

Islamic Kalām:

A possible role in contemporary science and religion dialogue

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“Probably no chapter in the history of the cosmological argument is as significant – or as universally ignored – as that of the Arabic theologians and philosophers. Although we find in them the origin and development of two of the most important versions of the cosmological argument, namely the argument from temporality and the argument from contingency, the contribution of these Islamic thinkers is virtually ignored in western anthologies and books on the subject”.

William Lane Craig (1979)

The contemporary debate on issues in science and religion reminds me of the Kalām debates that started by the 8th century in Basrah among a group of several Muslim thinkers and theologians who were seeking a rational approach to conceive God, comprehend Nature and understand human action. The debate soon was spread north to Baghdad, the capital of the Islamic empire which was extending at that time from China in the east to Morocco and Spain in the west. A 9th century wise and science loving Caliph in Baghdad named al-Ma'moon, who was the son of the famous Caliph Haroon al-Rasheed, encouraged Kalām debates by holding such meetings in his Royal Palace.

In Arabic “Kalām” means speech (or a collection of words). However, it also means “dialogue” and this is the meaning which was intended for Islamic Kalām. In its philosophical content “Kalām” is a collection of concepts, assumptions, principles, and problems that is aimed to explain the relationship between God and the physical world in accordance with the basics of Islamic creed.

Classically Kalām was considered to form the foundation of jurisprudence, or “*Fiqh*”, which constitute the base for Islamic Shari'a (the Islamic religious rules of life). The reason for this is that the Islamic Shari'a constitutes a deductive system of rules and instructions which needs logical foundation to be fully justified and established. Kalām was classified into *Jaleel al- Kalām* and *Daqīq al- Kalām*. The former is the part dealing with problems related to the divine attributes, the resurrection of the dead, and the questions related to the divine knowledge, will, and power. These subjects lead to the

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question of human's free Will held by one school of Kalām, and the counter proposal of self-acquisition of actions that was suggested by another school.

On the other hand, *Daqīq al- Kalām* deals with problems of natural philosophy, most prominent of which is the question of the creation of the world and the question of causality. This leads to discussing the concepts of space, time, motion, force, and many other aspects of the physical world.

Using Ian Barbour's terminology one may say that *Jaleel al- Kalām* could be called "natural theology" whereas *Daqīq al- Kalām* is the "theology of nature"¹.

The dependence of Islamic jurisprudence on Kalām arguments was quite clear through the contributions of Islamic clerics who tried to lay down new foundations for jurisprudence. One prominent example was Ibn Hazm al-Zahiri who summarized some of the most fundamental opinions and views of *Daqīq al- Kalām*, though not naming it as such, in the first volume of his treatise "*Alfisal fi Al-Milal wa Al-Ahwa' wa Al-Nihal*".

Despite the fact that the subject of Kalām was largely ignored, I feel that this trend has much to offer to the subjects of natural philosophy and the contemporary arguments in the debate between science and religion, and therefore is worth studying. Despite the fact that Kalām was the subject of thoughts many centuries ago in the Islamic world, nevertheless many of its arguments are still living and have sound value in the contemporary science and religion dialogue. Indeed, the "Kalām cosmological Argument" which was re-devised by William Craig² is just one contemporary example in a whole field of ideas, concepts, and arguments that can be utilized by the modern philosophy of science. However, the subject is in such state now that it cannot lend itself to an effective role without being purified, reformulated and harmonized with modern philosophy. This requires much work to be done and a pains-taking effort, in order to qualify *Daqīq al- Kalām* for a contemporary role.

For the sake of acquainting the reader with the necessary background in Kalām I am going to expose those views that have a sound value in present day natural philosophy. This will include my own re-arrangement and designation of the basic doctrines and principles of the Kalām. I will try to summarize their main contributions to natural philosophy which was covered under *Daqīq al- Kalām*, and I will skim over some vital problems where I feel some genuine research works is needed to be done in order to see a possible use of Kalām in contemporary science and religion dialogue.

Reasons for the rise of Kalām

One can say that there are two basic motivations for the emergence of Kalām, the first was internal; different opinions expressed by Muslim theologians in respect to the fate of the sinner initiated an argument that went to develop into whole line of thought. For example some theologians suggested that a sinner is a non-believer and should be considered Kāfer (one who breaches of the Islamic belief). Other theologians suggested that he should be considered a descendent (*Fāsiq*), a mid-rank which is in between a Kāfer and a believer. The second reason was caused by reaction of Muslims to the new ideas and thoughts they faced when they came into contact with new nations and civilizations, namely the Romans and the Hindu, at the time when Muslim came in contact with those nations. This contact, at a time when Muslims were the dominating power in the world, created a "Dialogue between Civilizations" rather than a "Clash of

Civilizations”. It is quite unfortunate and disappointing that humanity now and thirteen centuries after that great experience comes to the state of no choice other than the Clash of Civilizations according to the American strategist Samuel Huntington.

