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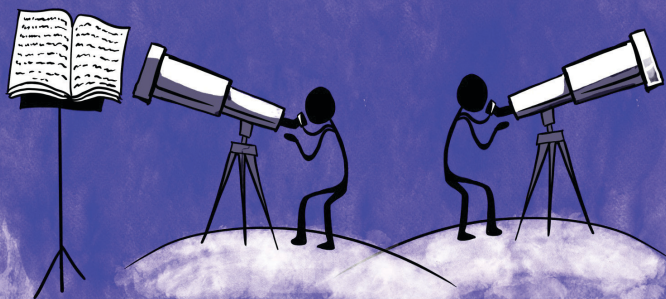
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And in the last chapter, we discuss a little on eureka, an experience which for a long time was attributed to divine spark or “God’s favor to an artist or to a scientist, such luminaries like Newton, Pascal, Leibniz etc.” Nonetheless, new methodology appears to be able to be generated once we accept balanced brain approach, where left brain and right brain hemispheres of humans can work together.

That is also our hope with regard to humans in relation to machine, those things called singularity and other doomsday scenario appears to be avoidable once we accept that right brain hemisphere of humans can be accepted to work together with machine capability (see chapter 1).

Enjoy reading. ***Soli Deo Gloria.***

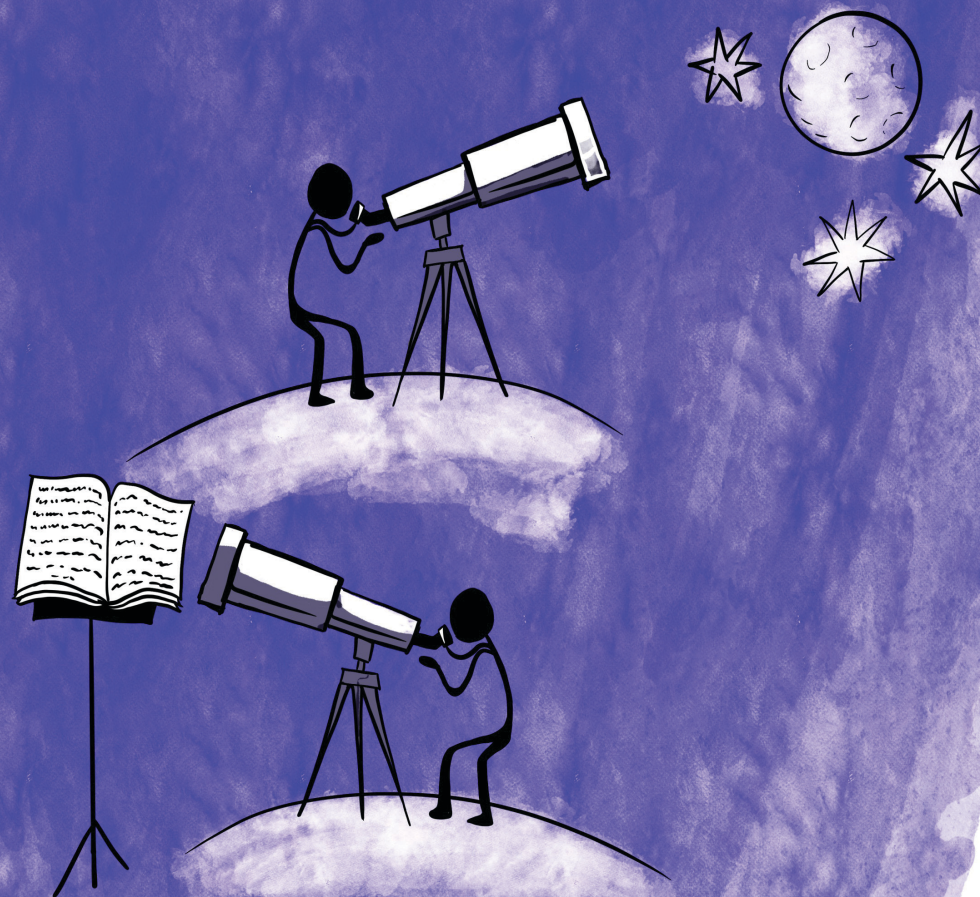
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Act Chapter 29: Art and Science and Theology in Dialogue

ACTS
Chapter 29

Art, Science, and Theology in Dialogue



V. Christianto & Florentin Smarandache

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PREFACE

BY VICTOR CHRISTIANO

This little book, called “ Acts chapter 29: Art and Science and Theology in dialogue” is meant to be a new chapter in our life as authors and scientists, where arts can meet with science and theology too. Whereas in previous chapter, they may not work altogether quite smoothly as expected.

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Enjoy reading.

Soli Deo Gloria

Mid January 2024

VC, FS

Note:

FS - editors of several math journals, including NSS, NSWA, etc.

VC - editor of a religious journal

FOREWORD

DIVINE INSPIRATION?

Where does a sparkling idea come to us, so out of the blue? Divine inspiration? I want a scientific explanation... Maybe, at present, with our current level of science, we are not able to understand the paranormal, or what we think is fantastic, but in fact it is real. A reality that we cannot reach with understanding, because of our low level... Are we not perhaps relevant and do we understand the incomprehensible? Some are connected to the universe better than others, do they have extra senses? How can we “gather” ideas from “air”? How does the spark in the black subconscious comes to surface and rage outside, in the bright consciousness? What is the connection between the real and the divine, how to unravel the mystery of the unknown through art, science and the universe?

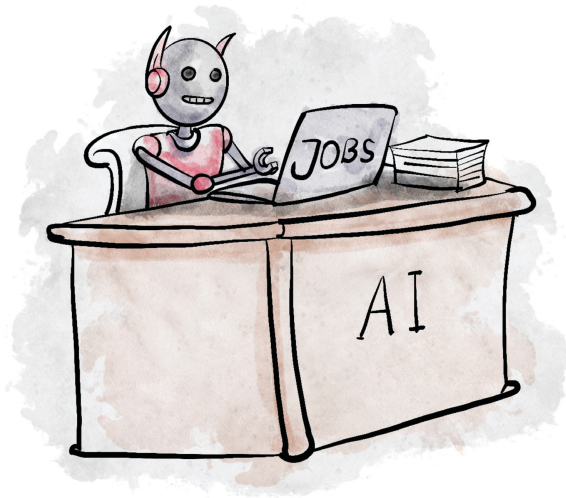
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chapter 1

Artificial Intelligence

humanoid and
Terminator
scenario



Remark on Artificial Intelligence, *humanoid* and *Terminator* scenario: A Neutrosophic way to futurology

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Abstract

This article is an update of our previous article in this SGJ journal, titled: *On Gödel's Incompleteness Theorem, Artificial Intelligence & Human Mind* [7]. We provide some commentary on the latest developments around AI, humanoid robotics, and future scenario. Basically, we argue that a more thoughtful approach to the future is “techno-realism.”

Introduction

Indeed among the futurists, there are people who are so optimistic about the future of mankind with its various technologies, such as Peter Diamandis with his “*Abundance*.” But there are also skeptics, predicting “dystopia,” like George Orwell’s 1984 etc. [4]

At my best, our response is: we must develop a view of technology that is not very optimistic but also not pessimistic, perhaps the right term is: “*Techno-realism.*” [3]

We mean this: with a lot of research on robotics, humanoid etc., then emerged developments in the direction of *transhumanism and human-perfection.* [6]

There is already a fortune-telling that AI will be established with psychological and spiritual science, so as to bring up the AI/robotic consciousness. [7]

But lest we become forgetting our past, and building the tower of Babylon.

For example, last year the world’s robotics experts were made yammer because there was a “*tactical-robot*” report developed in one of the labs on campus in South Korea. It means this tactical robot is a robot designed to kill. Then Elon Musk and more than 2000 AI researchers raised petitions to the UN to stop all research on the tactical robotic. [2]

Roughly it’s a true story that we can recall, although it is not our intention here to give foretelling that the world would be heading for the *Terminator* movie scenario.... but there’s a chance we’re heading there.

A Neutrosophic perspective

As an alternative to the above term of “*techno-realism*”, our problem of predicting future technology that is not very optimistic but also not pessimistic, is indeed a Neutrosophic problem.

First, let us discuss a commonly asked question: what is Neutrosophic Logic? Here, we offer a short answer.

Vern Poythress argues that sometimes we need a modification of the basic philosophy of mathematics, in order

to re-define and redeem mathematics [8]. In this context, allow us to argue in favor of Neutrosophic logic as a starting point, in lieu of the Aristotelian logic that creates so many problems in real world.

In Neutrosophy, we can connect an idea with its opposite and with its neutral and get common parts, i.e. $\langle A \rangle \wedge \langle \text{non-}A \rangle = \text{nonempty set}$. This constitutes the common part of the uncommon things! It is true/real – paradox. From neutrosophy, it all began: neutrosophic logic, neutrosophic set, neutrosophic probability, neutrosophic statistics, neutrosophic measures, neutrosophic physics, and neutrosophic algebraic structures [9].

It is true in a restricted case, i.e. Hegelian dialectics considers only the dynamics of opposites ($\langle A \rangle$ and $\langle \text{anti-}A \rangle$), but in our everyday life, not only the opposites interact, but the neutrals $\langle \text{neut-}A \rangle$ between them too. For example, if you fight with a man (so you both are the opposites to each other), but neutral people around both of you (especially the police) interfere to reconcile both of you. Neutrosophy considers the dynamics of opposites and their neutrals.

So, neutrosophy means that: $\langle A \rangle$, $\langle \text{anti-}A \rangle$ (the opposite of $\langle A \rangle$), and $\langle \text{neut-}A \rangle$ (the neutrals between $\langle A \rangle$ and $\langle \text{anti-}A \rangle$) interact among themselves. A neutrosophic set is characterized by a truth-membership function (T), an indeterminacy-membership function (I), and a falsity-membership function (F), where T, I, F are subsets of the unit interval [0,1].

As particular cases we have a single-valued neutrosophic set {when T, I, F are crisp numbers in [0, 1]}, and an interval-valued neutrosophic set {when T, I, F are intervals included in [0, 1]}.

From a different perspective, we can also say that neutrosophic logic is (or “Smarandache logic”) a generalization of fuzzy logic based on Neutrosophy (<http://fs.unm.edu/NeutLog.txt>). A proposition is t true, i indeterminate, and f false, where t , i , and f are real values from the ranges T , I , F , with no restriction on T , I , F , or the sum $n = t + i + f$. Neutrosophic logic thus generalizes:

- Intuitionistic logic, which supports incomplete theories (for $0 < n < 100$ and $i = 0$, $0 \leq t, i, f \leq 100$);
- Fuzzy logic (for $n = 100$ and $i = 0$, and $0 \leq t, i, f \leq 100$);
- Boolean logic (for $n = 100$ and $i = 0$, with t, f either 0 or 100);
- Multi-valued logic (for $0 \leq t, i, f \leq 100$);
- Paraconsistent logic (for $n > 100$ and $i = 0$, with both $t, f < 100$);
- Dialetheism, which says that some contradictions are true (for $t = f = 100$ and $i = 0$; some paradoxes can be denoted this way).

Compared with all other logics, neutrosophic logic introduces a percentage of “indeterminacy” – due to unexpected parameters hidden in some propositions. It also allows each component t, i, f to “boil over” 100 or “freeze” under 0. For example, in some tautologies $t > 100$, called “overtrue.” Neutrosophic Set is a powerful structure in expressing indeterminate, vague, incomplete and inconsistent information.

Therefore, from Neutrosophic Logic perspective, “our problem of predicting future technology that is not very optimistic but also not pessimistic” can be rephrased as follows:

(Opposite 1) pessimism – pess-optimism – optimism
(Opposite 2)

While the term pess-optimism may be originated in engineering (perhaps in geotechnical engineering), but it has become one term in urban dictionary, see:

“A philosophy that encourages forward-thinking optimism with an educated acceptance of a basic level of **pessimism**. **Optimism’s** fault is it’s naivete, **pessimism’s** it’s blind jadedness. We live on Earth and are human. There is, was and will be good and bad.”[10].

That would mean a more balanced view of the future, something between too optimistic view and too pessimistic view. It is our hope that Neutrosophic perspective may shed more light on this wise term of pess-optimism, although for us “*techno-realism*” term may bring more clarity with respective to technology foretelling.

What about AI fever?

In line with it, a Canadian mathematics professor wrote the following message a few days ago:

“I am appalled by the way how computer science damaged humanity. It has been even worse than nuclear bombs. It destroyed the soul of humanity and I have less than 0% interest in doing anything in this evil field. Now something more destructive than data mining is coming up. Yes AI, Probabilistic AI. It says we don’t know why but somehow it works. So we started to have air plane malfunction because of the AI program failure. “

Of course you can agree or not with the expression of the mathematics professor, but reportedly the employees of

Google also demanded strict rules for AI to be freed from weaponry purposes, or called “*weaponized AI*” [1].

Meanwhile, it is known that the development of science and technology has a positive and negative facet as well as the Robotics & AI. Although positive contributions are obvious, but the side effects are spiritual and mental aspects; and it needs to be prepared so that people can still take the positives, for example the planner of robotic Intelligence must have a code of ethics: Intelligence robotics should not harm or kill humans, rob banks. For other ethical issues of AI, see for example [5].

Are there practical examples of the realism attitude in technology?

If you got free time, read the periodicals around the industry in Japan. There are at least 2 interesting phrases that are worth a study: *Ikigai and Monozukuri*.

The *ikigai* may be a bit often we hear, meaning: The reason we wake up early, consisting of a balance between passion, work, profession etc.

Then what is *Monozukuri*? According to a source:

“Monozukuri is a Japanese word derived from the word “mono” means product or item and “Zukuri” means the creation, creation or production process. However, this concept has far broader implications than its literal meaning, where there is a creative spirit in delivering superior products as well as the ability to continuously improve the process...”

What is the implementation? Let’s look at 2 simple examples:

- A. **Sushi:** Though simple at a glance, sushi is carefully designed so that the size is a one-stop meal. No more and no less. That is the advantage of many innovations that

are typical of Japanese, because they think carefully from the usefulness, size, artistic value of the product. And so on.

- B. *Shinkansen*: The uniqueness of this train is not only about speed, but also on time (punctual). Even reportedly, the time lag between train sets is less than 5 minutes. And everything is designed by Japanese railway engineers even before there is a personal computer or AI. Then how did they design such an intricate system? Answer: They use dynamic control theory ("*Dynamic control Theory*").

Concluding remark

Of course this is just a brief comment on a complicated topic that needs to be carefully examined and cautiously thought of.

Let the authors close this article by quoting the sentence of a wise man in the past centuries:

"Lo, this only have I found, that God hath made man upright; but they have sought out many inventions."

Happy Holidays and have a new year 2020. Hopefully next year there will be not a robot to greet you. It is indeed a great paradox in the 21st century: "*Robots are increasingly proficient at imitating humans, but many humans live like robots.*" - personal quote.

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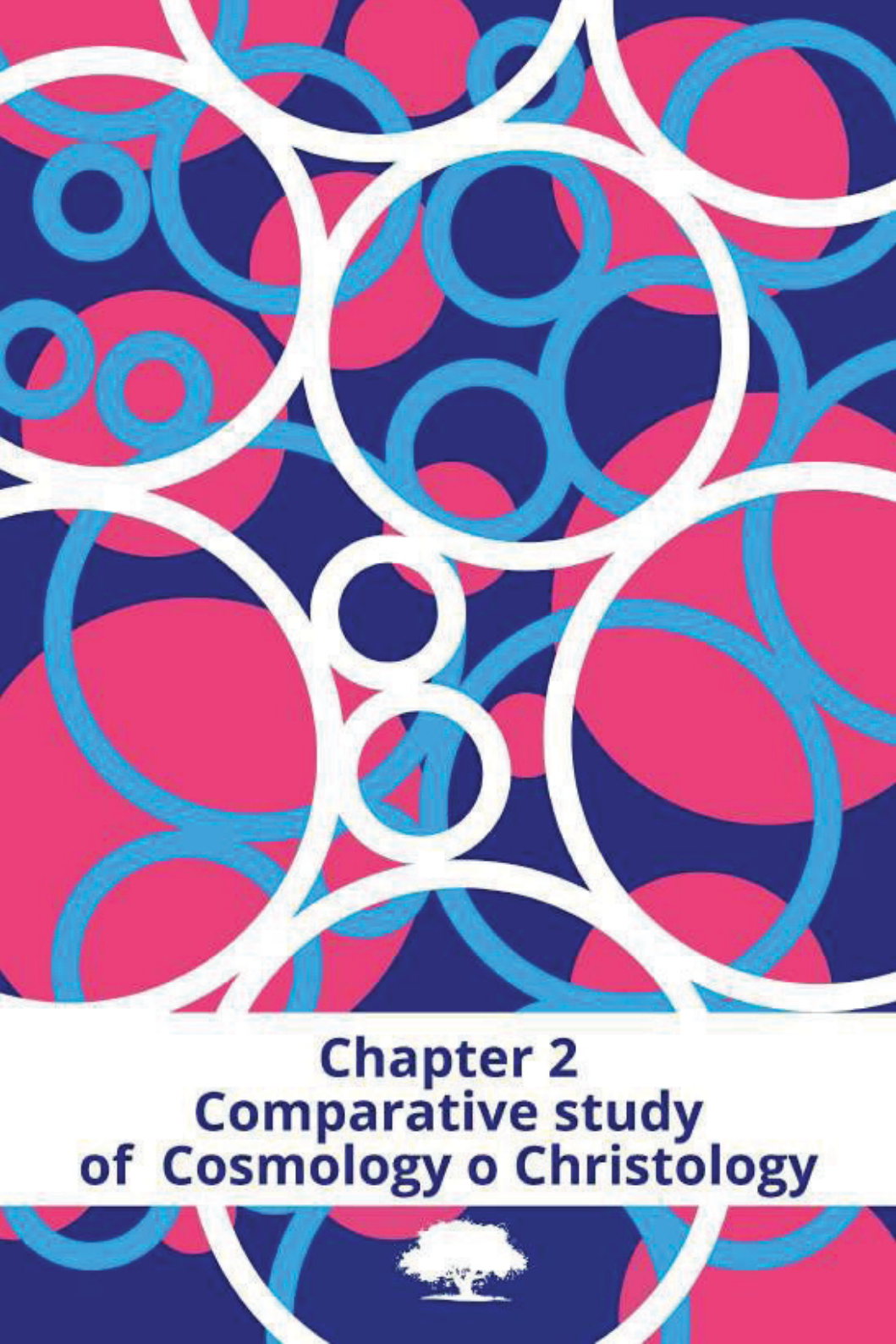
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Chapter 2
Comparative study
of Cosmology o Christology





A Comparative Study of Cosmology revealed from Christology and Trinitarian approaches

Victor Christianto¹

Abstract

This short article is intended as a continuation of my previous article with title: An Outline of New Cosmology Model Inspired by Cosmic Christology of the Johannine Prologue (Scientific God Journal, Vol. 7, No. 4, 2016). In the present article I will compare cosmology models revealed from Christology and Trinitarian approaches.

Introduction

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Given the fact that this is a very broad topic, so I made some assumptions to restrict our discussion, including:

- a. I assume that the participants have an adequate background understanding of what is meant by Christology and the Trinity, so I will not repeat the basic definitions.

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- b. although in general what is meant among physicists with cosmology is a branch of science that studies the formation and development of the universe, in the context of this discussion I will discuss cosmology as a conceptual framework of the universe, not necessarily these concepts should be confirmed empirically. (6)

This paper was made with the realization that in the last 7-8 decades has raised a variety of cosmological theories that do not mention at all about God, where the role of man be lost in the cosmic drama of space and time, and this has been a particular challenge for many Christians both lay and theologians who are still leaning in God as the Creator of the universe (3, p. 184).

Indeed, some Christian thinkers assumed that modern cosmological theories such as the Big Bang are quite close to the biblical doctrine of creation, but not a few who think that the big bang actually replaces the role of God in creation with a random chance process triggered by fluctuations in vacuum. Others argue that the singular point where the universe began to expand need not be equated with the point of creation. Presumably these issues are more in depth than just maintaining the idea of six-day creation, like what most Creationists told us.

The situation with somewhat similar dilemma also arises in the question of the origin of life on Earth, where the classical view, as was proven by Louis Pasteur through experimentation, stating that the origin of life is life (biogenesis), while the latest scientific developments tend to support the idea that life occurs spontaneously from simple chemical reactions, even cutting-edge theory explains the

existence of a common ancestor called the Last Universal Common ancestor (LUCA).

Then how should our attitude as Christians in addressing the various dilemmas? This article is an expression of perceived concerns with respect to the direction of the authors of modern cosmology and dilemmas faced by Christians who want to uphold their faith, therefore the writer will try to look at cosmology from the perspective of the Trinity and Christology.

Basically the author agrees with Norris, Jr., that it is necessary to develop a new cosmological paradigm which can provide a response to the modern cosmology (3, p. 185). Dialogue between cosmology and the Bible (Scripture) is possible and necessary, particularly if we cite the thinking of 6th century Christologists such as St. Maximus the Confessor. According to Paul M. Blowers, Maximus's theology enables us to do: *"scripturalizing" of the cosmos and "cosmologizing" of the Scripture.* (3, p. 199)

Trinitarian approach to Cosmology

First of all, it must be recognized that there is no well-established concept of Trinitarian cosmology, let alone that has reached the stage of empirical confirmation. Neville also wrote that the idea of the Trinity is always rooted in revelation and speculation at the same time (1). The starting point of the concept of the Trinity is Christology, and a Christology thesis is rooted in the belief that Jesus is the Son of God because He is the Word made flesh (1, p.9). From this it can be drawn a basic idea that the doctrine of the Trinity was originally stems from Christology, particularly the New Testament Christology.

Thus if we read the Old Testament from the New Testament lens, we see that since in Gen. 1: 1-2 already

called about the role of God (the Father), the Spirit of God was hovering and also the word of God with power (dabar YHWH). If only we can ignore that Genesis was written by a 3 monotheistic Jews, then the mention of these three actors is sufficient for us to say that the forerunner of the Trinitarian cosmology has existed since Genesis. 1. According to the St. Basil, God the Father is the “primordial cause of everything that has been made,” the Son is “the operative cause,” and the Holy Spirit is “the perfecting cause.” see (2) p. 250.

Indeed, since the fathers of the church, including Irenaeus and Aquinas, Christians generally assumed that the creation of the Bible is the creation of nothing (creation ex nihilo). Irenaeus for example, writes that there is one God the Father is one God, who created everything from nothing through his Word. He repeatedly wrote about the Father who has created with His two hands (29). Of course what is meant by the two hands are the Word and the Holy Spirit.

Although Irenaeus explains these concepts to read Gen. 1: 1-4,26,27 but of course the views were rooted in the apostolic teachings of the risen Christ. In other words, the trinitarian view of Irenaeus actually stems from Christology. One more thing that should be noted, that the term Trinity itself is not yet known in the second century AD (Irenaeus period), because the term was emerging around the third and fourth centuries. So presumably not appropriate for reading Irenaeus from the standpoint of the development of thinking one or two centuries later (34).

In a later development, few people distinguish between social and latin Trinitarianism, which essentially are as follows: (35):

- a. *Social Trinitarianism*: “three distinct and discrete persons.” But this may be more suitable called tritheism,

although there are some theologians who see this concept remains as monotheism. For example: Plantinga, (?)

- b. *Latin Trinitarianism*: “three persons in one substance.” This model is further developed into a model of psychology by Augustine of Hippo in his *De Trinitate* (37).

Just for a side note, in a modern version of this psychology model can be linked with the theory of “plural self” (38). Plural self-concept has been studied seriously in modern psychology (39).

That is, the human being as God’s image also has a complex identity (plural), and that fact is an indirect hint that monotheism complex (Trinity) is more relevant than the simple monotheism.

