

Non-personal God: A Quantum Logical Explanation

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Abstract

Although believers in a non-personal God, who are often followers of eastern and Abrahamic religions especially in mystical aspects, argue for their belief and also argue to reject the personal God idea, they can't explicate this idea in a classic logical way. The main challenge is that according to the non-personal God idea, sometimes called Pantheism, both propositions "God is X" and "God is not X" are not false or at least they are indeterminate while, according to the classical logic, one of them must be false. Therefore we have to find a non-classical logic to explicate the non-falsity of these two propositions. Based on similar challenges in the quantum field, this paper tries to present quantum logic as the logic that would be effective to explicate the non-personal God idea. For in the quantum field when an electron verifies "spin_x is up", for example, both propositions "spin_y is up" and "spin_y is down" shall be undetermined owing to a superposition state. In both cases, non-personal God and the quantum field, however, the disjunction of two paradoxical propositions could be true and, quantum logic has been created based on this feature.

Keywords: Non-personal God, Quantum Logic, Mysticism, Superposition State

1. Introduction

For believers, the conception of God can be generally divided up into two main branches: personal and non-personal God. When we use the term "personal God" we are contemplating such a God who is one of the beings of the world. A non-personal God, however, is the reality of all beings, not one of them. Therefore if we suppose the number of beings n , for people who are believers in a personal God the number of beings except God is $n-1$, and for people who are believers in a non-personal God the number is, as before, n . In other words, a personal God implicates at least one other person. A non-personal God, however, cannot accept another thing as an independent being.

On the other hand, although there are a lot of verses in sacred texts that designate a personal God, there are some that indicate a non-personal God. Most sacred texts commentators, of course, expound these verses in such a way that, despite the non-personal God idea, beings still have their personality. Therefore, for believers in a non-personal God, especially in Abrahamic religions, beings' personalities are surface realities and they are the *appearance* of God but, the non-personal God is the *deepest layer of the reality* of beings. On this basis, there is a phrase that has been converted to a famous motto in the non-personal God context:

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Everything has two aspects, on the one hand it is itself and on the other hand it is God.

Believers in this phrase of every religion are, in fact, following an idea that could be considered as a kind of Pantheism. Indeed, God is everything while he keeps his divinity and Godhood, moreover other beings keep their personality at the same status or, in other words, everything is God's appearance in the Cosmos. This issue has been also mentioned as an epistemic mystery in most religions toward understanding God. This is obviously presented in the following part of Upanishads:

If thou think "I know It well", then it is certain that thou know but little of the Brahman or in what form He in the Devas (minor aspects of Deity)...I do not think I know it well, nor do I think that I do not know It (Kena/ 2.1-2.2).

Of course this is not only the epistemic problem of Hinduism or old mystical sects, but modern mysticisms or, in other words, early mystics are involved with the same problem too.

So, to illustrate the main problematic question of the present paper, suppose the following propositions:

- a) God is X²
- b) God is not X

According to above, proposition (a) is not false. While (b) is also not false, because God is God and also, as the same reason that one accepts (a), "God is Y" and "God is Z" couldn't be false. This paradox raises our problematic question:

How can neither (a) nor (b) be false propositions at the same time? In other words, how can we explain this paradox logically³?

The present paper tries to answer this question, considering Mc Taggart's opinion:

A mysticism which ignored the claims of the understanding would be doomed. None ever went about to break logic, but in the end logic broke him (Inge, 1969, p9).

1. Religions and Mysticism on the Non-personal God

It is known that believing in a non-personal God is a mystical aspect⁴ of the eastern and Abrahamic religions. Indeed, religious mysticism could be representing a non-personal God. Although this understanding of religious mysticism is true, it needs more explanation to avoid ambiguity. First, we have to mention that mysticism could be religious or nonreligious. Some mystical sects, for example, may guide their followers to focus on "absolute nothing," "a null space," or, in other versions, they seek union with something or a sense of oneness with nature. In the present article, these kinds of mysticism are not known as religious mysticism, and they are out of the scope of our discussion. On the other hand, religious mysticism does not lead to belief in a non-personal God necessarily.