The two main schools of Kalām

Mutakallimūn (the doctors of Kalām) formed two main schools, the *Mu'tazilites* who was the first to be formed, and the *Ash'arites*. Prominent leaders of the *Mu'tazilites* were Wāsil Ibn Atta' (d. 748 A.D), Amr ibn Ubaed (d. 762 A.D), Abul Huthail al-Allāf (d. 841 A.D), Ibrāhim al-Nazzām (d. 835 A.D), and al-Jāhiz (d. 868 A.D). Most of the original contributions of the leaders of *Kalām* were lost, but some of their main ideas and arguments were preserved through the writings of their students or opponents. At a later period some prominent leaders of *Mu'tazilites* appeared who contributed a preserved valuable monographs and critiques. Most prominent of these was Abu al-Hussein al-Khayyāt (d.~ 912 A.D) and Abu al-Kāssim al-Balkhi (sometimes called al-Kabi) (d. 931 A.D), Abu Ali al-Jeba'ie (d. 915 A.D) and his Son Abu Hashim al-Jeba'ie (d. 933 A.D). Some of the original works of these prominent *Mu'tazilites* were preserved through the monographs written by their students and followers like Abu Rasheed al-Naysāburi (d. 1024 A.D) and Abdul-Jabbār al-Hamadāni (d. 1024 A.D) who wrote an extensive monograph about *Mu'tazilites* that preserved much of their original thoughts and his student Ahmed ibn Mattaweyh (d. 1059 A.D) who wrote a book preserving a good deal of the opinions of early *Mu'tazilites* on the subjects of *Daqīq al-Kalām*.

The *Ash'arites* school was formed by Abu al-Hasan al -Ash'ari (d. 935 A.D) who brook-away from the *Mu'tazilites* and formed a new school of thought within the trends of *Kalām*. Beside Al-Ash'ari the most prominent contributors to *Ash'arites Kalām* was Abu Bakr al-Bāqillāni (d. 1012 A.D), and later Abu Al-Ma'ālī Al-Juayni (d. 1085 A.D) who wrote some excellent monographs on *Daqīq al- Kalām* and *Jaleel al- Kalām*. However one can say that the most efficient utilization of the *Kalām* was made by al-Ghazālī (d. 1111 A.D) whose contributions are the most mature ones among the *Ash'arites*. At late times the *Ash'arites Kalām* was reformulated by Azud Aldeen al-Eji (d. 1355 A.D) that is considered the last classical *Mutakallim*.

Daqīq al- Kalām investigated some of the basic concepts that are the subjects of contemporary physics, like space, time, matter, force, speed, heat, colors, smells (gases), and the like, so it is quite legitimate to revisit *Daqīq al- Kalām* seeking common understanding, not necessarily with physics as such but may be with the scientific philosophy of the concepts. This trend is supported by the fact that the resources of *Kalām* are quite different from those of the classical natural philosophy including the philosophy of the Greeks. *Mutakallimūn* considered the Qur'an as the prime source for their knowledge about the world, and accordingly they intended to set-up to understand the world according to the stipulations of the Qur'an. This is the main reason why we find that some concepts of *Kalām* are different in their meanings and implications from their counter part in the Greek and Indian philosophy. For example: the Qur'an stipulates that the world was created by God some finite time in the past, accordingly *Mutakallimūn* projected this demand into a whole theory of creation of the world and generated their own understanding of substances (*Jawāher*) and the accidents (*A'rāth*)³ as part of a general principle of discreteness in order to serve the notion of creation. On the other hand, for God to be free in designing the world according to his own unpredictable will, and in order that he performs full control over the world, the world

had to be thought of as being composed of unstable and ever changing events. This requirement generated the concept of ever changing accidents which was expressed by the principle of continued re-creation. Accordingly this leads to consider the laws of nature as being undetermined, and therefore lead Mutakallimūn to develop a new concept of causality.

In no way I would claim here that Kalām forms an integrated body of thought, or that it can be found complete with one individual *Mutakallim*, or that it forms a complete modern philosophy of nature. Rather, I will try to uncover aspects of those thoughts of the Mutakallimūn which might serve as a possible candidate for integration with the contemporary philosophy of natural sciences, in an endeavor to anticipate a kind of a philosophical feed back to the theory of nature. For example, the principle of continual creation can be utilized to understand better the state of indeterminacy of measurement in the physical world. Also, the notion of “discrete time” which was proposed by Mutakallimūn as a part of the general principle of discreteness (atomism) of nature can be utilized in constructing an “all discrete” theory of nature that may contribute to eliminate the present fundamental theoretical problems related to the unification of natural physical forces. On the other had some questions that have been considered already by *Jaleel al-Kalām* do echo with prime issues in the contemporary debates in science and religion that are taking place in the West. Questions concerning the knowledge of God, his action in the physical world, his control of the future and the degree of freedom enjoyed by the natural world and humans were some of the main issues that were debated by Mutakallimūn.