However, Karl Rahner has addressed some of the problems that exist with the psychological model of the Trinity, and he prefers to use the term “hypothesis.” See (38a). Furthermore, for a discussion of modern thinking about the Trinity in relation to postmodernism, see for example (18).

Back to the biblical narrative of creation, the actual theory of creation out of nothing is not the 4 only possibility, because there are several possible alternative interpretations of the Genesis 1 narrative. See for example (13):

- creation from ‘primordial chaos’: if “tohu wa bohu” can be interpreted as chaotic and formless.
- creation from a kind of primordial fluid
- continuous creation (*creatio continuans*): Robert Millikan
- cyclic universe: Roger Penrose

- continuously expanding universe since infinite time: Fred Hoyle
- and one more possibility: creation without singularity.

Some Problems with the Big Bang model

If one can develop a theory in accordance with cosmological observation data but without involving the singularity hypothesis, then it means the big bang (big bang) become irrelevant.

From a theological perspective, Aquinas argued that the existence of God does not implicitly suggest that the age of the universe is limited, and this position is supported for example by

Arthur Peacocke and Ian Barbour, see (6). In other words, the big bang theory is not a necessary condition for evidence of the presence of God.

The author himself found the idea of the Big Bang bit corny, even if Georges Lemaitre connected it to the “creation ex nihilo.” Although there are many writers who have been denied the big bang theory, such as Fred Hoyle, Geoffrey Burbidge and Halton Arp, here the author would only give 3 refutations by elementary logic, namely:

- First*, There is no sane person would build a house by blowing up a pile of bricks with a grenade. In essence, very, very small chance that all the order and structure that we observe in the universe is the result of purely random process. In other words, the big bang models have serious logical flaw.
- Second*: Careful calculations show that if the big bang happened because of fluctuations in the vacuum (*Vacuum Fluctuation*), then the implication is the cosmological

constant would have a value of more than 10^{10} times greater than the observed value now. So it is clear that the assumption of many scientists that the big bang was triggered by fluctuations in vacuum would be simply an unfounded assumption. (Indeed, lately the hypothesis that the big bang came from vacuum fluctuations much to gain followers, especially those who argue that the universe started from nothing; but the essence of their argument is that the Universe did not require a Creator or God, see ref. (40)). 5

- c. Big Bang Theory has a primary assumption is that the universe began from a very small primordial egg. This hypothesis of cosmic egg was first proposed by Georges Lemaitre, based on the findings of Edwin Hubble, an American astronomer. If the law of Hubble is extrapolated backwards it will be found the starting point of the universe. The starting point is what is called a singularity or big bang (15). The question is: what if it can be shown that the singularity is not necessary to explain astronomical data?

Unfortunately, the big bang theory is already widely accepted as an indisputable fact, or in terms of Lakatos: research program (research program). As a result, almost all the paper that criticized the theory will necessarily be rejected in any scientific journal, because it does not comply with accepted research program as a consensus. It shows the repression of the authority of science worldwide; see ref. (15). Even Fred Hoyle once called the big bang as “religious fundamentalism” (6). For further discussion, for example the readers can see a website by Eric Lerner: www.bigbangneverhappened.org

However, thankfully lately there are also some cosmologists who propose cosmological models without singularities. Of their courage to break down a well-worn theory should be appreciated. See example ref. (16).

In the context of Gen. 1, the universe could be considered to be eternal, but the earth and the solar system were created from a kind of primordial oceans. Theologically, God always be dynamically Trinity in eternity, and this topic has been appointed as the dissertation by Adrian Langdon (19).

Another approach taken rampant among experimental physicists is trying to look at what happened before the big bang, though of course the levels of speculation this approach is quite large (17).

Christology approach to Cosmology

One of the most striking things in the Hymn of Jesus is the Logos who became flesh. Although there are similarities between these notions to the concept of Logos as a rule or immutable laws that govern the various changes in the universe (such as Heraclitus, the Stoics, and Philo), there are many significant differences between them (3, p. 186-287).

In the Hymn of Jesus, the Logos is personal, consubstantial with the Father, begotten by the Father, and incarnated into human and descended into the world and entered into human history.

So instead of a human becomes divine, but instead of a divine being human. Regarding the question of whether the worship of Jesus as the Son of God, Kurios, and the Logos was emerging at a later stage, or indeed a unique original belief of the early Church, can be seen in the work of James Dunn (43).

Although the view of the cosmos in the light of Christology is most clearly evident in John 1: 1-14, but there's also Paul's

writings that discuss the cosmic Christology, for example Col. 1: 15-17. Because it is alleged that the cosmic Christology of John's version has a closeness in conceptual with cosmic version of Paul's Christology. In fact, according to John Gibbs, Cosmic Christology is at the core of Paul's conception of the divinity of Jesus, which is no less important than the theology of the cross. It should be noted that Paul's concept of the divinity of Jesus is not from Hellenism, but rooted in the tradition of the early church itself. The combined evidence from various sources indicates that the work of the cosmic Christ is not less essential to the Christology of Paul than the redemptive work of Christ, see (4, p. 479).

The question then is: is it possible to develop Christological Cosmology from a theological- scientific discourse into an emancipatory science?

In my opinion, there are some things that can be drawn from the Hymn of Jesus (Jn. 1:14), of which:

- a. The Word and God the Father has an eternal existence and unity. The implication is the Word and the Father's identities are relational.
- b. The Word is the source of life for humans.
- c. The Word is the light of the world, and the darkness can not beat it.
- d. The Word was already willing to go down into the world and into the meat (sax), which is Jesus Christ.
- e. The Word of God is very involved in the process of creation of the universe (cosmos). And without Him nothing is finished in all of creation.

Of those phrases, then obviously there is a clash between the Word that is bright with a dark world. So the assumption

of dialectical history is not true that says that advances in human civilization happened as a result of multiple-collisions between thesis and antithesis (Hegel). The truth is always conflict because the eternal dark world tends to reject the Light. Thus, the progress of civilization occurs because the Light itself which gives light unto the darkness of the world, so the world is gradually transformed into increasingly bright. This may conceivably be similar to the process of diffusion or osmosis.

The clear implication here is that those who were chosen to be the children of God are also called to take part in the world, with a variety of functions, among others:

- creation functions: creating order back,
- enlighten the darkness of the world who do not know God,
- restore order amid the chaos of the world (returning order),
- a witness for Christ, the Word
- sew dark world and full of suffering (rather close to the principle of “tikkun olam” which held the Jewish community).

Concluding remarks and implications

1. Although there are differences, both Trinitarian and Christological approach can be a starting point for developing a biblical approach to cosmology. Cosmological models which are built from Trinitarian or Christology have practical-ethical implications, while contrasting big bang cosmology or its derivatives which tend to put a man in a position of helplessness in the midst of the cosmic stage.

2. Both approach (Trinitarian and Christological) are very potential to be developed further into the starting point of the dialogue in the context of religious pluralism.
3. In this paper there is nothing new about the Trinity and Christology.
4. Although the author is not advocating Social Gospel (Social Gospel), but at least the church can begin to actively build intense communication with the public, for example by means of open dialogue on theological issues in the public sphere. A dialogic interaction can emerge opportunity to exchange an understanding of the Trinity, Christology and others with other religious communities. Such a dialogue should be taken though certainly not make everyone converted in one go. In Jn. 7:14-8:59 narrated that Jesus also often communicated openly with the Jews even if the results are disappointing.
5. Now, a variety of online media means providing ample scope in that direction.

In this paper, the author only had time to explain some basic ideas, in the hope of triggering ideas deeper by the readers. What is your opinion?

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Chapter 3

Many World Interpretation of Quantum Mechanics



On Some Metaphysical Problems of Many Worlds Interpretation of Quantum Mechanics

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Abstract

Despite its enormous practical success, many physicists and philosophers alike agree that the quantum theory is full of contradictions and paradoxes which are difficult to solve consistently. Even after 90 years, the experts themselves still do not all agree what to make of it. The area of disagreement centers primarily around the problem of describing observations. Formally, the so-called *quantum measurement* problem can be defined as follows: the result of a measurement is a superposition of vectors, each representing the quantity being observed as having one of its possible values. The question that has to be answered is : how this superposition can be reconciled with the fact that in practice we only observe one value. *How is the measuring instrument prodded into making up its mind which value it has observed?* Among some alternatives

to resolve the above QM measurement problem, a very counterintuitive one was suggested by Hugh Everett in his 1955 Princeton dissertation, which was subsequently called the Many-Worlds Interpretation of QM (MWI). In this paper we will not discuss all possible scenarios to solve the measurement problem, but we will only shortly discuss Everett's MWI, because it has led to heated debates on possibility of multiverses, beyond the Universe we live in. We also discuss two alternatives against MWI proposal: (a) the so-called *scale symmetry* theory, (b) the Maxwell-Dirac isomorphism. In last section, we also discuss shortly MWI hypothesis from philosophical perspective.

Keywords:

quantum measurement problem, many-worlds interpretation, quantum metaphysics, multiverse, realism interpretation, scale symmetry, Maxwell-Dirac isomorphism.

Introduction

In its simplest form the quantum theory of measurement considers a world composed of just two dynamical entities, a system and an apparatus. According to the Copenhagen interpretation of QM, at the point of time when an observer operates the apparatus to observe the system, the system's wave function collapse. But the exact mechanism of wave function collapse is unknown. Furthermore, it is difficult to model the correlation between a *macroscopic* observer and apparatus (governed by classical physics) with the microscopic system in question, which is supposed to be governed the Schrödinger's wave function. This is known as quantum measurement problem, which baffled many physicists since the early years of QM development.

To quote De Witt's paper in *Physics Today* [7]:

“At this point Bohr entered the picture and deflected Heisenberg somewhat from his original program. Bohr convinced Heisenberg and most other physicists that quantum mechanics has no meaning in the absence of a classical realm capable of unambiguously recording the results of observations. The *mixture of metaphysics* with physics, which this notion entailed, led to the almost universal belief that the chief issues of interpretation are epistemological rather than ontological: The quantum realm must be viewed as a kind of ghostly world whose symbols, such as the wave function, represent potentiality rather than reality.”

Apparently, Everett also realized that Copenhagen interpretation is largely incomplete. In his 1955 PhD thesis, Everett essentially proposed a resolution from measurement problem by assuming a multitude of possibilities, which is why his hypothesis is called Many Worlds Interpretation.

In De Witt's words:[7]

“... it forces us to believe in the reality of all the simultaneous worlds represented in the superposition described by equation 5, in each of which the measurement has yielded a different outcome. Nevertheless, this is precisely what EWG would have us believe. According to them the real universe is faithfully represented by a state vector similar to that in equation 5 but of vastly greater complexity. This universe is constantly splitting into a stupendous number of branches, all resulting from the measurement like interactions between its myriads of components. Moreover, every quantum transition taking place on every star, in every galaxy, in every remote comer of the universe is splitting our local world on earth into myriads of copies of itself.”

In other words, Everett's hypothesis called for a different picture of reality, and obviously this requires a careful

consideration of the distinction and boundary between physics theories and metaphysics. In the next section we will discuss several objections and critics to MWI.

Some critics to Everett's Many Worlds Interpretation

Since publication of his dissertation, Everett's MWI has caused debates especially on philosophical problems related to his proposal. Such a proposition leads some physicists to argue that MWI actually moves the measurement problem into wild metaphysical speculation of branching universes. Barrett has reviewed earlier discussions on this topics.[6]

Despite acceptance of MWI by some theoretical physicists, and even Barrau [9] argued in favor of possible experimental vindication of MWI, there are also those who raise serious criticisms on such a wild hypothesis.

One critics came from Adrian Kent from Princeton University, from the same department where Everett obtained his PhD. In essence, Kent's objection on MWI is because:

"The relevance of frequency operators to MWI is examined; it is argued that frequency operator theorems of Hartle and Farhi-Goldstone-Gutmann do not in themselves provide a probability interpretation for quantum mechanics, and thus neither support existing MWI nor would be useful in constructing new MWI."[5]

Furthermore, he argues:

"Firstly, the very failure of MWI proponents to axiomatize their proposals seems to have left the actual complexity of realistic MWI widely unappreciated. It may thus possibly be tempting for MWI advocates to assume that there is no real problem; that Everett's detractors either have not understood the motivation for, or merely have rather weak aesthetic objections to, his program. (Hence perhaps the otherwise inexplicable claim by one

commentator that “Avoiding this [prediction of multiple co-existing consciousnesses for a single observer] is their [Everett’s opponents’] motivation for opposing Everett in the first place.”)

Secondly, MWI seem to offer the attractive prospect of using quantum theory to make cosmological predictions. The trouble here is that *if MWI is ultimately incoherent and ill-founded, it is not clear why one should pay attention to any quantum cosmological calculations based on it.*” [5, p. 27]

In answering frequent question of what are the alternatives to MWI hypothesis, Kent outlined a number of ideas, including subquantum physics.

Another critics came from Steven Weinberg. For example, in 2005 interview with Dan Falk, Steven Weinberg still has objection on multiverse hypothesis. Meanwhile, he agrees that positivism or constructivism may be no longer valid in physics sciences, but he also admits that he still tries to figure out an alternative interpretation of QM:

“SW: And sometimes, as with the example of positivism, the work of professional philosophers actually stands in the way of progress. That’s also the case with the approach known as constructivism – the idea that every society’s scientific theories are a social construct, like its political institutions, and have to be understood as coming out of a particular cultural milieu. I don’t know whether you’d call it a philosophical theory or a historical theory, but at any rate, I think that view is wrong, and I also think it could impede the work of science, because it takes away one of science’s great motivations, which is to discover something that, in an absolute sense, divorced from any cultural milieu, is actually true.

Dan Falk: You’re 81. Many people would be thinking about retirement, but you’re very active. What are you working on now?

SW: There's something I've been working on for more than a year — maybe it's just an old man's obsession, but I'm trying to find an approach to quantum mechanics that makes more sense than existing approaches. I've just finished editing the second edition of my book, *Lectures on Quantum Mechanics*, in which I think I strengthen the argument that none of the existing interpretations of quantum mechanics are entirely satisfactory."

Weinberg himself has proposed his own theoretical physical interpretation of QM, albeit his theory is non-ontological in nature. He wrote:[14]

" ψ is theoretically physical and describes the probabilistic possibilities, as the Copenhagen interpretation implies. It has physical units (see Eq. (3)). ψ is also, naively, a function of a real spacetime coordinate argument solving a partial differential equation, such as the time-dependent Schrödinger equation, for example, with spacetime partial derivatives. All this argues for theoretically physical formalism (*not ontology*), applicable predictably prior to 'Copenhagen observation.'"

Therefore, in the same spirit with Weinberg's reserved position against MWI hypothesis, in the following section we will discuss two simpler alternatives which seem quite worthy for further considerations: (a) scale symmetry theory, (b) a more realistic interpretation of quantum wave function based on Maxwell-Dirac isomorphism.

1. Resolution to the problem based on scale symmetry theory

In a semi-popular article in *Quanta Magazine*[10], Wolchover describes how some theoretical physicists who feel unhappy with multiverse metaphysical problem, have come

up with new theories where mass and length are no longer fundamental entities. In a scale-symmetry theory, advocated earlier by Bardeen around 1995, the origin of mass can be derived without invoking Higgs mechanism.[11]

Proponents of scale symmetry theory argue that this approach has clear prospect to prove that multiverse hypothesis (MWI) is an excess baggage. In essence, they believe that the key to the correct answer to the measurement problem is not by pondering metaphysical problems such as the existence of multiple realities and multiple histories, but by examining our assumptions on mass, length, and scales. See also Hashino et al. [12].

2. Resolution to the problem based on realistic Maxwell-Dirac isomorphism

Actually, there is a simpler resolution to the aforementioned QM measurement problem, although it is not quite popular yet, i.e. by admitting that (a) Schrodinger's wave function is unphysical therefore it has no value for realistic physical systems, (b) because of such an unrealistic wave function, the measurement problem is caused by confusion on the physical meaning of quantum wave function, (c) it is required to reconcile physical wave function obtained from QM and from classical electrodynamics theory.

Once we accept these, then we should find out the correct physical meaning of wave function, by formal connection between QM and classical electrodynamics. In other words, contradictions and confusions can be removed once we reconcile quantum picture with classical electrodynamics picture of wave function, instead of crafting unfounded assumption of many-worlds which only creates metaphysical excess baggage.

There are some papers in literature which concerned with the formal connection between classical electrodynamics and wave mechanics, especially there are some existing proofs on Maxwell-Dirac isomorphism. Here the author will review two derivations of Maxwell-Dirac isomorphism i.e. by Hans Sallhofer and Volodimir Simulik. In the last section we will also discuss a third option, i.e. by exploring Maxwell-Dirac isomorphism through quaternionic language.

a. Sallhofer’s method

Summing up from one of Sallhofer’s papers[1], he says that under the sufficiently general assumption of periodic time dependence the following connection exists between source-free electrodynamics and wave mechanics:

$$\sigma \cdot \left[\begin{array}{l} \text{rot}E + \frac{\mu}{c} \frac{\partial}{\partial t} H = 0 \\ \text{rot}H - \frac{\varepsilon}{c} \frac{\partial}{\partial t} E = 0 \\ \text{div}\varepsilon E = 0 \\ \text{div}\mu H = 0 \end{array} \right]_{\text{div}E=0} \equiv [(\gamma \cdot \nabla + \gamma^{(4)} \partial_4) \Psi = 0] \tag{1}$$

In words: Multiplication of source-free electrodynamics by the Pauli-vector yields wave mechanics.[1]

In simple terms, this result can be written as follows:

$$P \cdot M = D \tag{2}$$

Where:

- P = Pauli vector,
- M = Maxwell equations,
- D = Dirac equations.

We can also say: *Wave mechanics is a solution-transform of electrodynamics*. Here one has to bear in mind that the well-known circulatory structure of the wave functions, manifest in Dirac's hydrogen solution, is not introduced just by the Pauli-vector.[1]

b. Simulik's method

Simulik described another derivation of Maxwell-Dirac isomorphism. In one of his papers[2], he wrote a theorem suggesting that the Maxwell equations of source-free electrodynamics which can be written as follows:

$$\begin{aligned}
 \text{rot}E + \frac{\mu}{c} \frac{\partial}{\partial t} H &= 0 \\
 \text{rot}H - \frac{\varepsilon}{c} \frac{\partial}{\partial t} E &= 0 \\
 \text{div}E &= 0 \\
 \text{div}H &= 0
 \end{aligned} \tag{3}$$

Are equivalent to the Dirac-like equation [2]:

$$\left[\gamma \cdot \nabla - \begin{pmatrix} \varepsilon 1 & 0 \\ 0 & \mu 1 \end{pmatrix} \frac{1}{c} \frac{\partial}{\partial t} \right] \Psi^{el} = 1, \tag{4}$$

Where in the usual representation

$$\gamma = \begin{pmatrix} 0 & \sigma \\ \sigma & 0 \end{pmatrix}, \tag{5}$$

And σ are the well-known Pauli matrices.

c. Maxwell-Dirac isomorphism through Quaternionic language

Recognizing that the Maxwell's equations were originally formulated in terms of quaternionic language, some authors investigate formal correspondence between Maxwell and Dirac equations. To name a few who worked on this problem: Kravchenko and Arbab. These authors have arrived to a similar conclusion, although with a different procedures based on Gersten decomposition of Dirac equation.[4]

It seems that the above arguments of Maxwell-Dirac isomorphism can be an alternative to the problematic MWI hypothesis. This MD isomorphism can also be extended further to classical description of boson mass which was usually called Higgs boson[3], so it may offer a simpler route to describe the origin of mass compared to scale symmetry theory.

Philosophical viewpoint

In our opinion, the essence of problem with MWI is captured in De Witt's remark as quoted above: "*The mixture of metaphysics with physics.*" Formally speaking, Everett's many worlds interpretation of QM can be viewed as large scale implication if one accepts Feynman's *sum over history* interpretation of QM. But, it is known that Feynman famously declared that nobody understood completely Quantum Mechanics. Therefore, one should be very careful before generalize his sum over history interpretation of QM toward Universe.

Nonetheless, Everett's Multiverse found numerous followers, especially science fiction fans all over the world.

And some people also relates his Multiverse as a realization of one of Borges's story: "*Garden of the forking paths.*"

While we shall admit that such a Multiverse hypothesis is a nice material for science fiction novels or movies, now is the right time to ask: *Is it possible that God created Multiverse?* Such a philosophical implication of cosmology development has been emphasized by Bernard Carr:

"By emphasizing the scientific legitimacy of anthropic and multiverse reasoning, I do not intend to deny the relevance of these issues to the science- religion debate [32]. The existence of a multiverse would have obvious religious implications [33], so contributions from theologians are important. More generally, cosmology addresses fundamental questions about the origin of matter and mind, which are clearly relevant to religion, so theologians need to be aware of the answers it provides."

Rodney identifies several problems related to multiverse hypothesis: [17]

"Among the problems identified with the hypothesis are

- (1) the existence of infinitely many universes depends critically on parameter choice;
- (2) the probability that any universe in an ensemble is fine-tuned for life is zero;
- (3) the physical realization of any ensemble will exclude an infinity of possibilities;
- (4) the hypothesis is untestable and unscientific; and
- (5) the hypothesis is not consistent with the amount of order found in this universe, nor with the persistence of order.

If these factors are taken into consideration the conclusion of the last chapter will be much stronger, because the prior probability of many universes will be further reduced and

because the 'likelihood' entering Bayes's theorem will also be reduced."

It seems worth noting here to quote George Ellis's remark in his Emmanuel College lecture:[19]

"The very nature of the scientific enterprise is at stake in the multiverse debate: the multiverse proponents are proposing weakening the nature of scientific proof in order to claim that multiverses provide a scientific explanation. This is a dangerous tactic.

...

The often claimed existence of physically existing infinities (of universes, and of spatial sections in each universe) in the multiverse context (e.g.Vilenkin: Many Worlds in One: The Search for Other Universes) is dubious.

...

Here one must distinguish between explanation and prediction. Successful scientific theories make predictions, which can then be tested. The multiverse theory can't make any predictions because it can explain anything at all."

Finally, Ellis warned his fellow cosmologists:[18]

"I suggest that cosmologists should be very careful not make methodological proposals that erode the essential nature of science in their enthusiasm to support specific theories as being scientific, for if they do so, there will very likely be unintended consequences in other areas where the boundaries of science are in dispute. It is dangerous to weaken the grounds of scientific proof in order to include multiverses under the mantle of 'tested science' for there are many other theories standing in the wings that would also like to claim that mantle.

It is a retrograde step towards the claim that we can establish the nature of the universe by pure thought, and don't then have to confirm our theories by observational or experimental

tests: it abandons the key principle that has led to the extraordinary success of science.

In fact we can't establish definitively either the existence or the nature of expanding universe domains that are out of sight and indeed out of causal contact with us."

Concluding remarks

Despite its enormous practical success, many physicists and philosophers alike agree that the quantum theory is full of contradictions and paradoxes which are difficult to solve consistently. Even after 90 years, the experts themselves still do not all agree what to make of it. In this paper, we review QM measurement problem which paved a way to Many-Worlds Interpretation of QM.

Nonetheless, it is clear that Everett's hypothesis called for a different picture of reality, and obviously this requires a very careful consideration of the distinction between physics theories and metaphysics.

In the meantime, the problem of the formal connection between electrodynamics and wave mechanics has attracted the attention of a number of authors, especially there are some existing proofs on Maxwell-Dirac isomorphism. Here the authors review three derivations of Maxwell-Dirac isomorphism i.e. by Hans Sallhofer and Volodimir Simulik and also quaternion language.

