

CORRELATION BETWEEN SCIENCES AND LANGUAGE

How Can Muslims Preserve their Languages?

ALPARSLAN AÇIKGENÇ*

ABSTRACT

There is a direct correlation between human behaviour and its mental stimulator(s). Every mental construct is a network of concepts which are in turn linguistic entities. Therefore, there is a necessary correlation between human conduct and human language. The intensity of this correlation may vary from lesser degrees in actions that are not knowledge bound and thus result more from our biological nature to greater degrees in actions that depend on a mental planning or conception. In our paper we shall examine one human action that is directly bound with knowledge: scientific activities. Our examination of this topic shall concentrate on two major issues: one is the nature of language and the other is the nature of sciences and scientific activities. I believe that once these two issues are clarified the correlation between sciences and language shall become transparent. Our conclusion shall concentrate on the idea that sciences depend on concepts that are developed in human language and then turned into technical terms in scientific inquiry. This means the less a language is developed the less it will support a scientific inquiry. Actually since there is a correlation between science and language this proposition is true for the other way around also. In other words, the less progressed scientific inquiry the less developed is the language. This result will lead us to conclude that if Muslims would like to preserve their language they need to pay more attention to sciences without any distinction thinking that one science is more important than the other. In the same way if they would like to progress scientifically they need to develop their languages further.

Keywords: Science and language, scientific language, worldview, scientific thought, symbol, theory of language

* Yıldız Technical University, Istanbul, Turkey acikgenc@gmail.com
A version of this paper was presented at the International Conference on "The Role of Islamic States in a Globalized World" held at Kuala Lumpur on 17-18 July 2007, organized by the Institute of Islamic Understanding Malaysia (IKIM). The author gratefully acknowledges the funding provided by this institute for the research involved in writing this article

Everyday language is the source of all technical vocabulary which we make use of in all sciences. This does not mean that the language of sciences is everyday language because everyday language becomes scientific after undergoing a certain process in scientific traditions. Through such a process the everyday meaning of a word may change and acquire a scientific meaning. That is why the common people will have hard time to understand a scientific statement. We would like to emphasize a feature of language in this process; it dominates our thought to some extent in scientific thinking; even in certain cases it may determine significantly our thought. This makes language paramount to the scientific inquiry. In order to illustrate our point here we need to discuss some features of human language. In fact we need a theory of language to explain how a term comes to signify something in reality. I shall make a brief attempt in this paper to outline such a theory and attempt to show how and why language is important in scientific thought and inquiries.

Just as there is a system in which human stomach works there is in the same way a system in which human mind operates. The system in which human stomach works is our system of digestion and the system in which human mind operates is the system of knowledge. One part of this system is the operations of human mind to form a system of communication called “language”. We therefore perceive human language as a part of our system of knowledge. This is the foundation of a theory of language which consists mainly of the explanation of the origin of language and its nature. This introductory remark establishes a relation between language and the knowledge system.

If we examine in the same way the nature of scientific inquiry we shall see that all scientific activity is a search for knowledge with a certain method. In fact “science is primarily the organized body of knowledge named through scientific consciousness and thus consisting in a well defined subject matter, a certain method and an accumulation of theories some of which are proved and thus turned into (scientific) knowledge.” It is the naming of that organized body of knowledge that gives it a unity as a discipline and as such enabling us to perceive it as an independent area of study which we call science. This naming alone is sufficient by itself to show the relation between science and language. For, the process of scientific inquiry takes place through a naming process which is only one way in which our mind operates. It is then our aim to show this claim and try to offer a solution about the problem of preserving our language. We shall then divide our discussion into three sections: In the first place we shall discuss our theory of language; then try to pinpoint the relationship between science and language; and finally offer our solution to preserve our language.

