



Physics and causation among Muslims and theologians

hasan ali dhah

hasan.a.dhahi@nust.edu.iq

National University of Science and Technology, Nasiriyah, Iraq

Abstract

We study the concept of causality as used by Islamic Theologians, the Mu'tazilites and the Ash'arites and compare it with the current concept used in modern physics. In order to set the concept in its historical context and see its connection with the development of the concept during the European renaissance starting from Galileo, it was necessary to expose the Aristotelian understanding of causality since it forms a common base for all other understandings. We also analyze the implications of the new concepts that were developed by modern physics, namely quantum theory and Einstein's relativity theory that have drastically affected the understanding of causality. We conclude that the new concept of causality as it is in modern physics is much in agreement with that which was proposed by Islamic Theologians.

5438

DOI Number:10.14704/nq.2022.20.8.NQ44573

NeuroQuantology 2022; 20(8): 5438-5455

philosophers, especially in the early twentieth century. In general, the problem of causation and the issues that accompany it, such as determinism, are determinism and in considered the backbone, and the mother issue of science and philosophy together, as Dr. put it (1) Khouli-Youmna Tarif al

The available studies in the previous, modern and contemporary literature that dealt with the whether among ,issue of causation philosophers or theologians, are many, varied the exact content of the issue. and vary in Also, these studies differ in the methods and approaches to addressing the issue, some of which deal with the issue in the historical framework, others in the religious and ideological framework, and others in the philosophical framework based on traditional philosophy of Greece, especially the philosophy of Aristotle. It is worth mentioning at the outset that most researchers and authors classify the Greek philosophers and the most

Introduction

The issue of causality is one of the important issues that preoccupied the thought of many philosophers and scientists since ancient times, because of what their senses perceive of the continuous change in the phenomena of the universe, and their stability at the same time. A ical doctrine or a scientific theory is not philosoph The . issue free from taking a position on this issue of causation is one of the important topics that have been preoccupied with philosophy in general, and the philosophy of science in ilosophers have been particular Specifically, ph The dawn of studying this issue since philosophy until our age

philosophers of physicists and contemporary science. This means that causation still raises many problems, whether on the ontological (cognitive) (existential) or epistemological paradoxes of level, which led to the emergence that caused an uproar among scientists and



And because our approach envisages adopting contemporary science as a way to tighten of adopting positions, we found the necessity this balance when drawing conclusions in this topic. Thus, we can sum up what we say about the method here, and we describe it as a doctrinal and scientific method. On the one hand, it takes the foundations and principles of as a starting point, and on the the Islamic faith other hand it adheres to the facts and methods of scientific knowledge as a means to reach our approach is based on and therefore ,the goal .both faith and science

Basic definitions

ons and Before presenting and analyzing the posi opinions of the different philosophers and thinkers regarding the problem of causation, it is necessary first to define a set of terms that we find that their use is frequent when discussing this issue, including the concept of nature, the concept of reason, and the concept of the cause, and then clarifying the difference between the two .concepts of cause and cause

The temperament is the “Razi said: -And then Al temperament that man is endowed with. It is o him, originally a source, and nature is similar t In the ⁽²⁾ ”.and so is the nature of the fracture Jurjani: The nature of -definitions of Sharif Al sukoon: the structure on which man was created; Nature: It is the force that flows through the bodies by which the body reaches its natural .⁽³⁾ perfection

Natureis The . nature term derived from a nature of man is any of his creatures. And his nature, meaning his creation on which he was

o popular Muslim philosophers as those wh said natural causation and classify the aris in particular that they ’theologians and Ash rejected causation and said it is invalid. The truth is that this ruling is inaccurate as will be .shown in this study

Exposure to the issue of causation in its emporary scientific framework is not an cont easy thing, because it requires involvement in philosophy, Islamic theology, and modern and contemporary physics. A major shift came from and relativity). These the two theories (quantum scientific and then two theories that transformed philosophical thinking to an unprecedented extent, caused a revolution in scientific concepts .and philosophical contents

We have done our best in this study to shorten the presentation and intensify it, but the research rugged and arge and its people aresupplies are l delicate that need a lot of explanation and .detail

Research Methodology

Many studies have dealt with the issue of causation according to a variety of methodologies, including the historical methodology, the critical methodology, the dialectical materialist methodology, and the philosophical positivist methodology. These were ll aimed at reaching a position consistent with a the academic, ideological or ideological standpoint adopted by the student. But in the face the need to of the goal that we set in mind, we find present the issue according to a diverse approach that the matter from different angles, so we will present presents the issue in its historical context first, represented by the Greek understanding of causation and then the European Renaissance understanding, which originally drew the understanding, influenced position from the previous Greek by the Islamic position that historically mediates Both stages, then we present the modern European position. In the Islamic part of the issue, it will be presented first in its ded in ideological framework, starting with what was inclu the Holy Book and what the Prophetic Sunnah indicated in this regard, and then we will present the positions of the main Islamic intellectual groups: philosophers and theologians. Since the core of the topic is centered on the ers, it is necessary to elaborate their positions of the speak sayings, and to distinguish between the positions of the .Mutazilites and the Ash’aris from them



وذكر الغزالي في المستصفى "وَأَعْلَمُ أَنَّ اسْمَ السَّبَبِ مُشْتَرِكٌ فِي اصْطِلَاحِ الْفُقَهَاءِ، وَأَصْلُ اشْتِقَاقِهِ مِنَ الطَّرِيقِ وَمِنْ الْحَبْلِ الَّذِي بِهِ يُنَزَّخُ الْمَاءُ مِنَ الْبَيْرِ، وَحَدُّهُ مَا يَخْصُلُ الشَّيْءُ عِنْدَهُ لَا بِهِ، فَإِنَّ الْوُضُوءَ بِالسَّيْرِ لَا بِالطَّرِيقِ وَلَكِنْ لَا بُدَّ مِنَ الطَّرِيقِ
And the water was drained by rehydration, not
? . (9) "by a rope, but by a rope

We understand from this that the reason in language is the thing that reaches to others. It the meanings in which this concept seems that was used by philosophers, logicians and theologians revolve around this intent, considering that the reason for them is what is So in . consequently caused by reason or reality s reached to general, the reason in language means what i others. And idiomatically: the cause is what is required for existence by another existence that is the its result of (the cause) that follows it and follows .it

bug

Thanawy: -The Illah in the language: It came in Kashshaf Al The Illah with the fracture and the accentuation of the "Laam in the language is a name for an accident by which the description of the place changes by its occurrence, and choice. That is why the disease was by necessity and not by s condition 'called an illness, because by its arrival the person changes from strength to weakness. It was said that it is used in what affects me. A matter, whether the influencer is an ong the meanings of the illness Am. (10) "attribute or a subject And the illness: the "Arab is: -mentioned in Lisan al . (11) "disease He is elevated, and he is afflicted, i.e., a disease -Sharif Al-As for the definitions of Sayyid Al Illah is linguistically: a meaning that "Jurjani, s the place, in which the state of the replace place changes without choice, and from it is called the disease, an illness, because by its s condition changes from 'arrival the person strength to weakness, and it was said: It is hing and it what depends on the existence of a t . (12) .is external to influence it