In our opinion the above arguments of Maxwell-Dirac isomorphism can be a simpler alternative compared to the metaphysically problematic MWI hypothesis. (Allow us to recall Ockham's razor: the simpler explanation is more likely to be the correct answer.) This MD isomorphism can also be extended further to classical description of boson mass which was usually called Higgs boson [3], so it may be

a simpler option compared to scale symmetry theory. It is our hope that discussions presented in this paper have made clear that the entire Many Worlds Interpretation of QM is not required, once we begin to ask what is the physical meaning of wave function, instead of accepted blindly the macroscale implication of path integral interpretation of QM.

This paper was inspired by an old question: *Is there a consistent and realistic description of wave function, both classically and quantum mechanically?*

It can be expected that the above discussions will shed some lights on that old problem especially in the context of physical meaning of quantum wave function. This is reserved for further investigations.

To conclude this paper, allow us to repeat Ellis's warning to his over-enthusiastic fellow cosmologists:

"I suggest that cosmologists should be very careful not make methodological proposals that erode the essential nature of science in their enthusiasm to support specific theories as being scientific, for if they do so, there will very likely be unintended consequences in other areas where the boundaries of science are in dispute. It is dangerous to weaken the grounds of scientific proof in order to include multiverses under the mantle of 'tested science'"

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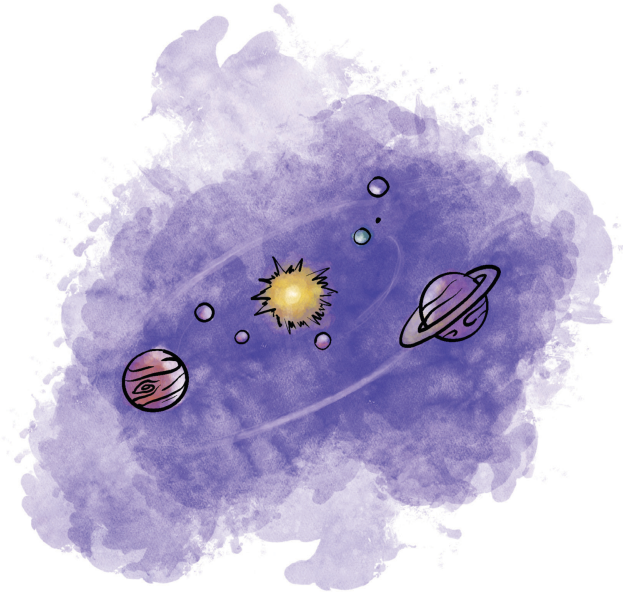
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Chapter 4

Cosmic Christology of the Johannine Prolgue



An outline of new Cosmology Model inspired by Cosmic Christology of the Johannine Prologue

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Abstract

This article discusses an outline of a new Cosmology model based on my interpretation of the Johannine Prologue. The objective of this article is to propose a new Cosmology model which is biblically sound and scientifically verifiable, inspired by Cosmic Christology of the Johannine Prologue. Because this is only an outline, it should be obvious that this is not a complete and working cosmology model. More research is needed to develop it further and also to test this idea. New experiments may be expected in the future to verify this proposal.

Introduction

Despite many efforts in the literature to discuss various cosmology models from biblical perspectives,³ it is a common view held by many scholars that biblical view (Creation) and the scientific view (Big Bang) cannot be reconciled. Therefore most scholars simply reject biblical teaching as unscientific while most theologians simply ignore the Big Bang theories. Of course, there are also some variations of Creation hypothesis, such as the assertion that the Universe was created by God not in 6x24 hours, but in several

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3 See for instance: Willem B. Drees. *Beyond the Big Bang: Quantum Cosmologies and God*. La Salle, Illinois: Open Court Publ. Co., 1990

thousand years. Another new theory is called as Intelligent Design, saying that the observed complicated structure both in microphysics (DNA, RNA etc) and macrophysics (galaxy, galaxy clusters, planets, stars) seems to point to a Supreme Creator. Therefore we need a new Cosmology model which is able to reconcile both the scientific finding and also the biblical teaching.

Question 1:

Can we find a biblically sound model of Cosmology?

Traditionally the battle between theologians in one side and scientific world in another side seems to be almost irreconcilable. Even since the days of Galileo Galilei the dispute was quite harsh, with tendency of denying each other side.⁴

In modern days, the scientific finding of expanding galaxies by Edwin Hubble led to the Expanding Universe theory as suggested A. Friedman and G. Lemaitre. Lemaitre himself was a devoted Catholic priest, but he carefully distinguished between the point of beginning and the point of Creation. However, he seemed to assert that the Expanding Universe suggests a point of singularity or the beginning of time, which later it is called as the Big Bang.

In the context of scientific theories, we should admit that initially Big Bang Theory was made as a result of backward extrapolation of the Hubble law. The Hubble law itself only asserts that galaxies move away from each other. And if this law was extrapolated back to the origin of time, then we find that there should be a singularity which then was called as Big Bang.

However, the Big Bang or singularity itself is not free of criticism, both from steady state perspective and also from the rigorous theory of singularity itself. This directs us to a new question which will be discussed subsequently: Can the initial singularity be removed from cosmology models?

Provided the above question concerning initial singularity can be answered, then my answer to the first question is positive: yes, we

4 George V. Coyne & Michael Heller. A Comprehensible Universe. New York: Springer-Verlag New York, 2008.

can propose a new biblically sound Cosmology model with intention to reconcile biblical teaching with scientific findings.

Question 2:

Can the initial singularity be removed from cosmology models?

This question has been discussed in a report by Prof. Michael Heller, a cosmologist and theologian from Warsaw, Poland. In a paper for Templeton Prize, he discusses this problem: Cosmological Singularity and the Creation of the Universe.⁵ He discusses among other things, how singularity is actually model dependent, and in different cosmology models the initial singularity can be removed. In other words, the notion of Big Bang is just a special case of the chosen space-time metric.

In this regards, I have brought this issue in a question at researchgate.net forum, and there are many comments from other scholars. To summarize their views, it seems that they agree with Prof. Heller that the initial singularity can be removed in different cosmology models. Some references in this context have been cited by contributors to that forum.⁶

A short summary of Dabrowski and Marosek⁷ will be made here: Varying physical constant cosmologies were claimed to solve standard cosmological problems such as the horizon, the flatness and the Λ -problem. But one of the most intriguing problems in cosmology is the problem of singularities. In their paper, they suggest yet another possible application of theories suggesting varying physical constants: i.e. to solve singularity problem.⁸

5 Michael Heller. Cosmological Singularity and the Creation of the Universe. <http://www.templetonprize.org/pdfs/93-113.pdf>

6 Edward Belbruno. On the regularizability of the Big Bang Singularity (2012). arxiv.org/1205.1474v2.pdf

7 Mariusz P. Dabrowski & Konrad Marosek. Regularizing cosmological singularities by varying physical constants (2012). arxiv.org/1207.4038v4.pdf

8 *Ibid.*

In Belbruno's paper, it is shown that dynamical flow near the big bang singularity can be reduced to a central force field, when modeled by an anisotropic Friedman equation, under a number of assumptions. Then he applies the McGehee transformation to the central force field, yielding unique branch extensions of solutions through $a=0$.⁹

Question 3: **Can we model the Universe based on classical wave equation?**

First, I shall recall a study conducted by some researchers from Observatoire de Paris – Meudon several years ago which suggests that vibration of early Universe can be used to determine the shape of the Universe. This study is led by Prof. J. Luminet.¹⁰

What is interesting here is that they solved Helmholtz equation in spherical case to find out the vibration of early Universe. And we know that Helmholtz equation implies classical wave equation, therefore by deduction we can infer that it seems also possible to use Helmholtz equation to determine the vibration of early universe, and perhaps it can be related either to CMBR oscillation or Sakharov oscillation.¹¹ However, we should admit that oscillation of early universe has not received much attention so far, even though Sakharov (acoustic) oscillation is well known among cosmologists.

9 Edward Belbruno. On the regularizability of the Big Bang Singularity (2012). arxiv.org/1205.1474v2.pdf

10 URL: <http://www.obspm.fr>

11 L.P. Grishchuk. Cosmological Sakharov oscillations and Quantum Mechanics of the early Universe (2011). arXiv: 1106.5205 [gr-qc]

Figure 1 below depicts CMB temperature anisotropies:

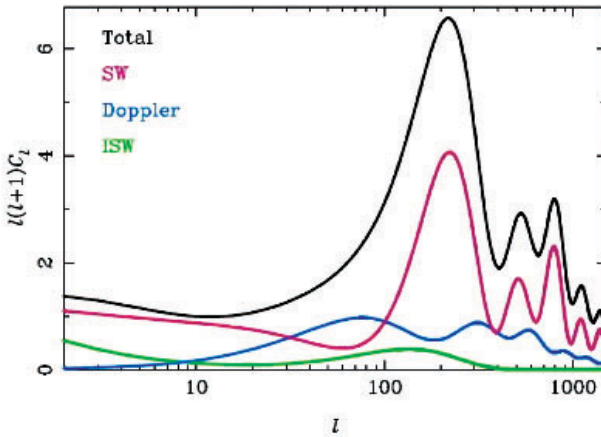


Figure 1. Various contributions to CMB temperature anisotropies [7, p.13].

Second, Hawking-Hartle wavefunction equation and Wheeler-DeWitt equation are two well-known equations for describing quantum scenario for the birth of the Universe (the quantum birth). These two equations are based on extrapolating wave mechanical arguments to the Universe scale, however both of them are lacking observability so far and they cannot explain any observation (data). Therefore it is fair enough to say that both equations are defective and useless equations for describing physical phenomena at large scales. Nonetheless, these equations indicate that it seems worth to study the wave nature of the Universe. Therefore, while we do not advocate the use of H-H or WDW equation, we still can use their approach to model the wave nature of the Universe.

Third, my own personal study since 2002 can be summarized as follows: For once in my life, I believed that Quantum Mechanics (QM) is the sought answer for almost all physics problems, not only for atomic and particle world but also for astrophysics scale.

For cosmologists, there is Wheeler-DeWitt equation which is borrowing quantum mechanical concept to study early period of the Universe. But everybody knows that WDW equation does not predict anything, so I tried to find another way.

Before I continue, firstly allow me to admit something: I should admit that I was very interested in quantum theory especially the wave mechanics since I read a book published by Santa Fe Institute/Addison-Wesley and edited by Wojciech H. Zurek with title: *Complexity, Entropy and the Physics of Information*.¹² I bought that book in 1996, and then studied it in my spare time. After that, I became interested in the wave mechanical model of solar system (planetary orbits) since I found a paper by Laurent Nottale from Paris. But I found that Nottale's Scale Relativity method is quite complicated, therefore I tried to derive his result in a simpler way (based on some quantum mechanics textbooks that I read at the time).

It took some years until I found time and energy to put my ideas in written form and then finally I can publish my first paper in Apeiron, January 2004.¹³ In that paper, I discuss quantization of planetary orbits in solar system based on Bohr's quantization of angular momentum. I also predicted three planetoids beyond orbit of Pluto; and later on those 3 planetoids have been discovered subsequently by several astronomers including Dr. Michael Brown from Caltech I (around 2004-2005). After that, I published many more papers discussing various aspects of quantum/wave mechanics, but the basic view remains the same: that I was quite convinced that the quantum mechanics is a wonderful theory (like what many physicists used to think nowadays), although it is perhaps incomplete. In particular I was interested in the quantized vortices model of planetary orbits, because I found that quantized vortices correspond neatly to Bohr's quantization rule. Therefore, it would suggest that we can think that quantization in solar system is a result of quantized helium vortices.

12 Zurek, Wojciech H. ed. *Complexity, Entropy and the Physics of Information*. Santa Fe Institute/Addison-Wesley Publ., 1990

13 Christiano, V. A Cantorian Superfluid Vortex and the Quantization of Planetary Motion. Apeiron Vol. 11 No. 1, January 2004, URL: <http://redshift.vif.com>.

But since 2009, I took a rather different view, which is to find possible connection between quantum mechanics and classical mechanics. That view was expressed in my 2009 paper together with Prof. Florentin Smarandache with title: *A derivation of Maxwell's equations in quaternion space*. In that paper we managed to derive a quaternionic form of Maxwell equations, based on Dirac-Gersten's decomposition method.¹⁴ Since then, I sought further on how to connect classical mechanics and wave mechanics. But still, my basic view is that the wave mechanics eventually supersede classical mechanics. (During the period of 2005 until 2013, I have published no less than 9 books together with Florentin Smarandache and others.) For an introduction to the relationship between classical and quantum theory, see for instance Landsman.¹⁵

That view I hold until March 2014, when I found some papers written by Dr. George Shpenkov from googling. He explained among other things that there are some weaknesses of wave mechanics especially Schrödinger's equation. I sent him several emails and he emailed me back with some papers and books. After studying his papers and books, I decided that the classical wave equation can complement wave mechanics, and even they are compatible as indicated for instance by the exact correspondence between Poisson bracket and quantum commutator bracket.

In short, I am now convinced that in certain cases like planetary orbits, periodic table of elements, and energy levels of hydrogen, the classical wave equation is proved to be equal or even far better than quantum model.

Now, I think it is the right time to study whether the classical wave equation can also be generalized to describe vibration and other properties of the Universe at large scale. I propose to use a new framework called "*fractal vibrating string*" in order to generalize the classical wave equation. As far as I know, such a fractal vibrating

14 Christianto, V., & Smarandache, F. A derivation of Maxwell's equations in quaternion space. Progress in Physics, 2009. URL: <http://www.ptep-online.com>

15 Landsman, N.P. Between classical and quantum (2005). arXiv:quant-ph/0506082.

string concept has not been discussed elsewhere before to study astrophysics and cosmology phenomena.

The proposed solution: A Cosmology model inspired by the Johannine Prologue

As we know there are two main paradigms concerning the origin of the Universe: the first is Big-Bang Theory, and the other is Creation paradigm. But those two main paradigms each have their problems, for instance Big Bang Theory assumes that the first explosion was triggered by chance alone, therefore it says that everything emerged out of vacuum fluctuation caused by pure statistical chance. By doing so, its proponents want to avoid the role of the Prime Cause (God). Of course there are also other propositions such as the Steady State theory or Cyclical universe, but they do not form opinion of the majority of people in the world.¹⁶

On the other side, the Creation Theory says that the Universe was created by God in 6x24 hours according to Genesis chapter 1, although a variation of this theory says that it is possible that God created the Universe in longer period of thousands of years or even billions of years. But such a proposition seems to be not supported by Biblical texts.

To overcome the weaknesses of those main paradigms, I will outline here another choice, namely that the Universe was created by Logos (Christ in His pre-existence). This is in accordance with the Prolegomena of the Gospel of John, which says that the Logos was there in the beginning (John 1:1).¹⁷

This famous Prolegomena of the Gospel of John may be interpreted that everything comes from the Word of God, and since Word means Voice, and Voice means sound, and sound can be related to wave, vibration and frequency, then it seems quite straightforward to think that everything in this universe consists

16 Andrew Zimmerman Jones & Daniel Robbins. *String Theory for Dummies*. Indianapolis, Indiana: Wiley Publishing Inc., 2010. P. 169.

17 Victor Christianto. An Outline of Cosmology based on interpretation of The Johannine Prologue. *Bull. Soc. Math. Services and Standards*. Vol. 3 No. 3 (2014) URL: www.scipress.com

of vibration and frequency too. While the above analogy with the Gospel of John is suggested by this writer, such a view that everything is related to wave and frequency has been proposed by George Shpenkov.¹⁸ He wrote as follows:

“A new physics paradigm that we have accepted and follow in all our works is based on: (1) Dialectical philosophy and dialectical logic; (2) The postulate on the *wave nature* of all phenomena and objects in the Universe.”¹⁹

This writer would like to propose an interpretation i.e. if Genesis 1:1-2 is interpreted according to John 1:1, then it seems we can arrive at a different picture of creation, that is the Universe was created by the Word of God (Greek: Logos, Aramaic: Memra) with the power of the Spirit of God.²⁰ And because the Logos is “word”, then it could mean voice or sound, and if sound can be interpreted as wave and frequency, then it seems quite logical to think that everything in the Universe are formed of wave and frequency (vibration). Therefore it is important to work on classical wave equation (vibrating string) instead of Schrödinger equation to model wave nature of atoms and molecules, partly because the wave mechanics is unrealistic model.²¹

A theory which supports this hypothesis is George Shpenkov’s interpretation on the classical wave equation, which leads to the following conjectures: **a.** *shell-nodal model of atoms and molecules*; **b.** *a periodic table of elements which is close to periodic table of Mendeleev*. And this writer proposed a further step, i.e. to extend further

18 George P. Shpenkov. Dialectical View of the World: *The Wave Model (Selected Lectures)*. Volume I: Philosophical and Mathematical Background (2013). URL: <http://shpenkov.janmax.com/Vol.1.Dialectics.pdf>

19 *Ibid.*, p.7.

20 Christianto, V. An Outline of Cosmology based on interpretation of The Johannine Prologue. *Bull. Soc. Math. Services and Standards*. Vol. 3 No. 3 (2014) URL: www.scipress.com

21 Christianto, V. A review on Schrödinger equation & classical wave equation. *Prespacetime Journal* Vol.5 No. 5, May 2014. URL: <http://www.prespacetime.com> or http://www.vixra.org/author/Victor_Christianto

the classical wave equation to become *fractal vibrating string*, as mentioned briefly in a recent paper.²²

Philosophically speaking, the fractal vibrating string has similarities with string theory, because both of them are based on the same hypothesis that particles come out of frequency and vibration, although they also have major difference that is string theorists must work with 26 dimensions: "... the universe has a total of 26 dimensions in string theory, as opposed to the four dimensions it possesses under Einstein's special and general relativity theories".²³ Another major difference is that so far string theory has no single prediction which can be compared with observation or experiment, while the proposed fractal vibrating string model is closer to our everyday's experience.

Therefore, my vision can be summarized as follows: My vision is to extend Dr. George Shpenkov's method (he uses the classical wave equation) to become fractal vibrating string. I hypothesize that many phenomena from microscale up to macroscale can be described using *fractal vibrating string*. And it should be noted here that the proposed fractal vibrating string here is different from fractal string theory of Dr. Michel Lapidus, and it is also different from the "standard" string theory (although philosophically speaking, they may have some similarities). One of the basic differences is that in string theory, one should work with 26 dimensions, which is not necessary for studying fractal vibrating string.

To the best of our knowledge, such a proposal that the Universe was created by the Word of God (or Logos in Greek) is not in conflict with a recent review on the Johannine cosmology: "The Word is the creator of all things; the apriority; the source of sources; the origin of origins. The creation of the world is itself revelatory; the creation itself bears the stamp of the Word (1.3)."²⁴

22 Christianto, V. An Outline of Cosmology based on interpretation of The Johannine Prologue. *Bull. Soc. Math. Services and Standards*. Vol. 3 No. 3 (2014) URL: www.scipress.com

23 Jones, Andrew Zimmerman & Daniel Robbins. *String Theory for Dummies*. Indianapolis, Indiana: Wiley Publishing Inc., 2010. P. 169.

24 Klink III, Edward W. "Light of the World: Cosmology and the Johannine Literature," Chapter 5 in Jonathan T. Pennington & Sean M. McDonough

And it is also consistent with Holman Christian Standard Bible's translation of Revelation 3:14 : "The Amen, the faithful, true Witness, the **Originator** of God's creation..."²⁵

But unfortunately there are only a few studies in such a Johannine cosmology in the existing body of literature, and even more fewer is mathematical model based on such a Johannine cosmology. Therefore my proposal may be considered as one early attempt to develop such a mathematical model based on interpretation of Johannine Prolegomena. By doing so, I wish to contribute in better dialogue between theology and scientific world.

Future works

For the time being, there are some remaining works to be done:

- a. To find exact solution of Helmholtz equation in spherical case and then compare it with observed data of Early Universe's oscillation.
- b. To explain CMBR/WMAP spectrum and anisotropy
- c. To explain redshift data
- d. To explain the origin of clustering formation of galaxies
- e. Etc.

Implications of the proposed research

Implications of the proposed research include:

- a. It is possible to reconcile scientific findings with biblical teaching in the context of cosmology modeling.
- b. It is possible to explain CMBR spectrum from the viewpoint of classical wave equation.

(eds.) *Cosmology and the New Testament Theology*. London: T&T Clark, 2008. p. 74-89

25 Holman Christian Standard Bible, Free edition obtained at OliveTree BibleStudy App.

- c. It is possible to construct a fractal vibrating string model to study both many large scale as well as micro scale phenomena.
- d. Potential implication is to apply unified wave field model governing electromagnetic and gravitational phenomena.²⁶

In short, if the proposed research is approved, then it can open a plethora of new approaches to study cosmology in a whole new perspective.

Concluding remarks

I have outlined here a new choice for cosmology model, namely that the Universe was created by Logos (Christ in His pre-existence). This is in accordance with the Prolegomena of the Gospel of John, which says that the Logos was there in the beginning (John 1:1).

My proposal is to extend Dr. George Shpenkov's method (he uses the classical wave equation) to become *fractal vibrating string*. I hypothesize that many phenomena from microscale up to macroscale can be described using fractal vibrating string. And it should be noted here that the proposed fractal vibrating string here is different from fractal string theory of Dr. Michel Lapidus, and it is also different from the "standard" string theory (although philosophically speaking, they may have some similarities).

But unfortunately there are only a few studies in such a Johannine cosmology in the existing body of literature, and even more fewer is mathematical model based on such a Johannine cosmology. Therefore my proposal may be considered as an early attempt to develop such a mathematical model based on interpretation of Johannine Prolegomena. By doing so, I wish to contribute in a better dialogue between theology and scientific world.

If the proposed research is accepted, then it can open a plethora of new approaches to study cosmology in a whole new perspective.

26 Christianto, V. A derivation of GravitoElectroMagnetic (GEM) Proca-type equations in Fractional Space. *Prespacetime Journal* Vol. 5 No. 5 May 2014, www.prespacetime.com or http://www.vixra.org/author/Victor_Christianto

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A photograph of a winter forest. The trees are heavily covered in snow, and a path leads through the trees towards a bright light in the distance. The overall color palette is cool, with blues and whites.

Chapter 5

Prolegomena of St. John's Gospel



A Theo-Cymatic Reading of Prolegomena of St. John's Gospel

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Abstract

The science of cymatics, the study of visible sound, is beginning to yield clues to one of the most challenging questions in science: what triggered the creation of life on earth? The hypothetical model we have developed was inspired by ancient traditions and demonstrates that sound and cymatic forces could have worked together to become the dynamic force that created the first stirrings of life and also the Universe.

Guiding Text: John 1:1-5

1. In the beginning was the Word, and the Word was with God, and the Word was God.
2. The same was in the beginning with God.
3. All things were made by him; and without him was not any thing made that was made.
4. In him was life; and the life was the light of men.
5. And the light shineth in darkness; and the darkness comprehended it not.

²⁷ Founder of Second Coming Institute, www.sci4God.com. url: http://researchgate.net/profile/Victor_Christianto

Prologue

Spiritual traditions from many cultures speak of sound as having been responsible for the creation of life. For instance, the Celts of old believed that the world was upheld and sustained by a single all-embracing melody: "Oran Mór," they called it, the Great Music, and all creation was part of it. Perhaps this is why Celtic music possesses the power to move us in unexpected ways - it touches that place deep in our hearts where legends still live, and we hear again the strains of the Ancient Song. (Stephen R. Lawhead, 1996) See Ref. (2).