² X is an objective being, not a property or something similar.

³ In this paper the writer is considering the non-personal God from a logical view point. However, we have to discuss, although briefly, the theological and philosophical aspects of the non-personal God.

⁴ It is clear that in this paper mysticism is not practical orders to train followers, but it means a set of theoretical propositions that illustrates a worldview or opinions.

For some religious mysticism, God is a personal existent and the ultimate goal of the followers is joining, melting or fading into God. In fact, in this point of view, God is an existent separate from other existents, and humans have to try to enter into a mystical communion with God. This approach is out of the subject of this article, too. There is some religious mysticism, however, that in addition having melting or fading into God as the ultimate goal, represent God as the deepest reality of everything, the non-personal God, who is flowing in every particle of the world. In fact, the goal of this kind of mysticisms to fission the appearances of God, meaning beings, to remove the apparent veils and to discover God as the deepest reality. The present paper focuses on this understanding of religious mysticism. This approach is more or less found in eastern religions like Hinduism, and the Abrahamic religions, Judaism, Christianity, and Islam. Names like World Spirit, Whole Spirit, Absolute, Whole Reality or Impersonal Mind, mostly designate a non-personal God in these religious mystical traditions:

Any experience taken by the experiencer to be a contact (not through the senses, but immediate, intuitive) of union of the self with a larger than self, be it called the World Spirit, God, the Absolute, or otherwise (Leuba, 1925, p1)...

...the mystics have shown that those who have been trained in recollection and meditation can obtain direct experience of a spiritual unity underlying the apparent diversity of independent consciousness. They make it clear that what seemed the ultimate fact of personality is not an ultimate fact. individuals may merge their private in the greater impersonal consciousness underlying the personal mind (Inge, 1969, p53)

Geoffrey Parrinder's classification, however, is slightly different from above. He specifies three styles of mysticism as theistic, monistic, and nonreligious mysticism. The first, he says, seeks union with God, but not the same identity. According to Parrinder, this would be the mysticism of, among others, Christians and Jews, who believe the devotee can become united with God in love, but can never become God (Ellwood, 1980, p15). The theistic view is the dominant approach among Christian and Jewish mystics, however, there are some Christian and Jewish mystics that we could superpose with monistic, they are seeking identity with a universal principle or the One that is the root nature of everything. Nonreligious mysticism, according to Parrinder, of course, seeks union with something, like nature, or everything. (Parrinder, 1976, p15).

The present paper's focus is on the groups within each classification of mysticisms that, in their context, believing in both paradoxical propositions (a) and (b) are not false.

The nature of most eastern religions and cults are mixed with a Pantheistic approach to the universe. In Hinduism, for instance, our world and all included things are illusion, and Brahma is the only reality of the cosmos. Therefore, the beings are misleading us if we assume them as reality. For example we read in Upanishads:

He who sees all beings in the self and the self in all beings, he never turns away from it (Isa/6).

This Atman, hidden in all beings, does not shine forth but it is seen by subtle seers through keen and subtle understanding (Katha/ 3. 12).

As air, though one, having entered the world, becomes various according to what it enters, so does the Atman within all beings, though one, become various according to what it enters. It also exist outside (Katha/ 5.10).

He resides in all beings but He is not beings, He is not known by beings, his corpus is all beings and manages with all beings ab intra. He is the self of yours (Brih/ 3. 7. 15)

Especially Advaitia, the school of destitute of duality, which is developed by Shankara, represent a pure Pantheistical interpretation of Vedanta, the most important Hinduism contextual faith. According to Advaitia, Brahma Nirguna (the pure, transcendental reality) after a descent to Brahma Saguna, appears as Samsara in all beings.

