Creator is more essential than the existence of the creation. The existence of a cause is precedent to the existence of its effect, by the very nature of its existence. However, both of them exist. As such, a concept which is applied to the individuals which are subsumed under that concept in an uneven way is known as a "ambiguously applicable universal." The actual variance between them is referred to as "ambiguousness" [$tashk\bar{k}k$].

Concepts [mafhūm] and their Instantiations [muśdāq]

Concepts [*mafhūm*] are actual meanings insofar as they are meanings. They are the actual mental image which is derived from the reality of things. As for its instantiation [*muśdāq*], it is the thing which the concept is predicated upon. It is the actually existing thing, from which the concept is derived. The mental conception which we would label "Muĥammad" is a particular concept, referring to an actually existing person in reality, who is its instantiation. The mental image "animal," is a universal concept, and the actually existing (human beings, horses, birds, etc.) which fall under this category are actual are its instantiation. Similarly, the mental concept of "non-existence" is also a universal category, and its instantiation are those things which don't exist.

One should observe the following: From the first example, it is possible that a concept maybe universal or particular. From the second example, one can see that the instantiation may be a true particular and a relative particular as well. From the third example, one should see that the instantiation does not have to have actual existence. The concept may be predicated upon the instantiation even if the instantiation is something non-existent.

<u>The Designation [`unwān] and the</u> <u>Designated [ma`nūn]</u>

If you make a judgment [$\hat{h}ukm$] about anything, then you be making this judgment in relationship to the concept only. An example of this would be saying: "The human being is a rational animal." In this case, we would say that one is making a *primary predication* [$\hat{h}aml awal\bar{i}$]. At other times, however, your gaze my extend to something more than this, and so you look at what is beyond the concept. Here, you would look at the concept as something which gives information about its instantiation, and as indicating on that instantiation. An example of this would be to say "human beings are capable of laughing," or the "human beings are in loss." In this case, one moves from the concept of human beings to the actual personages that are included in this concept, and your judgment refers to these entities. In making such a judgment, one the concept is taken into consideration only as a means for making a judgment about the individuals [subsumed under that concept]. In such a situation, the concept would be known as the "designation" [*`unwān*], whereas the instantiation is the thing "designated." And so in the example, "human being" is being predicated according to *common predication* [$\hat{h}aml ash-sh\bar{a}`i'$.] In order to make clear the differences between these two types of predication, we will give several examples:

Question 1: When the grammarians say, "Nothing can be predicated from the verb," they open themselves to a *prima facie* criticism. One could say to them: This statement of yours gives information about a verb, so how can one say that there is no predication upon the verb?

Reply: That which is being discussed in this statement certainly is certainly a statement about the verb. The subject of the proposition is the concept of "verb." But the judgment is not about the verb insofar as it is a concept. Rather, "verb" has been taken as a designation, in order to give information about its instantiation, and as a tool for observing it. The actual judgment goes only to the instantiation, such as the verbs "he hit" or "he is hitting." The "verb" is judged according to common predication. but this is a general Concept about the verb. It is only a Concept about the verb because there is no actual specification involved here. Specification is, in reality, based on an actual example of a verb, such as "He hit" or "He hits." The verb for which there is to this actual manifestation is a verb

Question 2: When the logicians say, "The particular cannot be predicated upon many," they may also receive a *prima facie* argument, namely: "The particular is predicated upon many, for you say: This book is *particular*, Muhammad is *particular*, Makka is *particular*, etc. So how can you say that it is not predicated upon many?"

Reply: The particular which one is referring to here, the concept-as-such in primary predication, is a universal concept, not a particular on. The universal *concept* of particularity is certainly applied to many things. However, its instantiation (i.e., the reality underlying the concepts) is particular, and cannot be predicated upon many. As such, the judgment that "the particular cannot be predicated on to the many" refers to "the particular" from the standpoint of common predication, not the "particular" from the standpoint of primary predication [i.e., the judgment refers to instantiation of the universal concept "particular," not to the concept itself].

Question 3: When the scholar who studies the principles of Islamic law say says: "The vague statement does not have any clear meaning," they can also be faced with a *prima facie* objection: "If the vague statement does not have any clear meaning, how is it possible that you have just defined it, without making recourse to a clear meaning?"

Reply: The concept of the vague statement, from the standpoint of primary predication, has a clear meaning; but the actual instantiation (understood from the standpoint of common predication) of this concept, such as polysemic words for which there is no context that would determine there meaning, are not clear in meaning. The definition of "vagueness" here refers to vagueness by common predication.

The Four Relations [nisab arba`]

In the earlier chapters, we have divided expressions into those that are synonymous and those that are dissonant. It was our intention previously to explain this difference by virtue of the concept underlying the statement (i.e., the different meanings underlying the statements). Here we will understand these distinctions by virtue of the statement's instantiation. Here we will divide the statements into four divisions. One of these relationships is that of opposition [$tab\bar{a}yun$]. The standpoint in these two studies is, however, different. There we were talking about expressions, in relationship to the multiplicity or singularity of meanings therein. Here, however, we will talk about the relationships between meanings, with regards to the possibility of them being united in a single instantiation. This discussion does not deal with any of the differences between meanings in terms of their concept, nor do it deal with any kind of relationship between these concepts and themselves [we will only deal with the relationships between different meanings]. And so we say:

Every meaning, when related to another meaning that is different and opposed to the first meaning conceptually, then we will have one of one of four possibilities. Either the two meanings will be completely analogous to each other, in which case they will be *equal [mutasāwiyān*]. Or they will share certain individuals in common, and in this case they will be in a relationship of "general and particular from a certain standpoint" [*`umūm wa khuśūś min wajh*]. Or, one will share all the individuals of the other, but not vice versa. This is an "absolute relationship of the general and the particular" [*`umūm wa khuśūś muţlaq*]. And if neither of the two meanings share any individuals in common, then they are opposed to each other [*mutābayanān*]. The four possible relationships between concepts, then, are four: equality, general and particular from a certain standpoint, absolutely general and particular, or opposition.

1) Equality: In this relationship, there is complete overlap between the two concepts, such as "human" and "laughter." Every human being is able to laugh, and no being can laugh except human beings. We can represent this understanding by drawing two equal lines, with one directly corresponding to other. We can draw it thusly:

 $\mathbf{A} = \mathbf{B}$

which we would read as "A is equal to B"

2) Relationship of the general to the particular [hence forth translated as absolute generality]. This is a relationship between two concepts, where the first concept can be predicated on all the individuals of the second concept and more [but not vice-versa]. We all this first concept the absolutely general ['*amm muţlaq*], while we call the second the absolutely special [*akhaś mutlaq*]. An example would be the concept of "animal" and that of "human." Everything which can be called "human" can be called animal, but not vice-verse, since there are animals which are not human.

We can represent this understanding by drawing to, un-parallel lines, with the larger of the two concepts on the augmented side. We can draw it like this:

A>B

Which we can read as "A" is absolutely general ['amm mutlaq] to "B"

It is correct to that we reverse them, and write the diagram like this:

$\mathbf{B} < \mathbf{A}$

Which we can read as "B is absolutely particular [akhaś mutlaq] to A"

3) Relationship of the general to the particular from a certain standpoint [henceforth translated as particular generality]. There is a correlation between the two concepts in some instantiation, and a complete separation between them in others. An example would be "bird" and "black." Crows are both black and birds, whereas a dove is a bird but not black. And something may be black, like black cloth, but not be a bird. Each one of them can be said to be general from the other, from one perspective, while it can be said they are particular to the other, from another perspective. We describe this as a relationship of general and particular in one situation. We can depict this relationship by drawing to lines that intersect with each other in one point, but do not connect to each other in any other point, like this: X. We would write such a relationship like this:

A x B

4) Relationship of opposites. This is a relationship where one of the two concepts can never be joined with the other. Examples of this include all the oppositional meanings we discussed previously, as well as some of the differing meanings as well (like rocks and animals). and some conflicting meanings as well, such as "rock" and "animal." We can diagram this relationship by writing two parallel lines, which never connect with each other. We would illustrate it like this:

A // B

Relationships between the Contradictories of Universals

For every two universals, there will be one of the four relationships between them. Similarly, the contradictory universals will also have relationships between them, as we will discuss. In order to discuss this, we will have to present a demonstration [*burhān*]. The method of demonstration known as the method of exclusion [*istiqśā*']. We will discuss this further in the chapter on the syllogism. With this method, we will suppose all of the possible situations which can be given to the issue under question. After proving all of them false, except one, then the answer will be found in that one remaining answer. Now we will mention the relationships which are possible between universal contraries, along with demonstration. And so we say:

1) The contradictories of two equal universals [A = B] are equal themselves. So if you say that the concept of human being is equal to the concept of rational, then this would mean that the concept "not-human" would include the concept "not rational."

 $\mathbf{A} = \mathbf{B}$

We assume from this that

Not $A = Not B^{13}$

We can prove this as follows: If we can posit "Not-A" without also positing "Not-B," then it must also be true that there can be "Not-A" with "B", since two contradictories cannot be simultaneously denied about the same thing. This would mean that we cannot posit "A" with "B", because two contradictories cannot be joined to each other. And this contradicts are basic supposition, namely that A=B. Therefore, it is not possible that there could be any other relationship between "Not-A" and "Not-B" except equality.

2) With a relationship of absolute generality [A > B] the contradictory of the "most general" and the contradictory of the "most special" will relate to each other in a similar relationship of absolute generality. However, the terms will be reversed: the contradictory of the most general will become the most special in this new relationship, and the contradictory of the most special will become the most general.

A > B, then Not A < Not B

An example would be human being and animal. "Non-human" would be absolutely general in relationship to "non-animal," since "non-human" can be predicated on everything which is not an animal, but not vice-verse. Horses and birds can be described as non-human, and they are from animals. This can be proved as follows:

If it was not the case that Not A < Not B, then the relationship between the two must be one of the other remaining relationships, or another relationship of absolute generality and particularity where Not A > Not B. If "No A = No B" then "A = B," because the two contradictories of two equal universals will themselves be equal. This, however, contradicts our original supposition that A=B. If

¹³ Because the text literally uses the word "not" instead of the logical symbol "~", we have chosen to translate it as "not A" and "not B" and so forth, to avoid confusion. This is primarily a text of formal logic, not symbolic logic, and so that should be made clear in the text.

the relationship between them was one of opposition, or general and particular from a given standpoint, then the following things would have to true. First, we could posit "Not A" in the absence of "Not B", which means we can posit "Not A with B," because two contradictories cannot be simultaneously denied. This would mean that we could posit B without A, i.e., we could posit the absolutely particular without the absolutely general, which contradicts the original supposition. With these other four possibilities proven wrong, that leaves us with only one other alternative:

Not A < Not B

3) With a relationship of specific generality and particularity [A x B] the contradictory of the "most general" and the contradictory of the "most special" will relate to each other in of particular opposition [$tab\bar{a}yun j\bar{u}z'\bar{t}$]. "Particular opposition" means that they cannot be united in some circumstances, though they might be in others. "Particular opposition," then, is a concept that encompasses both universal opposition [$tab\bar{a}yun kull\bar{t}$] as well as particular generality. This is because the most general and the most particular will, most certainly, can never be simultaneously predicated on all things [otherwise the relationship between them would be one of equality]. Similarly, it is proper to say that opposites which relate to each other in a relationship of universal opposition can never be simultaneously predicated on all things.

If we say: within a relationship of specific generality and particularity, the contradictory of the "most general" and the contradictory of the "most special" will relate to each other in of particular opposition, this means that sometimes the two contradictories will be universally opposed to each other, and some times the relationship between them will one of particular generality. An example of the first would be "animal" and "non-human;" the relationship between them is one of particular generality. A horse is both animal and non-human; but a rock is not an animal but is non-human. However, we see something different if we look at the contradictories of these two terms, non-animal and human. The relationship between non-animal and human is one of universal opposition [there is no human that is a non-animal, and there is no non-animal that is human]. A contrary example would be the relationship between "bird" and "black." The contradictories of these two terms would be "nonbird" and "non-black." The relationship between them is one of particular generality. Some non-birds are non-black, and some birds are not non-black, and some non-bird are black. Paper, for example, is both "non-bird" and "non-black." A black shirt would not be non-black but it would be a non-bird. And a dove would not be a non-bird, but it would be non-black. Since the relationship of these contradictories can either be one of absolute opposition or particular generality, the concept which encompasses both these types of relationship would be dubbed "particular opposition." The demonstration of this is as follows:

A x B is our basic supposition, and our claim is that Not A and Not B are related to each other in a relationship of particular opposition. If this was false, then the relationship between them would have to be *one* of the other four relationships, and only that one. If Not A = Not B, this would mean that A=B, because the contradictories of equal universals are equal. This contradicts our original supposition, which is A x B.

If Not A < Not B, then this would mean A > B, based upon our previous discussion. This also contradicts our original supposition, which A x B. If on the other hand, A

If Not A x Not B *only* [meaning that it could never be the case that Not A // Not B], we can see that even though sometimes it could be the case that Not A x Not B, other times this is not the case. The best example of this was the example of "non-animal" and "human."

If Not A // Not B only [meaning that it could never be the case that Not A x Not B], we can see that even though sometimes could be the case that Not A // Not B, other times this is not the case. The best example of this was the example of "non-bird" and "non-black."

After this, we see that the only possibility is that the relationship between Not A and Not Be would be one of particular opposition.

4) The contradictories of two opposites [A // B] are related to each other through particular opposition as well. The demonstration for this is the same as the previous one, except that the examples would be change. Let us take an example: existence and non-existence are related to each other through a relationship of universal opposition. Their contradictories, non-existence and non non-existence, would also be one of universal opposition. But in other circumstances the relationship between them would be one of particular generality. An example would be "human" and "rock." Their contradictories would be non-human and non-rock, and the relationship between them is one of particular generality. A horse is both non-human and a non-rock, whereas a rock is non-human but not a non-rock, and a human is not a non-human is a non-rock.

Summary

Relationship between the two concepts

Equality Particular Generality Opposition Absolute generality Relationship between their contradictories

Equality Partial Opposition Partial Opposition An inverse relationship of absolute generality

The Five Universals [Kuliyāt Khamsah]

The universal may be divided into essential $[dh\bar{a}t\bar{i}]$ and accidental $[`ar\check{z}]$. The essential universal may be divided into species [nau'], genus [jins], and differential [fasil]. The accidental universals can be divided into concomitant accidental $[kh\bar{a}sah]$ and general accident $[`\bar{a}m]$.

A person may ask about someone "Who is he?" or they mask about someone "What is he?" Do you find a difference between the two questions? The first question is clearly a question about a particular person, and so the response would be "he is the son of so-and-so," or "he is the author of such-and-such a book," and so forth. These types of responses seek to determine who a particular person is. An incorrect response to these questions would be "he is a human being," because such a response does not distinguish between various human individuals. In modern times, such a response would be a response about the *ipseity* [$h\bar{u}wiyyah$] of the person, derived from the word "him" [$h\bar{u}wa$].

As for the second category, however, it is a question about the reality of the person, and what this person has in common with other beings like him. The intention of the question is to specify all of that being's reality $[\hat{h}aq\bar{i}qah]$ in contrast to other realities, not this person's individuality amongst other individuals. The only correct response to such a question would be one that establishes the entirety of this beings reality. And so you would say: "human being" as opposed to "the son of so and so," and so forth. We refer to the response given as a response about the beings' *species*.

Species [nau`]

This is the first of the five universals. We can explain it thusly: A person may ask a question about Zayd, 'Umar, and Khālid, asking "what is this?" Or a person might ask about human beings, horses, and, and asks: "What is this?" Do you see a difference between the two questions? Contemplate them. In the first question, you see that a person is asking about a number of particulars, which share a common reality and are only different in individuation. The second question is about the reality of multiple particulars, which have a reality in common but also have their own individual realities. The response to the first question would "human beings," and this is a *species*. But as for the second question, you would still respond in terms of the reality common to these entities, and say "animals." But this response would establish the *genus* of these things.

Genus [jins]

This is the second of the five universals. We can define the first two universals as:

1) Species. This is the common reality shared between a group of individuals, which share a common reality and only differ in individuation.

2) Genus. This is the common reality shared between a group of individuals, which share a common reality but also have their own individual realities.