The words of St. John's gospel are also a good example:(3)

"In the beginning the Word already existed. The Word was with God, and the Word was God." ['Word' meaning 'sound']

The science of cymatics, the study of visible sound, is beginning to yield clues to one of the most challenging questions in science: what triggered the creation of life on earth? The hypothetical model we have developed was inspired by ancient traditions and demonstrates that sound and cymatic forces could have worked together to become the dynamic force that created the first stirrings of life and also the Universe.(3)

The proposed model discussed herein may resonate with the concept of harmony of the spheres as outlined in Johannes Kepler's first monumental work: "*Mysterium Cosmographicum*." (22)

A theo-cymatic interpretation of John 1:1

Cosmic Christology is a basic Christian doctrine that was often debated during the past 40 years.

Cosmic Christology is deeply related with the Cosmic Christ who is the universal but inclusive Savior. (6)

The biblical teaching on Cosmic Christology was a legacy of the faith of the Early Church, and this teaching was told in Jesus hymn in the Johannine prologue and the prologue of St. Paul's letter to Colossians (John 1:1-18; Col. 1:15-20), see also Christ hymn in letter to Philippians 2:6-11.

Besides, there are also some texts which were often cited from the Old Testament; these texts indicate the personified Wisdom of God, who acts as the agent of creation. And this character was then used for Jesus Christ. (Proverbs 8:22-31; Wisdom of Solomon 8:4-6; Sirakh 1:4-9).

There are also extra-biblical sources which can be referred to, such as "the Son of God" text of Qumran (Bereh di El, 4Q246). Such a text indicates that there was a kind of messianic hope of Essene people, and that hope was very close to the faith of Early Church toward Jesus Christ.

Several implications

That is why, one of my focus of research in the past 3 years until now was to find implications of Cosmic Christology in the context of physics and cosmology. That idea was motivated by the fact that there has been a serious tension between science and theology, after they were separated especially since Galileo Galilei was put into isolation by the Church. One of the books which has inspired me was by Tollefsen which discusses Christocentric Cosmology. See Thorstein Theodor Tollefsen: *The Christocentric Cosmology of St. Maximus the Confessor* (8).

My investigation has led to several hypotheses, five of them will be discussed shortly below:

- (a) Jesus Christ is the Word of God, and He is the agent of God during the creation of the Universe. Because word means voice, and voice means sound, and sound means wave and frequency, then this thought led us to a hypothesis of the existence of primordial sound in the early time of creation (6). It is known by many cosmologists that there is abundance of relic cosmic sound wave from early epoch of creation. Perhaps such a primordial sound will be verified later by Cosmic microwave background radiation observation (CMBR). See for example (11).

- (b) another thought is that (electromagnetic) wave and frequency are very influential to begin each life of creatures. It appears that such a hypothesis was supported by experiments carried out by Prof. Luc Montagnier et al on the wave nature of DNA; (13)(14).
- (c) that thought on the wave nature of the Universe also led to a wave model of superconductor electrodynamics. In physics, conductor is matter which can transmit electric current, while superconductor is matter which can transmit electric current at zero resistance. My hypothesis on superconductor electrodynamics has been discussed in a paper published last year in IJET (10);
- (d) frequency may also be used to develop a novel approach of cancer therapy (12).
- (e) the light particle which was dubbed as photon has also the wave character. The photon wave can be loaded with information (bits), and according to some experiments on lab, such a method is potentially capable to improve the wireless internet capacity significantly, possibly at the order of 100-160 Gigabits per second. But this method needs to be developed further before it can be used as practical technology (15).

(Note: if the readers are interested to carry out further investigations on one or more of the above directions, you can contact me at email: victorchristianto@gmail.com.*)

Concluding remarks

For further discussion, there is my recent book discussing a new cosmology model starting from a fractal vibrating string. (fractal vibrating string is fractal generalization of classical wave equation of sound). See (5).

The basic idea of this book is that it is possible to develop a new cosmology model inspired by Cosmic Christology. In other words, Christology is not a separate matter from science. From Christology as starting point, I began to develop various approaches based on wave physics, which I call: "fractal vibrating string." Through this new cosmology model, I wish to offer a new path for dialogue between science and theology. Moreover, it offers a new and fresh approach to understand the bible in this modern time.

I also wish that I already presented my interpretation on Cosmic Christology based on the Johannine prologue, albeit not a complete one. As a last remark, allow me to cite Psalm 19:1-3

1. "The heavens declare the glory of God; and the firmament sheweth his handywork.
2. Day unto day uttereth speech, and night unto night sheweth knowledge.
3. There is no speech nor language, where their voice is not heard. "(KJV)

May God be with you. Soli Deo Gloria.

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VC

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APPENDIX:

A reflection of my journey over the past 20 years or so

Early days

I should admit here: that for some time in the past I have fallen to become such an idol worshipper, especially in the period between 1997-2014. In 1996 I bought a book edited by Wojciech Zurek with title "Complexity, Entropy and the Physics of Information", published by Santa Fe Institute (Addison-Wesley, 1991). Since then, practically I was very enthusiastic on various interpretations of Quantum Mechanics. I then read several books on QM, including Alistair Rae's book. (15)

After around six years of independent study in wave mechanics, I decided that time has come to put my ideas in writing. In 2002 I submitted my first paper to Apeiron editor, but it was rejected soon. I forgot about the title. Then I put more effort to write a quite speculative paper, based on hypothesis that the solar system can be modelled as quantized vortices of superfluid helium.

Using this new model which is essentially a Bohr model of atom applied to solar system, I made a desperate effort in the form of two things: (a) predicting a brown dwarf companion of the Sun with negative mass about equal with the Sun, (b) predicting three undiscovered planets in the outer orbits of the Solar system, beyond Pluto orbit (at the time of writing, no such planet was discovered by astronomers).

The reviewer of this paper was Prof. Robert Kiehn, and he was so kind to read my often confusing English expressions. I am indebted to him, because he was the first person who gave encouragement to my endeavor. After editing and rewriting this 43-pages paper for about one year and a half, finally the editor of Apeiron received my paper for publication. It was published in January 2004 (12).

To my surprise, around four months later I read an online news telling that a new planetoid beyond pluto was found, dubbed as Sedna. It was discovered by Michael Brown and his team of astronomers from Caltech. I then rushed to my old desktop pc to

calculate its orbit and to compare it with my prediction back in 2002, and I found that Sedna's orbit is very close to my prediction. Then I quickly wrote a paper discussing Sedna finding. This paper was received and published in Apeiron's July 2004 edition (13). See also an updated paper (14).

After what may be called a beginner's luck, I felt so motivated to continue my investigation on quantum mechanics, especially in deterministic QM with quantum vortice interpretation of wavefunction. These early period investigations have been documented in several books and papers***, including in *Annales de la Fondation Louis de Broglie*, 2006 (11).

Over those early years, I have learned from many interesting persons, including but not limited to Prof. Brian Josephson, Prof. Carlos Castro, Prof. Mat Pitkanen, Dr. Jack Sarfatti, Prof. Florentin Smarandache, Dmitri Rabounski etc. Almost all those people whom I knew via email conversations have one similarity, i.e. they were dissidents and were completely or partially blacklisted by www.arxiv.org**** the online "temple" of mainstream physics, especially it is a place to worship high energy physics.**

In 2005, through email discussion, Prof. Brian Josephson (Noble laureate) suggested a name for our new alternative preprint server, that is www.sciprint.org. Since may 2005, then I became administrator of www.sciprint.org. I administered [sciprint.org](http://www.sciprint.org) beside my daily profession until 2009 when for some reasons, my admin password was compromised, so I cannot continue administering that preprint server.

Fortunately, a colleague told me that a new preprint service has just come to appear, i.e. www.vixra.org, administered by Dr. Phil Gibbs ("vixra" is "arxiv" read backward). Then I asked him whether he would like to host our files in [sciprint.org](http://www.sciprint.org). After he accepted, then I tried my best to recover and send these files of almost 300MB to a friend in Germany, who then downloaded the files and burned those files into a disc. Thereafter he mailed the disc to Phil Gibbs in England. That is why until now you will find some papers in [vixra.org](http://www.vixra.org) with small notes that they were recovered from www.sciprint.org.

(Note: If you want to verify this story of sciprint.org, you can contact Prof. Carlos Castro Perelman at perelmanc@hotmail.com, or Prof. Florentin Smarandache at fsmarandache@gmail.com)***

Moment of enlightenment

Around October 2009, in a prayer Jesus Christ called me to become His servant, and one of His instruction was I must return to my hometown. Then I went to my hometown in East Java, and began to serve in a local church where I grew up with. In 2011, I decided to equip myself with a formal education in theology. In those years I was quite busy with other things, so practically I left behind science stuff. I guess I should leave science behind me, that at a point I did not answer back when Prof. Florentin Smarandache called me in phone.

But gradually I found a balance in my life, so I tried to write some papers again since. I also compiled a few books on astrophysics with Prof. Florentin Smarandache.

Then I came to a point that my theology education was almost completed, so I can return to former fields of interest: cosmology and astrophysics.

Around May 2014, when I was travelling in a bus, then a thought came to me: what is the power behind a worship song? It came to me that it was frequency which has power to turn even the walls of Jericho to ruining. This was my first moment of enlightenment.

The second moment came around that time (may-june), when I found some papers by Dr. George Shpenkov (<http://shpenkov.janmax.com>), who was able to show convincingly that there are many errors with Schrodinger equation. So I concluded that it was not only the mistake of Max Born who introduced probability interpretation of quantum mechanics, but Schrodinger himself made serious errors too in deriving his then famous equation.

Then I wrote a paper reviewing Schrodinger equation and classical wave equation, that paper was published in *Prespacetime Journal*, July 2014 (16). Although I agree with Dr. Shpenkov that classical wave equation is better than the Schrodinger equation, it does not mean that I agree with his dialectic philosophy.

Gradually, I came to think that frequency and wave were also important at the time of creation, therefore I began my study into an interpretation of Cosmic Christology through the Johannine prologue (John 1:1-18).

I hope that I have told my story with clarity. It should be clear that I began as a dissident in the same temple of Quantum Mechanics, but gradually I turned out to refuse to worship those “gods” of mainstream physics. Instead, I decided to develop a new path where science and theology can meet.

Hopefully the above story will inspire many more young students and graduate students alike to return to God, instead of wandering around from one temple to another, only to find many kinds of deception over and over again.

Postscript:

- * url: http://researchgate.net/profile/Victor_Christianto
- ** I sincerely do hope that someday arxiv.org administrators will change their draconian policy and cumbersome submitting procedures. Fortunately there is news that they are now conducting an online survey (dated 6th april 2016), so I hope that many dissidents like me can submit papers without being rejected by arxiv.org.
- *** Check our books in pdf version at the homepage of Prof. Florentin Smarandache, <http://fs.gallup.unm.edu/FlorentinSmarandache.htm>
- **** Check <http://www.archivefreedom.org>, see also Against the Tide book at <http://vixra.org/abs/0909.0002>

Chapter 6

Neutrosophic Logic in Applied Sciences



On Three possible applications of Neutrosophic Logic in Applied Sciences, including matter creation

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Abstract

In the same spirit with the theme of last issue of this SGJ journal (“Ongoing creation”), this paper shortly reviews a plausible mechanism from Aether to become ordinary matter from the perspective of Neutrosophic Logic. We also discuss two other possible applications of Neutrosophic Logic, including a resolution of conflicting paradigms in medicine. We hope that some ideas as outlined herein will be proved useful in the near future.

Introduction

Matter creation process in Nature remains a big mystery for physicists, biologists and other science researchers. To this problem Neutrosophic Logic offers a solution, along solutions

to two other problems, namely the point particle assumption in Quantum Electrodynamics and also in resolving the old paradigm conflict between Western approach to medicine and Eastern approach.

Matter creation processes

Matter creation process in Nature remains a big mystery for physicists, biologists and other science researchers. To this problem Neutrosophic Logic offers a solution.

As to why do we need aether, the mainstream physicists would answer: no, it is not needed, especially after Special Relativity theory. Nonetheless, they are actually resulting in the same empirical results [9].

But on deeper level, it is needed because otherwise there is no way to explain interaction at a distance in a vacuum space. We need medium of interaction, of which has been called by various names, such as: quantum vacuum, zero point field, etc.

Although we can start with an assumption of aether medium is composed of particle-antiparticle pairs, which can be considered as a model based on Dirac's new aether by considering vacuum fluctuation (see Sinha, Sivaram, Sudharsan.) [5][6] Nonetheless, we would prefer to do a simpler assumption as follows:

Let us assume that under certain conditions that aether can transform using Bose condensation process to become "*unmatter*", a transition phase of material, which then it sublimates into matter (solid, gas, liquid). Unmatter can also be considered as "pre-physical matter."

Summarizing our idea, it is depicted in the following block diagram:

Aether \Rightarrow bose condensation \Rightarrow “unmatter” (pre-physical matter) \Rightarrow
sublimation \Rightarrow ordinary matter/particle

Diagram 1. How aether becomes ordinary matter

Actually the term “unmatter” can be viewed as a solution from perspective of Neutrosophic Logic. A bit of history of unmatter term may be useful here:

“The word ‘Unmatter’ was coined by one of us (F. Smarandache) and published in 2004 in three papers on the subject. Unmatter is formed by combinations of matter and antimatter that bound together, or by long-range mixture of matter and antimatter forming a weakly-coupled phase. The idea of unparticle was first considered by F. Smarandache in 2004, 2005 and 2006, when he uploaded a paper on CERN web site and he published three papers about what he called ‘unmatter’, which is a new form of matter formed by matter and antimatter that bind together. Unmatter was introduced in the context of ‘neutrosophy’ (Smarandache, 1995) and ‘paradoxism’ (Smarandache, 1980), which are based on combinations of opposite entities ‘A’ and ‘antiA’ together with their neutralities ‘neutA’ that are in between.”²⁸ See also Smarandache [13].

Nonetheless, in this paper, unmatter is considered as a transition state (pre-physical) from aether to become ordinary matter/particle, see also [14].

Moreover, superfluid model of dark matter has been discussed by some authors [7].

As one more example/case of our proposed scheme of transition from aether to matter, see a recent paper [18]. See the illustrations at pages 5 and 6 of [18] regarding the physically

28 <http://fs.unm.edu/unmatter.htm>

observed properties of the Galactic Center (GC), which are obviously completely different from the imaginary “black hole” model.

The mapping of the magnetic field structures of the Core is a profile of a torus, as we have previously suggested. Page 5 also illustrates the relation between Sag A and Sag B and the space in between them.

These illustrations are also relevant to *matter creation* at the galactic scale. Also note the gamma ray distributions in [18], which are relevant to matter destruction processes. Electrical discharges such as lightning, stars, and galaxies, all produce gamma rays. Gamma ray resonance dissociates atomic matter back into the aether at the rate of 6,800,000,000 **horsepower** of energy liberated per gram of matter dissociated per second. And where does all that energy go? Back into creating new matter. It’s a never-ending cycle, and infinitely Universe-wide.

Towards QED without renormalization.

One problem in theoretical physics is how to do away with infinity and divergence in QED without renormalization. As we know, renormalization group theory was hailed as cure in order to solve infinity problem in QED theory.

For instance, a quote from Richard Feynman goes as follows:

“What the three Nobel Prize winners did, in the words of Feynman, was “to get rid of the infinities in the calculations. The infinities are still there, but now they can be skirted around . . . We have designed a method for *sweeping them under the rug.*”[19]

And Paul Dirac himself also wrote with similar tune:

“Hence most physicists are very satisfied with the situation. They say: “Quantum electrodynamics is a

good theory, and we do not have to worry about it any more." I must say that I am very dissatisfied with the situation, because this so-called "good theory" does involve neglecting infinities which appear in its equations, neglecting them in an arbitrary way. This is just not sensible mathematics. Sensible mathematics involves neglecting a quantity when it turns out to be small – not *neglecting it just because it is infinitely great and you do not want it!*" [20]

Here we submit a viewpoint that the problem begins with assumption of point particle in classical and quantum electrodynamics. Therefore, a solution shall be sought in developing fluidic Electrodynamics [10], i.e. by using fluid particle, or perhaps we can call it "fluidicle." It is hoped that a fluidicle can remove the infinity problem caused by divergence.

And fluidicle can be viewed as a solution from perspective of Neutrosophic Logic.

Resolution to conflicting paradigms in medicine.

It is well known by most medicine practitioners, that Western approach to medicine is based on "*curing*" or "*attacking*" a disease, one by one. This is called germ theory: one cure for one disease (Pasteur). On the opposite side, Eastern medicine is based in particular on ancient wisdom of returning the balance of the body, in other words: to *harmonize* our body and our live with nature. Although those two approaches in medicine and healthcare have caused so many conflicts and misunderstandings, actually it is possible to do a dialogue between them.

From Neutrosophic Logic perspective, a resolution to the above conflicting paradigms can be found in developing novel approaches which appreciate both traditions in medicine, or we may call such an approach: "*curemony*," i.e. by at the same

time curing a disease and restoring balance and returning harmony in one's *body-mind-spirit as a whole*.

Although we don't mention here specific case example, in general speaking we can mention:

- a. in HGH therapy, it is known that nutrition can affect the well-being of body [12],
- b. in the same way *Epigenetics* admits the role of external factors into the genes.
- c. We can also mention that psoriasis –a skin problem- can be related to stress and other emotions, which suggests a plausible new term: *psychodermatology*. [11]

All of these examples seem to suggest relational aspect within human being, among *mind-body-spirit*, just like what Eastern medicine emphasizes all along. In some literature, such a dialogue between Western and Eastern medicine approaches can be considered as integrative medicine, but actually it goes far deeper that just “integrative”, it is more like rethinking the “isolate and solve” attitude of Western scientists, toward more “relational biology.” And the concept of systems biology or relational biology have become new terms in recent years. See also recent literatures in this subject [15][16][17].

Hopefully many more approaches can be developed in the direction as mentioned above.

Concluding remarks.

In this paper, we discussed three possible applications of Neutrosophic Logic in the field of matter creation processes etc. For instance, a redefinition of term “unmatter” is proposed here, where under certain conditions, aether can transform

using Bose condensation process to become “*unmatter*”, a transition phase of material, which then it sublimates into matter (solid, gas, liquid). Unmatter can also be considered as “pre-physical matter.” Moreover, a transition phase between fluid and particle (or fluidicle) is considered necessary in order to solve the “point particle” assumption which cause the divergence problem in QED. And for the third application of NL, we consider a dialogue is possible between Eastern and Western approaches to medicine.

Further researches are recommended in the above directions.

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VC, RNB, FS



Chapter 7

Emergence Philosophy



Remark on Creatio ex Nihilo, Intelligent Design and Emergence Philosophy Approaches to Origin of the Universe

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Abstract

It is known that the Big Bang theory was based on the concept of creation ex nihilo, after ancient Greek philosophers. In this paper, we will make few remark on the concept of creatio ex nihilo (as a commentary to a recent paper by Kalachanis, Athanasios Anastasiou, Ioannis Kostikas, Efstratios Theodossious and Milan S. Dimitrijevi), as well as two other approaches, i.e. Intelligent Design and Emergence Theory by Clayton/Yong. As continuation of our recent paper to appear in forthcoming issue of J. Asia Mathematica, we argue that beside the above three approaches, a new concept called creatio ex-rotatione offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in

this respect we agree with Vaas, i.e. it can be shown: “how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant’s, first antinomy of pure reason“ is possible, i.e. *how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time.*” By the help of computational simulation, we also show how a model of early Universe with rotation can fit this new picture.

Keywords:

Big Bang, Steady state, rotating universe, fluid, singularity-free, cosmology model, early Universe, Genesis, Spirit in Creation, spirit-filled medicine, mind-body-spirit medicine.

Introduction

Considering the Big Bang Theory, promulgated by the Belgian priest Georges Lemaitre in 1927 who said that the universe has begun through an explosion of a primeval atom, which is based on the Christianity believe that the universe was created, the following questions will naturally occur:

- a) where did this primeval atom come from?
- b) what was before this big bang?

The term “big bang” was derogatorily coined by Fred Hoyle in a BBC interview and it is supposed that the universe, according to this theory, was created between 10-20 billion years ago.[33]

In this article we will explore three approaches to the origin of the universe, all of them can be related to the notion of Big Bang (spontaneous creation). In the last section, we will discuss a new proposed concept: *creatio ex-rotatione*, based on our investigation in the past few years.

Three Approaches on the Origin of the Universe

First of all, we will shortly review Kalachanis, Athanasios Anastasiou, Ioannis Kostikas, Efstratios Theodossious and Milan S. Dimitrijevi's paper which will appear in forthcoming issue of European Journal of Science and Theology [31]. Their paper have the following words as abstract: "The Big Bang Theory considers that the Universe, space and time have a beginning. Similar is the position of the Christian writers of the early Christian Church, who support the *ex nihilo* - ἐκ μὴ ὄντος (ek me ontos = from the "non-being") creation of the world through the divine "energy", with the two theories converging to the fact that space and time have a beginning."

That the Big Bang concept has a beginning, that is true, but what kind of beginning that its originator had in mind is rather different from the concept that Christian writers had in mind, see for instance: Jonathan Pennington & Sean McDonough.[32]

The Big Bang hypothesis was formulated by Lemaitre based on the notion of primeval atom ("cosmic egg"). Although it is true that some Christian writers also mentioned "Creation from nothing", they were more likely to have different concepts compared to the primeval atom.

Moreover, the notion of "creation from nothing" should be accepted as debatable, since it was mentioned in a few verses only in NT, and it can be traced back to the book of Maccabee in Deuterocanonicals. So, in the next sections, we will take a look directly and closely at Hebrew version of the book of Genesis 1.

In summary we argue that: (a) while both the Big Bang originator and Christian writers shared similar concept of creatio *ex nihilo*, they have different views on "primeval

atom,” (b) even the idea of primeval atom itself seems in direct contradiction with “ex nihilo” term.

Secondly we will discuss Intelligent Design’s view on the Origin of the Universe, then we will discuss Emergence Philosophy.

a. Intelligent Design

With regards to ID hypothesis, some philosophers began with Psalm 19 to argue in favor of The Intelligent Creator:

The heavens declare the glory of God;
And the firmament shows His handiwork.

2 Day unto day utters speech,

And night unto night reveals knowledge.

3 *There* is no speech nor language

Where their voice is not heard.

4 Their line [a] has gone out through all the earth,
And their words to the end of the world. (Psalm 19: 1-4,
NKJV)²⁹

We can note some proponents of ID, such as Michael Behe etc. While such attempt to link the old conception of Intelligent Design to Biblical account may sound interesting at first glance, one can note immediately that all ID proponents seem to avoid to point to God of Bible as the Intelligent Creator that they talk about.

Yes, ID theory is a nice hypothesis to talk about, but the end of the day, such a hesitation to speak about the Biblical God reflects their adherence (perhaps) to a number of theoretical possibilities which enable them to theorize around and around without daring to point at the Real Subject behind all Design in the Universe.