The difference between cause and effect

Many authors and thinkers confuse the terms cause" and "cause". This is something that we " can notice, even in some philosophical or linguistic dictionaries. This is a beautiful cross. We find it saying in the philosophical e causation, and The causality is th "dictionary, it is called the relationship between cause and Among some of the early (13) "effect theologians and philosophers of Islam who and these "Illah" preferred the use of the term

eISSN1303-5150

created in terms of its shape, color, behavior and the rest of its descriptions, and from here the meaning of the seal, comes the imprint in which is the effect on the thing to be formed in a certain form, and the natural is not the industrial, and if the name of nature is given, it means everything that exists in this universe of and the -s creatures The Almighty 'God science of nature is the science that investigates the nature of things and what is .specific to them

The summary of the concept of printing in the existing -common term is that it is a self quality that is capable of action, something is so the nature of fire is ,conditioned on it is applied to "naturalists"burning. The term the people of natural sciences, and it is also applied to a group that worships the four natures, i.e. heat, cold, humidity and dryness, as the scientist they have is a compound of ese natures, and this group is called th . (4) naturalism

5440

the reason

Razi: -in the language: he saidAl The reason The cause is the rope, and everything that leads to something else and the causes of It was mentioned in . (5) "heavenIts aspects Thanawy about the meaning of -Kashshaf Al The reason is in the language of rope. "reason: a there is an expression for 'And in the Shari what is a way to reach a ruling that does not s 'Arab-And in Lisan Al (6) ".affect it he reason: everything is reached T "dictionary: by something else; And in a copy: everything that is sought by something other than him, and it has caused him, and the combination is causes; Everything that is connected to a thing n for so a reaso-and-is a cause. And I made so so in my need and a -and-me to cause so . (7) "relationship, that is, a link and a pretext Jurjani, he defines the reason as -As for Sharif Al :follows

a noun for what leads to a : the language In goal, and in Sharia: an expression for that way to reach a ruling without which is a affecting it. The complete cause: is that which exists the cause by its existence only. And the imperfect cause: is the one on which the existence of the cause depends, but the cause . (8) "does not exist. only by his presence



Amidi -Imam of the Two Holy Mosques, Al .⁽¹⁶⁾ and others narrated by agreement that dealt studies As for recent philosophical with the issue of causation, most of them do not differentiate in use between the terms Sometimes scholars and "cause."and "cause" and , "cause" researchers use the word sometimes we find them using the word In the introduction to his study of the "cause." Salam bin Mays -problem of causation, Abd al The term causation refers to the "says, ationship between cause and effect. The rel are used in "causality"and "causality"words .⁽¹⁷⁾ "the Arabic language with one meaning Bouti, speaking about the problem of -This Al causation in his book The Greatest Cosmic We do not want to "Certainties, says: differentiate between cause and cause, as they "are the same in what we mean in this research This lack of distinction between the two .⁽¹⁸⁾ in use stems from "cause"and "cause"terms the confusion that is common in the writings gians who study this of philosophers or theolo problem. Where we find some of them using and others using the word "Illah"the word and we find the vast majority use the , "cause" .synonymously "Illah"and "cause"words that there is a problem related we note above ms, and the question that arises to the use of ter now: What term will we use in this research? Do we use the term "causation" or the term causation"? Although the terms causation and " causation are commonly used synonymously, for several "causation"we will use the term :asonsre appears in the Holy "cause" The word : **First** an in many places, while the word 'Qur an at all. 'is not mentioned in the Qur "illness" It is almost unanimously agreed by the trustworthy commentators that the word that was mentioned in the Holy "cause" .an means the means and the means'Qur The reason in language is that which : **Second** is reached by means of others, even by means, and some of it is named rope cause. And it was said: The rope is not called a cause until its end is attached to the ceiling or the like. uperiority. Which is basically what he finds s in the language is a name "illness" While the for an accident by which the description of the solution changes by its coming, and by eISSN1303-5150

are the mischievous philosophers who came the modern philosophers before Ibn Rushd and followed their example. While we find that most of the theologians, in addition to the philosopher Ibn Rushd (d. 595 AH) and AH), Din Ibn Arabi (d. 631-Muhyi al .⁽¹⁴⁾ "cause" preferred the use of the term istic definition of If we reconsider the lingu both the cause and the cause, it becomes clear to us that there is a difference between the two -linguistic meanings, and this imam Badr al The rope :Zarkashi confirmed by saying-Din al is a cause, and they mention the meanings of se in which the common destiny the cau revolves as being a matter Derived from something else, and something influential in another. So there is a difference between The cause and the cause are in terms of language, and linguists and grammarians have used .different terms them in two And there are Islamic thinkers who differentiate between cause and cause, and among them is the philosopher Ibn Miskawayh (d. 421 AH) when he stated in his The " : "Shawamil-Hawamil and Al-Al" book and for , cause is the thing that calls for action its sake the agent does, while the cause is the agent itself, so the reason became more severe. Specializing in incidental things, and the cause has become more specific with essential .⁽¹⁵⁾ "matters

The scholars of the principles of jurisprudence also differentiated between the cause and the Din -To this difference is Imam Badr al cause :Zarkashi and others, when he says-al" As for the verbal terminology, know that they share the suspensiveness of the cause on them, and :they differ from two aspects is that the cause is what happens **The first** with him, not through him, and the cause is .what happens with him that The effect is later than the : **The second** cause without an intermediary, and there is no condition the judgment depends on its nd the cause is only Judgment is existence, a required by means or mediators, and therefore the ruling is relaxed about them until the conditions are present and are not The impediments, and as for the cause, the ruling is not slackened if it is stipulated, rather it essitated an effect by agreement, and the nec



see that such saying leads to disrupting the role of the Creator and makes it confined to the first moment of creation, as Aristotle went to that made the Creator limit his role to being when he is the prime mover.