As such, if you mention the particulars in terms of their reality, then they only differ in terms of individuation.

A person may ask about human beings, and horses, and apes, asking "What is this?" And he may ask about human beings only, asking "What is it?" Notice that it is the universals which are being asked about here. What would be the proper response to these two questions? The first question is a question about the universals which encompasses a group of things, which differ in their realities. You would respond by establishing the reality which is common to all of them, which would be their genus. In this example, you would say "animals." Based on this you, we know that the genus would be the response to a question about the universals which encompasses a group of things, things which differ in their realities. The response, then, is about the universals involved here, namely the species under discussion. Similarly, this response would could also be an answer to a question about the particulars themselves, particulars that differ in their realities.

However, the second question is about a single universal. The correct response to the second question "What are human beings?" would be "rational animal." The response seeks to define the quiddity $[m\bar{a}hiyah]$. It seeks to analyze this total reality into that which is shared between this thing [animality] and what is particular to thing [rationality]. The thing which distinguishes the entity from everything else is known as its *complete definition* [$\hat{h}add$ at-t $\bar{a}m$], as will be discussed in the appropriate section. The complete reality that is shared between these things is the genus, as discussed,

and this formed the first part of the response [i.e., that a human being is an animal]. But the particular thing which separates this being from other beings, which forms the second part of the response [that the human being is rational] is its differential [fasil].

Differential [faśl]

The differential is the third time of universal. It should be clear that the differential is a part of a being's quiddity. However, it is the special part of that being which distinguishes it from all other things. The genus is also part of the being's quiddity, but it is that part of the quiddity which is common to other quiddities.

There is one another important thing which we must mention, and it is this: how do we ask about something in such a way that its differential will be the proper response? To put it differently, we can say that one could answer a question about the quiddity of anything by establishing its differential. In response we would say: The differential is a correct response to a question about the quiddity of something, in terms of that quiddity's distinction from other quiddities. If we see a shadow from a distance, and we know that it is an animal but we don't know what kind of animal, human nature would demand that we ask: "What kind of animal is this thing in its essence [$dh\bar{a}t$]?" If we just know that the thing is a physical body [*jism*] we would ask: "What kind of body is thing in its essence?" Or one may use the word essential nature [*jawahar*]; the two expressions mean the same thing. The response to the first question ["What kind of animal is this thing in its essence?"] would be "rational," because this is the differential in a human being. As for the second question ["What kind of body is this thing in its essence?"], we would say "a body endowed with sense perception," since this is the differential of animals.

As such, the differential is the correct response the question "What kind of thing is this?" with the word thing standing in place of the genus which was already known before asking the question. The correct definition for differential would be "The unique part of a being's quiddity, which would be given in response to the question 'What kind of thing is this in its essence?""

Subcategories

Species: Actual $[\hat{h}aq\bar{l}q\bar{l}]$ and Relative $[\hat{l}i\bar{z}\bar{d}f\bar{l}]$. Genus: Proximate $[qar\bar{l}b]$ and Distant $[ba\\bar{l}d]$, genus summum], and [mutawasit]. Differential: Infima or Proximate $[qar\bar{l}b]$ and Distant $[ba\\bar{l}d]$, establishing[muqawwim] and divisional [muqassim].

The expression "species" has to meanings. The first is actual species, and it is one of the five universals, as has been discussed. The second kind is the relative species. By this, we mean any universal that has another genus above it. It is a species in relation to the genus which is above it, whether or not it is an actual species or not. An example would be humanity in relationship to its genus, "animal," or animal in relationship to its genus, "organic bodies," or "organic bodies" in relationship to its genus, which is "all bodies," or "all bodies" in relationship to its genus, which is "substance" [*jawahar*].

One can form a hierarchical chain [*silsilah*] between the universals, just like in the previous example: this was a chain that began with human beings and ended in substance. If we analyze this from bottom to top, then we start from a species (human beings), then to the lowest genus [animals]. From there, begins the genus hierarchy. We call this the "proximate genus" because it is the one closest to the species itself. It is also called the "lowest genus" [*jins sāfil*]. After this, we find another genus above this genus, until we get to the *genus summum* for which there is no other genus. This is known as the final genus, or the highest genus [*jins `ālī*], or the genus of genera [*jins ajnās*]. In our example, the genus of genera was "substance." In between the lowest and highest genera, there are middle genera, which can also be referred to as a "final genus." In our example, these intermediary genera were "all bodies" and "organic bodies." Based on this, we can say that genera are proximate, intermediary or final, or we can say that they are lowest, middle, and highest.

If we analyze the chain from top to bottom, we would start with the genus of genera, and moving down until we reach the species for which there is no sub-species. After the genus of genera, then, we would have the "highest species" $[nau``\bar{a}l\bar{i}]$, which begins the chain of species. In our example, this was "all bodies." The final link in this chain is the "species of species" or the "lowest species," which was human beings in our example. Between the highest species and lowest species, there are intermediary species, such as animals and organic bodies. In this example, organic bodies would be an intermediary species, and an intermediary genus. As such, the relative species has three

kinds: highest, middle, and lowest.

Admonitions: It should be clear from what has been said that the intermediaries must be a species for what is above it and a genus for what is below it. The intermediary genus and species could both be one, if the chain is constructed from four universals, and they could be more than one, if it is constructed from five universals. To give an example of the first kind: "water" is classified under the category of liquid, which is classified under the category of "body," which is classified under the category of "substance." An example of the second would be the chain between "human being" and "substance," derived from five universals (as we did in the previous example).

Every relative species must have a differential which is part of its quiddity. This differential will establish its quiddity and distinguish it from the other species which fit under its genus. Similarly, we dive the genus into two subdivisions. The first is the species of this differential, and the second is what is separate from it. "Sense-perception" is the establishing differential for animals, and what separates it from other organic bodies. Based on this, we would speak of "organic bodies with sense-perception."

The establishing differential which establishes the species equivalent to it, must also establish the species which are under it. As such, "sense-perception," which establishes animals, also establishes human beings and all other animals. This is because the highest establishing differential is a part of the highest species, and the highest is part of the lowest, and the part of a part is a part. So the differential that establishes the highest species also establishes the lowest species. The general principle in all this is as follow: "What establishes the highest species also establishes the lowest species," but not viceversa.

If we compare the differential to the species that is equivalent to it, we can describe it as the proximate differential. An example would be "sense-perception" in relationship to animals, or "rationality" in relationship to human beings. If we compare it to the species which is below it, however, then it becomes a "distant differential."

Essential [dhātī] and Accidental [`aražī]

The concepts of essential and accidental have different technical definitions. However, you should only concern yourself with the definitions that will be used in this chapter. The definition we will use will be that presented by the founder of logic, Aristotle, in his *Isagoge*.

1) Essential. This is a predicate which establishes the intrinsic essence of the subject in a predicative proposition. This is a conception which exclusively describes the meaning of a given thing. The quiddity of this meaning could not be established except by means of this attribute. It is the same whether this conception is the same as the quiddity, such as the conception of "man" predicated to Zayd, or if it is a part of that quiddity, such the relationship between the concept of "animal" predicated of human, or the concept of "rational" upon the same concept. This essential attribute encompasses the species, genus, and the differential. This is because the species is the actual quiddity as present within the individuals of that species; the genus and differential are also present in its essence as well.

2) Accident: This is a predicate that is separate from the essence of a predicative proposition's subject, but it is something that is still connected to the given thing after the establishment of its essences. An example would be the laughter related to the concept of human being. Now that we have discussed these uses, we may proceed with a study of the last of the five universals. For the last of the five categories is actually the subdivision of accidents.

Concomitant Accidental [khāśah]and Non-Concomitant Accidental [`araž `ām]

An accident can be intrinsically associated with the subject it is predicated on. In this case, it is unique $[kh\bar{a}\dot{s}ah]$. It is irrelevant whether or not this predicate is completely equal to the subject it describes, such as "the laughter" and "human" [insofar as only humans can last], or if it only applies to some of the individuals in that category, such as the concept of "poet" accidentally related to the concept of "human" [insofar as only humans are poets, but not all humans are poets]. It is also irrelevant whether or not the concomitant accident is unique to the actual species or to the genus, as was the case in our previous examples, or to the intermediate genus. As such, we can define the concomitant accident as a "universal which is external to the predicate, but is nonetheless uniquely associated with it." We can define a non-concomitant accident as [`*araž* `*ām*] as a "universal which is external to the predicate, but is not uniquely associated with it."

Explanations and Clarifications

1) One thing may be a concomitant accidental in relation to one concept, while it may be a nonconcomitant accident in relation to another other. An example would be the ability to walk. This is uniquely associated with animals, while only generally commonly associated with human beings.

2) Something may be a non-concomitant accident in relation one thing, and essential in relation to another. An example would be the attribute of "being colored." Color is something concomitant accidental of physical things, whereas it is a genus for "white" and "black."

3) Every concomitant accidental and differential may be simple, or may be compound. Examples of those that are singular would be the laughter or the capacity for reason. An example of a compound concomitant accidental would be to say about human beings that they are bipeds, or of animals that they have "sense perception and move by their own volition."

Subclass [śinf]

We have said that the differential establish the species, and distinguishes it from other species in that genus, by subdividing it. As for the concomitant accidental, it certainly does not establish the universal, though it may distinguish it from other genera by dividing the genus that is above it. From this perspective, it is a bit like the differential insofar as it dives the genus.

Predication [*haml*] and its Different Species

We have described all of the five universals as "predicates," and stated that the predicated universal can be divided into essential and accidental. This requires some clarification and explanation. Someone might ask the following question: "The species can be predicated on the genus (like predicating "animal" upon humans, horses, camels, etc.). However, the human being, in relationship to the concept of "animal," is not essential to that concept, since it is neither the complete reality of the concept "animal," nor even part of it. Nor is it an accident that is external to the concept of animal. Therefore, shouldn't there be an intermediate category between essence and existence?" One might also ask another question: "The complete definition is predicated upon the species and the genus, like when someone says 'the human being is a rational animal.' As such, the complete dedication is a universal category predicated on something else, and it is the complete reality of the subject for which it is predicated upon. Yet it is not a species, nor a genus, nor a differential. As such, it would seem that the essential attribute would require a forth category. In fact, this new category would not even be an essential attribute, since it is the essence in and of itself, and one cannot say that the essence is essential. Nor could it be described as accidental, since it is not external to the subject on which it is predicated. As such, there would need to be an middle term, between essence and accident." And one could even ask a third question: "Since the logicians say that 'laughter' is a concomitant accidental of human beings, and walking is a non-concomitant accident of human beings. But both these attributes are not predicated on the human being, insofar as we cannot say that 'the [concept of] human being is [the act of] walking' or that 'the human being is laughter.' Yet you have said that all of the universals are predicated upon their subjects. So what is the meaning of this?"

If the person asking these questions understands what is meant by "predication," then he would not ask these questions. Predication has three categories. When we use predication here, we only use it in reference to some of these sub-divisions, not all.

1) The First Division of Predication: Natural and Designated

Know that all predicates are true universals, insofar as the true particulars, insofar as they are particular, cannot be predicated on something else. Every universal is which is conceptually general, will be naturally predicated upon those things which are conceptually less general and more particular than it. An example would be the predication of "animal" upon "human beings," or "human being" on "Muĥammad," or "rationality" upon "human being." We call this kind of predication "natural," insofar as it is necessitated by nature.

The reverse situation could also be true. One could predicate the more particular upon the general. This is not a natural form of predication, but comes about through intentional designation $[ja^{l}wa waźa^{l}]$. Nature does not accept such a predication, and so for this reason it would be called intentionally designated predication. When people say "conceptually more general," they mean that it

is only general in terms of the concept, not in terms of the instantiation. This distinction has already been made clear through our study of the relations: some concepts could be existentially more general than the specific or special category subsumed beneath it, such as "animal" in relationship to "human beings." In other cases, however, there could be a complete existential equality between the concept and its instantiation, such as "rationality" and "human beings." The concept of "rationality" means something that has rationality attributed to it, whether or not that thing is rational or not. But the statement that only human beings are rational is derived from sources external to the concept of rationality. As such, rationality is conceptually general in relationship to the human being, as is the ability to laugh, even though they are existentially equal to each other. Such is the case for all other derived words; they do not indicate upon the particularities of the word itself such as "able to be ridden" in relationship to horses or "able to walk" in relationship to animals. If you understand this, then you will understand what the response is to the first question posed previously. The predication of a universal on a particular is a natural predication, not an intentionally designated one.

2) Primary Essences and Common Predication

Understand that the meaning of predication is the unification between two things, insofar as predication is the act of saying "this is that." Just as predication seeks to establish a unity between two things, it also necessitates some difference between the two things, since it is a unity between *two things*, as opposed to one. As such, all predication will have an aspect of unity, and all predication will have an aspect of difference. As such, it is not possible to form a predicative proposition out of two opposing terms, since there is no unity between. Nor is it possible to predicate something on itself, since any individual thing would be self-identical. The unity may be in the concept, in which case the difference would only be figurative. In such a predication, one intends to say that the concept of the predicative proposition's subject is exactly the same as the concept attributed to the proposition's predicate. They would also share the same quiddity. In such a situation, however, there would still have to be some kind of difference between the subject and predicate. So if we say "the human being is a rational animal," we know that the concept of "human being" and the concept of "rational animal" are identical. But the first concept is vague while the second concept is detailed. We call this kind of predication "primary essential predication."

In other circumstances, the unity may be on the level of the instantiation, and the difference between this purely conceptual. In this case, the predication means that the subject is an individual that fits under the predicate's concept, and is one of its instantiation. An example would be our statement "The human being is an animal." The concept of human being is not the concept of animal; but everything which can be called a human would also be called an animal. This type of predication we refer to as common predication, insofar as it is the norm in scientific discourse.

If one understands this, then we can answer the second question that was posed early. When talking about universals, predication is always a common predication. When predicating the complete definition, however, this is a kind of primary essential predication.

3) Complete [muwāțāh] and Incomplete [ishtiqāq] Predication

If we say: "the human being is capable of laughter," then we call this a complete predication, or "it is it" predication, insofar as it the essence of the subject is the same as the essence of the predicate. You can also define this kind of predication as someone saying "this is that," or that complete predication is a relationship of complete concordance, and so. All of the universals will predicated on each other in this way.

However, there is another type of predication, called "incomplete predication," which means that something possesses something. An example would be predicating laughter upon the human. We would not say that the human being is laughter, but that he possesses [the ability for] laughter, or that he is a "laugher" [active participle]. We call this a kind of possessive predication.¹⁴ What is important to know here is that the incomplete predication of things like "laughter" or "walking" and so forth do not enter into the five universals. This is because, as said, "laughter" is not a concomitant of human beings, nor is "colour" concomitant to physical objects, and so forth. "The ability to laugh" or "being coloured" would, however, enter into the discussion on the five universals. Even if ordinary people might sometimes use these expressions, this is only a kind of linguistic indulgence, which is sometimes the result of confusion in the minds of the uneducated. Through this explanation, the answer to the

¹⁴ There follows here a grammatical discussion that is not of the greatest importance, and would be basically untranslatable into English.

third question posed above should be clear.

Necessary [lāzim] and Separable [mufāriq] Accidentals

The necessary accidental is that which cannot be rationally separated from the thing it is predicated on, such as "odd" in relation to the number "three" or "even" in relationship to the number or "hot" in relationship to fire. As for the separable accidents, they can be rationally separated from the under discussion. Examples would be attributes applied to human beings that relate to their actions and circumstances, such as "standing" or "sitting" and so forth. It may be the case, however, that a separable accident is never *actually* separated from the thing. If we say that someone has "blue eyes," we would see that [normally] there eye will always be blue. Nonetheless, blue in this case is still a separable accident, insofar as some trick might be done that would remove the blue colour. But if this was done, the eye would still be an eye. This is different from the necessary accident, however; if it was possible to remove the attribute of "odd" from the number "three," then three would really no longer be three. If "heat" was removed from fire, then the fire would cease to exist. This is what we mean by the rational impossibility of separating the necessary accidental.