I. A THEORY OF LANGUAGE

Human being has been defined as “rational animal” since the ancient times. This rationality includes also “meaningful speech”, which means “communication with articulate sound based on human logic” commonly known as “language”. This approach brings out three characteristics of human language: rationality, articulate sound and logic. All these characteristics are combined in the structure of every human language with a varying proportion. These characteristics are given to the human language within the process through which impressions of objects or entities received in the mind are converted into symbols. When something, whether concrete or abstract, is perceived by the mind it is converted into a mental entity or item. Our mind is able to convert everything that it perceives into its own nature which we call “mental entity” (*ma'nâ*). If the mental perception cannot be converted into a mental item or entity it cannot be processed by our mind. Certain things have the characteristics of being turned into mental items. Just as there are certain things which we can never perceive there are also certain things that our mind is unable to convert into mental items. These are the utterly subjective experiences which we are able to develop but are unable to convert into mental items. Such impressions are not communicable and hence there is no human language concerning them. Let us proceed in order to see at which level language originates.

When something is perceived by our mind immediately an impression of it is formed. This impression is variously termed either as “(mental) representation” because it represents that thing in our mind; or as “mental impression” since it is impressed upon our mind by the thing; or yet “mental entity or item” since it is converted into something mental. If the impressions received through our faculty of experience whether they are the five senses, emotions or the conscience they cannot be mentally perceived if they are not converted into a mental item (*entity*). The mind receives all the data of experience through one of its faculties called “mental consciousness”, which is the faculty that converts impressions of things into mental entities, which are thus retained in the memory. Our mind has another faculty called “imagination” which creates images, namely mental copies of those entities. The faculty of our mind which assigns notions, ideas or concepts corresponding to these images is called “intellect”. Our intellect is then able think these mental entities though it needs the faculty of will to produce a judgment. I believe that for all these processes we do not need language because concepts alone are sufficient to provide a base for thinking, judging and inferring. But

we need language to communicate and pass all these processes to other fellow human beings. Hence language is specifically for human communication. But if we pay attention to the point where the human language is connected in our mind then we can see how it is established on human thinking which carries the marks of rationality and human logic. The articulate sound is needed only for communication. But in order to produce that sound we need a further process in the mind. If we understand that process then we may be able to decipher the origin of language.

In the process of acquiring knowledge, as we have seen, when the impression of an object or an entity is received it is converted into a mental entity by the mental consciousness. This conversion creates an *entity* or an *item* in the mind as a Vague Symbol for the object or entity perceived, which is ready to receive the “*First Symbol*”. The *entity* is only a vague mental item that is devoid of shape and form which is why we identify it as the “Vague Symbol”. It is only a mere mental conversion called the First Conversion. Our mind needs this conversion in order to put the object or entity perceived into mental operations. The first operation it may receive after the First Conversion achieved by the mental consciousness is dressing it with its proper form and shape which converts it into an image. It is this image that we identify as the “*First Symbol*”. The faculty that provides the dress of shape and form for mental entities is “*imagination*”. We call this “*First Symbol*” because the object or the entity is represented more vividly at this level in the mind for the first time. The mental preservation is carried out by our memory at all levels. I mean by all levels the first mental conversion of impressions into mental entities, then its conversion into a symbol by the imagination and the operations thereafter. Our memory can preserve all these operations so that those that become mental contents are available for further mental operations.

The next operation is at the level where the intellect begins to interfere. At this level with the help of imagination the image is converted into a “*concept*”, which we call the “*Second Symbol*”. But we identify this operation of the mind as the “*Second Conversion*”. Just as the first symbol is a sign of the mental entity which in turn is a sign of the object or the entity received into the mind, the second symbol is also a sign for the first symbol. All of these signs refer primarily to the object or the entity perceived by our mind. They refer and are signs secondarily to their previous levels. For instance the Second Symbol refers primarily to its object or entity perceived by our mind and it refers secondarily to the First Symbol and then only to the mental entity, i.e. the First (mental) Conversion. We call this operation “*conversion*” as we have pointed out, because the object or the entity perceived is converted