We emphasize again here that the reason, as stated in the aforementioned sources, is what happens with him, not with him. While the cause is the actor itself, and the cause is what happens "illness" Perhaps the absence of the term "with it" is due to the fact that the "in the Holy Qur'an" Creator, Glory be to Him, is the only cause and the world is the effect in whole and in parts. For "cause" and "causation" "this we will use the terms "Because that ;" "cause" and "causation" "instead of "is exactly what we mean

inevitability

widely used in our time and term that is valid means that the event must occur as soon as its conditions are met. Like a stone falling to the ground if it is left free. Pierre Laplace formulated this principle by saying: "We can regard the present state of the world as the result of its past and the cause of its future. If an intelligent being capable of knowing all the forces that move the world at a given moment, which the things that and all the places in make up this world are, subject this information to analysis It will combine in one formula the movement of the greatest bodies and the smallest atoms in this world. For such a being nothing is ever uncertain, but the "resent with him like the past future will be p Therefore, scholars have taken this phrase .⁽²⁰⁾ as a modern formulation of the principle of classical secular determinism, which envisioned the entire universe as a great, precise machine that has absolutely no room missiveness and possibility. Rather, for per everything in it is decreed and disciplined with an infinite degree of accuracy, but it is no .problem.. no problem

causation in philosophy

The principle of causation is one of the major that philosophers have issues philosophical been concerned with, because it is one of the axioms on which the mind is based in understanding and organizing nature. We are certain that every transformation that occurs in nature must be the result of another

necessity and not by choice, and from it the disease was called an illness. Derived from ething influential in something else, and som another. This means that the cause has an existential efficacy, the efficacy of creating an effect and necessarily not by choice, and this is one of the reasons why we do not use the .term 'cause

general is The cause of human actions in : **Third** due to the subject itself, and there is more effort on the part of the actor than is necessary in nature. This is not the case with regard to the cause, as the effect is not related to the subject because it is while the cause ,obligatory when the cause exists is not required when the cause occurs unless the as indicated by Judge ,impediments are negated Jabbar. Just as the cause is the -Abdul command that calls for the action, and for its sake the agent does, while the cause is the for this reason the cause has ,agent itself become more specialized in accidental things, specialized in and the cause has become more .⁽¹⁹⁾ by Ibn Miskawayh essential matters as indicated This indicates the necessity in the relationship t, and the lack between the cause and the effect of necessity with respect to the cause and the cause, and indicates that the causes are .effective of course

The fundamentalists give preference : **Fourth** to the decision we reached by using the term The " ,causation instead of causation. They say cause is what happens with him, not through "him, and the cause is what happens with him. This indicates the lack of necessity between the cause and the cause, and the necessity between the cause and the cause. And they say han the cause without that The effect is later t" an intermediary, and there is no condition that the ruling depends on its existence, and the reason requires the ruling by means or by means, and therefore the ruling is relaxed about it until the conditions are present and the ments are negated. For the attic word, it impedi indicates indeterminism with respect to the .causal word

point out here that the problem necessary to It is of the attitude towards causation is directly related to the term itself, that is, the concept of cause. hilosophers in general state that the cause does P to imprint in the same thing, while the theologians



accidents, transformations and changes in this world on an original logical principle that links the occurrence of everything to the it, and then something that preceded existence of things from nothingness according to this principle becomes impossible. to him and begged for it to happen world has a logical in the sense that the .structure on which it is based

Philosophers have discussed the relationship of cause to effect, and they hold that the cause inevitably leads to the effect and that it is the agent of it. Given the narrowness of the will not enter here to we ,research space present the views of the philosophers from the issue of causation, but we will confine ourselves to a quick brief presentation of the views of the Greek philosopher Aristotle Thales due to the wide dominance of his views fluence for hundreds of years in and their in .global thought

cause" instead " term Aristotle, who used the of "cause", went to the effectiveness of natural causes, and believes that things have subjective properties such as nature and tive causes nature, which represent the subject that require the actions and movements of these things. And not only that, but he also considered that causation is a logical rational law, on which all other logical research is .based

Jamil Saliba explains to us in his Philosophical the divisions of the cause of ⁽²⁴⁾ yDictionar :Aristotle

It is the one whose : **The material cause** .a existence alone does not necessitate the actual occurrence of the thing, rather it may have been .by force, like wood and iron in relation to the bed

It is the one that must : **cause B**. The formal be caused by its actual existence, such as the .shape and composition of the bed

it is that which affects : **The active cause** .c the effect and creates it, like the carpenter who .makes the bed

at for which the It is th : **The final cause** ..Dr existence of a thing is like sitting on a bed, so .it is the purpose for which it was found of causes Aristotle believes that the first three them, which are the material, active and formal causes, can be combined into one any of these causes is group, and that

that every event must have transformation, and an event that brought about it. Even in the primitive stage of human thought, he always searches for causes, when he attributes phenomena to hidden or illusory forces. Causality means that behind every ffective cause, phenomenon that occurs an e and that the events follow or coincide in a chain in which the former is linked to the latter, and this is the principle of causation in .⁽²¹⁾ its general meaning

Dictionary issued by the Arabic Philosophical the "defines causation as: ⁽²²⁾ Language Academy If there "relationship between cause and effect. was no cause and effect in the universe (effect and influence), then things would happen coincidentally and without regularity, and there ion. would be no such thing as empirical induct How do scientists generalize the results of their study of some cases to all the cases in the world? As an example of generalizing causal relations, Newton revealed that the force of gravity is the reason for the fall of bodies towards the earth, aining this phenomenon as being caused by a expl mutual force between the earth and the body, where this force is directly proportional to the product of the two attractive masses, and inversely with the square of the distance between rotation of the moon them. Newton explained the around the earth and the rotation of the planets around the sun, due to the presence of this force, without having a practical proof to prove the existence of gravity in fact in the sun or planets. ion of a generalizat Here we are faced with natural causation and a causal law that is supposed to be natural. According to this generalization, Newton was able to theoretically achieve Kepler's laws for the motions of the planets around the sun, after om Kepler had discovered these same laws fr the results of practical observations made by ⁽²³⁾ Tycho Brahe over a period of twenty years

The general concept of the principle of causation says: that every event has a cause that precedes it and leads to it, so that causal ished in everything that relationships are establ happens in the world of phenomena, facts and .accidents

concept of We conclude from this that the causation is basically the suspension of



Causality in Islamic Thought

Causality and the relationship between cause and effect is an important pillar of the Islamic faith and an important part of Islamic thought, and understandings in which opinions differed varied, and the tongues of thinkers and pens worked hard to liberate them. It is one of the pillars of the Islamic faith. Because God in sustaining, -this belief is alive, living, self present, and -murid, chosen, active, ever it was ,Hence .sleep takes him nor neither year necessary to examine the relationship between the cause and the cause in order to investigate the role of the cause in the effect. In fact, the student of this issue finds that Muslim thinkers into two main are divided on causality streams: the first stream consciously decides that the cause of causes is God and that nothing is ever capable of action in the world by itself except God. And that causes are only apparent means, meaning that they are not the er need someone who activates doers, but rath them constantly, which is God. This trend is represented by the general Muslim theologians Mu'tazilites and Ash'aris. The second intellectual current is the one who says that everything in the world has a nature that is to act according to it, and this nature is forced actualized by what God has decreed for it. -self This current is the current of Muslim philosophers who took most of their basic ideas from the Greek philosophers and .thinkers