The necessary accidental has two subcategories: obvious [*bayyin*] and non-obvious. The obvious can be divided into meanings, obvious by special meaning and obvious by general meaning. The special meaning of obvious in this case would mean that whenever the thing necessitated by the accident is conceived, the accident is conceived as well. No intermediate would be required. As for the general meaning, are those things which when conceived alongside of that which is necessitated by this thing and the relationship between these two things, one becomes certain of the necessary relationship between the two. An example would be "two is half of four" or "a quarter of eight." When you conceive of two, it might be possible that you are heedless of the fact that it is half of four or a quarter of eight. But if you also conceive of eight, and then you conceive the relationship between them, you will be certain that two is a quarter of eight. This would be the case with all numbers. Another example would be the necessary relationship between a religious act and the required pre-requisite for that act. So if you conceive of the ritual prayer, and you conceive of the ritual ablution, and you conceive the relationship between the obligatory ritual prayer and the ritual ablution necessary for it, then you will make a judgment that the ritual ablution is as obligatory as the ritual prayer.

This time of relationship is different from the previous one, insofar as in the previous relationship, conceiving the necessitated was sufficient in conveying the mind to necessitating. In this case, however, the necessitating and the necessitated must both be conceived, as well as the relationship between them.

As for the non-obvious, it is completely opposite to the obvious. In such a relationship, making a definitive assent that the relationship between the two things is a necessary one can not be done merely by conceiving the two things and the relationship between them. Instead, some kind of evidence $[dal\bar{\imath}l]$ would be needed. An example would be the judgment that the angles of a triangle are equal to two right angles. Certainty about this necessary relationship requires mathematical proof; it is not sufficient to merely conceive the angles of a triangle, two right angles, and the relationship between them, in order make a judgment that they are equal. As such, an obvious relationship will be axiomatic, whereas a on-obvious relationship will require thought and reflection.

As far as a separable accident is considered, they can be subdivided into that which is constant, which one can quickly remove and that which one can only slowly remove. An example of an eternal separable accident would be the motion of the sun [!], or the blueness of a blue eye. Those which are quickly removed would include the blushing associated with shame, or the yellow-ness associated with fear. An example of some thing slow to remove would be "youth" in relationship to human beings.

Logical [manțiqī] Universals, Natural [țabī`ī] Universals, and Rational [`aqlī] Universals

If we say that "human being" is a universal, then we are presented with three things. The first is the essence of the human being *qua* human being. The second is the concept of universal *qua* universal, without any reference to whether or not the universal under discussion is "human being" or some other universal. Finally, there is the concept of "human being" *qua* universal. One could also say: the pure essence of what is described, the pure concept of the description, and the aggregate between that which is described and that which describes.

If the intellect [`aql] observes (and the intellect is capable of performing these acts) the actual essence of what is described as universal, without paying attention to the actual attribute (i.e, looks at "human being" qua human being without reference to whether or not this concept is universal or
particular, and this would happen when the intellect would make the judgment that the human being is a "rational animal), the thing described, by virtue of this kind of observation, would be called a *natural universal*. The natural universal exists in external reality, inasmuch as the individuals which fall under its classification exist in external reality.

However, if the intellect observes the concept of the attribute insofar as it is a universal, observing that the universal as "that which can be predicated upon the many," and looks at the concept of universal divorced from any kind of material reality such as human being or animal or rock or what have you, then the universal in this case would be classified as a *logical universal*. The logical universal has no external existence; the only place it exists is inside the intellect, being something which is derived and supposed by the intellect.

If the intellect observes the aggregate of both the description and the thing described, not observing the thing described in its purity, but observes it insofar as it is described as "universal" (such as if it observed the concept of "human being" insofar as it is universal, then it is observing the universal as a *rational universal*. It is a rational universal insofar as it has no existence except in the intellect. This is because, as we can see, it has been described with a purely rational attribute ["universal"], whereas everything that exists in external reality must be a true particular.

These three categories can be applied to all other types of universals. You can have a natural species, or a logical species, or a rational species, and so forth. An example of natural species would be the human being *qua* human being. The logical species would be the technical definition of a species, namely the complete reality shared between particulars, a reality that is externally individuated by the number of individuals [but nonetheless one], and which one would give in answer to the question "What is it?" And the rational species would be the concept of human being insofar as it is a similar kind of reality.

<u>Demonstrations, Syllogistic Forms, and</u> <u>the Study of Deduction</u>

Preface

The highest goal and objective of the logician is the study of proofs. By this, we mean the study of that assented knowledge which is used by a person to reach hitherto unknown assented knowledge. In reality, all that we have studied so far has been an attempt to lay the ground for this study. This is even true about our study of definitions, for this was studied in order to give one an understanding of the singular words that make up a proposition's subject and predict.

As for defining the concept of proof [hujjah]: This is a synthesis of statements that will lead us towards a given solution indicated by the antecedent statements. We call this evidence $[dal\bar{\imath}l]$ as well, insofar as it is necessary for one to be able to ground and confirm one's solution in the face of opposition. It is evidence insofar as it indicates solution, and the process of synthesis and composition that leads us to this evidence is called "inference" [*istidlal*].

Before we begin, we must clarify one issue: It is not necessary that every statement have a demonstration for it. If this were so, we would have to make recourse to more and more statements in order to prove our point, a process that would be without end. We must be able to make ultimate recourse to statements which are axiomatic that do not require further elaboration, and it is such statements that are the basis for all solutions, and are the chief tool at the disposal of the scholar.

Methods of Deduction [istidlal] and the Categories of Proof

Who amongst does not obtain knowledge about the existence of fire when he sees smoke? Who does not hear thunder when he sees lightning in the clouds? Such obvious inferences all make recourse to the various types of proof that we are now seeking to explain. This is in spite of the fact that most people who make such deductions do not realize that they are using one of these types of proof. This would be true even if the person is a logician! It would astonish you to hear that 99% of all people are, in fact, logicians in their essential nature, even though they don't realize it. In spite of this, however, people make a large number of mistakes in their judgments, or find themselves unable to reach their intended solutions. As such, people need to understand the scientific methods which lead to sound thinking and fruitful deduction.

The scientific, inferential process (excluding the sorts of direct inferences that we have already discussed) can be divided into three principal categories:

1) Syllogism $[qiy\bar{a}s]$: This is a process whereby the mind is conveyed from a set of sound general principles to a correct solution. This is the main form of deduction.

2) Analogy [*tamthiīl*]: This is a process whereby the mind is conveyed to a conclusion by virtue of a commonality between two things.

3) Induction: [$istiqr\bar{a}$ ']: This is a process whereby the mind is conveyed from a set of particular cases towards a general conclusion.

Syllogism

The definition of a syllogism is: "A statement that is formed from two other statements, two statements which, if correct, necessitate (by themselves) another statement."

Commentary on this Definition

1) "A statement." This is a genus, referring to a complete compound predicative statement. It includes singular and multiple propositions.

2) "...formed from two author statements...another statement": This is a differential. It refers to all logical statements which stem from two statements. As such we would exclude direct inferences, for as we have already discussed in our previous lesson, direct inferences are based on the correctness of one

statement necessarily leading to another statement.

3) "...which, if correct." We do not mean that the proper form of a syllogism requires correct statements. It is possible for a syllogism to be logically correct but based on false premises. But for the statement resulting from this syllogism to be correct, the statements going into the syllogism must themselves be correct. Something that is necessary follows that which is necessitated in terms of truth only, and it does not follow in terms of falsehood or incorrectness. We know that the falseness of a derived statement does not disprove the original statement it was derived from. But if we prove the original statement as false, then there is no doubt that the derived statement is false too.

4) "...necessitates": This is in contrast to induction and analogy. This is because the synthesis and combination of such statements does not necessarily lead to another statement, and it is possible that the derived statement may be in conflict with the original statements in somewhar. This is because much of these statements are based on probability, with the exception of a few inductive statements. This will be discussed later.

5) "(by themselves)": We would exclude from this the syllogism of equation [*qiyās musawah*], as will be discussed later. This is because such a syllogism, though necessarily leading to a third statement, nonetheless requires an external statement for its demonstration. For example:

A = B B = CTherefore A = C

This is not a deduction based merely upon the relationship of A, B, and C, without recourse to any external premise. Rather, this demonstration is grounded upon an external premise, one that is itself subject to demonstration namely the statement: "The equivalent to an equivalent is equivalent." If we use the example following example:

A is half of B B is half of C *Therefore* C A is a quarter of B

we see that we are making recourse to a different external statement, namely "Half of half is a quarter."

General Terminology of the Syllogism

Before we begin, we must explain the general terms that will be used in our study of the syllogism. We do not need to embark on a study of the particular terminologies that may be encountered, which will be discussed in their own context:

1) Form of the Syllogism [$\dot{surat} qiy\bar{as}$]: By this we refer to the shape of the relationship between the statements involved.

2) Premise [*muqaddimah*]: This refers to all the statements that are combined and derived in the syllogism. We may also refer to these as the "bases" [*muwād*] of the syllogism.

3) Solution [*matlub*]: This is the statement that will be necessitated from the syllogism. We refer to it as the solution, the moment when the mind grasps it after synthesizing the premises.

4) Result [*natījah*]: This is similar to the solution, but we use this term when we talk about the solution after it has been reached outside the context of the syllogistic process.

5) Terms [$\hat{h}ud\bar{u}d$]: These are the elements of the premises, which are left over once we dissect a statement. So if we take apart a predicate statement, then we are left with a subject and predicate, and this subject and predicate would be classified as the "terms" of the sentence. If we take apart a conditional statement, we are left with a subject and a predicate.

We can explain this technical terminology an example:

The drinker of alcohol is a sinner.
 The testimony of every sinner should be rejected.

Therefore

3) The testimony of the alcohol drinker should be rejected.

Premises: Statements 1 and 2 Terms: Drinker of alcohol, the sinner, and the rejection of his testimony Solution and Result [*natijah*]: Statement 3 Form of the Syllogism That which is derived from the two premises

In the syllogistic diagrams that we will use later, we will designate the solution with the character \clubsuit .

The Study of the Syllogism with Regards to Form and with Regards to its Substance

Our study of the syllogism will be divided into two forms:

1) From the standpoint of its substance and any contradictions therein, without any investigation of the actual form of the syllogism itself. This would be a study of, for example, the degree of certainty which we would have about the premises themselves.

2) From the standpoint of the syllogism's form, and any contradictions therein, without any investigation into the substance of the syllogism itself. This is what we will study in this chapter, and we will divide our study into two kinds: conjunctive syllogism [$iqtir\bar{a}n\bar{i}$] and syllogism-by-exclusion [$istithn\bar{a}'\bar{i}$]. We base this classification upon whether or not the result of the syllogism has already been mentioned in some form or another in the premises. A syllogism-by-exclusion is based upon a that is a particle of exclusion, such as a conditional particle. For example:

1) If Muĥammad is knowledgeable, than it is necessary that we respect him.

2) However, Muĥammad is (in fact) knowledgeable.

3) ***** It is necessary that we respect Muĥammad.

We see in this example that the result of the syllogism (statement 3) was already mentioned in the premise (statement 1). Another example would be

1) If a person is just, then he does not disobey Allah (swt).

2) But this person has disobeyed Allah (swt).

3) ***** This person is not just.

Again, the result of the syllogism (statement 3) was already mentioned in the premise (statement 1).

Conjunctive syllogism:

This is a syllogism in which the result is not previously mentioned inside the premises in any way. The first syllogism we studied (the drinker of alcohol is a sinner) is such a syllogism. This is because that syllogism's conclusion "The testimony of the alcohol drinker should be rejected" was not plainly mentioned in one of the premises. Rather, the terms of this statement were divided up between the two premises. Such a syllogism may be formed from predicative statements only, in which case we could call the syllogism conceptual as well. It may be composed of conditional statements only, or a conditional and conceptual statement, in which case would we would call the syllogism conditional [*sharţī*]. Examples would be:

1) Whenever water is running, it is immune.

2) Whenever water is immune, it is immune from ritual impurity.

3) ***** Whenever water is running it is immune from ritual impurity.

Both of these statements are connected conditional statements. Another example would be:

1) The noun is a word.

2) A word is either declinable or indeclinable.

3) \clubsuit A word is either decilnable or indeclinable.

The first premise in this example is a conceptual statement, while the second is a disconnected conditional statement.

We will now commence our study, beginning with the conjunctive conceptual syllogism, then the conjunctive conditional syllogism, and finally the syllogism-by-exclusion syllogism.

Conjunctive Predicative Syllogism [iqtirānī ĥamlī]

1) Terms:

It is necessary that the conjunctive syllogism encompasses its two premises in order to derive a solution. It is also necessary that these two premises contain the consequents:

1) Middle Term [$\hat{h}ad \ w\bar{a}sit$]: This is the term that is shared between the two premises and creates an intermediary relationship between the two terms. We can call this a demonstration ($\hat{h}ujjah$), because the demonstration is based entirely on the relationship between the two terms. We can also call it the "intermediary for confirmation" [$w\bar{a}sit f\bar{i}$ ithb $\bar{a}t$] because it is through this relationship that we are able to confirm our demonstration. In the syllogistic diagrams that we intend to use later in the text, we will refer to this with the letter B.

2) The Minor premise [$\hat{h}ad asghar$]: This is the term which will hold the grammatical position of subject in the syllogism's result. The premise that contains it will be known as the minor premise [sugrā]. We refer to this as the minor premise regardless of whether or not it is the subject or predicate in the premise. This will be depicted in a syllogistic diagram with the letter A.

3) The Major premise [$\hat{h}ad akbar$] This is the term which will hold the grammatical position of predicate in the syllogism's result. Again, we will refer to this term as the major premise regardless of whether or not it is the subject or predicate in the premise. The premise that contains it will be known as the major premise [$kubr\bar{a}$]. This will be depicted in a syllogistic diagram with the letter C. The greater and minor premise are collectively referred to as "the two sides" [tarfan].

So if we say:

Every A is B
 Every B is C
 Every A is C

We reach this solution by merely removing the repetition of B.

General Principles of the Conjunctive Syllogism

The conjunctive syllogism, whether or not it is conceptual or conditional, shares a common and general basis in the deriving solutions:

1) Repetition of the middle term:

It is necessary that it be mentioned by itself in both the greater and minor premises without contradiction, insofar as there is a basis of connection between the two terms. This is axiomatic. So if we say, for example: "There is a mouse in the wall," and "every mouse has two ears," this does not lead us to the result: "The wall has two ears." This is because the term which one imagines to be the middle term is not repeated. The predicate in the minor premise is "there is a mouse in..." and the subject of the major premise is "mouse" only. In order to reach this result, one would have to say in the

major premise "everything which has a mouse in it has two ear," but this is plainly false. If we look only at the repitition of the phrase "mouse," however, then the result would be "What is inside the walls has two ear."

2) One of the premises must be an affirmative statement

It is impossible to make any sort of deduction from two negative statements. This is because the middle term between two negesitive statements does not help us to discover a bond or relationship between the greater and middle terms. The middle term may be opposed to two other terms that are themselves not opposed to each other, as would be the concept of "horse" with "humanity" and "rationality." Or it may be opposed to two statements that are opposed to each other, such as "horse" with "humanity" and "bird." As such, we do not know the situation of the terms under discussion, in so far as they may have a concurrent and concordant connection to each other that is irrelevant to the middle term, or they may not have any connection at all. In this case it would be impossible to derive an affirmative or negative statement. For example:

- 1) No human being is a horse.
- 2) No horse is rational.

We cannot derive from this the negative assertion:

3) No human being is rational.

This is because the two terms in this sentence are actually concurrent to each other. Similarly, if we replace the second premise with the statement:

2) No horse is a bird.

We cannot derive the affirmative conclusion:

3) Every human being is a bird.

This is because, of course, the two terms are opposed to each other in their entirety. One will see that the principle we have just discussed applies to all attempts at a syllogistic combination of two negative statements.

3) One of the two premises must be a universal statement

We cannot make any sort of deduction from two particular statements. This is because the middle term does not help us find any connection or bond between the greater and minor premises. This is because the *particular* statement does not indicate upon anything more than what is present within the sentence. As such, we do not know the case of the greater and minor premises in so far as they may be entirely concurrent with each other or entirely opposed. As such we cannot derive a negative or an affirmative statement under such circumstances. For example, if we say:

- 1) Some human beings are animals.
- 2) Some animals are horses.