into something *mental*. Our mental consciousness converts the first impressions of the object or the entity into a mental entity and thus this is the First Conversion. Then, the imagination converts the mental entity into the first symbol which is a (mental) image and hence this is the Second (mental) Conversion. Then imagination at the level of intellect converts the image into a concept called the Second Symbol and this is then the Third (mental) Conversion. Through these conversions our intellect is able to *think* of the object or the entity perceived by our mind through the concepts. The genesis of language begins at this level. But we have described the process of conversions into the conceptual reality for the concrete objects. I believe that this process is different for abstract entities and concepts such as existence, unity, justice and goodness. We may have to classify these terms in a manner Hume had done. But since this would take us too far from our main topic which is language we shall leave this for another occasion and concentrate on the process of the emergence of language.

Concepts are the basis of human language. In order to turn the concepts into language, namely linguistic items, we need to assign them another symbol which we call the “*Third Symbol*”. In a language we call the third symbols “*words*”. A word is therefore a sound representing a concept as a symbol. The generation of a sound referring to a concept, namely a mental symbol of an object or an entity is a very complex phenomenon. The process until the level of the third symbol is totally epistemological. This epistemology is the mental and thus the rational basis of the human language. But the passage from the second symbol to the third symbol is not only an epistemological process but also an everyday experience and hence requires an empirical analysis as well. This empirical analysis is not the purpose of this brief essay and therefore we shall continue to show how language after it is formed may be related to the human activities and above all to the scientific activities.

As we have seen after the level of the Second Symbol we are able to use our ability to form articulate sounds to represent a concept by our voice. This voice is the Third Symbol called *word*. By logical combinations of words we are able to generate language. There is also a Fourth Symbol for words which we call “*writing*”. The invention of writing is also similar to the invention of language. But we are not concerned with this level of symbolization. We may briefly point out how concepts lead to words and words into a language which may be sufficient for our purpose in this context. A concept calls in the mind for its object or entity. This call is gradually combined with its impressions which may be physical sounds or actions. It is much easier for us to form first the physical aspects of things whose impressions we receive in our mind. From those physical impressions we are able to form sounds to refer to them and these

sounds are words which are linked in our mind to their concepts. Of course sounds are not generated without a link to their corresponding concepts. This means that we first form the concepts of concrete objects only then gradually we form the concepts of abstract entities. In a similar way we first form the articulate sounds of the concepts of concrete objects. It is perhaps through this way that human language emerged gradually. This process in human history through which human language came into existence is an empirical research as I have pointed out. This historical process is obviously based on the epistemological process outlined very briefly above. It is also this epistemological process that determines the correlation between sciences and the language. Hence, we shall look for that correlation in this epistemology which shall follow next. I would like to show this epistemological process on Table 1.

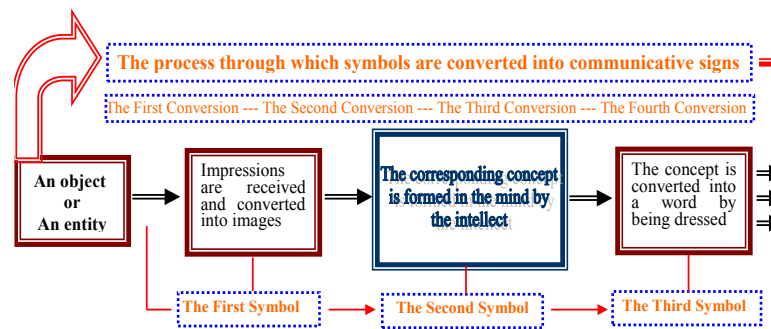


Table 1

II. THE CORRELATION BETWEEN SCIENCES AND THE LANGUAGE

There is a direct correlation between human behaviour and its mental stimulators. Every mental construct is a network of concepts which are in turn linguistic entities. Therefore, there is a necessary correlation between human conduct and human language. The intensity of this correlation varies depending on the nature of the activity. Clearly since scientific activity is an epistemological process, namely activity of acquiring knowledge, then as we have seen, at the basis of language is also an epistemological process, then the intensity of the correlation between sciences and language will be very high. We need to identify this intensity on the basis of the epistemology of science.