an'Causality and causes in the Holy Qur

first reference for Muslims. It is the an'Noble Qur came as a book of guidance. It contains clear verses and a comprehensive set of formulated them in a understandings. He stature, the Most High, in a manner that does tional science not adhere to the literalism of ra or the method of philosophical expression. Able to do what he wants. God is the sender of rain from heaven, and he is the giver of life, and he is the killer, and he is the healer of an also came to confirm on 'sickness. The Qur d that God, Glory be to Him, has the other han a comprehensive and fixed Sunnah in the s Sunnah to 'world, and you will not find God s 'be changed, and you will not find God Sunnah to be transformed. These two matters

considered a principle of change, motion and stillness in relation to a thing. As for the final cause, it is unique from previous causes in that it is the ultimate goal of all causes. It has a them distinct position among causes, and for nature works, and anything that happens in nature happens for a purpose, and necessity only comes from the end. Aristotle believes that nature works by a final necessity, not necessarily by a mechanism (mechanical), and r an end, and this means that nature works fo that all other causes are directed to the achievement of the final cause, so Aristotle criticizes those who say that nature occurs automatically and without direction to any end. Aristotle sees that the necessity in the ngs is a conditional attic for material thi this necessity, not an absolute necessity, since action is necessity is its condition, the end for which the .⁽²⁵⁾ completed

Aristotle asks how does the movement begin? He does not accept that motion should have no beginning, as he imagines matter to be. Matter may be eternal, but motion must have a source, and its source is God, the first mover, but He d does not create the Himself does not move. Go world, but rather moves it. God does not move the world as a mechanical force, but as a total mover of all the operations of the world, he is the ultimate cause of nature and the driving force and s 'that God purpose of things. Aristotle believes relationship with the world is not a relationship of a cause with an effect, so that time may enter into it, but it is an organic relationship, and so is the relationship between the earth and the sky, the things fall relationship of a lover to a lover, as .towards the earth because they love stability It is known that the Peripatetic Muslim philosophers were influenced by these Aristotelian views and took them with explanation, commentary and addition. Perhaps accurate and the most famous of these, the most Walid Ibn -prudent jurist and philosopher Abu al AH), who translated and 595-Rushd (520 explained Aristotle at length (see the explanation of metaphysics) and defended his ideas with great enthusiasm In his book "The Incoherence of in the minutes of the response to "Incoherence .Ghazali-Abu Hamid Al



Theoretical basis for the position of n when muslim speakers causatio

The premise of saying that the natural link between cause and effect is not inevitable in Islamic theological thought, and religious thought in general, is the Islamic ideological foundation that states that God is the cause of and that he is the cause of accidents. causes Many ancient and contemporary researchers have been aware of this basis, but the issue has remained incomprehensible and constitutes a philosophical dilemma in addition to being of the incomprehensible within the framework logic of the natural sciences. Therefore, this Islamic position on causation is considered a backward position that falls outside the circle .of science

revealed that the ⁽⁷⁸⁾ However, a new study rhetorical position does not start from a though it was originally based on vacuum. Al doctrinal premises, it has a theoretical basis represented in the statement of the principle of renewed creation. This principle assumes that the attributes of things in the world, or what subject to the speakers call symptoms, are s continuous renewal. In the physical framework, this means that the conditions of physical systems are constantly fluctuating, so they do not remain stable. The renewal of creation is one of the most important principles of Mu'tazila and Ash'ari theologians, and one of the most important t foundations of their conception of the natural i finds that this principle has a 'Ta-world. Al special place in the framework of the quantum perception of the world, as the quantum state If we acknowledge ⁽⁷⁹⁾ does not remain stable the renewed creation, we can understand why the values of the descriptions are constantly changing, and why the results of the quantum measurement are probabilistic, not it becomes and then ,deterministic occurrence of understandable to say that the the cause is not absolutely dependent on the presence of the cause. And that as we will see .in the subsequent paragraphs of this research

First: the stage of classical physics

was considered the (1642-Galileo Galilei (1564 te this stage with his new first to inaugura

determinism of a causal action, it is another matter that we discuss in the issue of .determinism

The Messenger of God commanded to take into account the reasons upon which God established the order of the universe and ecreed it, and we carried out His Sunnah, and d infer for that a hadith on the authority of Anas bin Malik, may God be pleased with him, who camel and said: -A man came on his she"said: O Messenger of God, leave her and trust me? s prayers and peace be upon 'Or? He, may God "Be wise and put your trust" :him, said Tirmidhi, 2517) and the -(Narrated by al s prayers and 'likeness of his saying, may God For "peace be upon him in Sahih Muslim: every disease there is a remedy, so if the remedy for the disease is afflicted, the disease meaning "s permission, 'With God" ".is cured that the action of the medicine will not be and ,achieved except by the command of God the medicine will not be imprinted on the then act of healing by itself. And such a hadith was mentioned in the Musnad of Ahmad and .n Abi Dawood and Ibn MajahSuna

In sum, regarding the position of the Noble an and the Prophetic Sunnah on the issue 'Qur of causation and the existence of causes, that causal relationships are an essential part of the tions, structure of the universe in general condi and that deviation from this rule rarely occurs when a miracle occurs, and even when a miracle occurs, God gives it a reason, even if it is formal. And the Almighty created the universe on the system of causation, so when ry path, he did nothe wanted the sea to be a d make it a dry path except for a reason, the :Almighty said " "sea with your Strike the stick, and it splits, and each part was like a thud. And it was easy for Moses and his .people to cross the sea Sublime, So when our Lord, the Mighty and wants us to do something by doing it directly, He makes it a causal cause from God, meaning that God Almighty created it and made it for us a means and a means to reach the effect or .the result of it



experiences in a very accurate way. Then followed a stage of theoretical work and major experimental works that revealed the properties of the world. Newton discovered the law of universal gravitation and thus Galileo's work according to the sober achieved Galileo's mathematical method, as he discovered some optical phenomena

After Newton, other researchers followed the same approach in research, and their works were mutually supportive. Each discovery was a discovery until it became integrated with another and the features of the accurate picture of the world began to become clear. Edmund Halley was able to put mathematical formulas to predict the times of the visit of the most important comets to the sun, which was Halley's Comet. Indeed, his predictions were true with great accuracy. This was a victory for reason, the methodology of Newton's theory of mathematical calculation, and of gravity. This work brought about a major qualitative shift in astronomical theory, as Galileo's positive laws, which he had extrapolated from Tycho Brahe's observations, However, calculations based on Newton's theory were not able to provide accurate calculations to predict the positions of the planets with sufficient accuracy. Therefore, Newton resorted to saying that God Almighty alters the paths of the planets so that they are consistent with what we are actually observing.