The discussion of differences and similarities for the Abrahamic religions' God and Brahma or Hinduism's God (if we can name it God) is an extensive one, but at least in the idea of the non-personal God we can realize significant similarities, as will be shown below. In other words, mysticism is the core of religions; it guides us to the idea of the non-personal god and we can follow some researchers, like Otto, on the similarities between religious mysticisms:

...mysticism is the same in all ages and in all places, that timeless and independent of history it has always been identical. East and West and other differences vanish here (Otto, 1963, p13)

In the Quran, the Islamic sacred text for instance, there are some verses that signify, at least according to some commentators, a non-personal God almost like Hinduism or Taoism's God. Especially from Sufism's perspective, this similarity is clearly known due to the deep documentary research of Toshihiko Izutso on the proximity of Sufism and Taoism:

I would like to point out at the outset that the philosophical structure of both systems as a whole is dominated by the concept of the Unity of Existence (Izutso, 1983, p 427).

It is highly significant that, in spite of this wide historico-cultural distance that separates the two, they share, on the philosophical level, the same ground (ibid, p479).

On the other hand the three Abrahamic religions, Judaism, Christianity, and Islam, despite some differences in superficial laws, have the same essence revealed from a mystical perspective too:

As we see it, the *unimystica* existed in all three religions and was articulated in terms that were consistent with a specific tradition and yet displayed a clear affinity with those of others (Dupre, 1996,p4).

The basic Quranic verses for Sufism's perspective in the Islamic context are as follows:

Wherever you turn round and face, there is God's face (1: 115)

And:

He (God) is the First and the Last, the Appearance and the Concealed and he is Omniscience (57:3).

In the latter verse, the term "Appearance" has been discussed by commentators. It seems that, considering the previous verse too, mystical commentaries are going to represent beings as God's face, which appears in the world, and the essence of God is concealed as the deepest layer of the reality of things. In this way, the words of Islamic thinkers on these issues seem paradoxical, as well as the parts of Upanishad mentioned above.

For example, Hadi Sabzewari, one of the greatest Islamic philosophers and theosophies of the 19th century, has said these sentences to God:

You are concealed inasmuch as you are shining, you are appearance and you are concealed in your appearance (Sabzewari, 2000, p35).

Commentators mention, however, that the verses do not mean beings are absolutely null, of course. They have personality, but they are showing God. On the other hand, the immensity of God is such that, if one looks around deeply, these beings could be considered nothings and the only perceived being would be God.

While this understanding of the above Quranic verses is the dominant view, most commentators reject the idea of the non-personal God. There are similar disagreements among the Tanakh⁵ commentators. For example, all beings have been counted as the small dust of the balance (Isaiah/ 40:15) or in another verse:

Thus said the Lord the king of Israel and his redeemer the Lord of hosts; I am the First and I am the Last; and beside me there is no God (Isaiah/ 44:6).

The idea of the non-personal God as the deepest reality of everything is the natural consequence of This group of verses:

According to the Ibn 'Ezra⁶, "All" stands for God, who is described also as the origin of everything, or according to another possible understanding, as the origin of the universal soul (Idel, 1996,p28).

Moreover in some new Jewish approaches, like Hasidism, the mystical way to understanding God, likely the non-personal God, has been opened:

To the Hasid, God is at once the closest and the most distance, manifest and at the same time hidden, transcendent and yet immanent. Everything is in Thee and Thou are in everything. Thou fillest and encompassst everything (Ferguson, 1977, p74).

The non-personal God in Christianity, however, could be understood in either a general or a specific way. The general understanding depends on God's incarnation to the form of Christ as an important doctrine in Christianity. The non-falsity of propositions (a) and (b), if X is considered as Christ, is one of the most basic principles in Christianity mentioned in the Bible frequently. For example we read in the Bible:

For in him dwelleth all the fullness of the Godhead bodily and ye are complete in him which is the head of all principality and power (Col/ 2:9-10).

Or:

Believe that the father is in me and I in him (John/ 10:38).

⁵Tanakh is the Hebrew name of the bible used in Judaism.

⁶ Rabbi Abraham Ibn 'Ezra, Jewish commentator, mystic theologian in the middle of the twelfth century (1092-1167).

As more explanation, the verses of this kind were foundational in the Council of Nicaea (325 C.E.) to represent the incarnation doctrine –that God incarnated in the form of Christ- as a central one in Christian theology. Later, the 451 C.E. the Council of Chalcedony named Christ as God, but the Son of God. This means that God, keeping his Godhood, is revealed in the form of Christ's body. Therefore, Christ is God while he is a human who has a body. He becomes tired, and he eats and drinks. On this basis, believing in the two paradoxical (a) and (b) propositions is a common religious belief for Christians.