We cannot derive the affirmative assertion:

3) Some human beings are horses.

If we replace the second term with the statement:

2) Some animals are rational

We cannot derive the negative statement:

3) Some human beings are not rational.

Again, this principle applies to every attempt at a syllogistic combination of *particular* statements, regardless of whether or not the middle term is the subject in the two premises, the predicate in the two premises, or the subject in one and the predicate in another.

4) The result will follow the lower of the two premises

This means that if one of the two premises is negative, the result will be negative as well. This is because the negative statement is a lower degree of assertion that an affirmative statement. Similarly, if one of the two premises is *particular* than the conclusion will be *particular* as well, for a *particular* statement is a lower degree of proposition from a general statement. The reasons for having this condition should be clear. If the conclusion is a branch from the combination of the two premises, than it is impossible that the conclusion should be able to assert more than that which is in the two premises originally. However, it is possible that the syllogism will yield a result that is of a lesser degree than its two premises.

5) There can be no conclusion from a negative minor premise and a particular major premise

It is necessary that the minor premise be universal, for otherwise we will violate our third condition. It is similarly necessary that the major premise be affirmative, for otherwise we will violate our second condition. If we form a syllogism from a negative universal statement and an affirmative particular, then we do not know if the greater or minor premises are completely congruent with each other, or if they are opposed to each other outside of the middle term. This is because the negative universal statement indicates upon a relationship of complete opposition between its two terms, whereas the affirmative particular statement indicates upon a concordance between its two terms. It is, possible, then, that the major premise may be something external to the middle term and opposed to the minor premise, or it may overlap with the minor premise. For example:

1) No crows are human.

2) Some human beings are white.

From this, e cannot derive the conclusion:

3) Some crows are white.

Similarly, if we replace the second premise with the statement:

2) Some human beings are black.

we cannot derive the negative conclusion:

3) Some crows are not black.

The Four Figures [shakl] of the Syllogism

We may place the middle term of the premises in a variety of different ways. In a predicative syllogism, the middle term may be the subject in both the two premises, or it may be the predicate in both of them, or it may be the subject in the minor premise and the predicate in the major premise, or vice-a-versa. We one of these four possibilities we call a "figure" [*shakl*]. Similarly, we find that the middle term in a conditional] syllogism may be the first or second term.

We define figure [*shakl*] in this terminology as: "A conjunctive syllogism that is defined by consideration of the placement of the middle term). In our study, we will first discuss the four figures of the conjunctive syllogism, and then move on to the conditional syllogism.

Figure One

The first figure consists of the middle term being the subject of the minor premise and the predicate of the major premise. This means that the place of the greater and middle terms in the statements made about them, vis-à-vis the middle term, will be the same in the outcome. So the major premise (which is the predicate in the outcome) will also be the predicate in the premise that refers to it,

while the minor premise (which is the subject in the outcome) will be the subject in the statement that refers to it. Because the result flows in this natural and concordant way from the premises, the result of the syllogism will not require any external demonstration, evidence or deduction. This is something unique to form one. All other figures of syllogism require additional demonstrations in order to prove the syllogism's result.

Conditions of Figure One

There are two conditions for this figure:

1) The minor premise must be affirmative

If the minor premise is negative, then we do not know how the ruling given for the middle term in the major premise will apply in the minor premise. The greater and minor premises may be connected without regards to the middle term, or not. There being two possibilities here, it is impossible to derive either a negative or an affirmative statement.

- 1) No rocks are vegetables
- 2) Every vegetable is organic.

From this, we are not able to derive the statement:

3) Every rock is organic.

Similarly, if we replace the second term with the statement:

2) No human being is a vegetable.

We cannot derive the negative statement:

3) No human beings are organic.

However, if the minor premise is affirmative, then the judgment which is applied to the middle term in the major premise must also apply to the minor premise. So if we say:

- 1) All alcohol is an intoxicant.
- 2) Every intoxicant is forbidden.
- 3) Every alcohol is forbidden.

The minor premise is "alcohol", and the major premise is "forbidden," with the middle term being "intoxicant." If the minor premise of alcohol covers the middle term of "intoxicant," then there is no other possibility but that the ruling of the minor term in the first premise be transferred to the major term.

2) The major premise must be universal

If the major premise is particular, then it is possible that some individuals from the middle category may have a different set of judgements than that which is in the lesser statement. As such we cannot convey a judgement from the major premise to the lesser via a middle term. In reality, this condition is based upon the first one, because the basis of the relationship of the middle term to the major term may be different than the basis of its relationship to the minor term. For example:

2) Some liquids combust with fire

From this, we cannot derive the statement

3) Some water combusts with fire.

The kind of "liquid" referred to here is water and only water, and this is not the kind of liquid

¹⁾ Every water is a liquid

which combusts (like oil). The middle term "liquid" has not been repeated with the same meaning. This condition applies in terms of quantity [*kam*] and manner [*kayf*].

Moods of Figure One

Every premise syllogistic premise may take the form of one of the four quantitative statements, with regards to its own term: general affirmative, particular affirmative, general negative, particular negative. As we may combine four possible quantitative statements about the major premise with four possible quantitative statements about the negative term, we have sixteen possible shapes for everyone of the four syllogistic figures. The syllogistic shapes that we are able to synthesize from our premises we call moods [$\dot{z}arab$], or conjunctions [$iqtir\bar{a}n$], or connections [$qar\bar{n}ah$].

Some of these possible moods will give us a result, and it is these which we actually call syllogisms. Other will not bear any results, we would call them "fruitless" $[aq\bar{i}m]$. If we take into consideration the two conditions of quantity [kam] and manner [kayf] that we have hitherto discussed, than we find that the number of syllogistic moods for the first figure are only four. The remaining twelve moods are fruitless and bear no results. Our first condition, that the minor premise be an affirmative assertion, removes from discussion eight of the possible moods. This is because two of the possible quantitative statements we can make about the minor premise (particular negative and general negative) are invalid in combination with all four of the statements we can make about the major premise be a general assertion removes the two possible particular statements we can make about the major premise from combination with two possible affirmative statements we can make about the minor premise. This leaves only four possible combinations.

All of these four yield an outcome, and this outcome is going to be one of the four possible quantitative statements. As such, all four quantitative statements can be derived from the first figure. For this reason we call this figure "perfect" $[k\bar{a}mil]$ or "beautiful" [fazil]. We can analyze these four moods with regards to the four quantitative propositions. The first yields an affirmative universal proposition, the second a negative universal proposition, the third an affirmative particular proposition, and the fourth a negative particular proposition.

1) Syllogism formed from two affirmative *universal* statements yielding an affirmative *universal* statement:

1) Every alcohol is an intoxicant	Every A is B
2) Every intoxicant is <i>forbidden</i> .	Every B is C
Every alcohol is <i>forbidden</i> .	Every A is C.

2) Syllogism formed from an affirmative *universal* statement and a negative *universal*, yielding a negative *universal*:

1) Every alcohol is an intoxicant.	Every A is B
2) No intoxicant has any value.	No B is C
✤ No alcohol has any value.	No A is C.

3) Syllogism formed from an affirmative *particular* and an affirmative *universal*, yielding an affirmative *particular*:

1) Some beggars are poor.	Some A is B
2) Every poor person deserves charity.	Every B is C
Some beggars deserve charity.	Some A is C.

4) Syllogism formed from an affirmative *particular* and a negative *universal*, yielding a negative *particular*:

1) Some beggars have what they need.	Some A is B
2) No person who has what he needs requires charity.	No B is C
 Not all beggars require charity. 	✤ Not all A is C.

Figure Two

This is the figure where the middle term is the predicate in both of the premises. This means that whatever is the subject in the minor premise is the subject in the outcome. However, the major premise will have variation with regards to its place. It is the subject in the proposition made about it, but it being the major premise it will be the predicate in the outcome. Because of this variation in the position of the major premise, we find that the outcome of this sort of syllogism is not plain for all to see and requires extra deduction based on external demonstrations. But because the position of the minor premise is the same in both the premises and the outcome, this demonstration is more easily understood by the mind than any of the other remaining two figures.

Conditions of Figure Two

The second figure has two conditions as well, like the first: That the two premises be in contrast to each other in terms of manner [*kayf*], and that the proposition made about the major premise be *universal*.

1) The two premises must be different in *manner* [kayf].

If one of them is positive, then the other must be negative. We cannot make any derivation in this figure if the premises are concordant to each other in terms of manner because the major premise and the minor premise may be opposed to each other, even though they may have a common concept may be predicated to both of them, or that a common concept may be equally denied of both of them. They might also overlap. An example would be "human beings and horses." They are opposed to each other, yet at the same time they share a common attribute, namely "animal." At the same time, the concept of "rock" is excluded from both of them. So if we say:

1) Every human being is an animal, and every horse is an animal.

2) No human being is a rock, and no horse is a rock.

The correct result of both these "syllogisms" would be a negative statement.¹⁵ This something. However, if we take the concepts humanity and rationality, then the concept of "animal" can be applied to both of them, while the concept of "rock" would be denied to them. If we make two new "syllogisms" and say:

- 1) Every human being is rational, and every horse is rational.
- 2) No human being is a rock, and no rational being is a rock.

The right result from these syllogisms would be a positive statement. However, if the two premises differ in manner, in a way that we could not predicate both the major term and the minor term on the statement, this would mean: that the judgment made on must be different then the judgment made on the other. The major premise and minor premise would be in a state of opposition. As such, the relationship between the two would be a negative relationship, meaning that the second figure *always* leads to a *negative* outcome, in line with our principle that the result of a syllogism must follow the lower of the two premises.

2) The major premise must be universal

If the major premise is *particular* and there is conflict in terms of manner [*kayf*], then we cannot know whether or not the lesser and major premises are opposed to each other or overlap with each other outside of the middle term. If we have particular major premise and a universal minor premise that disagree with each other in terms of manner, then all we can discover is a negative relationship between all of the terms in the minor premise and *some* of the terms in the major premise. Nor would the two premises indicate upon overlap. As a result, we will have different outcomes from different syllogisms. For example:

¹⁵ I.e., in spite of the fact that these are invalid syllogisms, if we remove the middle term and try to relate the major and minor terms in each one, the "right" answer would be negative in both cases: no humans are horses, and no human beings are horses. But our knowledge that no humans are horses and no humans are rocks is not something derived from this syllogism; it is something we know already, but if we had no concept of what "horses" and "humans" were, we could not make any conclusion out of this "syllogism."

- 1) Every ruminant has a hoof.
- 2) Not every animal has a hoof.

We cannot derive from this the negative proposition:

3) Some ruminants are not animals.

If we change the major term to "bird," then we cannot derive the positive proposition that:

3) Some ruminants are birds.

Moods of Figure Two

On account of the two conditions we gave for this figure, we find that there are only four result-bearing syllogisms with this figure. The first condition removes eight possible moods: the combination of the two possible negative quantitative propositions [negative particular and negative universal] about the minor premise with the two possible negative quantitative propositions about the major premise, making four, and the combination of the two possible affirmative quantitative propositions [affirmative particular and affirmative universal] with the two possible affirmative quantitative quantitative propositions about the major premise, making another four. Similarly, our second condition removes four possible moods: the two possible negative quantitative propositions we can make about the minor premise with an affirmative particular proposition about the major premise, and the two possible affirmative quantitative propositions we can make about the minor premise with an affirmative propositions we can make about the minor premise with a great term. This leaves us with four result-bearing syllogistic moods. Each of the demonstrations for these moods will use the first figure of the syllogism that we discussed in our last lesson as demonstration.

1) Syllogism formed from affirmative *universal* and negative *universal*, yielding a negative *universal*. For example:

Every ruminant has a hoof.
 No birds have hoofs.
 No ruminants are birds.

We wish to prove, then:

Supposition: 1) Every A is B. 2) No C is B.

Then:

♦No A is C.

Demonstration:

The conversion of our second supposition is "No B is A." Now if we suffix this to our first supposition we get:

Every A is B.
 No B is C.
 ♦ No A is C.

Note that this above syllogism, which we created by replacing the second premise with its conversion, creates an instance of the second mood of the first figure. We have, as stated, made recourse to the first figure for our demonstration.

2) Syllogism formed from a negative *universal* and an affirmative *universal* yielding a negative *universal*. For example:

No potentiality is eternal.
 Every Truth is eternal.
 No potentiality is eternal.

So what we wish to prove is that:

No A is B.
 Every B is C.
 No A is C.

Demonstration:

If we have proved "No A is B " then we have proved "No B is A" by conversion. So if we suffix this proposition to the original root proposition we get:

Every C is B.
 No B is A.
 ♦ No C is A.

This syllogism is, once again, the second mood of the first figure

If we take the conversion of our result, we get "No A is C" which is our intended solution.

3) Affirmative particular and negative universal yielding a negative particular. For example:

Some metal is gold.
 No silver is gold.
 Some metals are not gold.

What we intend to prove is this:

Some A are B.
 No C are B.
 Not every A is C.

Demonstration:

If we prove "No C are B " we prove "No B are C" by conversion. If we suffix this to our proposition about the minor premise we get:

Some A are B
 No B are C
 ♦ Not every A is C

This is our intended result. This syllogism is mood four of the first figure.

4) Negative *particular* and affirmative *universal* yielding a negative *particular*. For example:

1) Not every object is metal.

2) Every gold is metal.

✤ Not every object is gold.

There is no demonstration for this based on the methodology of conversion of the premise containing the minor premise, as we have already established that there is no conversion for a negative particular proposition. The conversion of the premise containing the major premise is particular, but this does not create any link between it and the proposition containing the minor premise, which is particular as well, based on the principle that there is no syllogism between two particular propositions. As such we must base our premise in another way, which we will call the "method of disproving the antithesis" [*tarīqah al-khalf*. What we intend to prove is that:

Not every A is B.
 Every C is B.
 ♦ Not every A is C.

Demonstration:

If we do not prove "not every A is C" then its contradiction "every A is C" must be true. If we make this contradiction the proposition about the minor premise and add it to the one made about the major premise in its root figure, then we find ourselves with a syllogism in the mould of mood one of the first figure, namely:

Every A is C
 Every C is B
 Every A is B

This conclusion invalidates our first premise, namely "Not every A is B ." As this result contradicts our premise, than in order for our premise to be maintained we must demonstration "Not every A is C." This is our intended solution.

Figure Three

In this figure, the middle term is the subject in both premises. As such, the major premise is the subject in both the premise containing it and in the syllogism's result. However, the position of the minor premise will undergo change, insofar as it will be the predicate in the minor premise, and the subject in the result. With this syllogistic figure, we will find it even more difficult to make the sort of plain demonstration of the result that we were able to do in the first figure. This figure is even more prone to this difficulty than the second figure. This is because its variation in the position of subject vis-à-vis the result creates more confusion than the sort of variation in the position of predicate that we found in the second figure. In order for us to remove this ambiguity and maintain the position of the major premise in both its premise and in the outcome, we will make recourse to the first syllogistic figure, a figure whose outcomes are more readily understood by the mind.

Conditions

This figure has two conditions as well: That the minor premise be affirmative, and that one of the premises be *universal*.

1) The minor premise must be affirmative

If the minor premise is negative, than there is no way for us to know the status of the major term with regards to the middle term. We would not know whether or not it overlaps with the middle term in a way external to the middle term, or whether it is different. This is based on the possibility that if the major premise is affirmative, then the middle term will be entirely opposed to the minor premise, and overlaps with the major premise. A single thing may be completely opposed to two other, overlapping concepts, or it may overlap with two other, opposing concepts. For example: The concept of "rational being" overlaps the concept of "animal," but is opposed to the concept of "horse." But these two concepts of "animal" and "horse" overlap with each other. So the concept of "animal" and "rational being," in spite of being opposed to each other, are nonetheless overlap with the category of animal, while being opposed to concept of "tree." To give an example:

- 1) No rational being is a horse. [Negative universal proposition]
- 2) Every rational being is an animal. [Affirmative universal proposition]

From this, we cannot derive a negative proposition between the greater and minor premises, because the concept of "horse" overlaps with of "animal." If we replace the word "horse" with "tree," we cannot derive any affirmative assertion, because the concept of "tree" is entirely opposed "animal."