29 <https://www.biblegateway.com/passage/?search=Psalm+19&version=NKJV>

And clearly, such a hesitation to point to God is not without implications, as Erkki Vesa Kojonen wrote in his dissertation in University of Helsinki [30]:

*“ID’s design arguments are quite minimalistic, not aspiring to prove the existence of God, but merely of an **unidentified** intelligent designer of cosmic and biological teleology.”*

At the price of giving too much “intellectual room,” then we find in recent decades some scientists or pseudo-scientists come up with alternative hypothesis on who or what is behind the Design of the Universe:

- In their book “Grand Design,” Hawking and Mlodinow argue that in their TOE model based on certain variations of Superstring theories, that such TOE does need the role of God as Creator.³⁰ In other words, they seem to argue that physical laws exist eternally before the Universe exist, so by such physical laws themselves, there was Big Bang triggered by primordial vacuum fluctuations. But how did it happen...it seems many cosmologists remain silent on this vague hypothesis. This fact alone should alert us that Hawking and Mlodinow ask their readers to believe in a story based on a baseless-theory which does not conform to any experimental backup. See also article by Michael G. Strauss.³¹ Moreover, other alerts may come from the fact that: It is worth noting, that calculation shows that Quantum Field theory predicts cosmological constant at astronomical error

30 <https://www.reasonablefaith.org/writings/popular-writings/science-theology/the-grand-design-truth-or-fiction/>

31 <http://www.michaelgstrauss.com/2017/08/the-grand-design-is-god-unnecessary.html>

compared to observed value.³² Even mathematicians like Peter Woit already wrote a book called “Not even wrong” to alert us on the fact that Superstring theories do not predict anything which can be measured.³³ See also his other book: “String theory: an evaluation.”³⁴

- And much worse than Grand Design, some college students (and may be with support of their professors) have come up with a new god called “Flying Spaghetti Monster” (FSM religion). They even managed to push their case that FSM religion should be taught at high schools and colleges in the same way of ID/evolution theory.³⁵ Such a fancy FSM reminds us to the golden cow made by Aaron and the Israelites soon after Moses went to the mount.

b. Emergence Philosophy

According to Amos Yong, a full professor in Fuller Seminary:

“To be clear, emergence is a philosophical or metaphysical hypothesis rather than a theological doctrine or scientific datum. Yet the theory of emergence, Clayton suggests, identifies patterns of developments in the natural history of the cosmos as understood through the findings of the various scientific disciplines. ...” [6, p. 145]

32 Quote from J.R. Roldan: “The quantum field theory prediction of the cosmological constant is 120 orders of magnitude higher than the observed value. This is known as the cosmological constant problem.” <https://arxiv.org/abs/1011.5708>

33 <http://www.math.columbia.edu/~woit/rutgers.pdf>

34 <https://www.math.columbia.edu/~woit/strings.pdf>

35 <https://www.telegraph.co.uk/news/worldnews/northamerica/usa/1498162/In-the-beginning-there-was-the-Flying-Spaghetti-Monster.html>

In other words, emergence philosophy as proposed by Clayton³⁶ seems to be founded on certain metaphysical assumptions on how nature functions. We will not go into details of Emergence here, suffice it to say (with all respect to Amos Yong as a leading contemporary theological scholar from Fuller) that there is danger that we do eisegesis on biblical narratives, rather than doing a fair and faithful reading (exegesis) on Biblical account of Creation.

Therefore in the next section we shall show what we can infer from Biblical narratives, with minimal assumptions, i.e. using hermeneutics of Sherlock Holmes.

**How *creatio ex-rotatione* may Resolve Dispute
on the Origin of the Universe through re-reading
Gen. 1:1-2**

1. Introduction

In recent years, the Big Bang as described by the Lambda CDM-Standard Model Cosmology has become widely accepted by majority of physics and cosmology communities. But the philosophical problems remain, as Vaas pointed out: Did the universe have a beginning or does it exist forever, i.e. is it eternal at least in relation to the past? This fundamental question was a main topic in ancient philosophy of nature and the Middle Ages. Philosophically it was more or less banished then by Immanuel Kant's Critique of Pure Reason. But it used to have and still has its revival in modern physical cosmology both in the controversy between the big bang and steady state models some decades ago and in the contemporary attempts

36 <http://philipclayton.net/files/papers/EmergenceOfSpirit.pdf>

to explain the big bang within a quantum cosmological framework.

Interestingly, Vaas also noted that Immanuel Kant, in his *Critique of Pure Reason* (1781/1787), argued that it is possible to prove both that the world has a beginning and that it is eternal (first antinomy of pure reason, A426f/B454f). As Kant believed he could overcome this “self-contradiction of reason” (“*Widerspruch der Vernunft mit ihr selbst*“, A740) by what he called “transcendental idealism“, the question whether the cosmos exists forever or not has almost vanished in philosophical discussions. [3]

In this paper we will take a closer look at Genesis 1:2 to see whether the widely-accepted notion of creation *ex-nihilo* is supported by Hebrew Bible or not. It turns out that a new concept called *creatio ex-rotatione* is in agreement with Kant and Vaas’s position, it offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in this respect we agree with Vaas: “how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant’s “first antinomy of pure reason“ is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time.”[3]

2. Preliminary remark on Hermeneutics of Sherlock Holmes

In the preceding section, we have discussed on how our proposed term of “*creatio ex-rotatione*” has sufficient logical background.

In the subsequent section we will discuss how to answer this question by the lens of hermeneutics of Sherlock Holmes.

This is a tool of mind which we think to be a better way compared to critical hermeneutics.

What is Hermeneutics of Sherlock Holmes?³⁷

The following are 10 tips from Eric McKiddie to adapt Sherlock Holmes to interpreting biblical passages.³⁸

o Tip no 1:

- **Holmes:** “I have no data yet. It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.” Far too often students of the Bible (and cosmology folks as well) twist verses to suit interpretations instead of formulating interpretations to suit what the verses say.
- **Guide:** Don’t approach your passage assuming you know what it means. Rather, use the data in the passage – the words that are used and how they fit together – to point you toward the correct interpretation.

o Tip no 2: The kind of looking that solves mysteries.

- **Holmes:** “You have frequently seen the steps which lead up from the hall to this room.”
- **Watson:** “Hundreds of times.”
- **Holmes:** “Then how many are there?”
- **Watson:** “How many? I don’t know!”
- **Holmes:** “Quite so! You have not observed. And yet you have seen. That is just my point. Now, I know

37 <https://www.str.org/blog/learning-hermeneutics-from-holmes>

38 <https://www.thegospelcoalition.org/blogs/trevin-wax/10-tips-on-solving-mysterious-bible-passages-from-sherlock-holmes/>

that there are seventeen steps, because I have both seen and observed.”

- There is a difference between reading a Bible verse and observing it. Observation is a way of collecting details contained in a passage. As you read and reread the verses, pull the words into your brain where you can think about them and figure them out.
- This habit will shed light on how you understand the text, even if the passage is as familiar as the stairs in your house.

o Tip no 3: Know what to look for.

- **Watson:** “You appeared to [see] what was quite invisible to me.”
- **Holmes:** “Not invisible but unnoticed, Watson. You did not know where to look, and so you missed all that was important.”
- Know where to look for clues that will illuminate your passage. Look for repeated words and phrases, bookends (where the beginning and end of the passage contain similarities), and clues in the context around your passage.
- Don’t know what to look for? *Living by the Book* by Howard Hendricks and *How to Read the Bible for All Its Worth* by Gordon Fee and Douglas Stuart are great resources to start learning how to study the Bible.

o Tip no 4: Mundane details are important!

- **Watson:** “I had expected to see Sherlock Holmes impatient under this rambling and inconsequential narrative, but, on the contrary, he had listened with the greatest concentration of attention.”

- Don't ignore parts of the passage that seem insignificant to its meaning. Treat every word as if it contains clues to the interpretation of the passage.
- o **Tip no 5:** Use solutions to little mysteries to solve bigger ones.
 - **Holmes:** "The ideal reasoner would, when he had once been shown a single fact in all its bearings, deduce from it not only all the chain of events which led up to it but also all the results which would follow from it."
 - Once you understand the passage that baffled you, your work is not done!
 - Now it's time to locate that passage in the grand narrative of the Bible. How do previous books and stories lead up to your passage? How does your passage anticipate the consummation of all things that results at Jesus' second coming?
- o **Tip no 6:** The harder the mystery, the more evidence you need.
 - "This is a very deep business," Holmes said at last. "There are a thousand details which I should desire to know before I decide upon our course of action."
 - In grad school, one professor gave us an assignment requiring us students to make 75 observations on Acts 1:8. The verse does not even contain that many words!
 - The professor's goal was to train us in compiling evidence. Harder Bible passages demand that we collect as much information as possible.

- o **Tip no 7:** Break big mysteries down into little ones.
 - **Watson:** “Holmes walked slowly round and examined each and all of [the pieces of evidence] with the keenest interest.”
 - Difficult passages can be overwhelming. Break chapters down into paragraphs, paragraphs into verses, and verses into clauses. Devote careful attention to each chunk of the passage individually. Then try to piece together the meaning they have when added up as a whole.
- o **Tip no 8:** Don’t be so committed to a solution that you ignore new evidence.
 - “I had,” said Holmes, “come to an entirely erroneous conclusion which shows, my dear Watson, how dangerous it always is to reason from insufficient data...I can only claim the merit that I instantly reconsidered my position.”
 - After you’ve put the hard work into grasping a mysterious passage, the case isn’t necessarily closed. Often you’ll run across other passages that shed new light on your passage. Or you’ll hear someone preach those verses in a different way than how you interpreted it.
 - Always be willing to consider new insights. This will at least help you nuance your understanding of the passage, if not take a different stance.
- o **Tip no 9:** Simple solutions often provide answers to manifold mysteries.
 - Holmes: “The case has been an interesting one... because it serves to show very clearly how simple the

explanation may be of an affair which at first sight seems to be almost inexplicable.”

- Many passages that seem mysterious at first end up not being so bad. Their bark is worse than their bite. For example, several passages in Revelation, intimidating to so many, have simple explanations. (Not all, but some!)
- o **Tip no 10:** On the other hand, so-called simple passages may be more complicated than initially meets the eye.
 - Holmes: “This matter really strikes very much deeper than either you or the police were at first inclined to think. It appeared to you to be a simple case; to me it seems exceedingly complex.”
 - This is often true of coffee mug and bumper sticker verses. We think they are simple to understand because we see them all the time. But once you dig into them, you realize they are more mysterious than meets the eye.

3. A close reading at Genesis 1:1-2 and implications

One of the biggest mysteries in cosmogony and cosmology studies is perhaps: How to interpret properly Genesis chapter 1:2. Traditionally, philosophers proposed that God created the Universe out of nothingness (from reading “empty and formless” and “bara” words; this contention is called “*creatio ex nihilo*.”). Understandably, such a model can lead to various interpretations, including the notorious “cosmic egg” (primeval atom) model as suggested by Georges Lemaitre, which then led to Big Bang model.[18-20] Subsequently, many cosmologists accept it without asking, that Big Bang stands as the most faithful and nearest theory to Biblical account of

creation. But we can ask: Is that primeval atom model the true and faithful reading of Genesis 1:2?

Let us start our discussion with examining key biblical words of Hebrew Bible, especially Genesis 1:1-2. It can be shown that the widely accepted creation ex nihilo is a post-biblical invention, rather than as faithful reading of the verses. To quote Ian Barbour: "Creation out of nothing is not a biblical concept." [4]

Let us consider some biblical passages:

- The literal meaning of Gen. 1:1, "bareishit bara Elohim." This very first statement of the book of Genesis literally reads: 'first' and 'beginning' are reasonable alternatives for the Hebrew noun, *reishit*. Also note that in Hebrew, subjects and verbs are usually ordered verb-first (unlike English in which the subject is written first). If the verb and subject of this verse are reordered according to natural English grammar we read: [1] {In, When} {first, beginning} Elohim created... *reishit*: The noun, *reishit*, has as its root the letters, **רש** (Resh -Aleph-Shin). Words derived from this root often carry the meaning of 'primary', 'chief', 'begin', 'first' or "first-in-line", "head of", and so forth. Harris's Theological Wordbook of the Old Testament (TWOT) is more specific, namely, *reishit* means[1]

"...first, beginning, choicest, first or best of a group. [Reishit is] a feminine noun derived from the root [Resh-Aleph-Shin], it appears fifty times in nearly all parts of the [Old Testament]. [Its] primary meaning is "first" or "beginning" of a series."

Accordingly, we can now retranslate *bəreishit bara Elohim* as "When first created Elohim", or as we would render in English,[1]

When Elohim first created...

- Gen. 1:2, “And the earth had been.” In English this is easily handled by the past perfect tense (also called the pluperfect or the “flashback” tense). Likewise, if *haytah* in v 1:2 is translated as a past perfect verb, then verses 1:1-2 would read,[1]

When Elohim first created the heavens and the earth, the earth had been ...

In this translation the universe, in some form or other, was already in existence when God executed His first creative act, the creation of light.

In other words, a close reading of Hebrew Bible seems to suggest that *creatio ex-nihilo* is a post-biblical invention. Other scholars have suggested an alternative concept, called *creatio ex-materia*, but many orthodox Christian scholars have raised objection to this notion, partly because the term seems to undermine God’s ultimate power and control of the Universe. Besides, the notion of *creatio ex-materia* has been advocated by Mormon preachers.

To overcome this problem, and based on what we learned recently, allow us now to come up with a new term: *creatio ex-rotatione* (rotatione is a Latin word for “rotation”). As we shall see in the next chapter, it is possible to come up with a physical model of early Universe with rotation, where the raw materials have been existed for long period of time, but suddenly it burst out into creation. And it seems to fit with Kant’s idea to resolve the dichotomy between finite past or eternal Universe. Furthermore, it can be shown that the model naturally leads to accelerated expansion, without having to invoke *ad hoc* assumptions like dark energy or cosmological constant.

4. A computational model of rotation in early Universe

Our discussion starts from the fundamental question: how can we include the rotation in early Universe model? After answering that question, we will discuss how “turbulence-generated sound” can be put into a mathematical model for the early Universe. We are aware that the notion of turbulence-generated sound is not new term at all especially in aerodynamics, but the term is rarely used in cosmology until now. We shall show that 3D Navier-Stokes will lead to non-linear acoustics models, which means that a turbulence/storm can generate sound wave.

It has been known for long time that most of the existing cosmology models have singularity problem. Cosmological singularity has been a consequence of excessive symmetry of flow, such as “Hubble’s law”. More realistic one is suggested, based on Newtonian cosmology model but here we include the vortical-rotational effect of the whole Universe.

In other paper, we obtained an Ermakov-type equation following Nurgaliev [8]. Then we solve it numerically using Mathematica 11. An interesting result from that simple computational simulation is shown in the following diagram:[9

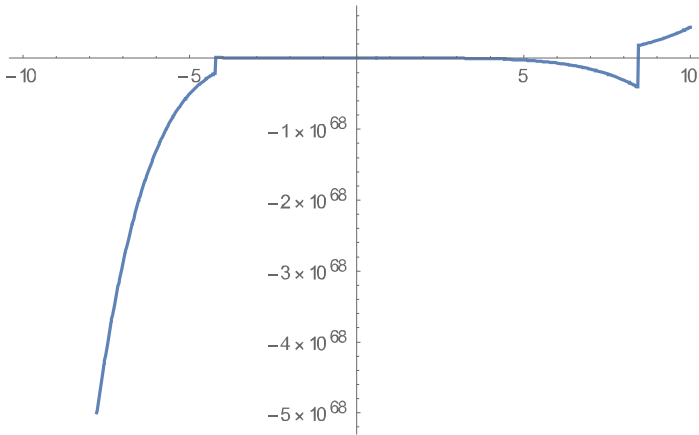


Diagram 1. Plot of Ermakov-type solution for $A=1$, $B=-10$ (from [9])

From the above computational experiment, we conclude that the evolution of the Universe depends on the constants involved, especially on the rotational-vortex structure of the Universe. This needs to be investigated in more detailed for sure.

One conclusion that we may derive especially from Diagram 1, is that our computational simulation suggests that it is possible to consider that the Universe has existed for long time in prolonged stagnation period, then suddenly it burst out from *empty and formless* (Gen. 1:2), to take its current shape with observed “accelerated expansion.”

As an implication, we may arrive at a precise model of flattening velocity of galaxies without having to invoke *ad-hoc* assumptions such as dark matter.

Therefore, it is perhaps noteworthy to discuss briefly a simple model of galaxies based on a postulate of turbulence

vortices which govern the galaxy dynamics. The result of Vatisas' model equation can yield prediction which is close to observation, as shown in the following diagram:[14]

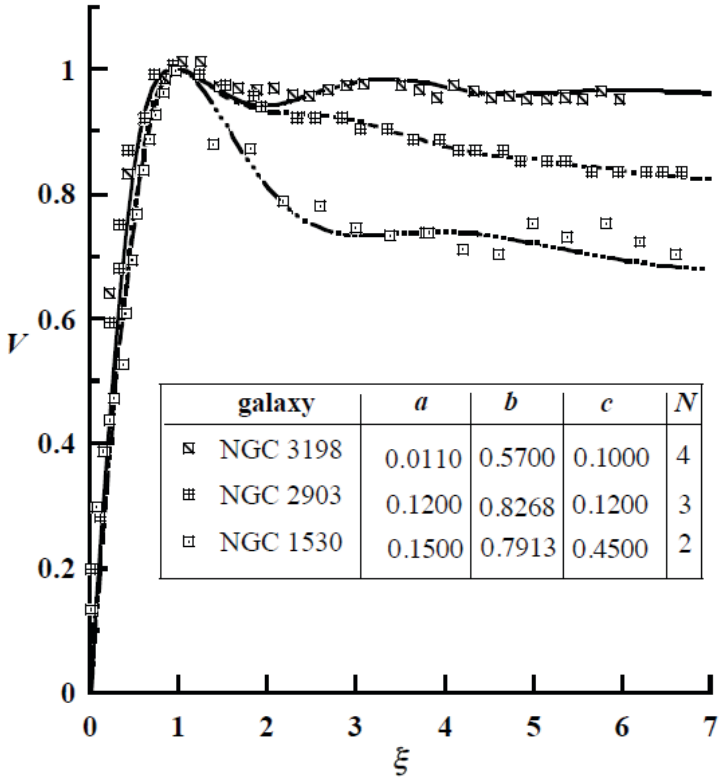


Figure 1. From Vatisas [14]

Therefore, it appears possible to model galaxies without invoking numerous *ad hoc* assumptions such as *dark matter*, once we accept the existence of turbulent interstellar medium.

The Vastitas model is also governed by Navier-Stokes equations, see for instance [14].

5. Advantages of “*creatio ex-rotatione*” concept

In the preceding section, we have discussed on how our proposed term of “*creatio ex-rotatione*” has sufficient logical background.

Now, allow us to discuss some advantages of the proposed “*creatio ex-rotatione*” cosmology view over the Lemaitre’s primeval atom (which is the basis of Standard Model Cosmology).

a. Explain excess of handedness in spiral galaxies

As reported by Longo et al, there is an excess of left-handedness in spiral galaxies.

According to Longo, the simplest explanation of such left-handedness is that there is net angular momentum of the Universe. This seems to suggest that our hypothesis of *creatio ex-rotatione* is closer to the truth with respect to origin of the Universe. [2]

See also the Appendix section.

b. Avoid inflationary scheme.

It is known that inflationary models were proposed by Alan Guth et al. (see [25][26]), in order to explain certain difficulties in the Big Bang scenario. But some cosmology experts such as Hollands & Wald has raised some difficulties with inflationary model, as follows:

“We argue that the explanations provided by inflation for the homogeneity, isotropy, and flatness of our universe are not satisfactory, and that a proper explanation of these features will require a much deeper understanding of the initial state of our universe.”[27]

In our diagram plot above, it is clear that an early rotation model can explain why the Universe can burst out into creation in a very short period, without invoking ad hoc postulate such as inflation model.

c. Explain accelerated expansion.

As far as we know, one of the earliest models which gave prediction of accelerated expanding Universe is Carmeli's Cosmological General Relativity.[29]

But it has been shown by Green & Wald that for the large scale structures of the Universe, Newtonian model can give similar results compared to general relativity picture. [28]

Furthermore, it seems that there is no quite clear arguments why we should accept Carmeli use of 5D metric model (space-time-velocity metric). In the meantime, in our rotating Universe model, we do not invoke ad hoc dimension into the metric.

d. Explain inhomogeneity, breeding galaxies etc.

Astronomers have known for long time, that the Universe is not homogeneous and isotropic as in the usual model. It contains of inhomogeneity, irregularity, clumpiness, voids, filaments etc, which indicate complex structures. Such inhomogeneous structures may be better modelled in terms of turbulence model such as Navier-Stokes equations, see also our early papers [11][12].

Furthermore, observations clearly suggest that matter ejected continuously in galaxy centers, which view is difficult to reconcile with Big Bang scenario of galaxy creation.

Concluding Remarks

In summary we argue that: (a) while both the Big Bang originator and Christian writers shared similar concept of *creatio ex nihilo*, they have different views on “primeval atom,” (b) even the idea of primeval atom itself seems in direct contradiction with “*ex nihilo*” term; (c) the proposed *creatio ex-rotatione* offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in this respect we agree with Vaas, i.e. it can be shown: “how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant’s „first antinomy of pure reason“ is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time.”

We argue that a close re-reading of Genesis 1:2 will lead us to another viable story which is different from Lemaitre’s primeval atom model of early Universe, albeit this alternative has not been developed rigorously as LCDM theories.

It is our hope that our exploration will lead to more realistic nonlinear cosmology theories which are better in terms of observations, and also more faithful to Biblical account of creation.

We hope this short review may inspire younger generation of physicists and biologists to rethink and renew their approaches to Nature, and perhaps it may also help to generate new theories which will be useful for a better future of mankind.

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Appendix:
Tushna Commissariat. Was the universe born spinning?
Physics World 25 July 2011³⁹

The universe was born spinning and continues to do so around a preferred axis – that is the bold conclusion of physicists in the US who have studied the rotation of more than 15,000 galaxies.

While most cosmological theories have suggested that – on a large scale – the universe is the same in every direction, these recent findings suggest that the early universe was born spinning about a specific axis. If correct, this also means that the universe does not possess mirror symmetry, but rather has a preferred right or left “handedness”.

Led by Michael Longo from the University of Michigan, the team had set out to test whether mirror symmetry, also referred to as “parity”, was violated on the largest scales. If a particle violates parity, its mirror image would behave differently, and such particles can be described as right- or left-handed. Parity is violated in nuclear beta decays and there is a strong preference in nature for left-handed amino acids, rather than right-handed.

“To my knowledge, no-one had asked the question of whether the universe itself had a preference of say left-handed over right-handed. My idea was to test this by seeing if there was a preferred sense of rotation of spiral galaxies. At that time, I didn’t quite appreciate that, if so, it meant that

39 Tushna Commissariat. *Was the universe born spinning?* *PhysicsWorld* 25 Jul. 2011, url: <https://physicsworld.com/a/was-the-universe-born-spinning/>

the entire universe would have a net angular momentum,” explains Longo.

Galaxies in a spin

Longo and a team of five undergraduate students catalogued the rotation direction of 15,158 spiral galaxies with data from the Sloan Digital Sky Survey. They found that galaxies have a preferred direction of rotation – there was an excess of left-handed, or counter-clockwise, rotating spiral galaxies in the part of the sky toward the north pole of the Milky Way. The effect extended beyond 600 million light-years away.

The excess is small, about 7%, and Longo says that the chance that it could be a cosmic accident is something like one in a million. “If galaxies tend to spin in a certain direction, it means that the overall universe should have a rather large net angular momentum. Since angular momentum is conserved, it seems it [the universe] must have been “born” spinning.”

What impact would this have on the Big Bang and how the universe was born? Observers in our universe could never see outside of it, so we cannot directly tell if the universe is spinning, in principle, explains Longo. “But if we could show that our universe still retains the initial angular momentum within its galaxies, it would be evidence that our universe exists within some larger space and it was born spinning relative to other universes,” he told *physicsworld.com*. “I picture the Big Bang as being born with spin, just like a proton or electron has spin. As the universe expanded, the initial angular momentum would be spread among the bits of matter that we call galaxies, so that the galaxies now tend to spin in a preferred direction,” he explained. When asked if the preferred spin on a large scale could be induced by some

other means, he agrees that, while it may be possible, a net universal spin would be simplest explanation and so probably the best-case scenario.

Looking for ‘other manifestations’

Longo also points out that the axis of asymmetry that they found is closely related to the alignments observed in WMAP cosmic microwave background distributions. He feels that it would be interesting to see if we could find “other manifestations” of a spinning universe.