On the other hand, there are some Christian thinkers that believe in the non-personal God as a God who is currently flowing not only in Christ, but also in all beings as the deepest reality of them. This is a specific, mystical approach to God; nevertheless, this is an important historical and theological version of the Christian God. Meister Eckhart, for instance, is a Christian mystic who believes in the Ultimate Unity behind the Trinity, unlike St. Augustine. According to Eckhart, considering the proposition "God and being are one" as a principle God has revealed himself not only in Christ, but also in all beings. (Oliver, 1988, p45). For Eckhart the whole world is God's emanation and God is the deepest reality, the absolute unity:

God's ground and the soul's ground are in deepest reality one ground, then not only must God's existence be my existence and God's is-ness my is-ness but also. Just as the Father is giving birth to the Son from all eternity, so He gives me birth, me, his Son and the same Son (McGinn, 1996, p76).

For Eckhart too speaks of the supra personal "Godhead", into which no distinction has ever penetrated, high above the God of person and persons; of "God disappearing in the supra personal deity; of the soul and God merged in this divinity as a single indivisible one (Otto, 1963, p184).

2. A Brief Argument for the Non-personal God

Believers in the non-personal God usually set forth an argument that is based on the following important pre-supposition:

- c) God is an absolutely infinite (unlimited) being.

Baruch Spinoza, as a Jewish philosopher, for instance, describes proposition (c) as follows:

By God, I mean an absolutely infinite being, that is, substance consisting of infinite attributes, each of which expresses eternal and infinite essence. I say "absolutely infinite" not "infinite in its kind". For if a thing is only infinite in its kind, one may deny that it has infinite attributes. But if a thing is absolutely infinite, whatever expresses essence and does not involve any negation belongs to its essence (Spinoza, 1, D: 6).

The believers in the non-personal God argue that if anyone believes in (c), he/she must believe in the non-personal God. Because, if there is another objective being besides God, the existence of God would be limited. The argument could be briefly set as follows:

1. God is absolutely infinite in every aspect.
2. The existence of God is unlimited. (conclusion of 1)
3. If the existence of X is not the existence of God, there is at least one thing that is not the existence of God.
4. If there is at least one thing that is not the existence of God, the existence of God is limited by the existence of X.

5. If the existence of X is not the existence of God, the existence of God is limited by the existence of X. (conclusion of 3,4)
6. The existence of X is the existence of God. (conclusion of 2,5)

The final conclusion means that there is no other objective being but God. Of course, the argument for the non-personal God could be a long, complicated one. Spinoza, for example, after expressing a lot of definitions, axioms, propositions and proofs, proves the two following propositions in his fourteenth and fifteenth theorems:

Theorem 14: There can be, or be conceived, no other substance but God.

Theorem 15: Whatever is, is in God, and nothing can be or be conceived without God.

Of course, in this paper we are not seeking to analyze this argument to find if it is valid or not. The argument, however, raises an important question:

Are all things around us null?

Answering this question would clarify the position of believers in the non-personal God context.

3. What is the problem?

If anyone responds "yes" to the above question, it follows that all beings that we know (or we don't know) are falsehood. So, I am not "I" and the desk I am writing on is a lie. According to our intuition and even other verses of sacred texts, however, beings are not absolutely null. They have independent personalities, and they are real.

On the other hand, it is clear that, according to the principle of identity, objective beings can't be affirmatively predicated to each other. For example, we can't say "John is James."⁷ But we can predicate properties, qualities, and attributes to objective beings. So the proposition "John is hungry" sounds correct because "to be hungry" is not an objective person⁸.

But in proposition (a) an objective person is predicated to another while we suppose, based on sacred texts and above argument, these two propositions (a) and (b) are not false. Therefore, believers in a non-personal God face a logical challenge. Now the main problem of this article can be concentrated as follows:

How can the idea of the non-personal God be logically explained?