Sources and methodology of *Kalām*

Mutakallimūn considered the Qur’an to be their main source for deducing knowledge about the world. Although they did not explicitly refer much to the Qur’anic verses, but it was clear that their main principles were deduced from the Qur’an. This means that they followed a logical sequence of deduction which starts with the divine revelations, that have to be interpreted rationally, and then tried to understand nature accordingly. Richard Walzer summarized this by saying that: “*Mutakallimūn* followed a methodology that is distinct from that of the philosophers in that they take the truth of Islam as their starting point”.⁴ William Craig also has exposed such a conclusion saying that “*The main difference between a Mutakallimūn (practitioner of Kalām) and a Failasuf (philosopher) lies in the methodological approach to the object of their study: while the practitioner of Kalām takes the truth of Islam as his starting-point, the man of philosophy, though he may take pleasure in the rediscovery of Qur’anic principles, does not make them his starting-point, but follows a ‘method of research independent of dogma, without, however, rejecting the dogma or ignoring it in its sources’.*”⁵

The main approach of Mutakallimūn to understand the world can be presented as follows:

God → Reason → The World

This is just opposite to the approach of the Greek philosophers, which can be presented by the sequence

The World → Reason → God

Effectively the same difference applies to Muslim philosophers as opposed to Mutakallimūn, but only to note for the compromising approach which was mostly

followed by Muslim philosophers who tried hard to reconcile Greek philosophy and Islam.

Philosophy and Kalam

This reconciliatory approach was started already with al-Kindi (d. 868 A.D) and was further developed by al-Farabi (d. 950 A.D) and Avicenna (d. 1036 A.D) who adopted mainly the new-Platonic approach. This approach of the early Muslim philosophers to recognize the divine action in the world was refuted by al-Ghazālī in his book "*The Incoherence of the Philosophers*"⁶. But it was Averroes (d.1198 A.D) who later championed the defense of the doctrines of Aristotle, trying to refute the arguments of al-Ghazālī in his book "*The Incoherence of the Incoherence*"⁷. Averroes also made his efforts to show that Islam can accommodate the views of the Greek philosophy through certain interpretation of the verses of the Qur'an in his book "*Faslul-maqāl fi mā bayna al Shari'a wa al-hikma min al-ittisāl*"⁸. However, this defense was not very successful since the arguments presented by al-Ghazālī were already strong enough and very effective in distracting the attention of the concerned people away from philosophy. The fact that at the time of al-Ghazālī Kalām was still under siege and was generally not favored by the mainstream authors and the religious jury, caused the general trend of Islamic thoughts to be directed toward a more fundamentalist approach that had later to breed thinkers like Ibn Taymiyyah. The birth of such trends that minimizes the role of rational approach to understand God and the world surely caused a set-back in the rational Islamic endeavor.

Some of the late Mutakallimūn, who lived during the eleventh century and later, especially those belonging to the Mu'tazilites, borrowed some of the philosophical arguments in their endeavor to prove the existence of God and theorize his attributes. This approach was not very successful for it was inconsistent with the basic Kalām thesis which assumes that the revelations are the prime source of knowledge in order to understand the world.

The main principles of Daqiq al-Kalām

Despite that the different views expressed by Mutakallimūn were belonging to different schools of Kalām, one find that most views do subscribed to some common basic principles that they have adopted to understand nature. I have recognized the following five principles⁹:

1. The Creation of the world¹⁰:

According to Mutakallimūn the world is not eternal but was created some finite time ago in the past. Space and time had no meaning and never existed before the creation of the world¹¹. Despite the fact that some of the Mutakallimūn believed that creation took place out of a pre-existing form of matter, the dominant view of Mutakallimūn in this respect was that creation took place *ex-nihilo* i.e., out of nothing¹². Accordingly they considered every constituent of the world to be temporal.

2. Discreteness of natural structures:

Mutakallimūn believed that all entities in the world are composed of a finite number of fundamental components each was called *Jawhar* (the substance)¹³ that is non-divisible and has no parts. The *Jawhar* was thought to be an abstract entity that acquires its physical properties and value when occupied

by a character called ‘*Aradh* (i.e., the accident)¹⁴. These accidents are ever-changing characters. Discreteness applies not only to material bodies but to space, time, motion, energy (heat), and all other properties of matter¹⁵. Some authors have tried in vain to relate the Islamic concept of atom with those of the Greek or Hindu¹⁶. However, because the Islamic atom is magnitudeless and because the number of atoms in the world is finite, it was found that it is unlikely that the Muslims have taken this idea from other nation; the Islamic atom has genuinely different properties which make it distinguished¹⁷.

3. Continual re-creation and ever changing world:

Because God is the absolutely able creator of the world and because He is live and ever acting to sustain the universe, therefore the world has to be re-created every moment and another¹⁸. This re-creation occurs with the accidents not with the substance, but since the substances cannot be realized without being attached to some accidents, therefore, the re-creation of the accidents effectively dominates over the substances too. By such a process God stand to be the sustainer of the world.

This principle is very important for two reasons: the first is that it leads to the indeterminism of the world and the second is because it has a sound physical echo in contemporary quantum physics. In respect of the second it is astonishing to know that this understanding would explain why in the quantum world we do not have fixed values for the properties of the systems; rather we always have the average being expressed by the so-called expectation values. So this principle can provide yet another explanation to the fact that our physical measurements detect only the average possible values.