That mental framework out of which *naturally* and/or *actively* follows a human activity can be identified as the 'epistemic ground' of that activity. Knowledge proceeds from a mental

framework *naturally*, if it arises purely out of the capacities of the faculties. Therefore, if an activity follows only naturally from the epistemic ground, then it depends totally on the general process of knowledge. But since we acquire knowledge as active agents that means we also contribute to the process of knowledge. Hence, knowledge proceeds, from the accumulated mental content which is acquired through both our education and using the natural capacities of the mind. It is this kind of a knowledge acquisition process that we call 'active'. If we acquire knowledge only through the natural capacities of our mind then we acquire knowledge *passively*, namely *naturally*. In this case our interference in the knowledge process is minimal. The knowledge process takes place in the system which we call "knowledge system" through which we acquire all knowledge. It is this acquisition that we call "knowledge process". We may liken this system to our other operative systems such as system of digestion and breathing system. We need to analyze the complete system of knowledge in order to fully explain how it works when we acquire knowledge; in other words its analysis is also the analysis of the complete knowledge process. We will not attempt that full analysis here; we shall rather try to show its relevant aspects in order to show how the scientific activities are correlated to language.

All knowledge is processed through our system of knowledge-faculties and thus every kind of knowledge can somehow be related to the other. We thus, conclude, there is a general framework through which all our knowledge proceeds; a framework that provides an epistemic ground for our faculties of knowledge to operate. In fact, not only our mental operations follow from this general framework, but also our daily activities, and indeed all our behavior. Since this general framework is an epistemic ground, it is possible for certain human activities to emerge not directly but indirectly from the general framework. But even in such a situation, the mind immediately forms another mental framework as an extension of the general ground. This secondary and somewhat more concrete framework can be termed the 'inner framework'. If the human activity is a highly cognitive activity, such as scientific activities, it will require another more specific mental framework. Therefore, we claim that every scientific activity emerges out of three frameworks: a general, an inner and a specific framework. Before I continue any further in order to avoid confusion I need to explain briefly what exactly a framework is.

A framework is an epistemic ground through which we view things as such it is a mentality on which our conceptions are based. Many concepts which are utilized here in order to explain the epistemological function of worldviews carry the same meaning but

emphasize different aspects of these identical meanings. These concepts are epistemic ground, framework and mentality. We thus claim that as soon as a human being begins to form any mental conception of a natural experience, which he had from babyhood onwards, he will begin to act no longer out of his natural instincts alone, but also out of the mental content that he acquired. This mental content forms a unity of concepts which can be called "Life Structure". The more sophisticated the Life Structure is the more conceptual becomes the experience and thus the more we act out of our mental frameworks. In such a conceptual Life Structure we may be able to distinguish certain elements, which we call 'mentality'. A mentality is actually understanding or conception of certain things, living types, facts of life and the world. As we grow, these mentalities are developed according to our personality, mental abilities and the kind of education we receive. Each mentality is like a structure and thus can be termed 'sub-structure'. These mentalities are so coherently related to each other that together they form the totality of the Life Structure. Then, we arrange our life according to our Life Structure, which is the totality of the contents of our mind. Since, as a total unity, the mind reflects all our ideas, its contents as the Life Structure will also reflect our attitude for life and understanding the universe in general; as such we entitle it 'worldview'. At what stage a life structure can be termed worldview is an interesting investigation; but we shall not be concerned with this empirical topic. We rather say that since worldview, as a word, refers to the way one views the world, we can say that if a Life Structure is able to reflect the person's conception of the universe, such as the meaning of life, the origin of existence, human destiny and so on, it can be termed 'worldview' no matter at what stage of life it emerges as such.