It seems that classical logic doesn't work properly in this case, but some other non-classical logics would help us to respond to this problem. So, we must look for a logical system in which two propositions like (a) and (b) could be not false at the same time. We offer quantum logic to this purpose.

⁷We don't mean that "John" and "James" are two names for one person. "John" and "James" are two different objective persons.

⁸ It is clear that "objective person" doesn't only mean a concrete human, but also everything that is concrete and separated from others. For example, the computer which I am typing with is an objective person.

4. The Main Idea of Quantum Logic's Founders

It is well known that Birkhoff and von Neumann's article (1936) is the official birth of quantum logic as they have cleverly written:

One of the aspects of quantum theory which has attracted the most general attention, is the novelty of the logical notions which it presupposes...The object of the present paper is to discover what logical structures one may hope to find in physical theories which, like quantum mechanics, do not conform to classical logic (Birkhoff and von Neumann, 1936, p 823).

Of course, quantum logic has been widely and quickly developed, and nowadays we can see several branches of this logic⁹. However, there are some logicians that refuse quantum logic as a logic, while there are some that defend it¹⁰. Regardless of these different views, we are going to present a simple interpretation of quantum logic along the line of our purpose, the logical explanation of a non-personal God.

Because of the difficulty and unnecessary discussions especially in Birkhoff and von Neumann's article, we will try to introduce the main idea and helpful details for the present paper. Because of the non-classical behavior of quantum particles¹¹, to explain such behaviors from a logical perspective, we need to apply a mathematical intermediate which is, according to Birkhoff and von Neumann, Hilbert space and its related concepts. In this case, the set of all wave functions is correspondingly considered as a complete Hilbert space. Simplifying complicated mathematical and physical concepts, suppose that electron e at the time t verifies the proposition "spin_x is up"¹². As a consequence of Heisenberg's uncertainty principle, both propositions "spin_y is up" and "spin_y is down" shall be strongly indeterminate. However, the disjunction "either spin_y is up or spin_y is down" must be true (Dalla Chiara and Guintini, 2002, p 134).

What Hilbert space does, is consider each electron's wave function, like Ψ , as a set of vectors like h_i . Therefore, each experimental proposition could be considered as a closed subspace in Hilbert space and is a subset of vectors h_i . By definition, an experimental proposition, like p , is a subset of results of n experiments that in the simplest state is an atomic proposition like "spin_y is up." Applying these technical operations, we can semantically represent logical connectives in quantum logic. For example, if p is an experimental proposition and S_1 is a corresponding closed subspace, negation of p would be proposition $\sim p$, and its corresponding closed subspace is S_2 , such that all vectors in S_2 are perpendicular to vectors in S_1 . Also, if p and q are experimental propositions, the conjunction $p \wedge q$ ¹³ would mean that the corresponding closed subspace is the intersection of corresponding closed subspaces of p and q . Therefore, the truth or falsity of the molecular proposition $p \wedge q$ depends on if all vectors that are in both corresponding closed subspaces of p and q , are in the corresponding closed subspace of $p \wedge q$.

⁹For example multi-value quantum logic, fuzzy quantum logic, etc.

¹⁰ For example see: Pavicic, M. and Megill, N.D. (2008). *Is Quantum Logic a logic?* In Kurt Engesser, Dove Gabbay and Daniel Lehmann (Eds), *Handbook of Quantum Logic and Quantum Structures*, Vol. Quantum Logics, Amsterdam, 23-47.

¹¹ For example you can see: Tonomura, A. and Endo, J. and Matsuda, T. and Kawasaki, T. and Exawa, H. (1998). *Demonstration of single electron buildup of an interference pattern*, *Amer. J. Phys.*, Vol 57, 117-120.

Also see: Schrodinger, E. (1935). *Discussion of probability relation between separated systems*, *Proc., Cambridge, Phil., Soc.*, Vol 31, 555-563.

¹² Propositions like "spin_x is up" are called *experimental propositions*. Indeed experimental propositions are subsets of a system's observation space which is including all results of n experiments.

¹³ In this article symbol " \wedge " means "and" and symbol " \vee " means "or".