But physicists and mathematicians in Britain and Europe were then able to check the calculation methods based on Newton's theory

perspective on the world and his new approach to science, a method based on research and experimentation in order to reach an examination of the relationships of the phenomena's variables quantitative with each other, and also based on the quantitative measurement that determines each variable from those variables, his role and the amount of his contribution to that phenomenon. Galileo studied the free fall of bodies and refuted the Aristotelian theses and postulates, and showed that the Aristotelian theory of the fall of things towards the earth was nothing but a naive description of the phenomenon that is not based on scientific, And when he subjected his telescope to the sky and found that the moon is a solid surface and not an ethereal substance as Aristotle used to say, and he revealed that Mars is the other planet with a solid surface like Earth and revealed that Venus has phases like those of the moon. When he discovered that Jupiter had four moons, such as the moon that revolves around the Earth, Galileo realized that the Aristotelian conceptions of heaven and earth were rushing. He declared that heaven and earth are one building, there is no lower world and upper laws. Galileo was not only a physicist, but a giant thinker who sought to change the outdated intellectual method that was based on his era and replace it with a new method, and this is what his writings testify to no one Galileo Galilei personified a fact that Nature is "had diagnosed before, namely, (80)" written in the language of mathematics. The biggest obstacle was the church, as the ecclesiastical teachings take the Aristotelian foundations for understanding the world from Aristotle was not a natural angle. Although prophet after Jesus Ibn Mary, nor was he a church monk, rather he was not a Christian at all, the Church in Rome made his views a sacred doctrinal part of the Christian faith, and falsehood does not come to him from behind him. This role was hands or from behind who (1705-1642) Newton completed by Isaac jumped with the legal formulations of phenomena and the quantitative calculation of the variables involved in the phenomenon to new levels. The world theoretically as well as the interpretation of the facts of practical the interpret



has played a major role in establishing the belief that the entire universe is a great machine with tremendous mechanical machine accuracy. Then the classical stage of physics culminated in the formulation of the electromagnetic theory (1879-1831) by James Clerk Maxwell who unified electrical and magnetic phenomena in a set of mathematical laws and equations. These works 'known as Maxwell confirmed and reinforced the belief that natural causation and the subjective action of things is the secret hidden behind the idea that phenomena of the world nature does not need a god has grown. Thus, the materialistic understanding of the world was established, which says that the world is written in the language of mathematics, and that mathematical facts are the correct and accurate expression of the behavior of the world with its various occurrence of these phenomena, and that the phenomena is an inevitable matter that cannot be denied once its conditions are fulfilled. This inevitable conception was based on a materialistic philosophical thinking that believes that natural science has reduced the world, to the extent that the role of God in natural scientists have almost imagined the world completely dispensing with God! It is contained, governed by the absolute law of self of natural causation and dominated by causal determinism in its smallest particles! As for a comprehensive view of the world, it was thought believed that the world is infinite in the spatial extension, eternal and eternal in the temporal extension has no beginning and no end

Second: The stage of modern and contemporary physics

place for more than two hundred years until the end of the eighteenth century, when scientific knowledge had reached the level of revealing the atoms and molecules, the basic building blocks of matter. Everything seemed to be in order, and walking slowly to probe the depths of man was of the atoms and understand their entrances. It has been shown. And here the surprise that understanding atoms and molecules in order to accurately correspond with the results

to correct it, and they came up and were able with new mathematical formulations of Newton's theory of motion and universal gravitation that made it more powerful. One of these Frenchmen was Pierre Simon Laplace who wrote a comprehensive book explaining the theory of gravity and its applications called "Celestial Mechanics" a copy of which he gave to the Emperor of France, Napoleon Bonaparte. It is said that Napoleon asked Laplace why you did not mention God in your book? Laplace replied: This is a hypothesis that I did not find necessary for understanding the mechanics of the heavens

been based on two Classical physics has since been important foundations: natural causation and determinism. That is because natural occur to phenomena were understood according to the causes that lead to them, so the causes took the place of real causes, and it phenomena occur not was believed that these phenomena occur for a specific purpose, but merely for natural movement and transformation, which, it seemed to those people, is a subjective characteristic of the world. As for determinism, as we have said before, it was means the determinant of change, which recurrence of the phenomenon in the same form and with the same values whenever there are reasons for it, as it is a matter that never deviates from it. Thus, the entire universe appeared to be a huge mechanical machine, perhaps that works with great precision, infinite, that can be described by exact mathematics based on the principle of communication, described by calculus and other mathematical methods. The ability to predict the times of solar eclipses thousands of years in advance, with an accuracy of a few seconds, and to calculate and predict the positions of the planets for tens of years, with an accuracy of a few arc seconds,



conception, and the embodied understanding was transformed into an abstract mental understanding. One of the results of these transformations was that the properties of things did not remain the same for two times or two, its general state because the nature of the wave in is constant change and change, while the general nature of the particle is stability and stability. Since the particle has a fine bias, it is difficult to bias the wave unless it is superimposed with other t in phase. Thus, waves that are slightly differen the changing nature of the wave was used and married to the nature of the particle in terms of being biased until the new entity that was called the wave packet became an expression of the .new entity of the particle and the wave together

Heisenberg's Uncertainty Principle

Discovered by German physicist Werner Heisenberg (1927-1981) states that (1927-1901) according to the basic assumptions of quantum theory, according to the particle description of energy and the wave description of particles, it is not possible to determine the position and velocity of a particle with infinite precision simultaneously. In fact, the product of position inaccuracy and momentum inaccuracy cannot be less than a constant, Planck's constant. On the other hand, Max Born (1882-1970) revealed that the wave description of particles taking different, leads to physical quantities fixed quantities that fall within a non-statistical range. This is in complete agreement with Heisenberg's findings, except that it means transforming the natural phenomenon from being an inevitable phenomenon within ions in the classical its terms and conditions framework into a phenomenon of a probabilistic nature (82).

The inevitable fall

Quantum mechanics came to solve the problem of motion and energy in the atomic and subatomic microscopic worlds, but the is mechanics truth was soon discovered that this is the correct foundation for mechanics at all microscopic and macroscopic levels. The importance of this discovery emerged when it was shown that quantum mechanics makes the natural phenomenon of not a nature at all a natural possibility, a passive nature, and deterministic. This discovery shook one of the most

of laboratory experiments requires the development of new perceptions and unfamiliar assumptions about matter and energy. So the German assumption by Max Planck that energy is composed (1858-1947) of a separate quantum came as a solution to the problem of absorption and emission of energy from objects. The validity of thermal energy this hypothesis was confirmed by its exact agreement with experiment. Soon, the Danish Niels Bohr found that the (1885-1962) interpretation of the light spectrum emitted by atoms when heated requires the employment of his hypothesis, as well as the 'old' Planck assumption that the amount of rotational motion (angular momentum) must be quantized, i.e. in the form of packets that take values that are integers from Planck's constant. On this basis, the atomic structure and the energy spectra of atoms were visualized like atoms were interpreted with high accuracy. But physicists soon realized that these limited successes based on a set of assumptions could not satisfy a comprehensive explanation of the world. And they had to realize that the separation between the particle and the wave is no longer possible in the atomic world. What is known as a wave like atomic world. What is known light also behaves as a particle, and what is a particle like an electron is found to behave like a wave. In the face of this double behavior, physicists were puzzled until the French physicist Louis de Broglie came up with this (1892-1987) strange genius idea which says that at the microscopic level particles behave as waves whose wavelength is inversely proportional to the momentum of that particle. Accordingly, the Austrian physicist Erwin Schrödinger developed the basic (1887-1961) equation for the motion of atomic and subatomic particles. That equation is named after him "Schrödinger Equation" This equation was the basis of quantum mechanics. Under this physical assets became abstract mathematical symbols expressed by complex wave functions meaning that they contain a real part joined by an imaginary part (the imaginary part is multiplied by $\sqrt{-1}$ and thus the classical perception of the world was transformed into a mathematical