It must have become clear that since any person not only acts according to his/her worldview, but he/she also thinks according to it; in fact, a worldview is the domain within which our mind operates. If the mind cannot develop such a domain, it cannot execute its operations within the process of knowledge. It is clear, therefore, that we take the concept of worldview only as an epistemological term. Since in this sense the worldview acts as a general scheme of all our mental and physical activities, we can term it the 'general framework'. It is also this general framework out of which our scientific activities also spring. It is at this juncture that we may observe how sciences are correlated to language. We are developing this concept of worldview in order to show epistemologically that all human conduct is ultimately traceable to a worldview; a conclusion which is sufficient in itself to manifest the significance of worldview not only in individual and social life, but also in our scientific activities. Hence, from the epistemological perspective, a worldview is far more significant than all the other

elements of human behavior, because it is the most general framework within which the human mind can fully operate in order to attain knowledge. Based on this conclusion we may now try to show the function of worldviews as the general framework of scientific activities, namely, as the epistemic ground of our scientific activities. For, this will be our epistemology of science which can also exhibit the correlation between sciences and the human language.

A worldview is formed by the individual in a casual manner out of his daily dealings as he/she grows up from infancy to adulthood; a process which never ends until the death of the person. In this sense its disclosure is a natural process, rather than a conscious effort to build an architectonically whole framework. For, a worldview is, in fact, a mental framework through which the individual views everything. Therefore, no one can evaluate any question or a problem without first assuming a worldview of a sort. In fact, the human mind works only within the context of such an architectonic whole. It is clear, therefore, that on epistemological grounds no science is possible except from a general perspective which the mind forms for itself, and which we have identified here as 'worldview'. We can illustrate this point by simply assuming a worldview in which there is no concept of science or any other related concepts; obviously no scientific knowledge is possible within such a *conceptual environment*. The same conclusion is valid with regard to the worldview that already has all these concepts, but that these concepts remain buried under the debris of history without any clarification whatsoever, which is the case with the kind of worldview Muslims acquire today, i.e. the contemporary Islamic worldview, if it can be called as such. Within such an epistemic ground no significant scientific activity can flourish.

We have already shown above that the continual combination of our experiences by the mind according to its rules and principles gradually forms in the mind a framework which is first identifiable as the Life Structure, and then as it further develops to such an extent that it can manifest certain mentalities, it can be entitled 'worldview'. The worldview thus becomes the mental *environment* within which the mind operates, and without which it cannot function at all. In our early life our worldview consists of only the Life Structure and as such the Life Structure is our worldview for a certain early period of our life. However, later in life gradually grows out of the Life Structure certain conceptions concerning the world we live in; first, certain fundamental questions arise in the mind, such as the meaning of life, from where we have come and to where we are going. As we try to answer, or find answers to these fundamental questions, a conception concerning the world and things around us is formed. As this conception begins to be more sophisticated, it gradually forms a clearly discernible

structure in the mind, which can now be distinguished from the Life Structure, and thus can be termed “World Structure”. As soon as this new structure is established within the worldview, it begins to function in conjunction with the Life Structure and vice versa. Since the world structure is sophisticated it is more abstract and conceptual. This characteristic of Life Structure in a worldview brings us to the concept of knowledge itself because abstraction is a clear sign of knowledge. This way our mind will arrive at this concept and begin to elaborate it. In fact as Aristotle points out we are naturally inclined to *learn*, namely curiosity is the major stimulation for knowledge. We have to think of this concept from its broader perspective. That is why as the worldview acquires sophistication the concept of knowledge will begin to emerge as a doctrine and thus a new structure will emerge on the basis of this doctrine. We may call this “Knowledge Structure” which is in fact a direct extension of the World Structure. Then, either the World Structure or the Knowledge Structure, or the combination of the two plus the life-structure will eventually lead to a sophisticated concept of morality, which can be discernible as the “Value Structure”. From the composition of such a sophisticated worldview, it is possible to infer a fifth structure as well, to which we shall refer as the “Man Structure”. In the Value Structure we may find moral concepts and/or ideas, doctrines, and depending on the kind of worldview, we may also have our religious and legal conceptions in this structure. In the Man Structure, on the other hand, we have our conceptions of ourselves, as well as of the society and the societal organization.