The disjunction, however, has a different condition. Suppose p and q once again. We can't say, as simple as with a conjunction, that the disjunction $p \vee q$ would be a proposition with a corresponding closed subspace that is a union of the corresponding closed subspaces of p and q . This is because the union of two closed subspaces in Hilbert space is not a closed subspace necessarily. Thus it is possible that p and q are two experimental propositions, but $p \vee q$ is not an experimental proposition. On this basis, a new mathematical concept, called *supremum*, must be applied. For two closed subspaces S_i and S_j , supremum is the smallest closed subspace including both S_i and S_j , shown by $S_i \sqcup S_j$.

The most important property of supremum, which has been approved mathematically, is that it is possible for a vector to be a member of $S_i \sqcup S_j$ while it is neither a member of S_i nor a member of S_j . Therefore if, in special conditions, we don't know that a vector, like h , is a member of S_i or not, or is a member of S_j or not, we can conclude h is a member of $S_i \sqcup S_j$. This means that it is possible for molecular proposition $p \vee q$ to be true while the truth values of both p and q are indeterminate. So, we can form a particular line of the truth value table as follows:

p	q	$p \vee q$
not T and not F	not T and not F	T

This is exactly what we need to explain the behavior of quantum particles, and this is why Hilbert space has been cleverly selected as a mathematical intermediate for logical explanation of the behavior of quantum particles. In other words, this property in Hilbert space -that it is possible for a vector to be a member of $S_i \sqcup S_j$ while it is not a member of S_i nor a member of S_j -help us to explain logically how molecular proposition "either $spin_y$ is up or $spin_y$ is down" could be true, while both propositions "spin_y is up" and "spin_y is down" are strongly indeterminate.

5. Superposition States

Hans Reichenbakh in 1944 and Hilary Putnam in 1957, in separate articles, proposed to apply Lukasiewicz's Three-Valued Logic plan for explaining quantum particles' behavior. Based on Putnam-Reichenbakh's plan, propositions in the field, like "spin_y is up", in addition to having truth values T and F, could have a third value¹⁴ called not T- not F, which is a real value (Putnam, 1957). This means that there are some states in reality, called superposition states, with descriptor propositions that have neither T nor an F value. These states are the mixture of two or more simple states, like up and down. Feyerabend and some other philosophers and logicians like Levi, however, refused Putnam-Reichenbakh's plan, and insisted on the epistemic ignorance in this case. In other words, based on Feyerabend and Levi's opinion, the third value (not T- not F) does not conform to reality but, because of our ignorance, we cannot know what the propositional value is (Feyerabend, 1958).

Although this dispute is still not settled, it seems that after Bell's theorem was proved, the reality of the superposition states is acceptable (Greenstein and Zajonc, 1997). According to Bell's theorem, for instance, the value of both propositions "spin_y is up" and "spin_y is down" is "not T- not F" and the direction of the electron's spin is a mixture (or superposition state) of up and down.

¹⁴ According to Putnam, "Middle Value".

As we have mentioned the state of the two propositions (a) and (b) is the same as the state of the propositions that express the direction of the electron's spin. Considering a state like superposition, according to the idea of the non-personal God, we can neither say, as we might in classical logic, that (a) is true and (b) is false, nor can we say that (b) is true and (a) is false; it is a particular mixture of God and X, and the truth values of (a) and (b) are significantly indeterminate. So, quantum logic can explain this phenomenon but classical logic cannot. When we suppose (a) to be true, according to classical logic, (b) must be false. However, based on our own intuition and several sacred texts, (b) cannot be false. Also, if (b) is absolutely true, (a) must be false, but the believers in a non-personal God insist on the validity of (a) on the basis of the argument mentioned in section 3. However, we surely know that the disjunction of (a) and (b) is true as follows:

d) God is X or God is not X

Therefore, similar to what has already been said on quantum logic, we can suppose the atomic propositions (a) and (b) as corresponding closed subspaces in Hilbert space, S_a and S_b , where supremum of S_a and S_b would be a new corresponding closed subspace for $d=a\vee b$. Based on the supposed superposition state, the truth value of (d) could be true when (a) and (b) are indeterminate, or, when vector h in Hilbert Space is a member of S_d while it is not a member of S_a nor S_b .