2) One of the two premises must be universal

The third general principle of syllogisms states that no syllogism may be formed from two particular premises. This would mean, of course, that one of the two premises must be universal.

Moods

In accordance with our previously laid out conditions, we will find that the result-yielding moods of the third syllogistic figure are six. Our first condition removes eight possible moods, just as this same condition did when it was established in the first syllogistic figure. The second condition removes two possible moods, namely a syllogism based on two affirmative *particular* propositions and one based on a negative *particular* and an affirmative *particular* [a syllogism based on two negative *particular* propositions is already removed from discussion by our first principle requiring that the minor premise be affirmative]. This leaves us with six result-yielding moods, each of which requires demonstration and discussion:

1) Syllogism formed from two affirmative *universal* propositions, yielding an affirmative *particular*. For example:

1) All gold is metal.

2) All gold is of precious value.Some metal is of precious value.

So what we intend to prove is this:

Every B is A.
 Every B is C.
 Some A are C.

Demonstration:

If we prove "every B is A" then we have also proved, by conversion, that "some B are A." If we add this conversion to the major premise, then we figure a syllogism in the mould of the third mood of the first syllogistic figure, namely:

Some A are B
 Every B is C.
 Some A are C.

This is our intended solution. We should note that it was not possible for us to derive a *universal* result here, in so far as the minor premise was a relative generality of the major premise. This is always possible and so we cannot say that this syllogistic figure would lead to a *universal* proposition, even though its premises are both *universal*.

2) Syllogism formed from two *universal* propositions, with the major premise being negative, yielding a negative *particular*. For example:

All gold is metal.
 No gold is silver.
 Not every metal is silver.

What we intend to prove is this:

Every B is A.
 No B is .C
 ♦ Not every A are C.

Demonstration:

If we take the conversion of the lesser proposition, we find that "Some A are B." Added to the major premise, we create a syllogism in the mould of the forth mood of the first syllogistic figure, namely:

Some A are B.
 No B are A.
 ♦ Not every A are C.

3) Two affirmative propositions, with the minor premise being *particular*, yielding an affirmative *particular*. For example:

Some birds are white.
 Every bird is an animal.
 Some birds are animals.

We intend to prove:

Some B are A.
 Every B is C.
 Some A are C.

Demonstration:

The conversion of the minor premise is "Some A are B." If we add this to the major premise we figure a syllogism in the mould of the third mood of the first figure, namely:

Some A are B.
 Every B is C.
 Some A are C.

This is our intended solution.

4) Syllogism formed from two affirmative propositions, the greater being *particular*. We derive from this an affirmative *particular*. For example:

Every bird is animal.
 Some birds are white.
 Some animals are white.

We intend to prove;

Every B is A.
 Some B is C.
 Some A are C.

Demonstration:

The conversion of the major premise is "Some C are B." If we add this to the minor premise than we create a syllogism in the mould of the third figure of the first mood:

Every B is A.
 Some C are B.
 Some C are A.

If we take the conversion of this result, then we reach:

♦Some A are C.

This is our intended result.

5) Syllogism formed from an affirmative *universal* and a negative *particular*, yielding a negative *particular*. For example:

- 1) Every animal is a being with sense-perception.
- 2) Not every animal is human.
- 3) Not every being with sense perception is human.

There is no demonstration for this based upon conversion. This is because (as we have studied) there is no conversion for a negative *particular* proposition, and because the conversion of an affirmative *universal* leads to a *particular* proposition, and we cannot build a syllogism on two *particular* propositions. As such, we must base our demonstration on the method of disproving the antithesis. So we intend to prove is:

Every B is A.
 Not every B is C.
 ♦ Not every A is C.

Demonstration:

If we disprove prove "Not every A is τ " then we prove "Every A is τ " If we make this our major premise and add it to our original minor premise, we create a syllogism in the mould of the first mood from the first syllogistic figure, namely:

Every B is A.
 Every A is ₹.
 Every B is C.

This outcome is in contradiction to its contradiction, which is the same as our original major premise. This contradiction then leads us to necessarily prove, then, that "Not every A is C."

6) Syllogism formed from an affirmative *particular* and an negative *universal*, yielding a negative *particular*. For example:

Some gold is metal.
 No gold is iron.
 Some metals are not gold.

What we intend to prove is:

Some B are A.
 No B is C.
 ♦ Not every A is C.

Demonstration:

The conversion of the minor premise is "Some A is B." If we add this to our major premise we reach a syllogism in the mould of the fourth mood of the first syllogistic figure, namely:

Some A is B.
 No B is C.
 ♦ Not every A is C.

Further Clarifications

Method of disproving the antithesis: In reality, every mood of the third syllogistic figure may be proven via the method of disproving the antithesis, like those of the second syllogistic figure. The method of disproving the antithesis is a mode of indirect deduction. It proves the outcome by disproving its contradiction, the disproval of which necessitates the truth of the outcome. Rather than attempting to prove the outcome, we attempt (ultimately unsuccessfully) to prove its contradiction. We take this contradiction and suffix it to one of the other premises in our original supposition, in order to create a syllogism in the mould of one of the moods of the first syllogistic figure. We then derive from this new synthesis a correct conclusion, but this correct conclusion contradicts one of the premises in our original syllogism. This contradiction, then, necessitates that we disprove the contradiction, which demands that we confirm the original syllogism's outcome.

The Suppositional Method [dalīl al-iftiraź]

We may use a process of deduction known as the suppositional method, with some of the moods of the second and third figures, in which one of the premises is particular. There is no harm in entering into a discussion of this figure of deduction, insofar as it may enlighten the mind of the student, even if it may suffice him to base all of his deductions on the method of conversion or contradiction. There are three stages to this figure of deduction:

1) The Supposition [far2]. This is that which we label to those things which are indicated by the ruling given in the particular proposition. It is the "part" in the particular proposition. If we say: "Not every animal is a human being," then it is necessary that we are referring to those things for which it is correct to deny [insofar as the proposition is a negative one] the appellation "human being." These are things which come under the negative ruling within the particular proposition. The symbol for these things is the the letter D. In an affirmative particular proposition, D would encompass those things which are asserted by the affirmation inherent in an affirmative particular proposition. So if we say "Some animals are human beings," then D would be a reference to that which is being affirmatively asserted, namely human beings. D is the "part" in a partial proposition.

2) Derivation of two correct propositions after the supposition: Once we have established our supposition, then we find ourselves presented with two other true propositions for which there is no doubt:

a) An affirmative *universal*, whose subject is D and whose predicate is the subject in the *particular* proposition it was derive from. So in our above example of "Some B are A," the *universal* proposition we would derive would be "Every D is B." This is because D is, by its nature, the aggregate of all those things which are asserted about B in the *particular* proposition made about it.

b) Another *universal* proposition, whose manner [*kayf*] will follow upon the manner of the *particular* proposition from which it was derived. Its subject is D and its predicate is the predicate of the *particular* proposition from which it was derived. So in our example of "Some B are A," it would also be proved that "Every D is A," insofar as the general will always be predicated on all of the particulars. In a negative *particular* proposition "Not every B is A", we would derive the negative *universal* "No D is A," because D is that "part" of the partial proposition which is being negated in a negative partial [*particular*] proposition.

2) Syllogistic combination: After we have derived these two propositions, we can then derive more information. When we create a conjunctive syllogism from these two derived propositions and the two original premises, we are able to derive a confirmable solution.

In other to demonstrate this form of deduction, we will use it in connection with the fifth figure of the third mood:

Every B is A.
 Not every B is C.
 ♦ Not every A is C.

The demonstration is as follows: If we assume that some of the B posited by the second premise, which is a negative *particular* proposition are not C, then this not-C would be D. As such we find ourselves with two true propositions:

1) Every D is B

2) No D is C [D being the "part" that is negated in the negative particular proposition]

So if we say: "Not every animal is human." D would encompass that part of animals which has been negated from the category of humanity, such as dogs, birds, etc. So if we took "dog" as an example of D, we would find:

1) Every dog is animal [every D is B]

2) No dog is human [No D is C]

If we take this first derived proposition, and made it the minor premise with regards to the minor premise of the root syllogism, we have a syllogism in the mould of the first mood of the first figure:

Every D is B.
 Every B is A.
 ★ Every D is A.

If we take this outcome, and make it the minor premise vis-à-vis the second proposition we derived from our root, we get a syllogism in the mould of the second mood of the third figure, namely:

Every D is A.
 No D is C
 Not every A is C.

It would behave the student to attempt to apply this methodology to other moods (in which one of the propositions is *particular*] other than what we have already mentioned.

Method of Reciprocation

This is a method of deduction that we use in figures two, three, and four of the syllogism, and involves us converting the syllogism into one of the moods of the first figure. In the fourth figure, it involves a replacement and conversion of both of the two premises. In some of the moods of figures two and three, we replace one of the premises with its conversion. In some of the other moods, we would take the contradiction of the predicate, or the contradiction of the conversion, if we are not able to make use of the conversion. It would behave the student to attempt a precise understanding and application of this with all the moods of figures two and three.

Figure Four

In this figure, the middle term is the subject in the lesser presser and the predicate in the major premise, in an inversion of the first syllogistic figure. As such, the position of lesser and major premises in their respective premises will be opposite their positions in the syllogism's outcome. As a result, this figure of syllogism least apt to be understood by the mind, and can lead to the most confusion. As a result, many logicians abandon this figure of syllogism and are satisfied with the first three figures.

Conditions of Figure Four

The conditions for this syllogism are the same as those for all other syllogisms, which we have already studied in our discussion of general principles. These conditions are: That there is no deduction from two negative propositions, nor from two particular propositions, nor from a negative minor premise and a particular major premise. In addition to this, we would add two special conditions:

- 1) That none of the conditions can be a negative particular proposition
- 2) That the minor premise be universal if the two premises are affirmative.

Moods of Figure Four

Because of the five conditions that we have laid out, we find that there are only five resultyielding moods of the fourth syllogism. The first condition removes from consideration the four syllogisms that are formed from negative propositions. The second condition removes from consideration three: that of formed from two affirmative particular propositions, and the two formed from affirmative particular and negative particular propositions. The third condition removes one possible mood: A negative universal with an affirmative particular. The fourth condition removes two possible moods: A negative particular lesser or major premise with an affirmative universal. And the fifth condition removes one mood: An affirmative particular minor premise and an affirmative universal major premise. This leaves us with five moods in all. 1) Syllogism formed from two affirmative *universal* propositions, yielding an affirmative *particular*. For example:

- 1) Every human being is an animal
- 2) Every rational being is human
- Some animals are rational.

What we intend to prove is:

Every B is A.
 Every C is B.
 Some A are C.

Demonstration:

If we use the method of reciprocation and invert the two position of the two premises, making the minor premise the greater and the greater the lesser, we create a syllogism in the mould of the first mood of the first syllogistic figure, namely:

Every C is B.
 Every B is A.
 ♦ Every C is A.

The conversion of this conclusion is "Some A are C," which is our intended demonstration. We can only establish a *particular* proposition here because of the possibility that the minor premise be a generalization of the major premise, as it was in our example.

2) Syllogism formed from an affirmative *universal* and an affirmative *particular*, yielding an affirmative *particular*. For example:

- 1) Every human is an animal.
- 2) Some fertile beings are human.
- ✤ Some animals are fertile.

Our demonstration for this is also based upon reciprocation, whereby we invert the position of the two premises and then take the conversion of the result. We cannot *establish a universal outcome insofar as it is possible that the minor premise may be a general category.*

3) Syllogism formed from a negative *universal* and an affirmative *universal*, yielding a negative *universal*. For example:

- 1) No potential are eternal.
- 2) Everything in the world of events is potential.

♦ Nothing in the world of events is eternal.

This demonstration is also based upon reciprocation, whereby we invert the position of the two premises, and then take the conversion of the outcome.

4) Syllogism formed from an affirmative *universal* and a negative *universal*, yielding a negative *particular*. For example:

- 1) Every liquid evaporates
- 2) No metals are liquids
- ✤ Not everything that evaporates is a liquid.

We cannot base this demonstration on a reciprocation, because a syllogism of the first figure does not yield a result when it is composed of a negative minor premise. However, we can base our premise upon a conversion of the two premises, and this would create a syllogism in the mould of the first mood. So we say: Every B is A.
 No C is B.
 ♦ Not every A is C.

If we take the conversion of the two premises we reach:

Some A are B.
 No B is C.
 ♦ Not every A is C.

This is our desired solution.

5) Syllogism formed from an affirmative *particular* and a negative *universal*, yielding a negative *particular*. For example:

1) Some liquids evaporate

2) No metals are liquids.

♦Not every thing that evaporates is metal.

We cannot base our demonstration for this syllogism upon an inversion of the position of the premises either, and we have already outlined the reasons for this. However, we can do the same conversion of the premises as we did in our previous example, and use the same method without any difference.

The Conjunctive Conditional Syllogism [iqtirānī shartī]

We have discussed the conjunctive predicative syllogism and its terms. There is no conflict between what we discussed there and what we will discuss in the conjunctive conditional syllogism, except insofar as one or both of the premises will be a conditional (as opposed to predicative) proposition. As such, the terms of this syllogism are the same as the terms of a predicative syllogism, namely the middle, lesser, and major premises. Each one of these may be either the antecedent term [muqaddim] or the consequent [tally] of the conditional syllogism, and the middle term may be related to either one of these terms, as we will discuss.

Divisions of the Conditional Syllogism

This figures of this syllogism may be divided in two ways:

1) Division from the standpoint of the premises: This type of syllogism may be formed from two connected or two disconnected conditional propositions, or one of each, or from a predicative and a connected conditional proposition, or a predicative and a disconnected conditional proposition. There are, as such, five divisions from this standpoint.

2) Division with consideration of the "completeness" of the middle term. A conditional statement is formed from two other propositions, which are themselves form from two terms. As such, the commonality between the two conditional propositions will sometimes be completely present in the antecedent and following statement, and sometimes only partially present in them. Finally, a syllogism may be formed whereby the commonality between the two is completely present in one of the premises and incompletely present in one of the others:

a) Where the commonality is a complete part of both the premises:

1) Whenever a human being is wise, he contents himself with what suffices him.

2) Whenever a human being contents himself with what suffices him, he is not needy.

♦ Whenever a human being is wise, he is not needy.

b) Where the commonality is an incomplete part in both of the premises:

1) If the Qur'an is something miraculous, then the Qur'an must be eternal.

2) If the message of something eternal remains forever, then the eternal thing cannot be transmuted.
If the Qur'an is something miraculous, and the meanings of something eternal remain forever, than the Qur'an cannot be transmuted.

In this example, as opposed to the first one, there is an additional condition, and the relationship between the greater and minor premises is not direct. The middle term is itself a condition that must be met. If one pays close attention to the consequent from the minor premise, "Then the Qur'an must be eternal," and the consequent from the major premise "Then the eternal thing cannot be transmuted," we see that we have actually formed a predicative syllogism in the first figure, yielding the result "The Qur'an cannot be transmuted." We then take this result and make it the consequent vis-à-vis the antecedent term in the major premise ("if the message of something eternal remains forever..."), and the we in turn make this proposition the consequent to the antecedent term of minor premise. This final condition in this chain of conditional propositions will be the outcome or result of the syllogism.

This is a method for deriving a solution if we are composing a syllogism from connected conditional propositions. We will be satisfied with this type of example, for the purposes of explaining this type of syllogism. We will not discussion its sub-divisions or conditions owing to the length of such a discussion, and to the fact that it will disrupt the present flow of our discussion.

c) Where the commonality between the premises is completely present in one of the premises but not in the other.

We can form this sort of syllogism from a predicative proposition and a conditional proposition, and we will discuss this type of syllogism and its conditions later. As for forming such a proposition from two conditional propositions, then we must assume that one of the conditional propositions is simple and pure $[bas\bar{i}t]$ conditional proposition, while the other is compound [murakkab], formed from a conditional proposition and a predicative proposition. This is done in order to create a possibility of having a commonality between the two, which will be a complete part of the first proposition and incomplete in the second. For example:

1) If prophethood comes from Allah,

2) And if Muĥammad is a Prophet, then he would not leave his community in confusion.