In order to clarify our structural understanding of worldviews we may try to apply it to the Islamic worldview. Since the Life Structure is grounded in human biology, it will have the most common elements with all other worldviews, and as such the Life Structure of the Islamic worldview is its aspect that is most dominant in the Islamic cultural activities. The World Structure is that aspect of the Islamic worldview which includes the most fundamental elements, such as the idea of God, prophethood, resurrection and the ideas of religion and the hereafter, *akhirah*. We do not mean that these are the only fundamental concepts of the Islamic worldview because each structure by itself represents a doctrinal element which includes within itself much other fundamental Islamic key terminology. But the extensions of these key concepts and terminology constitute substructures; hence, there lie many substructures within the basic structures of the Islamic worldview which may not be so fundamental and as a result differences of opinion in those substructural elements can be allowed. As an extension of the World Structure, Knowledge Structure is also a fundamental doctrinal element, which is represented by the umbrella term *‘ilm*. This structure includes within itself the key scientific

terminology of Islamic science and as such it is extremely important in this context. We call this network of the key scientific Islamic terminology the ‘Islamic scientific conceptual scheme’. It is in this network of concepts that we find the correlation between sciences and language because as we have seen above concepts are the second signs of objects or entities that may be subjected to human knowledge. Since words are the third symbols this is where language is connected necessarily to our scientific activities. Before I explain this correlation let me first show other structures in the Islamic worldview.

The Value Structure in the Islamic worldview includes moral, ethical and legal practices. But since the concept of law in the early Islamic worldview is closely linked with the World Structure, it naturally included religious law, which cannot be devoid of moral content. Hence, law, religion and morality are manifested as an integral part of one structure. This conceptual understanding of law, religion and morality never brought about a sharp distinction between the three. Finally, the Man Structure is represented within the Islamic worldview by the concepts of *khalifah* and *ummah*. As such this structure manifests the Islamic understanding of man and society, which is totally grounded in the World Structure because, again, even these conceptions themselves are derived from the concepts of *tawhid*, prophethood, religion and *akhirah*. Since it is not our aim here to expound these conceptions of Islam, we do not concentrate on their exposition. Only their nature so far as it is related to the concept of worldview as we explained here is sufficient.

Each structure in a worldview, therefore, has a specific function in life and in human activities. This point can be explained from another perspective as well; let us assume a worldview in which the Knowledge Structure is not discernible as a manifest mentality. In such a case, the individual having such a worldview cannot develop and/or actively engaged in any scientific activity. For, there will not be in that person’s worldview any scientific concepts that can form a scientific framework for the mind to work in. As a result, there will be no scientific attitude, nor any scientific tradition that can support such activities. In fact, if there is no Knowledge Structure within a worldview, then that worldview can only be analyzed into its Life and World Structures. For it is the scientific activity which manifests other structures as analyzable units of a worldview; if there is no such activity those structures cannot be developed to such an extent that they become manifest in their respective worldviews. All the structures of a worldview operate in relation to each other. None of them can operate independently; hence, our treatment of them independently is only a logical analysis of a worldview. Otherwise, it is not intended to establish each structure independently. That is

why our concept of worldview does not claim that a worldview without a manifest Knowledge Structure lacks a value system, or a Man Structure that acts as the ground of social and political activities; on the contrary, all these activities will be carried out and regulated by a World Structure that may acquire a degree of sophistication within its respective worldview. But it cannot acquire the level of sophistication manifested in such scientific worldviews that can adequately be analyzed into their Knowledge, Value and Man Structures. We therefore claim that the proper environment for the rise of sciences is only the adequate worldview within which there is a possibility for the flourishing of sciences. Such a worldview is the one in which, first of all, a sophisticated Knowledge Structure has emerged. Then, as a result of this, a sophisticated network of key scientific terms, which we call 'scientific conceptual scheme', is established by the early scholars of that society in which that worldview predominates. This leads us to conclude that although our scientific activities ultimately derive from our worldview, they do not directly follow out of it. For, there is a need for another framework which directly supports such activities. Since this second framework is within the worldview itself and as an extension of it depends on the knowledge-structure, we shall term it the 'inner framework of scientific activities'. Before we embark upon the exposition of this mental structure very briefly in order to point once again to the correlation between sciences and language let us show our result on a table illustrating our point with the Islamic worldview.