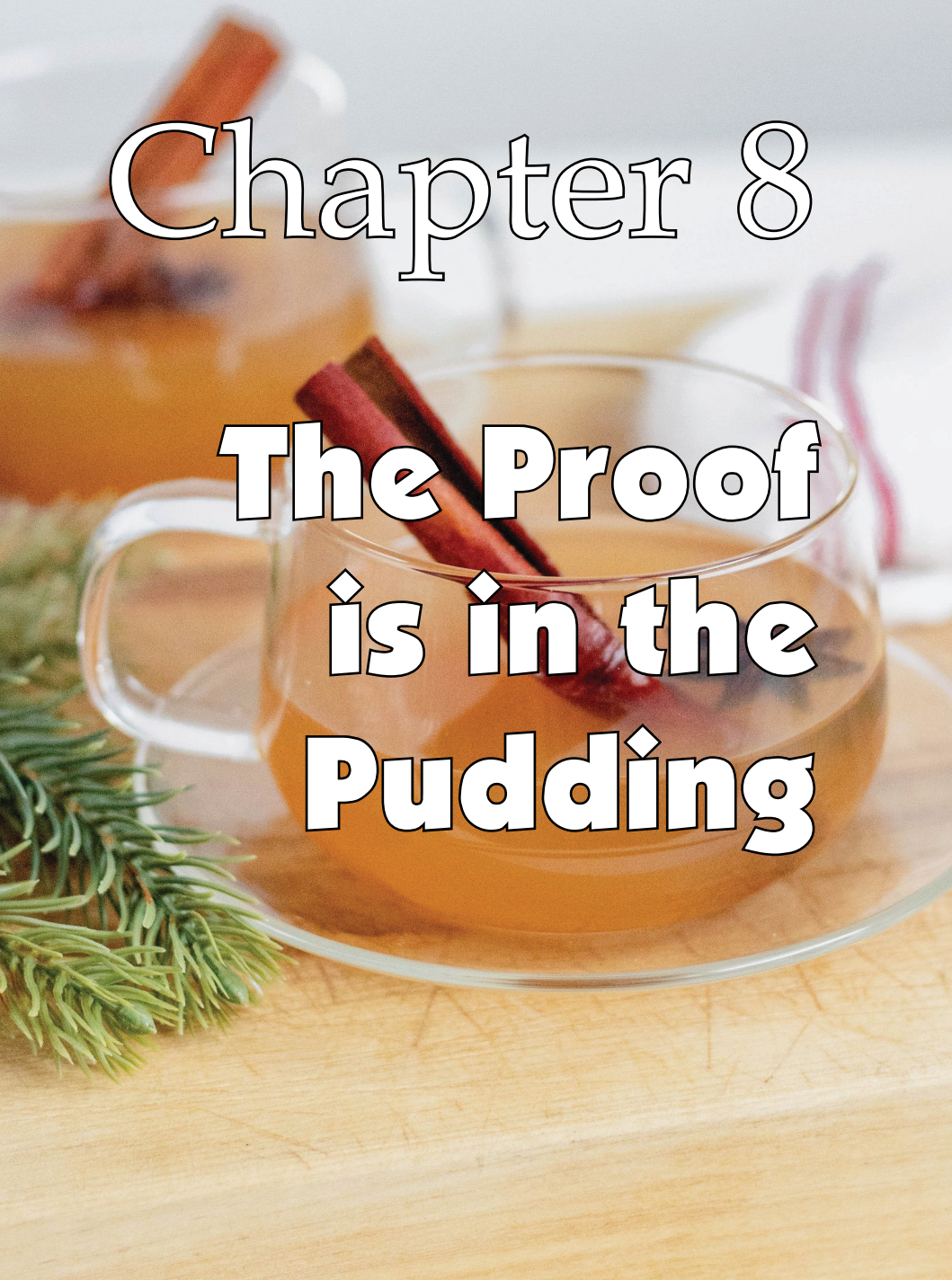
The Sloan telescope is in New Mexico, and therefore the data that Longo’s team analysed came mostly from the northern hemisphere of the sky. However, they did find a similar trend in the galaxy spin data from the southern hemisphere compiled by Masanori Iye and Hajime Sugai in 1991. Longo and his students are now looking through more data to show an equal excess of right-handed spiral galaxies in the southern hemisphere.

Neta Bahcall, an astrophysicist at Princeton University in the US, feels that there is no solid evidence for a rotating universe. “The directional spin of spiral galaxies may be impacted by other local gravitational effects,” she said. She believes that this could result in small correlations in spin rotation over distances less than about 200 Mpc – whereas the observable universe is about 14 Gpc in size. She feels that the uncertainty quoted in the paper includes only the minimal statistical uncertainty and that no systematic uncertainties – such as local gravitational effects or the fact that galaxies are correlated with each other – have been considered.

A paper on the findings is published in *Physics Letters B* 10.1016.

Chapter 8

**The Proof
is in the
Pudding**





The Proof is in the Pudding: An Outline of New Proof of the Existence of God

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Abstract

Starting with a review of few known arguments to prove the existence of God, we discuss our argument i.e. Nature's order, Pascal's void and Arrow of Time as Neutrosophic triadic to prove the existence of God. The most convincing one is what we call : the proof is in the pudding, i.e. how direct experience with God is the only way to fill everyone's inner void (cf. Pascal). To write shortly, our spiritual inner void can be filled by direct experience with God. This is what we suggest: the proof is in the pudding.

Introduction: From St. Anselm to Godel and Florensky

Contrary to Orthodox philosophers which were not particularly interested in proving the existence of God,

Western philosophers and theologians alike have embraced and invented numerous efforts to prove His existence, notably St. Anselm from Canterbury (1063-1110) and Descartes with their ontological proof of the existence of God. However, Immanuel Kant and Leibniz have shown that such an ontological proof of Descartes inherently believes in God as its premise, therefore it seems to be subject to some kind of "circular logic."

Later on in 20th century, Godel - a renowned mathematician at his time - secretly wrote down his attempt to refine the ontological proof of St. Anselm using symbolic logic notations. He showed his version of ontological proof to a few younger mathematicians who then put it down in paper and circulated it. That is now known as "Godel's ontological proof of the existence of God."

Nonetheless, the use of advanced symbolic logic in Godel's proof makes it only accessible to logicians. Moreover, recent study shows inconsistency of Godel's proof. (5)

Apart from such ontological proofs, another proof has been proposed by Pavel Florensky, a Russian physicist who then turned to Orthodox philosopher. His argument can be called "Iconostatic-beauty argument of existence of God." In essence, his argument goes as follows: an icon in Orthodox tradition was drawn with specific guidelines by Catholic Church. Therefore, the beauty of painting or art works such as in Andrei Rublev's *The Holy Trinity* can lead us to sense the supernatural, i.e. God Himself.

However, there are others who criticize on Florensky's beauty argument, because it has inherent premise that such an iconic painting, like Rublev's, was really designed to capture the supernatural. (3)(4)

Therefore, again it seems we come to a kind of circular logic here: to arrive at a proof of existence of God, one should assume He is there. In the next section, we will argue in favor of Neutrosophic triadic's view to prove the existence of God.

Nature's order, Pascal's void and Arrow of Time as Neutrosophic triadic to prove the existence of God Neutrosophic Logic is a branch of mathematics which studies the dynamics of opposites and neutralities, and it is discovered and developed by Florentin Smarandache, see for instance (1). In contrast to Aristotelian logic, where there is no middle way between A and B entities (The principle of excluded middle), in Neutrosophic Logic there is room for numerous possible middle values (or "neutralities").

In this paper, what we mean with Neutrosophic Triadic is dynamics of opposites and neutralities among three entities, A, B, C. And we apply this Neutrosophic Triadic to refer to 3 possible ways to prove the existence of God: Nature's order, Pascal's void and Arrow of Time. Now let us discuss one by one these Triadic arguments:

a. Nature's order:

New findings in modern astronomy as well as other branches of science like biology, have shown that the Universe has great order. Isn't it directly pointing to the Supreme God? As Bohm called it: the Implicate Order and Wholeness. For instance, biological clock, seasons, structure of DNA, up to hierarchies of Cosmos such as planets, stars, galaxies, cluster and supercluster show great harmony, order and beauty. These orders in Universe baffle even the most atheistic philosophers, therefore if we can be humble enough, we should admit that all order and harmony prove God, the Supreme

Creator. As a side note, we can mention the late Antony Flew, a former atheist professor who changed his mind after studying how complex and beautiful our DNA structure is.(6)

Some physicists have argued in terms of Anthropic Principle and Copernican Principle, but actually, instead of saying that all order our earth were tuned in order to humanity to exist, we should call it : “reverse-anthropic principle,” i.e. the exact orbit of Earth itself shows great order and precision which points to God Himself.

b. Pascal’s inner void:

Blaise Pascal once wrote something like this: there is deep void inside everyone, which he/she always try to fill with crafted materials to surround him/her. But that void is actually an infinite abyss, which can only be filled by the Infinite, God Himself.

If we accept such Pascal’s void, then the deep void itself clearly suggests that everyone of us was created and designed to keep longing to be filled with the Infinite. That is our second argument.

c. Arrow of Time:

Another fact which is very problematic both from physical and philosophical views is the arrow of time. What is time made of, and why time flows in one direction only? All phenomena and our experiences are governed by the Time itself, which is beyond human comprehension.

It seems we will not go too far if we say that the Time (chronos and kairos, in Greek) indeed points to the Supreme Controller of Time, i.e. God. See also Laura Mersini-Houghton & Rudy Vaas, The arrows of time. (7)

Now, having discussed the Neutrosophic Triadic as proofs of the existence of God, then we will touch a deeper issue, how we can experience God, which most religions call it: mystical experience.

Logic and mystical experience

Logic and mystical experiences are exclusive domains that cross over into one another, on occasion, just as everything else does as participants in Experiences of the Wholeness, Harmony, Balance, Caring, and Oneness of the Alive Aware Intelligent Conscious Universe. All of this partly constitutes the Mind of God, which is vaster and more complex than most human beings are able to even vaguely comprehend. (RNB: "I have been in the Mind of God, so I speak from personal experience.")

The reader may gather, from the basis of Bhutatmas, the tiny Consciousness-experiencing creatures that have vast experiential memories, that Everything, all fields, all forces, all matter, all life, and the entire of the Infinite Cosmos, results from the activities and agglomerations of Bhutatmas, in an Infinite Universe constructed and operated by Intelligent Design.

According to the Vedic literature on this topic, Divinity resides in the Actually Infinitely Small, which is everywhere and nowhere, at the same time. Thus it can and does act on everything that is and everything that happens. But Divinity has set things up so that Everything has Free Will and individual volition. A factor that has been left out of the Vedic literature on the topic of Bhutatmas, is that every Bhutatma is Unique, with a unique set of memories of experiences, regarding multiple Realities (not just this one). So Uniqueness is an absolute in all the realms, and all the Realities.

To conclude: Nature's order, Time and inner void can be filled by direct experience with God, which sometimes called as mystical experience (in Christian tradition, it is also known as "unio mystica.") This is what we suggest: the proof is in the pudding.

Concluding remarks

Neutrosophic Logic is a branch of mathematics which studies the dynamics of opposites and neutralities, and it is discovered and developed by one of us (FS). See for instance (1). In contrast to Aristotelian logic, where there is no middle way between A and B entities (The principle of excluded middle), in Neutrosophic Logic there is room for numerous possible middle values (or "neutralities").

In this paper, what we mean with Neutrosophic Triadic is dynamics of opposites and neutralities among three entities, A, B, C. And we apply this Neutrosophic Triadic to refer to 3 possible ways to prove the existence of God: Nature's order, Pascal's void and Arrow of Time.

To summarize, Nature's order, Time and inner void can be filled by direct experience with God. This is what we suggest: the proof is in the pudding.

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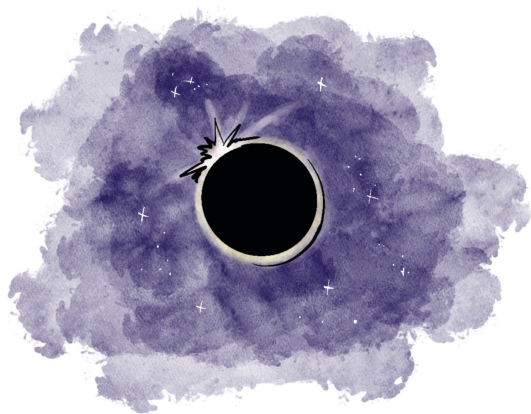
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Chapter 9

New Finding of Cosmological Entanglement



Remark on Nesteruk's Universe as Communion in the Light of New Finding of Cosmological Entanglement

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Abstract

In the last century, the understanding of the nature of electromagnetic phenomena was proceeding with a constant rivalry between two concepts of interaction: namely, Newton *instantaneous action at a distance* (IAAAD) and Faraday-Maxwell *short-range* interaction. Finally, the discovery of Faraday's law of induction (explicit time dependence of electromagnetic phenomena) and the experimental observation of electromagnetic waves seemed to confirm the short-range interaction. Nevertheless, the idea of IAAAD still has many supporters. Among the physicists who have developed some theories based, in any case, on this concept, we can find names such as Tetrode and Fokker, Frenkel and Dirac, Wheeler and Feynman, and Hoyle and Narlikar. This interest in the concept of IAAAD is explained by the fact that classical theory of electromagnetism is an unsatisfactory theory all by itself, and so there have been many attempts to modify either the Maxwell equations or the principal ideas of electromagnetism. This article is intended to offer a new insight on IAAAD based on a recent observation called

cosmological entanglement. It turns out that this observation gives support to Smarandache's Hypothesis and also to recent work by Nesteruk.

Introduction

In the last century, the understanding of the nature of electromagnetic phenomena was proceeding with a constant rivalry between two concepts of interaction : namely, Newton instantaneous action at a distance (IAAAD) and Faraday-Maxwell short-range interaction.

Finally, the discovery of Faraday's law of induction (explicit time dependence of electromagnetic phenomena) and the experimental observation of electromagnetic waves seemed to confirm the short-range interaction. Nevertheless, the idea of IAAAD still has many supporters. Among the physicists who have developed some theories based, in any case, on this concept, we can find names such as Tetrode and Fokker, Frenkel and Dirac, Wheeler and Feynman, and Hoyle and Narlikar. This interest in the concept of IAAAD is explained by the fact that classical theory of electromagnetism is an unsatisfactory theory all by itself, and so there have been many attempts to modify either the Maxwell equations or the principal ideas of electromagnetism.

As Augusto Garrido wrote in his review to Chubykalo et al's book:

"On the other hand, the famous article "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" by Einstein, Rosen and Podolsky published in Physical Review in 1935 revived this discussion in a new panorama. In this article Einstein made public his position against the Copenhagen interpretation of the quantum mechanics. The controversy unleashed since then made this article a very popular one for its implications

in our physical and philosophical understanding of the physical reality. The main objective of this article was to demonstrate that the quantum mechanics, the same way the Newtonian mechanics was for the relativistic mechanics, is an incomplete theory, and therefore, transitory of reality. For that reason Einstein made evident what is now known as the EPR paradox. According to EPR quantum mechanics is no local theory, that is to say, it permits action at a distance and, that is forbidden by the relativity theory, instantaneous action at a distance.

Unfortunately for Einstein, and for common sense the experiment performed by Aspect seems to indicate that the IAAAD following from quantum mechanics exists. As a consequence of this confusion, physicists are divided in two big groups according their position about IAAAD. These disputants are the quantum physicists and the relativists, who, almost after a century, have not been able to answer the old question whether the subject of their studies is a complete and integrated Universe – a physical Universe in its own right – or simply a assemblage of locally interacting parts.

This argument is not banal due to our understanding of the fundamental concepts of space and time depends drastically on which of these two positions is correct. After so many years of dwelling on this problem, without having obtained an accepted solution by the scientific community, it is logical to expect that the discussion has arrived to a conceptual deadlock and for that reason, partly, hopelessness has settled in the minds of young people who want to study this field of human knowledge. For young people wanting to understand the world, this particular field of science seems to provide only philosophically disorganized bits of knowledge, that constitute in its majority means of destroying ourselves entangled in the web of intellectual confusion. Because of this, what began as a *Natural Philosophy* has been losing its essence and has slowly transformed into a practical science against what was initially expected of it." [6]

This article is intended to offer a new insight on IAAAD based on a recent observation called cosmological entanglement. It turns out that this observation gives support to Smarandache's Hypothesis and also to recent work by Nesteruk.

Nesteruk's Universe as communion

For theologians who try to understand or get a grasp on the various progress in science, he/she has to start with one of the following assumptions: (a) there is *conflict* between science and theology (biblical teaching), (b) there is mutual separation between science and theology, or (c) there is *dialogue* between science and theology; in other words there could be a hope for reconciliation.

The authors took the third approach in this article, in tune with Kulikovsky and Alister McGrath [16]. In one of his book, McGrath states upfront:

'It is the contention of this work that the relationship of Christian theology to the natural sciences is that of two fundamentally related disciplines, whose working methods reflect this common grounding in responding to a reality which lies beyond them, of which they are bound to give an ordered account' (p. xviii). See [16]

In a somewhat similar tune with McGrath, a monograph by Alexei Nesteruk, a senior lecturer in mathematics at the University of Portsmouth and a deacon in the Russian Orthodox Church, represents a distinctive approach to the science-religion debate. He describes the aim of his book as an existential exploration of the dialogue between theology and science and argues that this dialogue is only possible if scientific knowledge and faith are treated as two activities of human subjectivity. This approach is familiar to the Orthodox

tradition which did not, according to Nesteruk, experience a clash between science and religion like their counterparts in the West. The fact that Eastern Christianity had a different experience of the relation between religion and science is the platform from which Nesteruk departs and it is from this platform that he wants to shed new light on the contemporary debate.[17]

Le Roux wrote:

“Any attempt to proclaim the ultimate and objective sense through abstraction from acts of human subjectivity represents a distortion of the natural order. According to the phenomenological approach, the understanding of nature originates from human existence. Knowledge of an objective reality, which exists outside and independent of human insight is, as such, a fallacy. In accordance with Husserl, Nesteruk refers to the ultimate paradox of being. The fact that humans are part of the world, but at the same time constitute the consciousness of the world, is a dichotomy that must be accepted as a given, as the primary existential reality. This human element brings something unique to existence, which natural science cannot identify. Science is not sufficient to understand what it means to be human.

With this subjective element in mind, the act of knowing becomes much more personal. The word *communion* is Nesteruk’s way of acknowledging how knowing someone or something, even the universe, involves a personal act of acknowledgement. Scientific knowledge, just like faith, is a mode of communion and is always an act of a particular person. The personal act of knowing and experience is unique to every person and it is in the personhood of an individual that the reconciliation between the two modes of communion takes place...”[17]

To arrive at more coherent view with Nesteruk (see also Nesteruk’s article in [17a]), we suggest a similar approach to

cosmology: i.e. the Universe is already a communion shared between God and His creations, including us –human being in this Earth. We also shared the same communion with all living and non-living beings in this planet.

But, some people may take a long breath at this point: *are there scientific arguments supporting such a proposition?*

We would argue in the following section that such arguments are indeed available, especially in a recent development called “cosmological entanglement” observation, which seems to open up far reaching implications, much more than Aspect’s experiments.

Observational finding on Cosmological entanglement

With regards to Nesteruk’s hypothesis of *Universe as communion*, interestingly there is a recent report from MIT suggesting that ancient quasars support such quantum entanglement at large scale phenomena. In an article it is reported about possibility of cosmological entanglement [12], which can be paraphrased as follows:

“In 2014, Kaiser and two individuals of the contemporary team, Jason Gallicchio and Andrew Friedman, proposed a test to produce entangled photons on Earth – a method that is pretty fashionable in research of quantum mechanics. They planned to shoot every member of the entangled pair in contrary directions, towards mild detectors that would additionally make a measurement of every photon the use of a polarizer. Researchers would measure the polarization, or orientation, of every incoming photon’s electric powered field, with the aid of putting the polarizer at quite a number angles and watching whether or not the photons surpassed thru – an outcome for each photon that researchers should compare to decide whether the particles confirmed the hallmark correlations expected by using quantum mechanics. The team delivered a special

step to the proposed experiment, which used to be to use light from ancient, far away astronomical sources, such as stars and quasars, to decide the attitude at which to set each respective polarizer. As each entangled photon was once in flight, heading towards its detector at the velocity of light, researchers would use a telescope placed at every detector site to measure the wavelength of a quasar's incoming light. If that light used to be redder than some reference wavelength, the polarizer would tilt at a certain perspective to make a particular size of the incoming entangled photon — a size desired that was once determined by means of the quasar. If the quasar's light was once bluer than the reference wavelength, the polarizer would tilt at a special angle, performing a one-of-a-kind measurement of the entangled photon. In their preceding experiment, the team used small outdoor telescopes to measure the light from stars as shut as 600 light years away. In their new study, the researchers used a good deal larger, greater-effective telescopes to seize the incoming light from even greater ancient, far away astrophysical sources: quasars whose light has been travelling towards the Earth for at least 7.8 billion years — objects that are relatively a ways away and yet are so luminous that their light can be located from Earth. On Jan. 11, 2018, “the clock had just ticked past nighttime neighborhood time,” as Kaiser recalls, when about a dozen individuals of the crew gathered on a mountaintop in the Canary Islands and started amassing information from two large, 4-meter-wide telescopes: the *William Herschel Telescope* and the *Telescopio Nazionale Galileo*, both located on the equal mountain and separated via about a kilometer.

One telescope focused on a particular quasar, whilst the different telescope appeared at every other quasar in a specific patch of the night time sky. Meanwhile, researchers at a station located between the two telescopes created pairs of entangled photons and beamed particles from each pair in contrary directions toward every telescope. In the

fraction of a 2nd before each entangled photon reached its detector, the instrumentation determined whether or not a single photon arriving from the quasar used to be extra pink or blue, a dimension that then mechanically adjusted the angle of a polarizer that finally received and detected the incoming entangled photon.”(see[12])

Therefore such a discovery has opened up a new way to look at the Universe: *an entangled Cosmos*. [13,14]

Is cosmological entanglement a verifiable concept? Three arguments

a. Wave mechanics

The wave mechanics models of the Universe were known even since 70s, with various names such as Wheeler-De Witt equation, Hawking-Vilenkin equation, and also Gell-Mann-Hartle. Unfortunately, none of the above terms is corroborated by observation. [1]

This makes sense to the point that no serious cosmologist will argue in favor to wave model of the Universe.

That is until a paper by Peter Coles on how such a wave mechanical treatment actually corresponds to fluid dynamics representation. His abstract goes as follows:

“I review the basic “gravitational instability” model for the growth of structure in the expanding Universe. This model requires the existence of small initial irregularities in the density of a largely uniform universe. These grow through linear and non-linear stages to form a complex network of clusters, filaments and voids. The dynamical equations describing the evolution of a self-gravitating fluid can be rewritten in the form of a Schrodinger equation coupled to a Poisson equation determining the gravitational potential. ...I argue that this approach has the potential to yield useful analytic insights into the dynamical growth of

large-scale structure. As a particular example, I show that this approach yields an elegant reformulation of an idea due to Jones (1999) concerning the origin of lognormal intermittency in the galaxy distribution. "[2]

See also Johnston's article for a newer presentation. [3]

b. Low temperature phenomena

We are used to thinking of the universe as a hot place, full of bright stars, quasars, gamma ray bursts and so on, emanating from a giant explosion - the big bang. However, the universe can also be a surprisingly cool place. It is permeated by a background radiation with a temperature close to that of liquid helium.[5] See also [4].

c. Newtonian action at a distance and Smarandache's hypothesis

Smarandache's Hypothesis states that there is no speed limit of anything, including light and particles [9]. Eric Weisstein also wrote implications of Smarandache's Hypothesis [9a], which can be paraphrased as follows: "... the velocity of light c is no longer a maximum at which statistics can be transmitted and that arbitrary speeds of data or mass switch can occur. These assertions fly in the face of each idea and experiment, as they violate both Einstein's exceptional principle of relativity and causality and lack any experimental support. It is authentic that modern-day experiments have confirmed the existence of positive sorts of measurable superluminal phenomena. However, none of these experiments are in conflict with causality or distinct relativity, because no statistics or bodily object absolutely travels at speeds v large than c to produce the located phenomena." (see [9a]) While the idea is quite simple and based on known hypothesis

of quantum mechanics, called Einstein-Podolski-Rosen paradox, in reality such a superluminal physics seems still hard to accept by majority of physicists. Since 2011, there was an apparent surprising result as announced by OPERA team. Nonetheless, few months later it was renounced, on the ground of errors in handling the measurement. The story was retold by Lukasz Glinka [11], which can be paraphrased as follows: "Already in June 2012, the CERN Research Director Sergio Bertolucci, at the twenty fifth International Conference on Neutrino Physics and Astrophysics held in Kyoto, established the fallacious size due to the OPERA Collaboration... Moreover, it is worth stressing that the superluminal kingdom of affairs is regular in current astronomy when you consider that the early 1980s, when the faster-than-light movement had been advised in order to contradict the quasars having the cosmological distances. In the present-day situation, the experimental information exhibit that the superluminal travels are the phenomena which are very regularly met in radio galaxies, quasars and microquasars."