entanglement and the transmission of the spatial space, and -quantum signal through a quasi the theory of relativity allows this kind of transfer. Accordingly, Einstein's protest is effective if we adhere to the fact that all physical phenomena a time space -with all their details occur in a semi .exclusively, and this cannot be guaranteed with its unexpected ,Aspect 's experiment Allan results, caused a great shock at the scientific and vels, and many researchers have philosophical le used it as an argument confirming that causation in the traditional sense has become a thing of the past and is no longer valid for expressing an .accurate description of the world

Interpretations of the wave function and e measurement problem in Quantum th mechanics

The problem of causation in contemporary physics today is related to a larger issue, which is the problem of measurement in quantum mechanics and the meaning of measurement ns now itself. There are four main interpretatio circulating regarding the concept of the wave (85) .function and the measurement results

The first explanation says that quantum mechanics is essentially a theory of expression for a group of particles and is not suitable for (86) ticle. Albert Einstein expressing a single par was one of the most prominent physicists in favor of this interpretation, which was probably Max Born Born was the first to mention it. This means that measurement in quantum mechanics is a (87) .statistical process

The second interpretation is the interpretation of that Niels Bohr came up the Copenhagen School theoretically, and mathematically framed it , with established it for the Hungarian mathematician . von Neumann Von Neumann says: The truth of a quantitative measurement is what happens at the very moment of the measurement. The value that e moment of measurement is the we fall on at th value on which the value of the variable under We use here the word . falls (88) measurement not in its circulating Arabic linguistic ”soak“ connotation. Rather, it is, here and in this context, intended for the the exact connotation actually word Collapse and the richness of the Arabic , language helped express what is meant; The spectator falls on the witnessed and the witness falls on the value (this is known as the occurrence

important pillars of classical physics, which is the inevitability of a natural phenomenon when its conditions are available and its conditions are prepared. It means that it ghtly possible (in theory at least) to predict the is not ri positions of the planets, but rather of any event in the world, with infinite accuracy and inevitably. Perhaps we can naively accept that we cannot predict the path of the electron the atom has a very small space, in the atom, given that which makes it difficult to ascertain the value of the physical in it. However, accepting this principle quantities at the macroscopic level becomes a difficult issue. This saying, in addition to the fact that it he principle of determinism on the destroys t basis of which our conception of the universe structured machine that -is built, is a great, well creator except at the moment a does not need It always runs. At this moment, .of creation ignorance is Laplace's arrogance falls and his .revealed when he claims that God is a hypothesis and laboratory experiments Thousands of astronomical observations have confirmed the reliability of quantum mechanics, and Albert question the perfection tried to (83) Einstein and others of quantum theory when he found that this theory leads to the occurrence of uncausal relationships between two light beams traveling in opposite directions for a great distance so that changing the tly leads to polarization of one of them instan Change the polarization of the second. Since such a change requires a minimum time of movement of light from the position of the first ray to the position of the second ray, Einstein and his group ical said that the unreasonableness of this theoret result proves that quantum theory is not complete.

This imaginary experiment was known as the EPR Paradox , the Einstein-Rosen problem .-Podolsky Physicists have been in controversy over it since until experimental physicist Alan Aspect 1935 Alan Aspect wanted to bring us the certainty using two laser beams. He found that what Einstein and his group had predicted is actually happening experimentally, that is, the effect is transmitted from a distance at a speed greater than the speed causal, the -it is causal or non of light. Whether important thing about it is that this proves that quantum theory is correct and that Einstein's -scepticism about quantum theory is valid. Al believes that what is happening in the (84) i' Ta tion of causality, Aspect experiment is not a viola but rather what is required by quantum



of the spectator, which is contrary to the senses and the mind. This is what J. Wheeler said when he spoke of our role, the viewers, in creating the world at a time when we know that the world was created long before us. Some have tried to inflate such strange interpretations and promote them in the media that in recent years, but these conclusions Wheeler and others went to are only among the atrocities to which the interpretation of the Copenhagen School leads⁽⁹¹⁾. As for David Bohm's interpretation known as the theory of hidden variables, Hidden Variables Theory proved to be ineffective in theory as John Bell did in 1964 from disproving those interpretations at least in part. In any case, Bohm's theory did not⁽⁹²⁾ offer anything new.

It is strange and even contradictory to the occurrence of the suggestion of the occurrence of the aforementioned wave function, given that the talked about cannot actually multiple worlds exist, but rather exist as possible; This is because those worlds are represented by in all cases the functions different spaces, and in spoken of, representing different values, must be orthogonal, and these cannot exist simultaneously. There is no clear reason for us to move in our existence between these worlds. And this is a refutation of the fact that imaginary universes cannot exist with the the imaginary existence of our universe because the functions of their waves are perpendicular to each other. On this, it can be said that although most physicists adhere to the interpretation of all of these, the Copenhagen School interpretations are not convincing.

Renewed creation as a new interpretation of quantum measurements

a new explanation for the^{proposed (93)} Tai problem of quantum measurements and for the emergence of the concept of probability in the emergence and then, quantum mechanics of the inevitable as a natural principle existing in the behavior of physical phenomena. This was based on the idea of the renewed proposal creation that the speakers said, as it seems that this idea is completely compatible with what is happening in quantum phenomena. the Continuous renewal necessarily leads to

of the wave function Wave Function Collapse is (an interaction between the observed and the observed, and this is exactly what the Copenhagen interpretation of the measurement process in quantum mechanics wants to say. As for the third explanation, it is the one that up with David Bohm came David Bohm who, apparent says that the reason for the indeterminacy in quantum mechanics is the existence of hidden variables that we have not yet known about that hide behind the inevitability. phenomenon of possibility and. This means that quantum theory is incomplete. The theory suggests mechanisms for⁽⁸⁹⁾ finding such hidden variables, but it did not tell us anything new.

As for the fourth interpretation, it is what Avrit said Everett and assumes that the measured value at a given moment is one value out of an infinite number of possible values for that variable under measurement, and each of those possible values exists in a world of different similar worlds that are me general laws, even if they subject to the same differ in the values of their assets. This is the many worlds theory Multiverse Theory which,⁽⁹⁰⁾ has recently been revived.