2) If he has not abandoned his community in confusion, then he must have appointed a guide for his community after him.¹⁶

Observe: The consequent of the minor premise, combined with the major premise, creates a conditional syllogism of the first kind that we discussed, where the commonality between both premises is completely present in both terms: "If Muĥammad is a Prophet was a prophet, then he would not have left his community in confusion." If we take this premise and make it the consequent for the antecedent term of the minor premise, then we create a new conditional proposition which is the outcome of our syllogism. This proposition is the solution.

This is a method for deriving a solution if we are composing a syllogism from connected conditional propositions. We will be satisfied with this type of example, for the purposes of explaining this figure of dividing the syllogism. We will not enter into a more lengthy discussion owing to the length of such a discussion.

It remains upon us to discuss the first and second divisions, with regards to a syllogistic combination of a predicative and conditional propositions. Insofar as this division gives us a springboard for moving into a study of the first figure of dividing the conditional syllogism (division from the standpoint of the premises), we may broaden our discussion. As we have said, we may divide the conjunctive conditional syllogism into five divisions, based on the type of premises that are contained within it. We will now enter into a sequential study of these five types.

Synthesis from Two Connected Conditional Propositions

This type – if the commonality between the two premises is a complete part in both of them – is exactly like that of the connected predicative syllogism. It figures into four figures, and has the same conditions in terms of quantity [*kam*] and manner [*kayf*]. Similarly, we find that its results are proved in the same way, by making recourse to conversion or opposition and so forth. As such, it is not necessary for us to repeat what we have already learned. Rather, it is upon the student to attempt to convert

¹⁶ A simple version of Shi'ite rational proofs for the successorship of `Alī to the prophet.

various examples of predicative syllogisms into connected conditional syllogisms based on conjunctive conditional propositions.

However, we must say that it is necessary that that the synthesis be formed from necessary conditional propositions, where fulfilling the condition given in the antecedent term necessitates the consequent, rather than accidental coincidental propositions. This is because such propositions, by virtue of their coincidental nature, can not lead us to any judgement about the results.

Synthesis from Two Disconnected Conditional Propositions

The disconnected conditional proposition indicates upon a fixed opposition between the two terms with regards to their truthfulness or falseness: "Either Zayd is in his house or he is sleeping." If we join it with another disconnected conditional proposition, and there is between these two disconnected conditional propositions a complete or incomplete common part, it may be unclear to us what the relationship is between the two terms. Such confusion would prohibit us from deriving a confirmable result from the syllogism. This is because establishing this "either/or" relationship with regards to the common part does not necessitate or forbid any such relationship between the noncommon parts. As such, we cannot derive any judgement, and there cannot be any syllogism derived from such propositions. For example:

1) A proposition is either negative or affirmative.

2) A negative proposition is either universal or particular.

Nothing can be derived from these two terms, even though the middle term "negative proposition" is common to both premises. However, it is possible to create a result-yielding syllogism from disjunctive proposition conditional propositions, if we make use of conjunctive propositions. If we convert two disjunctive proposition conditional propositions together, we create a syllogism formed from two conjunctive propositions, which yields a conjunctive propositional result. However, if we are insistent upon creating a disjunctive propositional result, than it is possible for us to convert that conjunctive propositional result into a disjunctive proposition that is necessitated by it. As such, we can create the kind of disjunctive propositional result that we desired.

As such, it is necessary that we first embark upon a study of how to convert a disjunctive proposition into a conjunctive proposition which is necessarily linked to it, before we begin studying this figure of syllogism in general.

Conversion of an Affirmative Disjunctive Proposition into a Conjunctive Proposition

We may discuss this in terms of the four divisions of disjunctive proposition:

1) A true disjunctive proposition. This necessitates four kinds of conjunctive propositions, by virtue of *kayf* and *kam*, and it is permissible that we convert a disjunctive proposition into any one of these kinds. Two of these conjunctive propositions assert the antecedent term and negate the second term, insofar as a true disjunctive proposition indicates upon the impossibility of combining the two terms under discussion, meaning that if we prove one term we deny the other. Similarly, two of the possible conjunctive propositions that we can figure is based on a denial of the first term and an assertion of the second term. This is because a binary proposition indicates upon not just the impossibility of combining the two terms under discussion, but also the impossibility of their being a third term as well. If we disprove one, then we necessarily prove the other, there being no third option in this sort of conditional proposition.

If we take the disjunctive proposition example "Numbers are either even or odd," we may derive for conjunctive propositions from it:

- 1) If a number is even, then it is not odd.
- 2) If a number is odd, then it is not even.
- 3) If a number is not even, then it is odd.
- 4) If a number is not odd, then it is even.

2) Mutually exclusive: This necessitates two conjunctive propositions based on the assertion of the antecedent term and the negation of the consequent. This is because, like the true disjunctive proposition, the proposition asserts the impossibility of combining the two terms under discussion. However, it does not preclude the possibility of their being a third term, unlike the true disjunctive

proposition.

If we take the disjunctive proposition example: "The thing is either a tree or a rock," we can derive from this two true conjunctive propositions, namely:

- 1) If the thing is a tree, it is not a rock.
- 2) If the thing is a rock, it is not a tree.

However, we cannot prove the two conjunctive propositions:

- 3) If something is not a tree, then it is a rock.
- 4) If something is not a rock, then it is a tree.

3) Totally exhaustive: This necessitates two other conjunctive propositions, which are assertions of the consequents but negations of the antecedent term. This is because, like the true disjunctive proposition, such propositions indicate upon the impossibility of there being a third term outside of the two terms under discussion. However, it is does not indicate upon the impossibility of something being both. So if we take the example: "Zayd is either in water or he is not drowning," then we can derive two correct conjunctive propositions, namely:

1) If Zayd is not in water, then he is not drowning.

2) If Zayd is drowning, than he is in water.

However, we cannot prove the following conjunctive propositions based upon our disjunctive proposition example:

1) If Zayd is in the water, then he is drowning.

2) If Zayd is drowning, then he is not in the water.

Conversion of a Negative Disjunctive proposition into a Conjunctive proposition

A disjunctive proposition is either universal or particular, and it converts into a negative conjunctive proposition. The negative true disjunctive proposition converts into four kinds in the same way as the affirmative disjunctive proposition, and both figures of propositions based on impossibility convert into the same sorts of propositions as an affirmative disjunctive proposition. If we take the example of the negative true disjunctive proposition "It is not always that a noun must be either indeclinable or nominative," we can draw the following four conjunctive propositions which are all negative particular:

- 1) If a noun is indeclinable, it is not necessary that it not be nominative.
- 2) If a noun is nominative, it is not necessary that it not be indeclinable.
- 3) If a noun is not indeclinable, it is not necessary that it be nominative.
- 4) If a noun is not nominative, it is not necessary that it be indeclinable.

We cannot prove some of these propositions in a universal sense, owing to the nature of these propositions. So we could not say, taking our first example: "Never is it that if a noun is indeclinable, then it is not nominative." This proposition is false. Rather, the best that we can do is say "If a noun is indeclinable, it is not necessary that it not be nominative."

A similar process occurs for the conversions into mutually exclusive and totally exhaustive. It is upon the student to create such examples for himself.

Conversion of a conjunctive proposition into a disjunctive proposition

An affirmative necessary conditional proposition necessitates conversion into either a mutually exclusive or totally exhaustive proposition, and the two propositions will be in accordance to each other in terms of manner [kayf] and quantity [kam].

1) Mutually exclusive: This proposition is formed from an assertion of the antecedent proposition and a negation of the consequent. Because the antecedent term of the root proposition, insofar as it necessitates the consequent, cannot, obviously, be joined with the negation of that consequent. Otherwise we join two negations, meaning the consequent and its negation. So if we prove: "Whenever

Zayd is drowning, then he is in water," then we establish in all cases: "Either Zayd may be drowning, or he is not in the water."

3) Totally exhaustive: This is formed from a negation of the antecedent term and an assertion of the consequent, in contrast to our previous example. This is because the antecedent term cannot be joined with the negation of the consequent as it was in our previous example, for if it were then we would establish that something there could be a third, possible term outside of the two given in the proposition, meaning that the proposition would not be one of totally exhaustive.

If we take our previous example: "Whenever Zayd is drowning, then he is in water," then we cannot derive a proposition of totally exhaustive by combining the negation of the consequent with an assertion of the antecedent term, i.e.: "Either Zayd is drowning, or he is not in the water." Zayd could very easily be both not drowning and in the water. Rather, we must also prove: "Either Zayd is not drowning, or he is in water." Zayd cannot be both drowning, and not in the water at the same time.

We should also note that a negative conjunctive proposition converts into an affirmative assertion of the mutually exclusive proposition between the two terms, whereas the totally exhaustive proposition will follow in terms of manner [kayf] and quantity [kam].

Method and Conditions for Synthesis of Disjunctive proposition

After our introductory study, we can now begin our examination of our actual subject matter. As we have said, insofar as the leading and antecedent terms in a disjunctive proposition do not have any distinguishing relationship between each other by which we may make one a lesser or major premise, there is similarly not any distinguishing relationship between the compounded disjunctive propositions by their nature. As such, any of the terms can be put in the position of the minor premise, and as such no syllogism can be derived from it. If take the two premises:

- 1) A proposition is either universal or particular.
- 2) A universal is either negative or affirmative.

We cannot determine that one term or another is the lesser or major premise in order to make a syllogism. We can just as easily say:

- 1) A proposition is either particular or universal.
- 2) A universal is either negative or affirmative.

In this case, we would have equally little result. As such, we cannot create a syllogism in the figure of any of the four syllogistic figures, insofar as one of the basic elements to such a syllogism is the lesser and major premise.

However, insofar as we can convert two disjunctive propositions into conjunctive propositions, then it is appropriate that we consider the figures of relationship that exist between conjunctive propositions. It is necessary that we study the conditions of such a syllogism, and we may find that we must specify one of the premise to be the minor premise so that our syllogism is able to fulfil all the necessary conditions.

As for the disjunctive proposition syllogism, we find that there is much disagreement amongst logicians about its conditions. This disagreement arises from the fact that many have been heedless of the necessity of first converting a disjunctive proposition into a conjunctive proposition. As such, some logicians, or perhaps even most, have said that it is necessary that the two propositions in the syllogism be affirmative, and they would be propositions of mutually exclusivity, not true disjunctive propositions. However, if we convert the two disjunctive propositions into conjunctive proposition, then we see that it yields a result, even if one of the propositions was negative, or both are true or both are propositions of the mutually exclusive of the two terms.

As such, we would say instead that there is only one general condition for this sort of syllogism: That we convert the two disjunctive propositions into conjunctive proposition and derive a syllogism based one of the four figures, yielding a result based upon the conditions inherent to that particular figure.

Method of Deriving the Result

We have already established a method by which we are able to create a result from this type of syllogism. Based on this, we will now study a syllogism of the first kind, where there is between the

two premises a complete and common part. In order to derive a result, we must follow the following steps:

1) Conversion of both disjunctive proposition into the conjunctive proposition that are related to it.

2) Taking one of the conjunctive propositions converted from the two premises and connecting it with one of the conjunctive propositions derived from the other premise. It does not matter which one we choose. The only thing that is important here is that we have a middle term, and that the syllogism we create fulfils the proper conditions.

3) We then take the conjunctive proposition that results, and (if you like) convert into the appropriate disjunctive proposition. The disjunctive proposition will either be one of mutual exclusion or total exhaustion. In order to example this, we can give an example: There comes to a judge someone who has been accused of murder. There is a red stain upon the shirt of the accused, but the accused claims that it is merely ink. In this situation, the first the judge intends to do is to prove or disprove his claim. So he says:

Either the stain is blood or it is ink. (Mutually exclusive)
 Either it is blood or it is something that is not removed by washing. (Totally exhaustive)

If we convert the proposition of mutually exclusive into two conjunctive propositions, we get:

1) Whenever a stain comes from blood, it does not come from ink.

2) Whenever a stain comes from ink, it does not come from blood.

If we convert the proposition of totally exhaustive into a conjunctive proposition, we get:

3) Whenever a stain did not come from blood, then it is not removed by washing.

4) Whenever a stain is removed by washing, then it is blood.

If we combine the first two conjunctive proposition with the second two conjunctive propositions, we have four potential combinations. In two of these (the combination of propositions 1 and 3 and the combination of propositions 2 and 4), there is no middle term that is repeated between the two premises. However, if we combine propositions 1 and 4, and make 4 the lesser proposition, we create a syllogism in the figure of the first syllogistic figure.

1) Whenever a stain is removed by washing, then it is blood.

2) Whenever a stain comes from blood, then it is not ink.

• Whenever a stain is removed by washing, then it is not blood.

We may then convert this conjunctive propositional result into two disjunctive propositions, namely:

1) Either the stain is removable by washing, or it is ink	(Mutually exclusive)
2) Either the stain is removable by washing, or it is not	t ink. (Totally exhaustive)

If we combine propositions two and three, then we create another syllogism in the figure of the first figure, and if we convert its outcome into two disjunctive propositions we reach:

1) Either a stain is ink, or it is removable with washing.	(Mutually exclusive)
2) Either a stain is ink, or it is not removable with washing.	(Impossible of Absence)

If we examine these propositions which we have derived, then we see that the only difference between them is that we have inverted the position of the antecedent and its consequent.

Synthesis from Conjunctive proposition and Disjunctive proposition

We may also divide this sort of syllogism into three kinds. We will base our study upon the first sort of syllogism, which is one where there is a shared complete common part between the two premises. We may make four sub-classifications of this sort of syllogisms, insofar as the conjunctive proposition may be either the lesser or major premise, and the shared common part may be either the

antecedent or the consequent in the conjunctive proposition, leaving four possible combinations in all. We would not add any other sub-categories to this based upon consideration of the disjunctive propositions, insofar as there is no difference whether or not the shared common term is the antecedent or consequent in the disjunctive proposition.

Conditions and Method for Deriving the Result

We cannot derive any sort of result from a syllogism that is made up of a conjunctive proposition and disjunctive proposition unless we convert the disjunctive proposition into a conjunctive proposition. If we do this, then we will find ourselves able to create a result-yielding syllogism in the figure of one of the four syllogistic figures. The only condition here is that the we must, given the conjunctive propositions at hand, be able to form a syllogism that meets all the requirements of that syllogism in order to yield a result. It will be impossible, for example, that we form certain kinds of syllogism out of a negative disjunctive proposition conditional proposition. This is because a negative disjunctive proposition will convert into a negative particular proposition, and almost of the figures and moods prohibit the use of such a proposition in their premises, except the fifth mood of the third figure (which is formed from an affirmative universal and a negative particular). These figures, however, are rare.

This condition, however, is not sufficient for all cases. For example, if we say:

1) It is not always that this thing be either a human or a horse. (Totally exhaustive) 2) Whenever this thing is human, it is an animal.

These two propositions give us no result, because if we convert the disjunctive proposition given in the example into a conjunctive proposition, we are not able to combine this conjunctive proposition with the conjunctive proposition in a result-bearing syllogism. This proposition, being a proposition of total exhaustion, can be converted into the following conjunctive proposition:

1) It may be that if this thing is not human, than it is a horse.

2) It may be that if this thing is not a horse, then it is a human.

If we combine proposition #1 with the conjunctive proposition already at hand, we find that there is no repetition of a middle term between the two propositions. If we figure a syllogism with proposition #2, we find that the syllogism must either derive from syllogistic figures one or two, both of which preclude the use of a negative particular proposition in their premises.

However, if we change the original conjunctive proposition "Whenever this thing is human, than it is an animal" into the proposition "Whenever this thing is rational, than it is human," and combine this proposition with derived proposition #2 "It may that if this thing is not a horse, than it is human," we create a syllogism in the mould of the fourth mood of the second figure, namely:

1) Whenever this thing is rational, than it is human

2) It may that if this thing is not a horse, than it is human

♦ It may be that if this thing is not a horse, than it is rational.

Synthesis from a Predicative Proposition and a Conjunctive proposition

It is necessary, in this sort of syllogism, that the commonality in the complete part of the predicative proposition (that which is present in all the instances asserted in the predicative proposition) not be a complete part of the conjunctive proposition. This is because the parts of the predicative proposition are isolated terms ("Every human is rational," with human and rational being isolated terms when taken out of the proposition), whereas the common part contained in the conditional proposition is a complete proposition by its nature ("Whenever an animal is human, it is rational," with the common part being, for example, that every animal is human). It is, on this basis, impossible that the common part between the predicative proposition and the conditional proposition be completely present in both, and this does not require further explanation. As such, there is only one division for us to study.