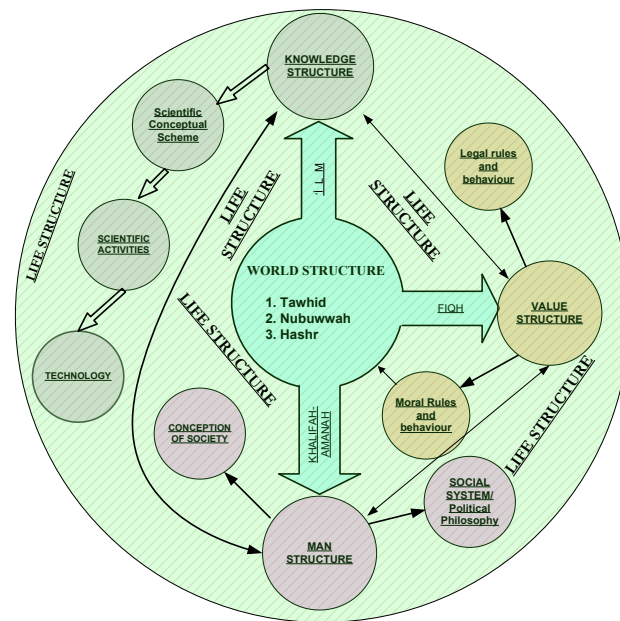


Table 2 Illustrating the Islamic worldview leading through its structures to their respective behaviour

The concept of knowledge then is the fundamental doctrinal element in any scientific scheme. But when we examine the past scientific activities, we can see that concept of knowledge yields the concept of truth, for the primary aim is the true knowledge, which in turn leads to the concept of method because we would like to know *how* such true knowledge can be attained. Therefore, knowledge, truth and method are three essentially interconnected concepts that must be developed first as a general sketch within the knowledge-structure, and then as a fundamental scientific theory in the scientific conceptual vocabulary. Moreover, as the scientific activities continue, scholars will gradually begin to make a distinction between 'personal opinions' and 'scientific opinions', as a result of which emerges the concept of *theory*. It is these four fundamental concepts that yield in the mind of scholars a consciousness that the activity they carry out actually constitutes a discipline because it leads to an organized and systematic body of knowledge, which eventually yields the concept of *science*.

The body of general scientific nomenclature, therefore, developed by the scientists and scholars, constitutes what we call 'scientific conceptual scheme', and as such it includes in general five fundamental concepts: knowledge, truth, method, theory and science. These are the general concepts that every scientific tradition in history has so far developed; but besides these fundamental doctrinal scientific concepts, each scientific tradition developed in its scientific conceptual scheme many other such concepts. We shall give the following example from the Islamic case, without discussing them in this context: *'ilm, usul, ra'y, ijihad, qiyas, fiqh, 'aql, qalb, idrak, wahm, tadabbur, fikr, nazar, nazariyah, hikmah, yaqin, wahy, tafsir, ta'wil, 'alam, kalam, nutq, zann, haqq, bafli, sidq, kidhb, wujud, 'adam, dahr, samad, sarmad, azal, abad, khalq, khulq, firasah, fitrah, tabi'ah, ikhtiyar, kisb, khayr, sharr, halal, haram, wajib, mumkin, amr, iman, and iradah*.