4. Indeterminism of the world:

Since God possess the absolute free will, and since He is the personal creator and the sustainer of the world, He is then at liberty to take any action He wishes in respect to the state of the world or its control. Consequently laws of nature that we recognize has to be probabilistic not deterministic and that the physical values are to be contingent and undetermined¹⁹. This is how the Mutakallimūn deduced the indeterminacy of the world. This resulted in rejecting the existence of natural causality²⁰ because nature, according to Mutakallimūn, cannot have any sort of will. Mutakallimūn also rejected the Greek four basic elements²¹ and the existence of any kind of self-acting property belonging to those elements. This is a very central argument in Kalām for the proof of the need for God; if nature is blind no productive development would be expected.

5. Integrity of space and time:

Mutakallimūn had the understanding that space has no meaning on its own. Without having a body we cannot realize the existence of a space. So is the time, which cannot be realized without the existence of motion which needs a body to be affected²². This connection of space and time is deeply rooted in Arabic²³. Therefore, neither absolute space nor absolute time does exist²⁴. This understanding formulated their understanding of motion as being discrete and that the trajectory of motion is composed of neighboring “*rest-points*”²⁵.

Accordingly they say that a body is seen moving faster than another only because the number of rest-points along its trajectory is small compared to those along the trajectory of the other. However, the Mu'tazilite al-Nazzām believed that motion on the microscopic level takes place in discrete jumps called "*tafra*". Max Jammer considered this understanding of al-Nazzām as being the oldest realization of a quantum motion, he says: "In fact al-Nazzām's notion of leap, his designation of an analyzable inter-phenomenon, may be regarded as an early forerunner of Bohr's conception of quantum jumps"²⁶.

Current approaches in Science and religion

The current approaches in science and religion debates in the West do seem to follow trends similar to those of the Greek philosophers, reconciling some Christian theological doctrines with scientific paradigms, through rationalizing theology and bringing some of its doctrines into the realm of scientific realization. Such an approach have some positive side as it follows the paradigm of free rational enquiry, but would, unfortunately, lead to re-designing God, his attributes and action to fit the contemporary logic of science. This has already resulted in notions like God-of-the-gaps and the more subtle notion of intelligent design. Genuine scholars of science and religion are aware of this danger, but only to some limited extent. The reason why such a compromising approach may lead into distortions on the theological part is the embedded eagerness to have a complete theory that would harmonize science and religion and explain every thing. Such eagerness could push into similar mistakes that the old Mutakallimūn could not have avoided, resulting in an inconsistent theology.

A safer approach would assume certain theologically based doctrines, which may or may not find an immediate realization within the framework of science, and then to seek a better and deeper understanding of nature and the human action through that approach. Polkinghorne puts this by saying "*Both theology and science have to speak of entities which are not directly observable. In consequence, both must be prepared to make use of model and metaphor*".²⁷ Such a use of model and metaphor can be realized through the paradigm of Kalām rather than the paradigm of science alone or that of philosophy. This is more fruitful an approach since here religion will have a feedback on science and vice versa. The outcome will be a framework within which religion and science will both be developing genuinely, hopefully, into convergence.

We need to understand the true implications of the modern 20th century science as much as we need to understand the original doctrines of religion. Conceptions proposed by quantum theory and the mathematical structure of quantum mechanics are still in need of deeper understanding. The meaning of an "operator" in quantum mechanics is obscure as much as the meaning of unpredictability of measurements. The role played by the mathematical entities called "imaginary quantities" in physics, although being directly un-measurable entities, is something worth studying too on the conceptual level, in order to understand much of its practical naturalistic meaning²⁸. In theoretical physics most of us play the game of generating equations that sometime do not have clear explanations. An example of this is string theory. In general relativity and curved spacetime physics we are not ready yet to understand the full meaning and implications of a space-like universe. For this reason many of the black hole physicists were taken by surprise immediately after the declaration of Stephen Hawking last year that information are not completely lost when a particle falls into a black hole²⁹. In cosmology and despite the eminence of the big bang theory, we are still far from deciding whether the universe did have a start in time or whether had an infinite

extension in the past. The point singularity that contains all matter and energy that exists in our universe stands not only as an epistemological challenge but an ontological dilemma too. Indeed, science is firm and strong on the practical side of the story, but is still far from reaching a climax on the theoretical side. That is why we should not speculate much. Instead we should have some fixed basic principles and doctrines, some sort of an epistemic paradigm, while finding our way through science and religion.

Some issues of contemporary importance

In this section I will discuss some currently hot issues in the science and religion debate adopting the arguments of Kalām in the background of my suggestions. The aim here is to show some ideas in dealing with these issues and have a view of what the Islamic Kalām may have to say about it.

The Laws of physics, laws of nature and the divine action

Most of us talk about the laws that we discover in physics and call it the laws of nature. In fact this is a subtle point, and would imply some sort of a belief that we may or may not accept. To admit the existence of “natural laws” may implicitly mean to say that nature exhibit itself according to reliable set of rules which controls its behavior. However, this may also mean that the laws of nature are some intrinsic properties that make nature behave spontaneously independent of any thing beyond it. Ancient philosophers assumed such intrinsic properties and today atheist scientists mean to say the same. This led in the past to some kind of reductionism already in the Aristotelian doctrines by assuming that God is just a prime mover. Presently it led to the God-of-the-gaps and also to concede in a role for God only if a beginning in time for the universe is realized. But soon as Hawking deduced a way to avoid the temporal singularity in the history of the universe he immediately questioned the role of the creator? In fact the Hawking question would be inevitable for any one who sees no role for God except as a prime mover; no beginning, therefore will eliminate the role of the prime mover.