For this category of syllogism, there are four sub-divisions. This is because the conjunctive proposition in the syllogism may either be the lesser or major premise, and the commonality in the proposition may either be the antecedent term or the consequent. Two of these sub-categories are

readily understood by the mind in the same way that the first syllogistic figure was, and these are the two sub-categories where the common part is the antecedent term [*tally*] in the conjunctive proposition.

Method of Deriving the Result

We are able to derive a result from all of the sub-categories of this syllogistic model by following these steps:

1) That we connect the predicative proposition with the term of the conjunctive proposition for which there is commonality between the two, leading to a predicative syllogism based on one of the four figures, observing, as always, the conditions required by that figure. This syllogism will lead us to a predicative outcome.

2) We then take this aforementioned result, and we combine it with the other term from the conjunctive proposition, the one for which there is no commonality. This will allow us to create a syllogism that will give us a conjunctive propositional result, with the first of its terms (regardless of whether or not it is the leading or final term) being the term in the syllogism that was free from commonality. The second of its terms will be the predicative result we derived from our first step.

For example:

- 1) Whenever a metal is gold, it is rare.
- 2) Every rare thing is valuable.
- ♦ Whenever a metal is gold, then this metal is valuable.

Following our steps, we make a predicative syllogism out of the final term of our conjunctive proposition and the final term of the predicative, giving us a solution based on the first syllogistic figure:

1) This metal is rare.

2) Everything rare is valuable.

✤ This metal is valuable.

We then followed our second step and took the part of our conjunctive proposition which shared no commonality with the predicative proposition:

"Whenever a metal is gold ... "

And combined that with our predicative result:

"This metal is valuable."

Leading to:

♦ Whenever a metal is gold, than this metal is valuable.

Conditions

Concerning the conditions for the four subdivisions, we will only discuss those conditions which concern the two subdivisions which are readily understood by the mind. These are those two sub-divisions which, as discussed earlier, contain the common element within the final term of the conjunctive proposition, regardless of whether or not this conjunctive proposition is the lesser or major premise in the syllogism. Its conditions are as follows:

1) That the synthesis of the *predicative* and the final term of the conjunctive proposition conform with the conditions of a predicative syllogism.

2) That the conjunctive proposition be an affirmative proposition. If it is negative, then it is necessary that we convert into the affirmative proposition that we would be borne by contradiction of its predicate. We would then figure the syllogism from the original predicative proposition and the contradiction of the final term of the conjunctive proposition, bearing in mind the pre-conditions

required by the syllogism we are forming. For example:

"Never is it that if a government is oppressive, then some of its people are free." "Every happy individual is free."

In this case, our conjunctive proposition is a negative universal proposition. As such, we must convert it, by taking the contradiction of its predicate and forming an affirmative universal proposition, namely:

"Whenever a government is oppressive, then none of its people are free."

If we add this to our original predicative proposition, we create a syllogism in the mould of the second mood. From this we derive the result:

"Whenever a government is oppressive, then none of its people are happy."

Synthesis from Predicative and Disjunctive proposition

In this type of syllogism it is necessary, as in the previous type, that the common term in the syllogism be a complete part of the predicative and an incomplete part of the conjunctive proposition, for the same reasons we have previously discussed. However, the commonality that is present in the predicative may cover all the cases of the disjunctive proposition. This figure of the syllogism is the one that is most readily understood by the mind, like the first predicative syllogistic figure. It may only cover some of the cases, however. Aside from these two possibilities, we also have the possibility that predicative proposition be either the lesser or major premise in the syllogism. This leaves us with four possible sub-divisions.

For example:

1) Three is a number.

- 2) A number is either even or odd.
- ✤ Three is either even or odd.

This is an example of the first sub-division involving a *predicative* minor premise, with the commonality being a complete part of the disjunctive proposition. This is because the actual meaning of our disjunctive proposition is: "Always, a number is either even or odd." As for the word "number," this is shared by both the premises, and is a complete part of both. When we derive the result, we see that we are able to completely drop the middle term "three." We see also that the positions of the remaining terms in both the *predicative* and the disjunctive proposition remain the same in the solution. Like this, we are able to derive the results from this sort of syllogism. What we have presented will suffice for explaining this sort of syllogism.

Syllogisms of Exclusion

Definition and Formation

We have previously discussed this figure of syllogism and its definition, and it is one of the complete forms of the syllogism, meaning that it does not require reference to any external terms in order for it to derive a result, as does the syllogism by equation and other forms. We have established that, in this sort of syllogism, the solution is actually present (by assertion or by negation) inside of the syllogism. It is impossible that it be mentioned inside of the syllogism unless it is a complete proposition that is open to verification. But when we talk about deriving a ruling that is present within the syllogism, then this necessarily implies that the ruling is *part* of one of the premises, otherwise we are not "deriving" anything. So it must be a part of one of the premises, but must be a proposition or a proposition in and of itself. This means that the premise which contains the result must be a conditional propositions are a compound of two propositions by their nature, then through a conditional proposition we can make an entire, self-contained proposition part of a larger premise. It is therefore necessary that one of the premises of this sort of syllogism be a conditional proposition. As for the other premise, it will "exclude," affirmatively or negatively, whether or not the term that we are seeking to understand

falls under the conditions given in the conjunctive proposition. So if we say:

- 1) If Muĥammad is a Prophet, then he does not disobey Allah.
- 2) However, Muĥammad (s) is a Prophet.
- ✤ Muĥammad does not disobey Allah.

In this example, we have "specified" in the second step that Muĥammad (s) does, in fact, meet the conditions given in the first premise.

Divisions

The conditional proposition in the syllogism may be either conjunctive proposition or disjunctive proposition, and as such we will divide this sort of syllogism into conjunctive and disjunctive.

Conditions

There are three conditions for creating this type of syllogism:

1) That one of the premises be universal.

2) That the conditional proposition not be based on accidental or co-incidental causality.

3) That the conditional proposition be affirmative. This condition only applies if the conditional proposition is disjunctive proposition. If we have a negative disjunctive proposition, we must convert into an affirmative disjunctive proposition necessarily derived from it.

For each one of the two divisions of this kind of syllogism, there is a ruling with regards to its outcome. We will know discuss this in detail.

Judgements Derived from the Conjunctive

There are two methods for deriving a result from this sort of syllogism:

1) Excluding the antecedent term in the conjunctive proposition in order to derive a result which specifies the final term. This is because if we establish that which is contingent upon some necessity, we have established that necessity itself, whether or not that necessity is general or equal. In our syllogism the final term is equivalent to the necessitating term and the leading term is equivalent to the necessitated term. However, if we exclude the assertion of the final proposition, it is not necessary that we derive the exclusion of the antecedent term, insofar as it is possible that the necessitating term may be a general one, and confirming it does not necessarily confirm specific individuations under that general term. For example:

1) Whenever water is running, it does not become ritually impure.

- 2) This water is running.
- ✤ This water does not become ritually impure.

In this case, we have specified the antecedent term "running," by saying that water does, in fact, fall under this category given in the conditional proposition. We have then derived an assertion about the latter term "does not become ritually impure" in our solution. This syllogism is correct because the necessitating term "does not become ritually impure" encompasses the necessitated term "running." But if we instead attempted to specify the final term, by saying:

1) Whenever water is running, it does not become ritually impure.

- 2) This water does not become ritually impure.
- ✤ This water is running.

This syllogism is incorrect, because the necessitating term "does not become ritually impure" is a general term, and it could necessitate other figures of water, such as large bodies of water.

2) Excluding of the contradiction of the final term, in order to derive a result excluding the contradiction of the leading term. This is because if we disprove the necessitating term, then we have

by thereby disproved the term that is necessarily contingent upon it. In our syllogism the final term is equivalent to the necessitating term and the antecedent term is equivalent to the necessitated term. The same holds true even if the necessitating term is a generalization of the necessitated term. However, if we specify the contradiction of the leading term, than we are not necessarily able to derive a result that asserts the contradiction of the final term. This is because it is possible that the necessitating term is a generalization over and above the necessitated term. Disproving the particular case does not disprove the general, and the contradiction of the particular will be a generalization of the contradiction of the general. For example:

1) Whenever water is running, then it does not become ritually impure.

- 2) This water does become ritually impure. [Negation of the negation in the final term].
- This water is not running.

If we had said instead of our second premise "This water is not running," saying

1) Whenever water is running, then it does not become ritually impure.

2) This water is not running.

We cannot derive the result: "This water does become ritually impure," for it is possible that the water is not running and can be another figure of water which does not become ritually impure, such as large bodies of water.

Judgments Derived from the Disjunctive

We may derive a result from this sort of syllogism through one of the tree ways:

1) If the conditional proposition is a true conditional proposition, then this means that proving one of the terms in the proposition disproves the other, and disproving one of the terms proves the other. For example: "A number is either even or odd." Based on this we can derive four possible assertions to add to this proposition

1) A number is either even or odd.

- 2) This number is even.
- This number is not odd.
- 1) A number is either even or odd.
- 2) This number is odd.

✤This number is not even.

1) A number is either even or odd.

- 2) This number is not even.
- This number is odd.

1) A number is either even or odd.

- 2) This number is not odd.
- ✤ This number is even.

This should all be clear without any difficulty, if the proposition contains two parts. If it is a disjunctive proposition with more than three parts, then there will be more possible results. For example: "A word is either a noun, verb, or preposition." In this case, if we assert one of the possibilities by saying "This word is a noun," then we derive a predicative outcome that will include the other parts of the syllogism: "Then this word is not a verb and it is not a noun."

But if we specify the negation of one of the terms, for example: "This word is not a noun," then we derive a disjunctive proposition from the two other parts of the original disjunctive proposition in the premises, i.e.: "This word is either a verb or a noun." From this disjunctive proposition, it is possible to derive another syllogism by which we then assert one of the two terms in our previous disjunctive propositional result, in order to derive a specification of one of the remaining possibilities.

Like this, we can use this sort of method with any kind of disjunctive proposition, no matter how many terms it might contain, in order to reduce the conditional proposition into two terms from which we can derive a result. We call this the method of repetition, or probing and dividing, and so forth. We used this method in our study of the relationship between two contradiction in part one. This method seems wide use in debates.

2) If the proposition is one of mutually exclusivity, then if we assert one of the terms we negate the other. However, the negation of one of the terms does *not* assert the other term, because in such a proposition it is only the combination of the two terms that is forbidden. Something may not be both, but it could be neither. Since something could be neither, disproving one clearly does not lead to proving the other.

Some Final Words on the Syllogism

In many of the words and writings which we use, we employ complete syllogisms without even realizing. This is because much of the information we intend to convey does not require that we create a formal syllogism. As such, it is permissible that may remove one of the premises or the result and rely upon the clarity that is already present within our proposition, or rely upon the intelligence of the person we are speaking with. We might mention the premise first, before we mention the premises, or that we present the syllogism in a way that is in conflict with the natural mood of the premises. Sometimes it is more difficult for us to refer to a syllogistic figure, than it is for us to just say what we mean.

A syllogism in which we remove from it the result or one of the premises we call an enthymeme or an abridged syllogism [$qiy\bar{a}s\ muzmar$]. What we remove we call the *implied* [$zam\bar{i}r$]. For example, if we say: "This being is human, because he is rational," then the root of this proposition is:

1) This being is rational [minor premise].

- 2) Every rational being is human [major premise].
- ✤ This being is human. [Result].

In this example we have removed the major premise and made the result of the syllogism at the beginning of our proposition. If we said as well: "This being is human, because every rational being is human," than we removed the minor premise and placed the implied syllogism's result at the beginning of our proposition.

We may also say: "This being is rational, because every human being is rational," then we have removed the implied syllogistic outcome and contended ourselves with just the two premises. insofar as it is obvious from what is already stated.

Obtaining the Two Premises through Analysis [taĥlīl]

It was argued in the beginning of this book that the mind moves through five stages in order to being able to connect itself to unknown sets of information. We implemented five stages when we came to an understanding of definition $[ta r\bar{t}]$ in the last part of the first book. We will now attempt to implement these five stages in order to derive judgements. We will lay out these fives steps in order to explain how this process functions:

1) Facing the Issue: Certainly, this is needed is for anybody who is attempting to derive new, hitherto unknown information from some sort of premise which he must establish.

2) Defining the Nature of the Issue: We mean by this that one defines the figure of the propositions he is attempting to work with, whether or not they are: predicative or conditional, conjunctive proposition or disjunctive proposition, affirmative or negative, modal or non-modal, and so forth. After this, one must then understand the substance of what we are discussing, in terms of the intellectual discipline that relates to it, and in terms of its principles. There is no doubt that this step is necessary before one immerses oneself in thought and establishing his premises.

3) Movement of the Mind from the Problem to the Information that is at Hand: This is the first motion of thought which will be made. Once a human being has moved from the stage of facing the issue and defining the issue, he must then begin to make recourse to that information that is already stored up within in, He must search through this available knowledge, so that he may discover that which is going to help in this situation.

4) Movement of the Mind through the Information that is at Hand: This is the second motion that the mind will make, and it is the most important step the mind will take in this process. There is no principle of criterion that will determine how the search will take place, and how one will eventually derive the premises which will be connected to the solution is demanded in order to deal with the issue at hand, a solution that will lead to the establishment of hitherto unknown information.

However, there is a general methodology which can figure the basis of any attempt to discover appropriate premises. We call this analysis $[tahl\bar{l}l]$. When we face any sort of issue, there is no doubt that it will take the figure of one of the possible types of propositions or propositions which we have discussed. If we wanted to deal with a predicative proposition and to eventually figure a conjunctive syllogism based on it, then we must follow the following steps:

1) Breakdown the solution, which is predicative by our supposition, into subject and predicate. The subject must be the minor premise in the syllogism and the predicate the major premise. We have now established a lesser and major premise from a single proposition.

2) Next, we try to seek out everything that can be understood attributed affirmatively to the lesser and major premises, and everything they can be attributed affirmatively to. We then seek out everything that can be negatively asserted to them, and everything that they can be negatively asserted to.

3) We then examine what we possess from our known information, and we make an accordance between those propositions in which the minor premise is present either as subject or predicate from one standpoint, and propositions in which the major premise is present either as subject or predicate from another standpoint. When we are able to make an accord between two propositions, based upon their respective terms, that allows us to form an appropriate (from the standpoint of pre-conditions] syllogistic figure, then we will find ourselves successful in reaching our intended solution. If not, then we must make recourse to another method. This is the same method we would follow if the desired solution is a conditional proposition. We synthesize a syllogism from other conditional propositions that we already now, instead of converting the conditional proposition into a predicative one.

So if, for example, we want to create a syllogism of exclusion, then we must follow these steps:

a) We search through everything that is necessitated by our solution, and from everything that necessitates it. We then search through everything necessitated by its contradiction, and everything that necessitates it.

b) We then search for everything that has a fixed relationship to the solution and its contradiction in terms of truth and falseness (with one dictating the other), or truth only, or falsehood only.

c) We then take from our first search a conjunctive proposition, then we exclude from it the antecedent and the contradiction of the consequent from all of the propositions we have used. Whichever one is correct, you use that to form a conjunctive syllogism of exclusion, which will bring us to the desired solution.

5) Finally, there is the movement of the mind from the information at hand to the unknown: This is the final step that thought will take. It is reached when one figures a proper result-yielding syllogism, for which one is conveyed to the solution of the problem at hand.

Polysyllogisms

Introduction and Definitions

It is necessary that the analyses we employ in the process of deduction have a specific terminus whereby we derive clear or axiomatic premises. If we do not have a specific terminus, and as such do not derive clear or axiomatic premises, than it is naturally impossible for us to derive any kind of result. If our analysis has not yielding any credible premises, then there is nothing to build a syllogism upon. Deriving clear and credible premises can be done in one of two ways.

In most cases, we finalize our analysis by moving from a given case to the derivation of two clear or axiomatic premises, and then stop. We then derive a solution from these two premises. The type of syllogism we figure from this sort of process we call a simple syllogism. We call it such

because one his able to obtain a result from the syllogism at one stroke.