6. Conclusion

This paper offers a logical interpretation of the non-personal God according to the Eastern and Abrahamic religions' understanding of this belief. According to the idea of non-personal God, beings have an affirmative dependent personality, but they can be seen as God from another perspective. But, classical logic cannot explain these paradoxical aspects of the non-personal God. Quantum logic is helpful to explain these concepts because of the similarity between the paradoxical propositions in the idea of the non-personal God and in the quantum field. In this regard, a mathematical intermediate, Hilbert space –where each proposition is considered as a closed subspace- is needed. For the simplest atomic propositions, of course, a closed subspace is made of a single vector. In this case, the disjunction of two propositions, like "God is X" and "God is not X," is considered as a supremum of the two subspaces which, based on a mathematical proof, would have a vector that the constitutive subspaces would not have. This means that the disjunction of the two propositions would be true, while the propositions in themselves are indeterminate. In this way, the theory of the non-personal God could be formalized as a logical system by using quantum logic, just as quantum mechanics was formalized by the same partnership.

References

- Birkhoff, G. and von Neumann, J. (1936). The Logic of Quantum Mechanics, *Annals of Mathematics*, 37, 823-843.
- Dalla Chiara, M.L. and Giuntini, R. (2002), *Quantum Logics*, in Dove M. Gabbay and F. Guenther (Eds), *Handbook of Philosophical Logic*, Vol 6 (pp 129-228), 2th edition, Springer.
- Dupre, Louis. (1996). *Unio Mystica*, in Moshe Idel and Bernard McGinn (Eds), *Mystical Union in Judaism, Christianity and Islam* (pp 3-23), New York: The Continuum Publishing Company.
- Ellwood, Jr. Robert S. (1980). *Mysticism and Religion*, New Jersey: Prentice-Hall, Inc., Englewood Cliffs.
- Ferguson, John. (1977). *An Illustrated Encyclopedia of Mysticism and The Mystery Religions*, New York: The Seabury Press.
- Feyerabend, P. (1958). Reichenbach's Interpretation of Quantum Mechanic, *Philosophical studies*, No. 4, 49-59.
- Greenstein, G. and Zajonc, A. G. (1997). *The quantum challenges*, Jones and Bartlett Publishers, (Chapter 6).

- Idel, Moshe. (1996). Universalization and Integration: Two Conceptions of Mystical Union in Moshe Idel and Bernard McGinn (Eds), *Mystical Union in Judaism, Christianity and Islam* (pp 27-57), New York: The Continuum Publishing Company.
- Inge, W.R. (1969). *Mysticism in Religion*, London: Ride & Company.
- Izutsu, Toshihiko. (1983). *Sufism and Taoism. A comparative Study of key Philosophical Concepts*, Berkeley and Los Angeles: University of California Press.
- Leuba, James H. (1925). *The psychology of Religious Mysticism*, New York: Harcourt Brace Jovanovich.
- McGinn, Bernard. (1996). Love, knowledge and Unio Mistica in the West Christian Tradition, in Moshe Idel and Bernard McGinn (Eds), *Mystical Union in Judaism, Christianity and Islam* (pp 59-86), New York: The Continuum Publishing Company.
- Oliver, Davies. (1998). *God Within; the Mystical Tradition of Northern Europe*, New York and New Jersey: Paulist Press.
- Otto, Rudolph. (1963). *Mysticism East and West, a comparative analysis of the nature of mysticism*, USA: Collier Books.
- Parrinder, Geoffrey. (1976). *Mysticism in the world's religions*, New York: Oxford University Press.
- Putnam, H. (1957). Three Valued Logic, *Philosophical Studies*, No 3, 73-80.
- Sabzewari, Haj Mulla Hadi. (2000). *Sharh-al-Manzumah*, Vol 2, Hasan Hasanzadeh Amoli (Ed), Masud Talebi (Re), Tehran: NashreNaab.
- Spinoza, Baruch. (2002). *Ethics*, Translated by Samuel Shirley, edited by Michael L. Morgan, Indianapolis: Cambridge.