Each of the aforementioned four has its own weaknesses interpretation: the first explanation is given by the fact that the most basic equation of motion in quantum mechanics is the Schrödinger equation applies to a single particle and there is no need application to a large number of to limit its a particles. Yes, some will say that the wave Schrödinger equation function included in the remains ambiguous in expressing the probabilistic content in this case, as we are many values talking about the probability of for one variable and one particle. But this was as a wave function as explained by Max Born a measure of the probability of a particle being at that value.

As for the interpretation of the Copenhagen despite its mathematical sobriety, it d, School remains incomprehensible what it means for the spectator to fall on the witnessed and the witness for the value. As this leads to heinous matters, including that the values of the he state witnesses depend on the spectator and t



But in any case, this perception and this requirement is not the end of the day, but we spatial world is -may one day find that the semi with our in fact overlapping and intertwined .temporal world-semi

Summary of opinion on the issue of causation

Here we arrive in this long study at a summary of what should be taken into account and what should be left in the issue of causation, then find we put forward the final saying that we f valid for understanding the world's relationships with each other and explaining the causes of its intertwined phenomena. Our opinion is: There are premises that can be :summarized as follows

There are phenomena in the world that we are indicate the occurrence of witnessing that repetition and continuity, which suggests that .there are laws governing these phenomena The occurrence of accidents exists in a chain of causal entanglement, in short, that what we we actually leads to a result that "cause" call a and perhaps the result became a "a cause," call .cause and led to a new cause, and so forth We now ask the first big question, which is related to the fact that causes are involved in causes; Is this action to be imprinted on things to change it? Or is the and there is no way ?print not present which is a kind of trick And the answer to us is: There is no way to deny that things have properties that are qualities that have permanent existence, but they are renewed. We now know that they are essential formation of the forms of part of the matter and energy in this world. For example, the character of burning fire is that it is an energy that can activate a transformation in a substance (cotton, for example) and cause it to tained in the burn if the amount of energy con fire reaches an appropriate amount, which we call the heat of burning. If the energy in the fire does not reach the amount of burning heat of the specific substance, you will not be able to burn it. And this seems to be a prevailing is one of countless laws that govern law that the universe. But what do we call these properties in things? We say: They are attributes, and if they are called natures, there is no ambiguity in naming them, as Judge Jabbar says in such a situation, unless -Abdul

eISSN1303-5150

wable physical system being affected by the rene variables, and according to the dependence of their values as a , these variables on each other whole become intertwined, affected by each other. As part of a mathematical treatment of the issue according to the basic data of rns out that there are quantum mechanics, it tu concomitant variables such as linear momentum, position, energy and time in another way, and so in general, each variable is affected by its generator that is related to it. Since the linear momentum is a generator of t is necessary that the renewal transmission, i of the site creation influence the measurement of the amount of linear momentum, and the renewal of time leads to an effect in the measurement of energy, and so forth. Moreover, the measured quantities themselves ly characterized by a kind of are general dispersion over a specific range, which may be wide or narrow depending on whether the physical system itself (a particle, for example) .falls within the classical or quantum limits

yCausality in the special theory of relativit

Albert Einstein published the theory of special in 1905, and with it he was able to relativity expand the horizon of the physical vision of the world, as the world became composed of four dimensions, including and this is required by new physics, and time became a dimension as well as space, achieving what was Ghazali in his -losophical Abu Hamid Alphi discussion of the kisses And the distance as he considered them relative matters as above and Thus, the concept of classical ⁽⁹⁴⁾ .below synchronicity was lost and no longer had any the meaning, as it became dependent on kinetic state of the viewer. As Einstein time structure, -portrayed the world as a space it became clear that there are worlds that we temporal and others that we call -call quasi spatial. And our world in which we live -quasi h things move at a time world in whic-is a semi speed equal to or less than the speed of light. -The cause comes before the cause. In quasi spatial worlds, the signal travels faster than the cause takes place after and therefore , light -the cause. These worlds were considered non cal because they did not fulfill the physi condition of temporal succession of causation.

5452



the ,as the law of gravitation or Maxwell's laws laws of God in the world, as Paul Davis believes in his book "The Mind of God" for example? we say no; Because the mathematical formulas and mental images in which we express gravity, electromagnetic radiation, heat, light, and all the stations of this world are physical manifestational formulas suggested to us by our mind, and these formulas change, change and evolve with the development of our knowledge. And Maxwell's law for the intensity of radiation was on found to be contrary to the actual phenomenon that occurs in the world, so Max Planck developed an alternative law more credible than the previous ones. So what we call natural laws is nothing but our description of the phenomenon, and this does not represent God's law in creation on itself, as it occurs and is But the phenomenon witnessed in the world, is the Sunnah of God in the world. Fire burns as much as it burns, and this is law in the world. As for how burning 'is God actually occurs, we do not know with absolute in a logical certainty, but rather we know it in a manner determined by our mind within the mechanisms and algorithms of our common logic. Therefore, it is not surprising that the laws of the world that we extract according to our minds are subject to change and change, and this story of scientific knowledge bears is what the hi witness to, while the phenomena themselves do not change and do not change within their terms and conditions except with the change of those conditions and circumstances. From this point of hat there is a natural, view, it is difficult to say t deterministic causation based on a subjective action related to the qualities or properties of the things of the world with the fact that the world operates according to disciplined contexts and we find in fixed norms. This perspective is what agreement with belief and reason in the light of .what contemporary science presents

margins

Philosophy of Khouli, The–Youmna Al (1)
, Science from Determinism to Indeterminism
ng and Publishing, Cairo: Dar Qubaa for Printi
.2001

intent is that she does what she does with the the attribute that she has of an intrinsic ability. The subjective action is what we find inconsistent with reason as well as inconsistent with the Islamic faith; This is eir because in order for things to perform th own actions in a comprehensive cosmic system, they need the faculty of choice, and this requires will, and both mean the existence of the mind. As for its inconsistency with the creed, it stems from the fact that doing things ed for an operator by themselves without a ne to occupy them will make the world independent of God. Thus, we conclude with this argument that there is a necessity for someone who activates the action of the attributes in things and moves them according he cosmic year. to the path set for them in t This movement is on two levels: the first is to always renew the attributes, and the second is to direct their values and actions accordingly to what is intended for them by the will of the Creator. At this point we arrive at two new terms that we borrow distinguishing :from the texts of the creed so we say that the "the instinct," "The first is attributes and properties of things are their natural instinct that God created in them. The and by it we "Sunnah" "second is the term Sunnah that God enacted for mean the divine this world, and it is represented in the phenomena of the world through the occurrence of accidents by the command of God, which is expressed by the existence of possibility. Obligatory, if its requirements are is divine year is fixed and attended. And th .permanent, it is not altered or transformed That is, we find that the concept of causation takes its place in the Islamic curriculum as follows: Everything in the world has a natural instinct, and the movement of the world and s Sunnah in 'its alteration are laws that are God alteration or His creation with no transformation. The divine Sunnah is the appearance on the face on which it is located, and the mushrooms are the properties and attributes of tion according to the things related to their forma rules and principles of creation, which we also .consider laws that we discover day after day Here we now ask the second important question: Are the laws that we discover in the world, such