On the other hand some physicists, like Steven Weinberg, that are skeptic of any divine interaction with the world, wish to see God always acting with miracles or otherwise should abide by their understanding of the world.³⁰ A miraculous universe is more likely to be chaotic, and a chaotic universe will be in less need for God although such a need cannot be fully eliminated. Should the universe been running miraculously the task of assuming the absence of an organizing and controlling global force would have been easier. At this point it seems to me that the argument of Weinberg is self-defeating; a fiery sword will suddenly appear in the auditorium to hit Steven Weinberg if and only if the world is completely working miraculously at random.

Glimpses of the divine action

Understanding divine action in the world will formulate our understanding of the divine attributes and capabilities, and consequently will shape our understanding of God. Therefore, it is a matter of utmost importance to play the game cautiously taking into consideration our limited intellectual capabilities and our renewable scientific knowledge.

Quantum theory provided us with a new realization of the world through new concepts and principles that seem to transform our conception of nature to become more abstract. Particles have been turned to have wave properties, which has weakened locality and produced the result that physical measurements of some parameters is undetermined. The Heisenberg uncertainty principle and the notion of virtual particles

that was construed from it do allow for invisible and directly immeasurable virtual worlds and creatures surrounding us. The notion of the vacuum is, accordingly, different from the customary notion of nothingness.

The so-called “causal joint” in the divine action, is much sought rigorously in the quantum description of the world. At this point we should remember that quantum description of the world, even on the macroscopic level, is physically more accurate than the classical description. So, indeterminism and probabilistic measurements underlay the reality of our physical world. On the other hand, quantum description of the physical world demands the presence of “*operators*” that would effect the action of measurement or any move of the system. Though such operators are always understood to be mathematical entities within the structure of quantum theory, but also we know that physical observables are the corresponding expectation values of those operators.

The full description of the world on the smallest scale would need quantizing spacetime, a step which would reformulate the whole structure of both quantum theory and general relativity. Some basic concepts may have to be altered accordingly and therefore, we should be careful on drawing final and stiff conclusions on modeling God, since God should be independent of all this. That is to say any comprehension of divinity and the divine action should be independent of the details of scientific theories; only we should take the evidence from science in as much as it would guide into comprehending divinity on a rational scale. But it should always be remembered that comprehending divinity is more a matter of faith rather than being a mathematical exercise; no one can prove or disprove the existence of god mathematically and since god is not a physical entity no one would be able to prove or disprove the existence of God through physical discoveries.

The Islamic description of God in the Qur'an is more abstract as compared with the description given in the Bible. But we should admit that both the Qur'an and the Bible do give some descriptions of the divine attributes that may look, at first sight, contradicting. This stems from the fact that holy books are not scientific books but contain a lot of metaphor.

Intelligibility of the world

Perhaps this is the most important issue in reconciling science and religion. The universe seems to be following a logical trend of causality and lawfulness. This leads to the belief that nature is driving itself with no need for an external drive. However, this may lead also to believe that the universe has a sort of cosmic mind that is driving it from within, such a mind is a global cosmic order. This was the type of God that Espinoza have conceived and in which Einstein believed. However, it remains uneasy task to realize how such cosmic order would get compiled in a sort of global cosmic consciousness from within the cosmos itself. Nevertheless the challenge it remains to understand why this intelligible world gets organized in such a way as to behave lawfully. Therefore, it seems that the lawfulness of the world is a strong indication of a purpose and some final destiny for it.

One may truly suggest that objects of the world do have some intrinsic nature, however there can be no clear reason how this nature would be a stand alone property taking into consideration that quantum physics have shown the fluctuating character of all the physical quantities. Here the principle of continual re-creation of Kalām does come into action. Fluctuations are caused by continual re-creation, justifying at the same time the divine intervention driving the world through its ever re-created properties.

The divine intervention need not be miraculous at all since such a miraculous intervention will render the world unintelligible as I mentioned above. The Qur'an has

stressed this fact in several verses. For example we read "*He created the Heavens and the Earth truthfully (justly)*". Here the word "truthfully" does not accurately describe the Arabic original word which is in the verse. In fact the original word intends to mean that God had created the world justly to be ordered and could be reasoned. This is why we see in some translations the words "with truth", "truthfully" comes in. In other translation of this verse we read "*He created the Heavens and the Earth for a genuine purpose*"³¹ (Sarwar 40:25).

It is not feasible to rule out the role of some strict laws that governs the behavior of the world, however one can realize the action of such laws to be sustained by some supernatural agency that necessarily exist in order to operate these laws. The necessity that such an agency be supernatural is imposed by the fact that if the agency is to be natural then it has to abide by the same rules of nature and would therefore be in need for an operator ad infinitum.