Allow us to make few comments on such an apparent failure to detect faster than light speed as follows: Despite those debates over OPERA results, we thought that a more convincing experiment has been done by Alain Aspect etc., who were able to show that quantum non-locality interaction is real. In 1980 Alain Aspect performed the first EPR experiment (Einstein-Podolski-Rosen) which proved the existence of space nonlocality (Aspect 1982). Alain Aspect and his team at Orsay, Paris, conducted three Bell tests using calcium cascade sources. The first and last used the CH74 inequality. The second was the first application of the CHSH inequality

[15]. The third (and most famous) was arranged such that the choice between the two settings on each side was made during the flight of the photons (as originally suggested by John Bell). Some experimenters have repeated this experiment and prove similar result until distance of more than 90km.

So the notion of “spooky action at a distance” is a real physical phenomenon. Moreover, action at a distance was already mentioned in Newton’s Principia Mathematica. Despite apparently Einstein was trying to make all of Newton’s expressions into nothing, our result suggests that the Maxwell equations in classical electrodynamics have “spooky action at a distance” type of interactions (as it has also been proven for Coulomb potential), which may be observed both at small scale experiments as well as in cosmological scale, as recent evidences show.

Concluding remarks

For theologians who try to understand or get a grasp on the various progress in science, he/she has to start with one of the following assumptions: (a) there is conflict between science and theology (biblical teaching), (b) there is mutual separation between science and theology, or (c) there is dialogue between science and theology; in other words there could be a hope for reconciliation.

In this regards, Nesteruk took similar approach with A. McGrath. And we wish to put their arguments even further. To arrive at more coherent view with Nesteruk (see also Nesteruk’s article in [17a]), we suggest a similar approach to cosmology: i.e. the Universe is already a communion shared between God and His creations, including us –human being in this Earth. We also shared the same communion with all living and non-living beings in this planet. But, some people may

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In this article, we argue in the following section that such arguments are indeed available, especially in a recent development called “cosmological entanglement” observation, which seems to open up far reaching implications, much more than Aspect’s experiments.

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Chapter 10

Early Creation Through The Lens of Hermeneutics



Thinking Out Loud on Early Creation Through the Lens of Hermeneutics of Sherlock Holmes

(Towards a Model of Universe based on Turbulence-Generated Sound Theory)

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Abstract

In recent years, apparently the Big Bang as described by the Lambda CDM-Standard Model Cosmology has become widely accepted by majority of physics and cosmology communities. Even some people have concluded that it has no serious alternative in horizon. Is that true? First, as we argued elsewhere, Big Bang story relies on singularity. In other words, when we are able to describe the observed data without invoking singularity, then Big Bang model is no longer required. Therefore, here we explore a few alternative stories other than Big Bang story, which most cosmologists believe it is the nearest

to Biblical account of creation. We would argue that re-reading of Genesis 1:2 will lead us to another viable story, albeit the alternative has not been developed rigorously as LCDM theories. We also briefly discuss a fluid Maxwell equations of Prof. Tsutomu Kambe based on vortex sound theory.

Key Words:

Maxwell electromagnetic theory, singularity-free cosmology model, vortex sound theory, early Universe, early creation, Genesis chapter 1, Spirit in Creation.

1. Introduction

One of the biggest mysteries in cosmogony and cosmology studies is perhaps: how to interpret properly Genesis chapter 1:2. Traditionally, philosophers proposed that God created the Universe out of nothingness (from reading “empty and formless” and “*bara*” words; this contention is called “*creation ex nihilo*.”). Understandably, such a model can lead to various interpretations, including the notorious “cosmic egg” model as suggested by Georges Lemaitre, which then led to Big Bang model. Subsequently, many cosmologists accept it without asking, that Big Bang stands as the most faithful and nearest theory to Biblical account of creation. But we can ask: Is that cosmic egg model the true and faithful reading of Genesis 1:2?

In the subsequent chapter we will discuss how to answer this question by the lens of hermeneutics of Sherlock Holmes. This is a tool of mind which we think to be a better way compared to critical hermeneutics.

Now a word on the meaning of thinking out loud phrase. What we mean with this phrase is, according to a definition:

Thinking out loud is the act of expressing in recoverable and external form new thoughts which you

encourage your mind into exploring. Often these lead to new avenues of thought. When you think out loud you detect and explore ideas and concepts which are either unknown, or as yet unexplored.⁴⁰

2. Several different interpretations of Genesis 1:2 and implications

Our discussion starts from the fundamental question that one of us (VC) has heard around three years ago. At the time, he (VC) has had a good time of conversation at Starbuck with a senior pastor who happens to be one of the most leading scholar from Jakarta Theology and Philosophy Seminary, i.e. Dr. Joas Adiprasetya (JA). VC tried to explain to him his idea on interpreting of Prolegomena of John Gospel as one of reliable biblical account of creation. In essence, one of us (VC) told JA that it appears possible to interpret the Logos as the Sacred Voice of God, then from voice we can infer sound wave, then from sound wave we can infer frequency. Therefore, we can infer that there should be primordial/relic sound wave which emerged at the earliest time of creation. [10-13] And Prof. Wayne Hu has written a paper about observation of such relic sound wave.

But JA asked him (VC): okay, then where was the role of Holy Spirit in that creation story based on John 1:1? I should admit that at the time I cannot come up with a convincing answer. I only said: "I do not think of that yet."

And it took around three years before now we have been thinking this problem out loud, and here our answer can be summarized as follows: "The relic sound wave in early creation is a faithful interpretation of John 1:1, but we can

40 wiki.c2.com/?ThinkingOutLoud

come up with a more complete picture if we combine it with Gen. 1:2, that is the Holy Spirit came to hovering over the primordial fluid, then a kind of hurricane/storm started which created perfect medium where God spoke (Logos)."

Let us consider some biblical passages:

- **What is Hermeneutics of Sherlock Holmes?**

One article suggests:⁴¹

Holmes: "I have no data yet. It is a capital mistake to theorize before one has data.

Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

Far too often students of the Bible (and cosmology folks as well) twist verses to suit interpretations instead of formulating interpretations to suit what the verses say.

Guide: Don't approach your passage assuming you know what it means. Rather, use the data in the passage – the words that are used and how they fit together – to point you toward the correct interpretation.

- **A re-reading of Gen. 2:7 with Hermeneutics of Sherlock Holmes⁴²**

If we glance at Gen. 2: 7, we see at a glance that man is made up of the dust of the ground (*adamah*) which is breathed by the breath of life by God (*nephesh*). Here we can ask, does this text really support the Cartesian dualism view?

41 <https://www.str.org/blog/learning-hermeneutics-from-holmes>

42 Check Eric McKiddie's article: <https://www.thegospelcoalition.org/blogs/trevin-wax/10-tips-on-solving-mysterious-bible-passages-from-sherlock-holmes/>

We do not think so, because the Hebrew concept of man and life is integral. The bottom line: it is not the spirit trapped in the body (*Platonic*), but the body is flowing in the ocean of spirit. [7]

Let's look at three more texts:

- a. Gen. 1: 2, *"The earth is without form and void, darkness over the deep, and the Spirit of God hovering over the waters."* Patterns such as Adam's creation can also be encountered in the creation story of the universe. Earth and the oceans already exist (similar to *adamah*), but still empty and formless. Then the Spirit of God hovered over it, in the original text "ruach" can be interpreted as a strong wind (storm). So we can imagine there is wind/hurricane, then in the storm that God said, and there was the creation of the universe. See also Amos Yong [6], also Hildebrandt [15]. From a scientific point of view, it is well known in aerodynamics that turbulence can cause sound (*turbulence-generated sound*). And primordial sound waves are indeed observed by astronomers.
- b. Ps. 107: 25, *"He said, he raised up a storm that lifted up his waves."* The relation between the word (sound) and the storm (turbulence) is interactive. Which one can cause other. That is, God can speak and then storms, or the Spirit of God causes a storm. Then came the voice.
- c. Ezekiel. 37: 7, *"Then I prophesy as I am commanded, and as soon as I prophesy, it sounds, indeed, a crackling sound, and the bones meet with one another."* In Ezekiel it appears that the story of the creation of Adam is repeated, that the Spirit of God is blowing (storm), then the sound of the dead bones arises.

The conclusion of the three verses above seems to be that man is made up of *adamah* which is animated by the breath or Spirit of God. He is not matter, more accurately referred to as spirit in matter. Like a popular song around 80s goes: *"We are spirits in the material world."*

3. A physical model of turbulence-generated sound for early Universe

Our discussion starts from the fundamental question: how can we include the rotation in early Universe model? After answering that question, we will discuss how "turbulence-generated sound" can be put into a mathematical model for the early Universe. We are aware that the notion of turbulence-generated sound is not new term at all especially in aerodynamics, but the term is rarely used in cosmology until now. We shall show that 3D Navier-Stokes will lead to non-linear acoustics models, which means that a turbulence/storm can generate sound wave.

a. How can we include rotation in early Universe model?

It has been known for long time that most of the existing cosmology models have singularity problem. Cosmological singularity has been a consequence of excessive symmetry of flow, such as "Hubble's law". More realistic one is suggested, based on Newtonian cosmology model but here we include the vortical-rotational effect of the whole Universe.

In this section, we will derive an Ermakov-type equation following Nurgaliev [8]. Then we will solve it numerically using Mathematica 11. After he proceeds with some initial assumptions, Nurgaliev obtained a new simple local cosmological equation:[8][9]

$$\dot{H} + H^2 = \omega^2 + \frac{4\pi G}{3} \rho, \quad (1)$$

Where $\dot{H} = dH / dt$.

The angular momentum conservation law $\omega R^2 = \text{const} = K$ and the mass conservation law $(4\pi/3)\rho R^3 = \text{const} = M$ makes equation (5) solvable:[9]

$$\dot{H} + H^2 = \frac{K^2}{R^4} - \frac{GM}{R^3}, \quad (2)$$

Or

$$\ddot{R} = \frac{K^2}{R^3} - \frac{GM}{R^2}. \quad (3)$$

Equation (3) may be written as Ermakov-type nonlinear equation as follows;

$$\ddot{R} + \frac{GM}{R^2} = \frac{K^2}{R^3}. \quad (4)$$

Nurgaliev tried to integrate equation (3), but now we will solve the above equation with Mathematica 11. First, we will rewrite this equation by replacing $GM=A$, $K^2=B$, so we get:

$$\ddot{R} + \frac{A}{R^2} = \frac{B}{R^3}. \quad (5)$$

As with what Nurgaliev did in [8][9], we also tried different sets of A and B values, as follows:

a. A and B < 0

A=-10;

B=-10;

ODE= $x''[t]+A/x[t]^2-B/x[t]^3==0$;

sol=NDSolve[{ODE,x[0]==1,x'[0]==1},x[t],{t,-10,10}]

Plot[x[t]/.sol,{t,-10,10}]

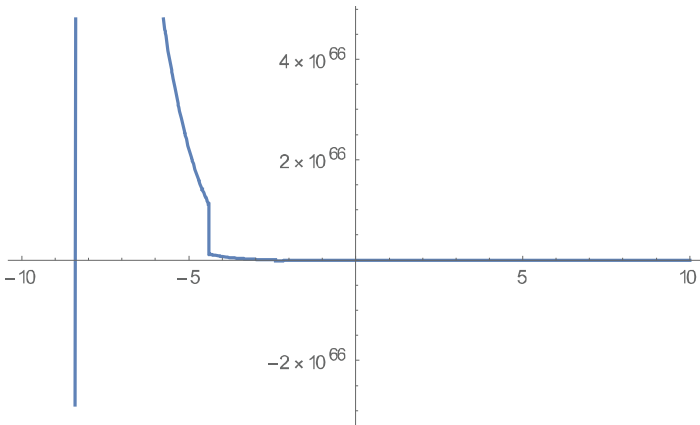


Figure 1.
Plot of Ermakov-type solution for A=-10, B=-10

b. $A > 0, B < 0$

$A=1;$

$B=-10;$

$\text{ODE}=x''[t]+A/x[t]^2-B/x[t]^3==0;$

$\text{sol}=\text{NDSolve}\{\{\text{ODE},x[0]==1,x'[0]==1\},x[t],\{t,-10,10\}\}$

$\text{Plot}[x[t]/.\text{sol},\{t,-10,10\}]$

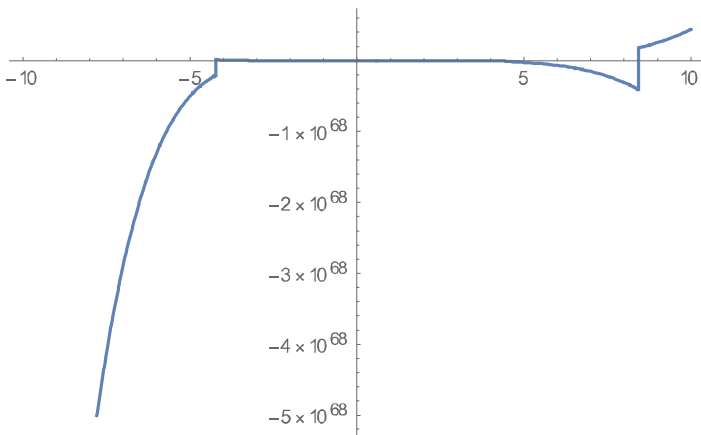


Figure 2.

Plot of Ermakov-type solution for $A=1, B=-10$

From the above numerical experiments, we conclude that the evolution of the Universe depends on the constants involved, especially on the rotational-vortex structure of the Universe. This needs to be investigated in more detailed for sure. One conclusion that we may derive especially from Figure 2, is that our computational

simulation suggests that it is possible to consider that the Universe has existed for long time in prolonged stagnation period, then suddenly it burst out from empty and formless (Gen. 1:2), to take its current shape with accelerated expansion.

As an implication, we may arrive at a precise model of flattening velocity of galaxies without having to invoke ad-hoc assumptions such as dark matter.

Therefore, it is perhaps noteworthy to discuss briefly a simple model of galaxies based on a postulate of turbulence vortices which govern the galaxy dynamics. The result of Vatistas' model equation can yield prediction which is close to observation, as shown in the following diagram:[14]

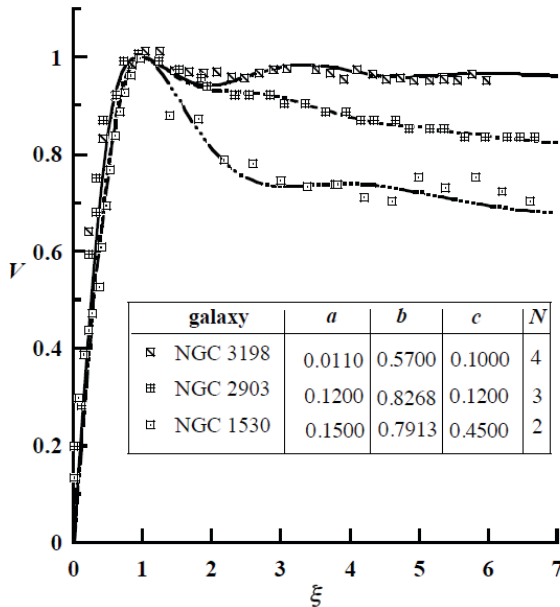


Figure 3. From Vatistas [14]

Therefore it appears possible to model galaxies without invoking numerous *ad hoc* assumptions such as *dark matter*, once we accept the existence of turbulent interstellar medium. The Vastitas model is also governed by Navier-Stokes equations, see for instance [14].

b. How “turbulence-generated sound” can be put into a mathematical model for the early Universe

We are aware that the notion of turbulence-generated sound is not new term at all especially in aerodynamics, but the term is rarely used in cosmology until now. We will consider some papers where it can be shown that 3D Navier-Stokes will lead to non-linear acoustics models, which means that a turbulence/storm can generate sound wave.

In this section we consider only two approaches:

- o Shugaev-Cherkasov-Solenaya’s model: They investigate acoustic radiation emitted by three-dimensional (3D) vortex rings in air on the basis of the unsteady Navier–Stokes equations. Power series expansions of the unknown functions with respect to the initial vorticity which is supposed to be small are used. In such a manner the system of the Navier–Stokes equations is reduced to a parabolic system with constant coefficients at high derivatives. [16]
- o Rozanova-Pierrat’s Kuznetsov equation: she analysed the existing derivation of the models of non-linear acoustics such as the Kuznetsov equation, the NPE equation and the KZK equation. The technique of introducing a corrector in the derivation ansatz allows to consider the solutions of these equations as approximations of the solution of the initial system

(a compressible Navier-Stokes/Euler system). The direct derivation shows that the Kuznetsov equation is the first order approximation of the Navier-Stokes system, the KZK and NPE equations are the first order approximations of the Kuznetsov equation and the second order approximations of the Navier-Stokes system. [17]

4. Vortex-sound theory and fluidic Maxwell equations

There are a number of proposals to revise Maxwell equations. But few has considered a fresh starting point with regards to the (sub) structure of aether. It is very interesting to note that Prof. T. Kambe from University of Tokyo has made a connection between the equation of vortex-sound theory and its analogue fluid Maxwell equations. He wrote that it would be no exaggeration to say that any vortex motion excites *acoustic waves*. [2]

He considers the equation of vortex sound of the form: [2]

$$\frac{1}{c^2} \partial_i^2 p - \nabla^2 p = \rho_0 \nabla \cdot L = \rho_0 \text{div}(\omega \times v) \quad (6)$$

He also wrote that dipolar emission by the vortex-body interaction is:[2]

$$p_F(x, t) = -\frac{P_0}{4\pi c} \ddot{\Gamma}_i \left(t - \frac{x}{c}\right) \frac{x_c}{x^2} \quad (7)$$

Then he obtained an expression of fluid Maxwell equations as follows [2]:

$$\begin{aligned}
 \nabla \cdot H &= 0 \\
 \nabla \cdot E &= q \\
 \nabla \times E + \partial_t H &= 0 \\
 a_0^2 \nabla \times H - \partial_t E &= J
 \end{aligned} \tag{8}$$

Where [2]:

a_0 denotes the sound speed, and

$$\begin{aligned}
 q &= -\partial_t (\nabla \cdot v) - \nabla \cdot \dot{h}, \\
 J &= \partial_t^2 v + \nabla \partial_t h + a_0^2 \nabla \times (\nabla \times v)
 \end{aligned} \tag{9}$$

In our opinion, this new expression of fluid Maxwell equations suggests that there is a deep connection between vortex sound and electromagnetic fields.

However, it should be noted that the above expressions based on fluid dynamics need to be verified with experiments. We should note also that in (8) and (9), the speed of sound a_0 is analogous of the speed of light in Maxwell equations, whereas in equation (6), the speed of sound is designated “ c ” (as analogous to the light speed in EM wave equation).

As an added note, we can mention here that elsewhere Wang [5] was able to derive Coulomb law from the source-sink approach. We are wondering if it is also possible to re-derive Maxwell equations including displacement current from the same approach. If yes, then it may offer another fresh starting point to understand the physical meaning of displacement current.

5. Concluding remarks

In recent years, there is growing number of proposals to use a novel concept of singularity-free Cosmology models. It should be clear that if we are able to come up with such singularity-free models which agree well with observation data, then the Big Bang model is no longer required.

Therefore, here we explore a few alternative stories other than Big Bang story, which most cosmologists believe it is the nearest to Biblical account of creation (as Fred Hoyle once remarked: the Big Bang is a fanatical religion).

We argue that a re-reading of Genesis 1:2 will lead us to another viable story, albeit the alternative has not been developed rigorously as LCDM theories.

It took around three years before now we have been thinking this problem out loud, and here our answer can be summarized as follows: *“The relic sound wave in early creation is a faithful interpretation of John 1:1, but we can come up with a more complete picture if we combine it with Gen. 1:2, that is the Holy Spirit came to hovering over the primordial fluid, then a kind of hurricane/storm started which created perfect medium where God spoke (Logos).”*

And one conclusion that we may derive especially from Figure 2, is that our computational simulation suggests that it is possible to consider that the Universe has existed for long time in prolonged stagnation period, then suddenly it burst out from *empty and formless* (Gen. 1:2), to take its current shape which is accelerating. Such a possibility has never been considered before in cosmology literatures.

We also briefly discuss a plausible extension of Maxwell equations based on vortex sound theory of Prof. Tsutomu Kambe. It is our hope that our exploration will lead to

nonlinear cosmology theories which are better in terms of observations, and also more faithful to Biblical account of creation.

Acknowledgment

The first author (VC) also would like to express his gratitude to Jesus Christ who always encouraged and empowered him in many occasions. He is the Good Shepherd. And special thanks to Dr. Joas Adiprasetya, Dr. Yonky Karman, and Dr. Wonsuk Ma for discussions on early creation of the Universe. We also thank to a number of professors in physics, including Prof. Liek Wilardjo and Prof. Thee Houw Liong. *Soli Deo Gloria!*

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VC & FS

Chapter 11

Non-Locality Interactions, Preognitive Interdiction



A Few Surprises About Non-Locality Interactions, Precognitive Interdiction, and the Spirit from Physics Viewpoint

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ABSTRACT

There are various supernatural phenomena which hardly can be explained by the existing electromagnetic science, for instance non-locality interactions (may be associated with ESP etc), and also precognitive interdictions. And there are other problems such as how to include the Spirit in our consciousness. For example, it has been known for long time that intuition plays significant role in many professions and human life, including in entrepreneurship, government, and also in detective or law enforcement activities. Despite these examples, such a precognitive interdiction is hardly accepted in established science. In this paper, we discuss non-locality interactions and also advanced solutions of Maxwell equations, and argue in favor of precognitive interdiction from classical perspective. We also discuss shortly on how “spirit” may

be included in medicine, although we also make cautious remarks on the danger of "*spiritism*." However, we admit that what we discuss here is quite rough, and more researches are needed to verify what we describe here.

Keywords:

non-locality interaction, intuition, precognition, Maxwell equations, advanced wave solution, spirit and spiritism.

1. Introduction

There are various supernatural phenomena which hardly can be explained by the existing electromagnetic science, for instance non-locality interactions (may be associated with ESP etc), and also precognitive interdictions. And there are other problems such as how to include the Spirit in our consciousness.

For example, it has been known for long time that intuition plays significant role in many professions and other aspects of human life, including in entrepreneurship, government, and also in detective or law enforcement activities. Even women are known to possess better intuitive feelings or "*hunch*" compared to men. Despite these examples, such a precognitive interdiction is hardly accepted in established science.