Renewal of ,Iraqi–Muhammad Atef Al (14)
, Philosophical and Theological Doctrines
.Maaref, 1976 (iii), pg–Al Cairo: Dar
Jamil Saliba, The Philosophical Dictionary in (13)
Arabic, French, English and Latin Words, Beirut,
.Lebanese Book House, 1982, p. 98
Miskawayh, Ahmed bin Muhammad bin (15)
Shamal: Questions of –Hawamil and Al–Al
hidi by Abi Ali Taw–Abu Hayyan Al
Ilmiyya, –Kutub Al–Beirut, Dar Al , **Miskawayh**
.p. 30 ,2001
–Din Muhammad bin Bahader Al–Badr Al (16)
Kuwait, , **Moheet–Bahr Al** –Zarkashi, Al
,PressKuwaiti Ministry of Islamic Affairs, 1992
.Vol. 6, p. 369
the ,Bouti–Muhammad Saeed Ramadan Al (18)
Damascus, . **greatest of the great certainties**
.Fikr, 1997, p. 286–Dar Al
Causality in ,Abdel Salam bin Mays (17)
Classical and Relativistic Physics: An
Morocco, Casablanca, ,**Epistemological Study**
.Toubkal Publishing House, 2004, p. 18
.p. 22 , **Hawamil–h** , **AlMiskaway** Ibn (19)
Pierre Simon, Laplace, **A Philosophical Essay (20)**
on Probabilities , translated from the 6th French
edition by Frederick Wilson Truscott and
Frederick Lincoln Emory, Dover Publications New
York, 1951.
Introduction to ,Alusi–Din Al–Husam Al (21)
Beirut, The Arab Foundation for , **Philosophy**
.Studies and Publishing, 2005
Introduction to ,Tai–Muhammad Basil Al (23)
.Nafaes, 2003–Beirut, Dar Al , **Astronomy**
(1994) ,The Arabic Language Academy (22)
d by The Philosophical Dictionary, Forwarde

–Al^hJurjani, known as –Ali bin Muhammad Al (3)
House of . **definitions** ,”Sharif–Sayyid Al
.General Cultural Affairs, 1986, p. 80
Mukhtar ,Razi–Muhammad bin Abi Bakr Al (2)
investigation: Yahya Khaled Tawfiq, , **Sahah–Al**
.387 . Adab Library, 1998, p–Cairo: Dar Al
Scout ,Tahnawi–Muhammad Ali Al (4)
Encyclopedia of Art and Science
investigated by: Ali Dahrouj, , **Conventions**
Khalidi and George Zenati, Beirut, –Abdullah Al
.on 1996, Vol. 2, p. 1130Library of Leban
Fadl Muhammad bin –Din Abi Al–Jamal Al (7)
,Arab–Lisan Al ,Makram bin Manzur
investigation: Amer Ahmed Haidar and revised
by Abdel Moneim Khalil Ibrahim, Beirut, Dar
.Sader 2003, (1 st.), p. 276
tification Thanawy, Art and Science Iden–Al (6)
.Index, Part 1, pg. 924
.281 . p , **Sahah–Mukhtar Al** ,Razi –Al (5)
.p. 68 , **Definitions** ,Jurjani–Al (8)
Mustafa min Ilm –Ghazali, Al–Abu Hamid Al (9)
Resala Foundation, –Beirut, Al , **Din–Usul Al**
.p. 124 ,1997
vol. 6, pg. , **Arab–Lisan al** ,Ibn Manzur (11)
.412
Mustafa min –Ghazali, Al–Abu Hamid Al (10)
Resala Foundation, –Beirut, Al , **Din–Ilm Usul Al**
.p. 124 ,1997
.p. 88 , **Definitions** ,Jurjani–Al (12)

5454



Robert, T.Beyer. New Jersey: Princeton University Press, 1955. ¹

Belinfante, **Measurements and Time** (89) **reversal in Objective Quantum Theory**, Pergamon Press, 1975.

H. Everett, III. **Relative State** (90) **Formulation of Quantum Mechanics**, Rev. Mod. Phys. 29, 454-462, 1957, JAWheeler, **An Assessment of Everett's** (91) **"relative state" Formulation of Quantum Theory** , Rev. J. Wheeler. Mod. Phys , 29 , 1957 , p. 463.

JSBell, **Subject and Object: The Physicist's** (92) **Concept of Nature** ,(edited by J.Mehra) Dordrecht, The Netherlands: Publishing Company, 1973.

MB Altaie, Re-Creation, loc. Cited.(93)

Egypt: Ministry of Education , **Ibrahim Madkour** .Press, 1994, p. 96

The Philosophical Dictionary ,Jamil Saliba (24) , **in Arabic, French, English and Latin Words** Beirut, Lebanese Book House, 1982, vol. 2, pp. .97-96

History of Greek ,Youssef Karam (25) Cairo, Press of the Composition, , **Philosophy** .Translation and Publishing Committee, 1936

Bargeron, Re-thinking Necessity (al-(77) Darura) in al-Ghazaly's Understanding of Physical Causation.

Carol L.Gargeron, Re-thinking Necessity (76) (al-Darura) in al-Ghazaly's Understanding of Physical Causation, theology and Science, 5(1),(2007),(pp.21-36).

R.Taton, (Editor), History of Science, Vol. (80) II. New York: Basic Books, 1963.

M.Zeilik, Astronomy: the Evolving (81) Universe, New York, John Wiley & Sons. Inc, 1997, (8th ^{Edition}), p.51.

Werner Heisenberg, Physics and (82) Philosophy: A Revolution in Modern Physics, -Samman, Beirut, Al-translated by: Adham Al .Resala Foundation, 1988 (II)

M. B. Altaie, Re-Creation: A possible (84) **Interpretation of Quantum Indeterminism**, in **Matter and Meaning**, Edited by Michael Fuller, Newcastle upon Tyne, Cambridge Scalar Publishing, 2010, 21-36.

A. Einstein, B. Podolsky and N. Rosen, *Can* (83) Quantum-Mechanical Description of Physical Reality be Considered Complete? Physical Review, 47, 777-780, 1935.

M.Jammer, **the Philosophy of quantum** (85) **mechanics: the Interpretations of Quantum Mechanics in Historical Perspective**, New York: John Wiley & Sons, 1974.

M.Born, and W.Heisenberg and P.Jordan, (87) **Zur Quantenmechnik II,Z. Phys.** 35,1926.

A. Einstein, **Physics and Reality**, Journal of (86) the Franklin Institute, 221,1936,pp349-395.

J.Von. Neumann, **Mathematical** (88) **Foundations of Quantum Mechanics**, trans.

5455