If scientific activities are examined from an epistemological perspective, as we have done here, it will be observed that they emerge primarily from the constitution of our mind which works within three frameworks that it has built for itself. The first two frameworks have been discussed as the worldview (the general framework) and the scientific conceptual scheme (the inner framework). The third one is also a scientific conceptual scheme but one that is used in a specific discipline, and as such in can also be called 'specific scientific conceptual scheme'. It is this scheme that is also identified as 'specific framework', which includes in itself the nomenclature of a specific science. Obviously without such a nomenclature no science can be developed. For example, the network of the technical terms and scientific concepts used in Aristotle's physics constitutes its specific framework. The general scientific conceptual scheme

as the inner framework of his physics is the network of scientific concepts and the way they are conceptualized within the Greek scientific tradition of his time; the general framework, as his worldview, is the Aristotelian system. Let us give another general example from the Islamic scientific tradition: the technical vocabulary and the theological concepts utilized in *kalam* are the specific scientific conceptual scheme of *kalam*; the web of the general scientific vocabulary that is utilized in all Islamic sciences is the scientific conceptual scheme as the inner framework of *kalam*; and finally the Islamic worldview is the general framework of it.

As we have seen with respect to the inner framework our scientific activities totally depended on the concepts developed in this mental framework which leads to the organic correlation between sciences and language. It is the same with respect to the Specific Framework because as we have tried to show what such a framework means is a unity of concepts which may also be called *conceptual unity*. This unity is nothing but a derivation from our language. But this conclusion has implications and we shall now take this as a contemporary problem of Muslims with respect to their languages.

III. THE SOLUTION TO PRESERVE OUR LANGUAGE

Our theory of language combined with the epistemology of science defended in this context has significant implications. First of all we are saying that since the scientific conceptual scheme is made up of the unity of concepts we can communicate this unity only with what we called the Third Symbols which are actual words. This brings language to the heart of the epistemological framework of sciences. In fact since scientific activity is a continuous process the continuity is maintained only with words. For, science flourishes if it establishes a tradition in which there is a scientific community that is carrying the work for the next generation of scholars. But this is possible if there is a verbal communication between scientists which is possible only through language. Hence, language is necessary for scientific thought.

Our epistemology of science correlated to the human language has another implication which can be briefly put in the following manner. As the concepts are formed in our mind we need to assign them a verbal symbol in order to make them available in human communication. Both concepts and their verbal symbols are chosen within the worldview of the individual and thus carry its characteristics. Let us illustrate this with an example from the Greek and Islamic sciences. If we try to compare *kalam* with Aristotelian theology, for example, we will

see fundamental differences. These differences come primarily from the Islamic worldview and the Islamic scientific conceptual scheme. When sciences of different civilizations are compared and contrasted in this way, it is possible to trace most differences to their respective general frameworks; the lesser differences will be traced back to their respective scientific conceptual schemes; and finally the least differences will be found in their specific scientific conceptual schemes, which means with respect to their specific schemes they will have the most similarities. This is because if the worldviews of both scientific traditions exhibit many differences, this will be reflected on the scientific work itself; but if the two respective worldviews are not so much diversified, obviously the differences in their respective sciences will also be proportionately less.

It is clear that scientific language reflects its broad framework which we have shown in our epistemology of science to be worldview. In that case, there is a one to one correspondence between worldview and scientific language. If the dominant worldview in a society is not developed sufficiently there cannot be meaningful scientific activity in that society. Moreover, if there is no meaningful scientific activity in a society the language of that society cannot develop fully. This means that the worldview of that society also cannot progress along with scientific ideas if scientific activities in that society are not sufficient. With this argument we come to the conclusion that science is a significant factor in preserving one's language and this gives us a signal where to go if we want to preserve our language.

CONCLUDING REMARKS

The epistemology we defended in this essay shows the importance of scientific activities in the development of language. In fact a scientific theory brings in more concepts as it generates more knowledge in its way. This means the scientists are forced to assign more linguistic symbols for the newly discovered concepts and this in turn means the development of the language. Every concept expressed linguistically carries with it the impressions of its worldview. That is why a term expressed in a certain scientific tradition cannot be translated exactly into another language. This means that if Muslims want to preserve their languages they should not borrow terms from other traditions instead they need to develop science and contribute to our scientific knowledge significantly so that they can develop their languages also.