But sometimes we move from a given case to two premises derived by analysis, but we discover that one or both are not axiomatic, and that one or both of which are themselves derived. As such we cannot stop our analysis at that moment. If we find that one of the premises we derived from our analysis is derived, than this means that it is, in reality, the result of another syllogism. As such, it is necessary that we establish a second set of premises that established this derive premise, and this second set of premises figure into a second syllogism. If we find that both of the premises we derived from our analysis are derived, then we must make recourse to two other syllogisms, each of which will lead us to the two our first two premises. This process will continue until we can reach clear or axiomatic which do not need further derivation. We call this figure of syllogism a polysyllogism, because it is actually a sequential structure of two or more syllogisms. We can define this sort of syllogism as: "That which is derived from two or more syllogisms, in order to obtain a single solution."

Divisions of the Polysyllogism

We can divide this sort of syllogism into two kinds, sequential $[maw \hat{sul}]$ and non-sequential $[maf \hat{sul}]$.

1) The sequential syllogism in which the solutions are not contained therein; rather, the final solution is mentioned once as the solution to ne syllogism, and then as the premise of a second syllogism. An example would be:

- 1) Every poet is sensitive.
- 2) Every sensitive person is tormented.
- Every poet is tormented.

We then take this result, and make it the premise for the other syllogism, in order to derive the original solution which was not derived by the previous syllogism. So we would have said at the beginning:

- 1) Every poet is tormented.
- 2) Everyone who is tormented has strong feelings.
- Every poet has strong feelings.

2) Unbounded [*mafsūl*]: This is a syllogism in which the full inference is separated from the, so we do not have displayed for us two results, but only one. To continue with our above example we would say:

- 1) Every poet is sensitive.
- 2) Every sensitive person is tormented
- 3) Everyone who is tormented has strong feelings.
- Every poet has strong feelings.

In this syllogism, we have not mentioned another result with the symbol \diamondsuit , but have excluded it from display and left ourselves with only one result. It is an assertion of the same result as we obtained previously, but in unincomplete succession without recourse to another demonstration. This type of syllogism sees much use in disciplines which base themselves upon clear intermediary results that should not require extra demonstration, and are, as such, removed from display.

We will confront other figures of syllogisms which are named by virtue of some particular trait inherent in then. We will know study some of these syllogistic types in order to further enlighten the mind of the student.

Syllogisms of Contradiction [qiyās khalf]

A scholar may find himself unable to derive a satisfactory solution by a direct process of syllogistic deduction. As such, he must make recourse to an indirect figure of deduction which involves him disproving the contradiction of his desired result, in order to confirm the truth of his intended result. This is based on the principle that two negations cannot be proved false together. Disproving the negation in order to prove the assertion is called a syllogism of contradiction [*qiyās khalf*]. In our study, we will define such a syllogism as a polysyllogism whose result is confirmed by disproving the result's contradiction. We define it as a polysyllogism because it is formed from two syllogisms, and is a

conjunctive syllogism from a conjunctive proposition and predicative, combined with a syllogism of exclusion.

Method

When we intend to demonstrate how prove a solution by disproving its contradiction, than it is best that we make recourse to a process of such deduction that we have previously used, in order to best explain the way this method of deduction functions. As such we reflect upon our demonstration for the fourth mood of the second figure, which was based upon a syllogism of contradiction:

Supposition:

Not every A is B.
 Every C is B.

We intend to prove, through a syllogism of contradiction (in the way that we have already done previously), that:

♦Not every A is C.

1) We take the negation [contradiction] of the solution, which would be "Every A is C," and then add this to one of the aforementioned and previously proven true premises. Here we will add it to the major premise "Every C is B." This will lead us to create a syllogism from the first figure, namely:

Every A is C.
 Every C is B.
 ♦ Every A is B.

2) Next, we will compare this result with the other one of our previously asserted premises, namely the minor premise "Not every A is B." We find, then, that they are in contradiction. It cannot be that "Not every A is B," and "Every A is B." We know, however, that the assertion that "Not every A is B " is true according to our supposition. As this is proven true, then it is impossible for our derived assertion " Every A is B" to be true as well.

3) We will then say that, without any doubt, that disproving this aforementioned result derives from of one of its premises, insofar as the syllogism was formed without any error or defect. Rather, it is not possible for us to disprove one of the premises contained in our suppositions.

As such, there is no other recourse but to disprove this second premise in our second syllogism, which is the contradiction of our desired solution. When we disprove "Every A is B " we naturally prove "Not every A is B ."

4) We can depict our process of deduction in this manner:

Stage One: Conjunctive Conditional Syllogism

If we do not prove "Not every A is C," then we prove "Every A is C." [Minor premise]
 Every C is B [Major premise, which is true according to our suppositions]

From this, we derive a result in accordance to what we have already discussed in our study of the fourth kind of the conditional syllogism, namely:

♦ If we do not prove "Not every A is C", then we prove "Every A is B."

Stage Two: Syllogism of Exclusion

1) If we do not prove "Not every A is C", then we prove "Every A is B." [Minor premise Derived from the previous syllogism]

2) However, we have disproved the proposition "Every A is B." [Major premise, which is true in

accordance with our initial supposition that "Not every A is B."]

✤ It is necessary that "Not every A is C" be proven true [This is our desired solution]

Syllogism of Equation

Of the problematic types of syllogism which may be solved by recourse to a polysyllogism, we find the "syllogism of equation" [*qiyās musāwāh*]. We call it an "syllogism of equation" insofar as the basis of this syllogism is the assertion "A is equal to B, and B is equal to C, so A is equal to C." This may involve either an identity or similarity between the things under discussion. For example: "Human beings are made from semen, semen is made from physical elements, and so therefore human beings are made from elements." The validity of this sort of syllogism depends upon the truth of an external premise, something that establishes a continuum between the terms under discussion. For example: "Equivalents of equivalents are equivalent." If this premise is false, than the whole syllogism will be false. For example: "Two is half of four, four is half of eight," because half of a half is not half, but a quarter.

Analysing this Syllogism

We see that this figure differs with regard to the other result-yielding figures insofar as there is not contained within it a replicating middle term. This is because the subject of the second premise, namely B, is only a part of the predicate of the first premise, namely "...is equal to B." As such, we find that we must break down this figure of syllogism and make recourse to a regular type of syllogism. We will do this by taking the external premise for which the syllogism of equation is based and add it to the premise in order to create a proper syllogistic figure.

At first glance, it does not seem that we can unravel this syllogism by this simple process of joining the external premise to one of the premises. It may not be clear how to compose a syllogism for which there is a commonality between the two that acts as a middle term, and we find many difficulties in trying to break down this sort of syllogism into a sequential terms that can be placed into a result yielding syllogism that will give us the proper result. We may count some of them as being formed from simple syllogisms, while others being from polysyllogisms. However, the most correct way is to view them as being entirely from polysyllogisms.

First syllogism:

1) A is equal to B [minor premise, first premise from the syllogism of equation]

2) Everything that is equal to B is equivalent to what is equal to C [major premise]

This major premise is a correct derivation of the second premise in the syllogism of equation, namely "B is equal to C." This because in our proposition "Everything that is equal to B is equal to what is equal to C," the phrase "is equivalent to C" is actually just another way of saying "B", so the proposition really reduces to "That which is equal to B is equal to B," which is a correct and axiomatic proposition. It is correct that we phrase this proposition in either. This first syllogism is in the mould of the first predicative figure, and the middle term in it is "...equal to B." We derive from this syllogism:

 \bigstar A is equal to the equivalent of C.

Second syllogism:

1) A is equal to the equivalent of C (minor premise, our previously derived result)

2) The equivalent to the equivalent of C is equal to C

Once again, we figure a syllogism in the mould of the first predicative figure. The middle term in this is "Equal to the equivalent of C," and this syllogism leads us to the conclusion:

♦ A is equal to C.

Induction [istigrā']

Definition

We know from our previous discussion that induction is the mind's derivation of a general conclusion from partial and specific premises. An example would be if we examine a number of different kinds of animals, and we find that all of them move their lower jaws when they eat. We would derive from this the general principle that: "Every animals moves its lower jaw when it eats."

Induction is the basis of all of our general rulings and principles. This is because we cannot obtain a general ruling or principle unless we have engaged in some sort of examination of the partial and specific examples at hand, and then made an inductive judgement of them, by forming an abstraction from the common ruling we find in all the cases under examination. Induction is, in reality, a process of derivation unique to general principles. It is necessary, then, that the syllogism be based upon a general purpose that be driven towards forming a general assertion about the subject of the induction's result.

Divisions

Induction can be divided into two kinds, perfect $[t\bar{a}m]$ and imperfect $[n\bar{a}qis]$, insofar as the examination one makes of the cases at hand can either be complete or partial.

1) Complete $[t\bar{a}m]$: This syllogism will provide us with certainty $[yaq\bar{u}n]$. It is said that this figure of induction makes recourse to a divisional syllogism which would be utilized in its demonstrations. For example: Every shape is either round or angular, and every round shape is definite, and every angular shape is definite.

2) Incomplete $[n\bar{a}qis]$: This is an investigation of only some of the cases at hand, such as our previous example where he examined various animals and derived the ruling that all of them move their lower jaws when they chew. This was an induction based on a large number of the cases. This syllogism cannot provide us with anything except a possibility, insofar as it is possible that there might be a case that we did not examine and does not fall under our induced ruling, such as alligators, which move their upper jaws when they chew.

Intractable Confusions?

The syllogism is the mainstay of philosophical deduction, because of its value in creating certainty $[yaq\bar{n}]$. This is because it is based on a general foundation applicable to all cases. As such, its basis must, without a doubt, be based upon induction, for we have already established that every general principle can only be established after some examination of the individual cases at hand.

Most of our general principles are not based upon all of the cases that one could logically examine. As such, we are not able to establish complete induction in these cases, and it is necessary that most of our principles which are based on this sort of deduction can give us only a probability. It is impossible, then, that in most arts and sciences we can establish all of our principles in this way, and that most of our syllogisms, are, in fact, establishing only possibility.

Is it possible, then, that we can say that an incomplete induction can lead us to certain knowledge? But this would be in conflict with all logicians throughout history. It is perhaps better, then, to give another assertion that is more readily acceptable. Many a times, we are able to obtain certainty about a general state of affairs without having been able to make a complete inductive examination of all the cases at hand. Rather, we take the greatest possible number of cases at hand and make our derivations based on that, like when we say that establish that two is half of four, assuming the impossibility of examining every possible example of "two" and "four" in reality, or when we establish that all fire is hot or that every person dies, assuming the impossibility of examining all fires and all people. This is the case in everything that we cannot classify as an axiomatic premise that does not require any examination.

Lifting the Confusion

We can lift the confusions about induction in a number of ways:

1) That we rely upon simple examination only. We examine some of the cases at hand, or even most of them, and find within them a common attribute. We then confirm this attribute upon all of the cases at hand. This figure of derivation is easily disproved, and as such we can never establish a cutting-demonstration with it. As such, most of the logicians throughout history have removed this type of
study from discussion.

2) That we rely upon this simple examination, along with an attempt at causative explanation as well. We make our examination of some of the cases at hand, and we find an attribute consistent with them. But during the course of our investigation, we also find a cause for the link between this attribute and the cases and hand. The mind than has no confusion that whatever attribute we have found is always caused by this causative factor, and that this attribute never appears without this causative factor. As such, we are able to confirm the existence of this attribute to all of the cases at hand without making any further recourse, and we are able to make this connection in the figure of a certain demonstration.

Most, if not all, of the scientific discovers that we are able to make are based on this figure of observation. This figure of observation is not open to invalidation, insofar as it establishes a cutting demonstration for us. An example would be the law that water always flows from a higher place to a lower place. There is no doubt in the reality of this law, and it only requires the smallest of examinations in order to prove it, and we are able to establish this law the moment we realize the underlying cause of this downward flow.

However, if one discovers that this cause is, in fact, not the actual cause of this attribute coming about, then of course one must change the law one has propounded.

3) That we rely upon axiomatic logic. For examples: The whole is greater than its parts. So long as we understand concept of "whole" and the concept of "parts" and the concept of "greater," than we understand this ruling. This is not a part of induction, actually, insofar as it is not based on observation.

4) That we rely upon a complete analogy between the various cases under discussion. If we prove, for example, that the angles of a given triangle are equal to two right angles, then we have decisively proved this ruling upon all other triangles. It suffices, then, for us to make only an examination of one of the cases at hand. This is because all of the cases at hand are really the same thing, so confirming a ruling for one confirms a rule for all of them without any distinction. A triangle is a triangle, so once we have established a rule for one triangle we establish the rule for all.

We can see from this explanation that it is not fair to say that all incomplete inductions are unable to give us certainty, so long as that incomplete induction is not based upon simple observation only. We call the second kind of induction we discussed above, induction which involves observation and causative justification, the method of inference. We can also call it the scientific method. A detailed discussion of this method is beyond the scope of this text.

Analogy [tamthīl]

This is the third kind of demonstration, and with it we will close the fifth chapter of this work. Analogy consists of establishing a ruling for one thing, based upon its similarity to another thing. The jurisprudents classify this with the word $qiy\bar{a}s$, which the Sunni scholars consider to be a source of legal ruling. The Shi'a scholars, on the other hand, deny its status as a jurisprudential demonstration, and regard as something destructive to religion and useless for the study of Islamic law.

For example: If we prove four ourselves that wine is like those things which are classified as intoxicants insofar as it induces intoxication in the person that consumes it. We have established that intoxicants are forbidden because of their intoxicating effects, so we may also prove that wine is forbidden as well (or, at the least, establish that the possibility of its prohibition) based on the fact that it induces intoxicating effects as well.

Foundations of Analogy

1) Root ['*asl*]: This is the first case that we have at hand, for which we have a confirmed ruling. In our above example it was intoxicants.

2) Branch [*furu'*]: This is the second case at hand, for which we seek to establish a ruling. In our above example, it was wine.

3) Commonality $[j\bar{a}mi]$: This is that which is shared between the root and the branch, which in this case was intoxicating effects.

4) Ruling [hukm]: This is what we know to be confirmed with the root, and what we wish to prove with

regards to the branch. The ruling in our above example was "forbidden."

If we are able to produce these foundations, then we have established a proper analogy. However, if we do not have a ruling for the root, or we can not establish a commonality between the root and the branch, than analogy is not correct.

The Use of Analogy

Analogy, by virtue of its simplicity, is not able to give us anything but a possibility. A commonality or similarity between two things does not establish anything by necessity. In many things there are a huge number of commonalities that do not establish anything. For example: Person A is similar to Person B with regards to height and physical figure, any in some of his mannerisms. But we see that Person A is a criminal, and we have no doubt in this. But this does not in anyway imply that the Person B is a criminal as well, on account of some similarities between the two with regards to some attributes or actions.

But if we are able to find more and more commonalities between two things, than this can increase the possibility of the ruling being able to be applied to the branch, though again, this can only lead us to probability. It is possible, though, that the commonality between the two, may actually be a complete causative factor in establishing the ruling with regards to the root. We may then make a derivation that can lead towards certainty with regards to the branch, so long as we are able to prove that the complete cause in the root is a complete cause in the branch as well. But this is really the crux of the matter. In such a case, one is required to make a search and examination that can be quite difficult, even between things that would seem to have a natural connection between them. Analogy, by this regard, is actually the same as that figure of induction which makes recourse to an attempt at causative explanation.

There is no way to apply complete causative factors in the field of Islamic law, unless that application comes from Islamic law itself. If a complete causative factor is established by the canonical sources, then of course there is no disagreement amongst the jurisprudents in applying this complete causative factor to other cases and basing our derivation upon this. In reality, this sort of analogy, in which we have established that the commonality between two things is a complete causative factor, is something we have already studied in our discussion on the syllogism, a syllogism that gives us certainty. We can figure a proper syllogism by making the commonality the middle term, the branch the minor premise, and the ruling the major premise. By this, we are able to completely separate the concept of analogy and the concept of $qiy\bar{a}s$ as it exists inside the field of jurisprudence, the conjunction of which is the locus of all the conflict between them on this issue.