Freedom of the world

Sir John Polkinghorne believes that "*God has given freedom to the whole world*"³² and it is beautiful how he justified his claim. According to Polkinghorne we have *love* and *faithfulness*, as attributes of God, being reflected as *freedom* and *reliability* in the act of the world, which results in the *chance* and *necessity*. However, this will make some people say that "*the role of chance subverts the religious claim that there is a purpose at work in the world*". But then if we would insist that chance (or the so-called happenstance) "*were to be operating within a context of lawful regularity*" the intent of "chance" will be lost. This is why it would be better to talk about "*contingency*" instead of taking about "*chance*". We would say that the fruitfulness of the world is an inter-play between "contingency and necessity", and this is what the old Mutakallimūn were saying. *Contingency* is a type of freedom that is given to the world to be as it is and to allow for the different possibilities or facets that it might be showing.

However, if we would claim that God have allocated certain "intrinsic properties" with nature that allow things to chose their own way into action, then this implies that nature has some sort of a decision to make at every action that takes place, but then this means that nature do have a mind. The question will arise as how nature would works under the auspices of divine action. Here again we face a God-of-the-gaps being hidden under the notion of "chance and necessity". Although Polkinghorne would find that the "*fruitful interplay between chance and necessity is a reflection of the twin gifts of freedom and reliability which God has given to the world, gifts which are the reflections of his combined nature of love and faithfulness*" but unfortunately such mystic reflections of this serious ontological matter would not help resolving the problem of the conflict between God's choice and nature's choice. Unless we mean to say that nature's Will may win over the divine Will in order to explain the existence of natural evil, like cancer, I find no reason why the divine Will should supersede nature's will. But then if we would accept this kind of conflict between nature and God we do implicitly assume the existence of more than God. It is wise to admit that this problem is one of the most serious problems that arise in connection with the required reconciliation between science and religion. The importance and the challenge of this problem come from the fact that we see nature behaving, practically, according to reliable laws. Nature even can adapt itself and choose to change the environment so as to develop a balance that comes in favor of certain intended goals, this which led to the *Gia* hypothesis. An example of this is the adaptation of the environment that took place

in Earth's atmosphere long time ago in order to get the proper percentage of oxygen and nitrogen in air to make life possible.

The better alternative, I find, is to assume that nature has no freedom, and that it would be correct to say that it has given full submittal to God. In this context a sort of divine "democracy" would be at work instead of a divine tyranny. This submittal comes through obeying God's orders; being the operator and the coordinator of the laws that nature would abide with. Nature has been given the right to expose itself through its allocated properties and qualities and that God operates it and make the final decision. So God, the lawgiver, have designed the world in such a way as to have things being associated with certain properties that characterize what we call the "nature of things". But then such nature will be acting under the auspices of the divine Will, through the need for operation and coordination. Here comes the necessity to have the world getting created anew every moment; the divine action taking place through operating the given law. This way we can realize the true meaning of the divine providence.

But then remains the question as how the merciful and compassionate God would order an evil act of nature to take place? It seems to me that God did not create this world to entertain humans; otherwise, he would not have given the qualities and laws that would enable natural evil to happen in the first place. Rather it seems that the challenge put forward for human in this world is to behave within the given freedom and capabilities, in order to achieve the goal that he is tasked to achieve in this world. This goal is the actual destiny behind the whole game of creation and development of mankind and the universe. Theories of cosmology tells us that there could be many worlds empty of any developed life and tells us that our universe is very accurately fine-tuned to make our existence possible. Therefore, surely human is destined to do something of great value that justifies his existence in a world with all such a delicacy and complication.

One final point is due and that is to say that the laws of physics are, in fact, our realizations for how the world would act; in no way these laws necessarily are expressing the true and actual divine algorithms. These laws are our algorithms for the world. Therefore I would say that we are far from conceiving how the "mind of god" works, and we are far from being able to "catch God at work".³³

Human Freedom

Human freedom is different from natural freedom because human freedom implies having his own intrinsic will; he can make his own choices without the need for some external body to dictate him. However, all his physical acts are in need for an operator/coordinator no matter if we assume the top-down or the bottom-up causation model. Nevertheless, human free-will is superior to that of the rest of the world for one good reason; human is an intelligent being that is curious and able to discover, analyze, and construct.

Human free-will is validated by practical realization of actions. If these actions are not realized in practice human free-will would have no practical value. Since the validation of human *will* would go through natural effects and actions, therefore it is reasonable to assume that that human *will* is bound with the global destiny of the world.

Perhaps the best idea that I find plausible in contemporary debates about the divine action is the idea which was proposed by John Polkinghorne in which he assumes that God interacts with the world through active information input, not an energy input. The idea is intriguing, especially within the Islamic arena of thoughts. God always interact with the world through his word (command, order). For example

according to the Qur'an Jesus was the Word of God revealed to Mary. God is described to be knowledgeable and experienced; the one who knows all that is hidden. However, it does not seem that Polkinghorne have suggested any mechanism to realize such information transfer. Admittedly, it is not easy to suggest a mechanism of information transfer between two worlds one physical and the other is being non-physical. One major problem is temporality which is not a common factor between both. Nevertheless, this idea may be quite generic and can explain many things. However, we do not have to stick to the notion of a personal God to realize a possible mechanism of information transfer since the notion of a personal God would induce that he may be a localized body.