In this paper, we discuss non-locality interactions in electromagnetic theory, and also the advanced solutions of Maxwell equations in the context of Wheeler-Feynman-Cramer's absorber theory, and then make connection between syntropy and precognition from classical perspective. This may be regarded as first step to describe such precognition activities which are usually considered belong to quantum realm. In the last section, we will discuss on how to include spirit in medicine, although we shall also make cautious remark on "*spiritism*."

It is our hope that what we discuss here can be verified with experimental data.

2. Electromagnetic origin of non-locality interactions

There is a widely-held belief among physicists that non-locality interactions can only be explained as an effect of Quantum Mechanics. But what is surprising to reveal here is that non-locality interactions can be explained from pure classical electromagnetic theory. A recent paper by Butler and Gresnigt tried to elucidate this issue. Their abstract goes as follows:

“A fields-only formulation of EM interactions that does not invoke charge explicitly is presented. The EM interaction ceases to be the result of an asymmetric action of a field on a point charge locally, but instead is the result of applying Hamilton’s principle of virtual work to the symmetric but non-local interaction of space-filling EM fields themselves. The fields themselves are therefore the only fundamental entities.”[8]

In section 4 of their paper, they argued:

“The pure-field force law presented here is both Lorentz invariant and symmetrical with respect to all sources. However, it is not local. The fields are the mediators of force, but not through the interaction of the fields with the test charge at a single point in space, but rather through the dispersed interaction of the fields from all charges throughout all space. The approach taken here has traded locality for symmetry.... Although the derivation of the previous section is classical, the dispersed interaction is reminiscent of the interaction of QM states.”[8]

Therefore, from theoretical viewpoint, non-locality interactions can be explained from classical electromagnetic theory itself, especially when we consider knotted solutions of Maxwell equations. Butler and Gresnigt also remarked:

“Likewise, the motion resulting from EM interaction of a multiple particle system is the result of each particle’s EM field’s contribution to the quadratic energy density ... This overlapping structure between EM and QM has also been highlighted by van der Mark who showed that the QM probability current arises as the EM 4-current from topological EM fields.” [8]

3. John Cramer’s take on Wheeler-Feynman’s absorber theory

The Wheeler-Feynman’s paper on absorber theory has been discussed and generalized by John Cramer. He discussed among other things on the physical interpretation of advanced and retarded solutions of Maxwell equations and also Klein-Gordon equation. Our discussion starts from the fundamental Maxwell’s equations that unify electromagnetism [1]:

$$\begin{aligned}
 \nabla \cdot B &= 0 \text{ (Magnetic Gauss),} \\
 \nabla \cdot D &= \rho_f \text{ (Gauss),} \\
 \nabla \times E &= -\partial_t B = 0 \text{ (Faraday),} \\
 \nabla \times H - \partial_t D &= J_f \text{ (Amperecircuitallaw),} \tag{1}
 \end{aligned}$$

It is known that electromagnetic wave equation corresponding to (1) admits advanced wave solution.

Of course, here we do not have to accept all transactional QM interpretation by Cramer [1][2], but we can keep our discussion straightly within the scope of classical electromagnetic theory.

The electromagnetic wave equation for source-free space can be written in the form:

$$c^2 \nabla^2 \vec{F} = \frac{d^2 \vec{F}}{dt^2}, \tag{2}$$

where c represents the speed of light, and F represents either the electric field vector E or the magnetic field vector B of the wave.[1]

Since this differential equation is second order in both time and space, it has two independent time solutions and two independent space solutions. Let us restrict our consideration to one dimension by requiring that the wave motion described by equation (2) moves along with x axis and that the E vector of the wave is along the y axis.

Then two independent time solutions of equation (2) might have the form [1]:

$$\vec{E}_{\pm}(x,t) = \hat{y}E_0 \sin \left[2\pi \left(\frac{x}{\lambda} \pm ft \right) \right], \quad (3)$$

and

$$\vec{B}_{\pm}(x,t) = \hat{y}B_0 \sin \left[2\pi \left(\frac{x}{\lambda} \pm ft \right) \right], \quad (4)$$

Quoting from Cramer's notes on the solutions of equations (3) and (4):[1]

Thus, wave $E_{+}(x,t)$ is a *negative-energy* (and *negative-frequency*) solution of Eq. (1). As mentioned above, it will arrive at the point a distance x from the source at the time $t = x/c$. before the instant of emission. For this reason, it is called an *advanced* wave. Solution $E_{-}(x,t)$, on the other hand, is the more familiar positive-energy solution of Eq. (1). It arrives at x a time $t = x/c$ after the instant of emission and is called the *retarded* solution.

It should be clear, therefore, that advanced wave solution is inherent in the classical electromagnetic wave

equations, without having to resort to Cramer's transactional interpretation of QM.

Next, we are going to discuss physical interpretation of such an advanced wave solution.

4. Interpretation of Advanced Wave Solution: Precognitive Interdiction

The above analysis by Cramer which seems to suggest that EPR paradox just disappears when considering the advanced waves to be real physical entities, has been suggested by other physicists too, notably: Costa de Beauregard and also Luigi Fantappie. While working on quantum mechanics and special relativity equations, Luigi noted that that retarded waves (retarded potentials) are governed by the law of entropy, while the advanced waves are governed by a symmetrical law that he named "*syntropy*." [3]

Therefore, some psychologists who work in this area began to make connection between the notion of syntropy and precognitive interdiction. And recently, a new journal by title *Syntropy* has been started to facilitate such a discussion.

But again let us emphasize here that equation (3) and (4) indicate that the advanced wave solutions have purely classical origin. Therefore, we do not discuss yet their connection with other alleged QM phenomena such as collapsing wave function which is hardly possible to prove experimentally, despite Bohr and Heisenberg insisted such a phenomenon is real. This is our departure to QM's inspired syntropy discussions in [3]-[6].

Our knowledge in this area is very limited, but we can expect that research in this direction of precognitive interdiction will flourish in the near future, once we can accept

that it is purely classical origin, so we do not have to invoke complicated QM arguments.

5. A deep problem with Western medicine and a post-colonial reading of Gen. 2:7

There are several scientific authors who describe fundamental problems with modern (Western) medicine. The fundamental problem is commonly expressed with a *mechanistic* worldview as well as a Cartesian dualism philosophy.[9] Sheldrake revealed that such a mechanistic view is actually derived from Neo-Platonic philosophy, so it is not based on biblical teaching.

A similar argument was developed by Fritjof Capra in his famous book, *The Turning Point*. [11] Similarly, Christian philosopher Alvin Plantinga has written a paper criticizing *materialism*. [14]

Unfortunately, however, the thinking of scientists from such disciplines often fails in the midst of massive dis-information (and advertising) that modern (Western) medicine has managed to address almost all human health problems. Is that true? Let's take a look at the colonial post-reading of Gen. 2: 7 and some other texts. If we read closely Gen. 2: 7, we see at a glance that man is made up of the dust of the ground (*adamah*) which is breathed by the breath of life by God (*nephesh*). Here we can ask, does this text really support the Cartesian dualism view?

We do not think so, because the Hebrew concept of man and life is integral. The bottom line: it is not the spirit trapped in the body (Platonic), but the body is flowing in the ocean of spirit. [10] This means that we must think of as an open possibility for developing an integral treatment approach

(Ken Wilber), or perhaps more properly called “*spirit-filled medicine*.”[12]

Let’s look at three more texts:

- a. Gen. 1: 2, “The earth is without form and void, darkness over the deep, and the Spirit of God hovering over the waters.” Patterns such as Adam’s creation can also be encountered in the creation story of the universe. Earth and the oceans already exist (similar to *adamah*), but still empty and formless. Then the Spirit of God hovered over it, in the original text “*ruach*” can be interpreted as a strong wind (storm). So we can imagine there is wind/hurricane, then in the storm that God said, and there was the creation of the universe. From a scientific point of view, it is well known in aerodynamics that turbulence can cause sound (turbulence-generated sound). And primordial sound waves are indeed observed by astronomers.
- b. Ps. 107: 25, “He said, he raised up a storm that lifted up his waves.” The relation between the word (sound) and the storm (turbulence) is interactive. Which one can cause other. That is, God can speak and then storms, or the Spirit of God causes a storm. Then came the voice.
- c. Ezekiel. 37: 7, “Then I prophesy as I am commanded, and as soon as I prophesy, it sounds, indeed, a crackling sound, and the bones meet with one another.” In Ezekiel it appears that the story of the creation of Adam is repeated, that the Spirit of God is blowing (storm), then the sound of the dead bones arises. The conclusion of the three verses above seems to be that man is made up of *adamah* which is animated by the breath or Spirit of God. He is not matter, more accurately referred to as spirit in matter. Like a popular song around 80s goes: “*We are spirits in the material world.*” See also Amos Yong [10]. Therefore, it is

inappropriate to develop only materialistic or Cartesian dualism treatment. We can develop a more integral new approach.[9]

The integral view of humanity and spirituality, instead of two-tiered Western view of the world, appears to be more in line with majority of people in underdeveloping countries, especially in Asia and Africa. See for instance the work by Paul Hiebert [16][17].

Among the studies supporting such an integral approach is the view that cells are waves, see the paper from Prof. Luc Montagnier.[15][15a][18] And also our paper on the wave nature of matter, as well as the possibility of developing a wave-based (cancer) treatment. See our papers on this topic. [19][20]

6. A few cautious remarks on the danger of spiritism

While we argue in favor of returning the “spirit” into modern science, we also wish to make a few cautious remarks on the danger of “spiritism.” But first of all, allow us to quote an interesting discussion on the problem of modern theology discourse:

“Theologia as a term which means ‘reasoned discourse about God’ or ‘the doctrine of God’ was probably invented by Plato and has been adopted into Christianity for the systematic study and presentation of topics relating to God. But in its wider connotations ‘theology’ is the systematic and scientific study of religion generally... It has been fashionable of late for influential theologians like R. Bultmann and R. H. Fuller to disavow the existence and influence of the evil spirits spoken of in the New Testament. This is supposedly because *of their modern ‘scientific’ or positivistic outlook, which asserts that only that*

which is scientifically verifiable by any of the five senses may be said to exist. Evil spirits do not belong to this category, therefore they do not exist. “[23]

So, we hope the readers begin to realize where the problem began: it started from positive philosophy influence to theology fields, which ultimately result in reluctance or skepticism to accept the reality of evil spirits. But in the post-modern era, such a reality of evil spirit has been accepted again along with critics by missiology experts like Paul Hiebert, who called such a Cartesian reductionistic mind-body dualism: “*the excluded middle.*”[16][17]

However, we shall also admit that “spiritism” is widely practiced in many regions in Africa, Latin America, and also Asia.⁴³ While Christian believers should understand that reality, it does not mean they can invite those spiritism practices into their Christian life, otherwise there may be conflicts between their Christian faith and various forms of spiritism rituals. Nonetheless, Christian believers are called to encounter with those evil spirits when the situation calls them to do so.

Apart from theologian viewpoint, there were extensive experiments on physical mediumism, spiritism etc by scientists in attempt to put this kind of research within domain of psychology and psychiatrists. For instance, researches in this area have been pioneered in Italy by Enrico Morselli, Tamburini *et al.*[24]

43 For an introduction to spiritism and other diabolical sects in Latin America etc, interested readers are advised to see Umberto Eco, Foucault's Pendulum. url: http://www.postmodernmystery.com/foucaults_pendulum.html

7. Concluding Remarks

There are various supernatural phenomena which hardly can be explained by the existing electromagnetic science, for instance non-locality interactions (which may be associated with ESP phenomena etc), and also precognitive interdictions. And there are other problems such as how to include the Spirit in our consciousness. See our recent papers where we discuss such a possibility of new consciousness model which include the “spirit.”[25][26]

It has been known for long time that intuition plays significant role in many professions and various aspects of human life, including in entrepreneurship, government, and also in detective or law enforcement activities. Even women are known to possess better intuitive feelings or “hunch” compared to men.

Despite these examples, such a precognitive interdiction (hunch) is hardly accepted in established science. In this paper, we discuss briefly the advanced solutions of Maxwell equations, and then make connection between syntropy and precognition from classical perspective. This may be regarded as first step to describe such precognition activities which are usually considered belong to quantum realm.

Further observations and experiments are recommended to verify the above propositions.

Acknowledgement

Discussions with Dr. Robert Neil Boyd are appreciated. One of us (VC) would like to express his gratitude to Jesus Christ who always encouraged and empowered him in many occasions. He is the *Good Shepherd*. *Soli Deo Gloria!*

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Chapter 12

Eureka Moment as Divine Spark



Eureka Moment as Divine Spark in the Light of Direct Experience with the Spirit and Nature

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Abstract

In the ancient world, the Greeks believed that all great insights came from one of nine muses, divine sisters who brought inspiration to mere mortals. In the modern world, few people still believe in the muses, but we all still love to hear stories of sudden inspiration. Like Newton and the apple, or Archimedes and the bathtub (both another type of myth), we're eager to hear and to share stories about flashes of insight. But what does it take to be actually creative? How to have such a flash insight? Turns out, there is real science behind "aha moments." We prefer to call it "*intuilytics*."

Introduction

Burkus, a professor of management science, explores creativity back to ancient Greek myths. He argued that in Greek mythology, so-called creativity was only possessed by a handful of people who were blessed by the gods' sprinkling of

the “divine fire”, so that they sometimes experienced Eureka moments.[1]

According to Burkus, there is no such thing as a creative spark or eureka moment. True creativity is an iterative process, often consisting of sluggish and gradual modifications and traits for current ideas. Creative humans hardly ever develop in isolation; in fact, companies are higher at innovation than individuals. Big thoughts are no longer usually recognized at first; many need years to appreciate, and others simply disappear.

Burkus also rejects the company’s efforts to encourage creativity, arguing that there is little evidence of such efforts resulting in more innovation. Creative people are motivated by the work itself, which they feel is personally satisfying; Extrinsic motivators play a relatively small role in their lives. The answer, he suggested, was simply giving people the work they wanted to do, which they found satisfying.

He also believes that a happy workplace and a good team spirit, which is generally believed to be beneficial for creative thinking, can actually act as a barrier. “Excessive focus on cohesion.... actually can reduce team creativity,” he wrote. “This can narrow down choices and cause those who have a unique perspective to censor themselves rather than take risks not to be considered part of the team.”

What is Eureka moment?

Eureka’s moment feels like a flash of insight because it often goes out of periods when the mind is not focused on the problem, which psychologists call the incubation period. Incubation is the stage where people step back from their jobs. Many of the most productive creative people deliberately set aside projects and take a physical break from their work by

believing that this incubation stage is when ideas begin to coalesce below the threshold of conscious thought.

Some people juggle various projects at the same time under the belief that while their conscious mind is focused on one project, others are incubating their subconscious. The insight that arises after incubation is what feels like we are harnessing the power of producing the same ideas that support Newton and Archimedes.[4]

A research team led by Sophie Ellwood recently found empirical evidence for the power of incubation to enhance creative insight. The researchers divided 90 undergraduate psychology students into three groups. Each group is assigned to complete the Alternative Usage Test, which asks participants to make a list of as many usages of common objects as they can imagine. In this case, participants were asked to make a list of possible uses of paper. The number of original ideas produced will serve as a different measure of thought, an important element of creativity and an important step towards finding viable insights for Europeans.

The first group worked on the problem for 4 minutes continuously. The second group was interrupted after two minutes and asked to produce synonyms for each word from the list provided (considered another task that carried out creativity), then given two more minutes to complete the original test. The final group was interrupted after two minutes, given the Myers-Briggs Type Indicator (considered an unrelated task), and then asked to continue to work on the test of using the original alternative for another two minutes.

Apart from the group, each participant was given the same amount of time (4 minutes) to work on a list of possible uses for a piece of paper.

The research team can then compare the creativity that results from ongoing work, work with the incubation period in which the related tasks are completed, and work with the incubation period in which the unrelated tasks are completed. Interestingly, the researchers found that the group that was given a break to work on an unrelated task (*the Myers-Briggs test*) produced the majority of ideas, an average of 9.8.[4]

According to Burkus in his HBR article:

“One possible explanation for these findings is that when presented with complicated problems, the mind can often get stuck, finding itself tracing back through certain pathways of thinking again and again. When you work on a problem continuously, you can become fixated on previous solutions. You will just keep thinking of the same uses for that piece of paper instead of finding new possibilities. Taking a break from the problem and focusing on something else entirely gives the mind some time to release its fixation on the same solutions and let the old pathways fade from memory. Then, when you return to the original problem, your mind is more open to new possibilities – *eureka moments*.[4]

Discussions

That creative spark or Eureka moment is indeed rare is true. But it is also not always true that working in groups produces more ideas. Although Burkus’s analysis is quite interesting, it seems that he is too influenced by the management’s perspective on creativity.

More references are needed about methods of generating ideas and also the literature of creativity experts such as De Bono.[2][3]

In addition to the task switching method as a way of incubation described above, there are actually a variety of

ways to generate fresh ideas and insights. See for example [3]. One quite interesting way is to provide regular intake to our minds, for example every morning, with two words combined at random (random).

Formerly around 2002-2003, one of the authors (VC) made a small script that basically: (a) uses the Miriam-Webster or Oxford dictionary as a data source, (b) randomly selects two nouns from the dictionary, (c) displays both words as new phrase to users.

Imagine, for example, one morning while you were having coffee and breakfast, knowing on your cellphone screen a strange phrase appeared: "ice cat" ... Your mind must have been searching for what was the meaning or application of the phrase "cat ice"? Maybe it can be a beautiful ice sculpture in the form of a cat (usually at a large party event there is "ice carving"). And so on, we tend to be more creative if our minds are routinely consumed with fresh things, which can be raised by the RWPG method (random word-pair generator).

Another way, which might be closer to the original meaning of the Eureka moment as "*divine spark*," is to use time deliberately to experience and communicate with God and nature.

This method is closer to *experiential learning patterns*. For example, if you take an hour each morning to take a walk in the woods or in the fields, observe the things you find along the way. And also take time to pray and communicate with the Divine Spirit.

This direct experience method was explained by our colleague Dr. Robert Boyd. We also propose a new term, "*intuilytics*," as a combination of intuition (right brain) and analysis (*left brain function*). For us, this is the source of great discoveries. See our article [5].

Concluding Remarks

Like Newton and the apple, or Archimedes and the bathtub (both another type of myth), we're eager to hear and to share stories about flashes of insight. But what does it take to be actually creative? How to have such a flash insight? Turns out, there is real science behind "aha moments."

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Acknowledgement

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End note

In regard to the title of this book....

The title is intended as a pun among theologians.

The book of Acts of Apostles consist only 28 chapters
(As also the Gospel of Matthew consists of 28 chapters)

There is a pun that the book of Acts is continually written until this day.
Therefore it is a calling for all readers to engage in dialogue of arts, science and
theology. That is why we call it acts chapter 29.

The journey is also awaiting you and me....

Maranatha

30th January 2024
VC, FS

This little book, called “*Acts chapter 29: Art and Science and Theology in dialogue*” is meant to be a new chapter in our life as authors and scientists, where arts can meet with science and theology too. Whereas in previous chapter, they may not work altogether quite smoothly as expected.

For long time, especially in the West, there is old paradigm that is strong separation between science and theology/religion matters. Especially, such a diverging path started from Galileo persecution, and also other patterns where religious authority seem to hold the last word on scientific issues.

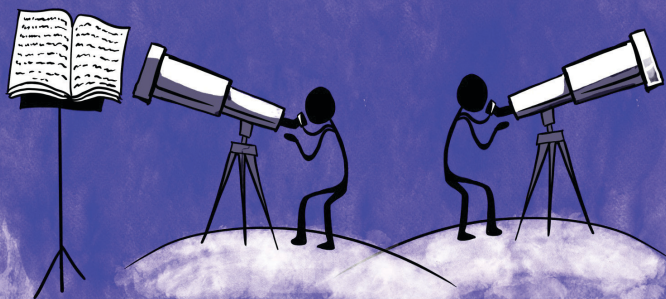
Other area of this World, seems to not hold such a diverging path, for instance it can be read in the works of physicist turned to religious philosopher, for instance Pavel Florensky and Nesteruk. That is why we also discuss shortly about those scientists in our select articles in this book.

And in the last chapter, we discuss a little on eureka, an experience which for a long time was attributed to divine spark or “God’s favor to an artist or to a scientist, such luminaries like Newton, Pascal, Leibniz etc.” Nonetheless, new methodology appears to be able to be generated once we accept balanced brain approach, where left brain and right brain hemispheres of humans can work together.

That is also our hope with regard to humans in relation to machine, those things called singularity and other doomsday scenario appears to be avoidable once we accept that right brain hemisphere of humans can be accepted to work together with machine capability (see chapter 1).

Enjoy reading. ***Soli Deo Gloria.***

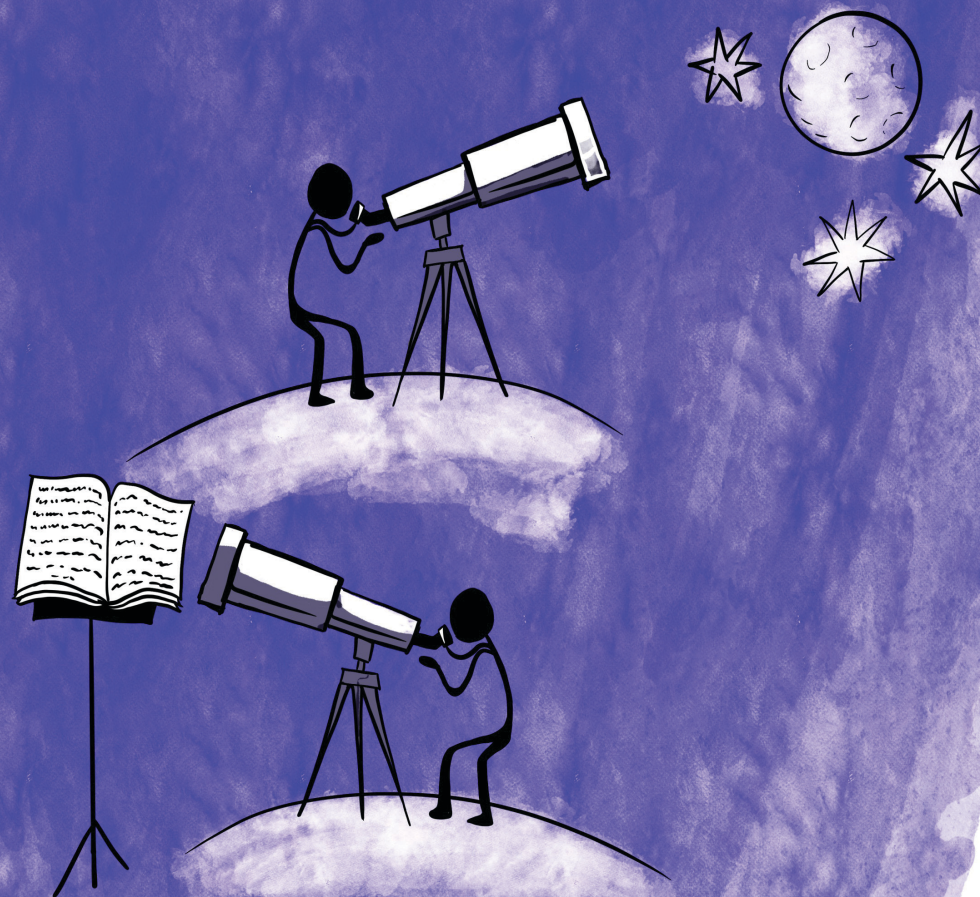
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Act Chapter 29: Art and Science and Theology in Dialogue

ACTS
Chapter 29

Art, Science, and Theology in Dialogue



V. Christianto & Florentin Smarandache

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