The Multiverse Proposal

During the second half of the last century some physicists turned their attention to the accuracy with which the values of universal constants (like the mass of the electron, Planck constant, the gravitational constant, the charge of the electron...etc) has been set. They discussed the sensitivity of the structure and the property of our universe to these values. They found that a life accommodating universe is surely very sensitive to small variation in the values of these universal constants. This was called fine-tuning.

In order to explain the fine tuning which is observed in the construction of the world and the due precision by which nature is seen to be operated, some physicists proposed that our world is actually not the only universe existing but it is only one state out of infinite number of worlds that are existing simultaneously. These were called the parallel universes. All such worlds may be lifeless but ours. Consequently, the proponents of this multiverse hypothesis see nothing astonishing in the fine-tuning of the world since it would be a matter of well-expected chance then to have a fine-tuned world like ours. The multiverse hypothesis gained publicity through an article by Max Tegmark published in *Scientific American*³⁴. However, much of the claims that this multiverse is a reality are unfounded; there is no rigorous proof of such states. The primary source for these speculations is the theory of chaotic inflation proposed by Andre Linde. The other claimed source is the Everret interpretation of quantum mechanics which allows for many other worlds to exist in which all other possible values of a physical measurement do exist. However, it is important to know that the Everret many worlds interpretation applies to quantum (microscopic) systems not classical (macroscopic) systems. On the other hand this is a complicated philosophical problem that cannot be verified by direct experiments.

There are some basic scientific objections to the possibility of having all other universes really existing at the same time. The most important of these objections may be the orthogonality condition. By this condition quantum systems belonging to the same Hermitian operator with different eigenvalues (different values for the same observable) have to be orthogonal. This implies that no two quantum systems of this sort can exist simultaneously. Such a condition is necessary in quantum mechanics in order to guarantee the repeatability of physical measurements. In any case, having our universe which is a very low probability event being realized, the question still remains as who has decided that this possible universe should exist rather than another, or rather than nothing at all? One may argue that here on the planet Earth life has developed, whereas there are many other planets that cannot accommodate life. The very existence of the many lifeless planets is suggestive of the possibility of existence of many lifeless universes. However, a counter argument will say that the non-existence of life on other planets is actually caused by the fact that the conditions for life to exist are very subtle and sensitive. Having all other planets abiding by the same laws of physics would cause

the planet on which life exist to be distinctive. But should different planets obey different laws of physics we cannot then quietly justify the non-existences of life on those planets. Similarly, a multiverse theory should require all other hypothetical universes to abide by the same laws that our universe abide with, otherwise we cannot understand why life should not exist in them. However, no strong scientific argument exist that can confirm that the other hypothetical universes do follow the same laws of physics as ours, to the contrary the hypothesis of multiverse suggests that the laws of physics may not be the same in other universes and this is the argument which is frequently used to justify the accurate selection of a set of laws that will make life possible on Earth in our universe.

One other good question which comes across the hypothesis of multiverse is that which was raised by Einstein and says whether "God had any choice when creating this universe".³⁵ Some physicists find that the answer to this question could be yes in the light of the multiverse hypothesis³⁶. The Qur'an does suggest that God had and always have the choice, however such a possibility does not necessarily imply that God have such universes ready under his gloves.

I would say that a multiverse may exist only under fully chaotic miraculous ruling. God not only have created this world justly and for a purpose, but have set some built-in mechanisms to safeguard that the world remains to be comprehensible.

In summary I would say that Islamic Kalām can play a positive contemporary role in the science and religion dialogue, some of its arguments do have sound contemporary value and are actually not bound to be specifically Islamic, since most of these arguments are rationally based. However, since Kalām lays heavily on the basic Islamic creed which has much in common with the basic beliefs of the Jewish and Christian faith, it may be legitimate to designate the Islamic Kalām as being part of the Abrahamic theology, but not necessarily to be exclusively Islamic. From this point of view I can see that there is much wealth of thoughts in Kalām to make use of and there is much to learn from it too.

Endnotes and References:

- ¹ Ian Barbour - Ian G. Barbour, *Religion and Science*, (London: SCM Press, 1998), p100.
- ² Craig, W. L., *The Kalām Cosmological Argument*, (London and Basingstoke: The Macmillan Press Ltd. 1979).
- ³ This explains why the Islamic atomism had to be different from the Greek atomism, a question that has upset Harry Wolfson. See: H. A. Wolfson, *The Philosophy of The Kalām*, (Harvard University Press, 1976), p. 472-486.
- ⁴ Richard Walzer, 'Early Islamic Philosophers', in *The Cambridge History of Late Greek and Early Medieval Philosophy*, ed. A. H. Armstrong (Cambridge University Press, 1970), p. 648.
- ⁵ W. L. Craig, *The Kalām Cosmological Argument*, p. 17 and references therein.
- ⁶ al-Ghazali, *Tahafut al-Falasifa, (The Incoherence of the Philosophers)*, translated by Michael Marmura, (Brigham Young University Press, Utah 2000).
- ⁷ Averroes, *Tahafut al-Tahafut, (The Incoherence of the Incoherence)*, translated from Arabic with introduction and notes by Simon Van den Bergh, Published and distributed by the trustee of the E.J. W. Gibb Memorial, 1930.
- ⁸ Averroes, *On the Harmony of Religions and Philosophy*, published and translated as: Averroës, *The Philosophy and Theology of Averroes*, trans. Mohammed Jamil-al-Rahman (Baroda: A. G. Widgery, 1921)
- ⁹ M.B. Altaie, *The Scientific value of Daqīq al-Kalām*, J. Islamic Thought and Scientific Creativity, Vol. 4, No. 2, 7-18, 1994.
- ¹⁰ The best available account of this doctrine was given by al-Ghazali in his celebrated book *Tahafut al-Falasifa, (The Incoherence of the Philosophers)* cited above.
- ¹¹ William Craig re-devised this doctrine in a more modern context; see his book "*The Kalām Cosmological argument*", *loc.cit.* p. 63.
- ¹² H.M. al-Alousi, *A Dialogue Between Philosophers and Mutakallimūn*, (Beirut: Arab Foundation for Studies, 2nd ed., 1980) p. 59. Also, see Wolfson, *loc.cit.* p. 359-372.
- ¹³ The name Jawhar and al-Jawhar are unanimous, however the term al-Jawhar al-fard is the term given to the non-divisible entity out of which all things of the world is composed, see S. Pines, *Beitrag zur Islamischen Atomenlehre*, (Berlin:1939) for a detailed account on this terminology. It is also of importance to point that the term substances (as originally defined within the Greek philosophy) do not accurately correspond to the Islamic atom. There are some basic differences between the Greek atom and the Islamic atom (see Wilfson p.471-472)
- ¹⁴ It is sometimes claimed that the Jawhar is a magnitudeless entity (see, Wolfson P.472) but in fact this identification is not unanimous since, although Mu'tazilites have considered the Jawhar to be magnitudeless, Ash'arites consider it to have some magnitude, see Al-Juwayni, p. 159.
- ¹⁵ M.B. Altaie, *Atomism according to Mutakallimūn, Etudes Orientales*, Vol. 23/24, pp. 49-90, 2005.
- ¹⁶ H.A. Wolfson, *Ibid*, p.466.
- ¹⁷ S. Pines, *Beitrag zur Islamischen Atomenlehre*, (Berlin:1939).
- ¹⁸ The best account for this doctrine is given in the book of Abu al-Ma'ali al-Juwayni, "*Al-Shamil Fi Usul Addeen*", (in Arabic), p. 159.
- ¹⁹ This view echoes with what the philosophy of quantum theory stipulates according to the interpretation of the Copenhagen school, see Max Jammer, *The Philosophy of Quantum Theory*, (Weily, New York, 1974).
- ²⁰ However, this does not mean that that *Mutakallimūn* rejected causal relation or the existence of cause and effect, rather they believed in such relations but only to the extent that it would reflect our own logic rather than having to play the role of full control of nature by itself. This is perhaps one of the most misunderstood problems of *Kalām*.
- ²¹ See, for example, al-Baqillani, *Kitab Tamheed Al-Awael* , (in Arabic) Ed. Imad Aldeen Hayder, (Beirut: 1987).
- ²² M.B. Altaie, *Time in Islamic Kalām*, a paper delivered at the conference on Einstein, God and Time, Oxford University, Sept. 11-13, 2005.
- ²³ The concepts of space and time in Arabic is given in many general as well as specialized dictionaries, see for example al-Jurjani, *Al-Tareefat*, p. 19 and 61.
- ²⁴ The best reference for these terms is *Al-Fisal* of Ibn Hazm, where he explicitly states this point of view with many interesting details. For example he says: "They (the philosophers) say that absolute space and absolute time is not what we have defined previously because they are not invariant", see *Al-Fisal*, p.75.

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- ²⁵ The different views of Mutakallimūn of this concept of motion is presented in more details in the book of al-Ash'ari (see *Makalat* p. 21-25)
- ²⁶ Max Jammer, *The Philosophy of Quantum Theory*, (New York: John Wiley, 1976), p. 259.
- ²⁷ J. Polkinghorne, "*Reason and Reality*", SPCK, London 1993.
- ²⁸ Hawking and Hartle have already found that the universe could have been in a state of an infinitely-extending imaginary time before the big bang.
- ²⁹ S. Hawking, GR17, Ireland, public lecture.
- ³⁰ In a moment of despair during a debate with John Polkinghorne, Steven Weinberg said "And indeed at any moment we may get evidence of a supernatural supervisor of the universe. I mean suddenly in this auditorium a flaming sword may come and strike me for my impiety, and then we will know the answer", SSQ 2002, Spain.
- ³¹ Clay Chip Smith, *The Parallel Qur'an*, can be found at: <http://www.clay.smith.name>.
- ³² J. Polkinghorne, *God's Action in the World*, J.K. Russell Fellowship Lecture, 1990.
- ³³ This is in reference to Einstein's words on his death bed.
- ³⁴ Max Tegmark, "*Parallell Universes*", Scientific American", May 2003.
- ³⁵ A. Einstein, quoted in www.humboldt1.com/~gralsto/einstein/quotes.html.
- ³⁶ P.C.W Davies. *Multiverse Cosmological Models*, Mod. Phys. Lett.A19:727-744, 2004.