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THE TOPOLOGICAL SPACE IN GOD`S MIND

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Abstract

In this article, I try to develop my thesis presented in the first volume of the IJTPS, according to which the possible worlds constitute "points" in the Mind of God. From this infinity of points which are possible worlds, the Divine Logos chooses the best of possible worlds - according to the Leibzian thesis -, and this chosen possible world must pass, through the action of the Divine Logos (the metaphysical causation), from the status of dimensionless point to the mathematical continuum that structure the physical-mathematical World. However, before being recognized as a mathematical structure capable of being the background of the physical phenomena, the mathematical continuum that emerges from the best possible possible world passes through its stage of pure topological space situated in the Divine Logos, and it is this topological and metaphysical situation that will be covered here in this article.

Keywords: topological and metaphysical situation; God`s Mind; thinking; creativity;

1. INTRODUCTION

In my paper published in the first volume of **IJTPS**[1] (Vol 1, N0 1/2017), I present the thesis that in the mind of God - the Divine Logos - there is a continuum of possible worlds, and these worlds are like points in God's infinite consciousness.

Now, in this new issue of the aforementioned journal, I intend to advance this thesis a bit and develop some mathematical and theological elements that will allow us to speak of the passage or update of the notion of possible worlds for a continuum of points which is the topological structure from which the physical world , in its mathematical architecture, will then appear as a form of phenomenological determination of this founding topological space: the topological continuum of points, from a metaphysical causation, is successively determined as metric, vector, normed, and other space, until it reaches its formal final real world or corporeal, according to denomination of the physicist and philosopher of the American science Wolfgang Smith[2].

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[1] https://ijtps.com/en/NO-1-YEAR-I-NOVEMBER-2017/
[2] See SMITH, W. *The Quantum Enigma. Finding the Hidden Key.* Sophia Perennis, Hillsdale NY: 2005.

2. PROBLEM STATEMENT

Let us begin, then, with the thesis defended in the first volume of the IJTPS that a possible world is an infinite sequence of monads

$$W = <w_j>,$$

such that $j \in \mathbb{N}$.

By the theory of measures, we can infer that a possible world has measure zero, that is, it has the dimension of a point; and by the Cantorian theory of sets, it is concluded that in the mind of God - or in the Divine Logos - the quantity of possible worlds is equal to the continuum c, being

$$c = 2^{\aleph_0},$$

where $\aleph_0$ is Cantor's first transfinite cardinal which expresses the size of infinite enumerable sets, that is, sets that admit a bijective correspondence with natural numbers - in other words, $\aleph_0$, *the aleph-zero*, expresses the cardinal number of all sets that are the same size as the natural numbers.

From this continuum of possible worlds in the Mind of God, continuum which we shall call Π , the Divine Logos chooses a particular possible world, say Δ , from which the real or corporeal world will be constructed; the world Δ is the founding atom of all known reality, whether in its physical-mathematical or concrete

The criteria that lead the Logos to choose Δ to the detriment of other possible worlds are inscrutable to human intelligence. On this, the maximum that can be said is that the Logos opts for Δ because this world is the best of possible worlds, and such a criterion of choice, already asserted by Leibniz in the eighteenth century[3], passes through considerations and reasonings inaccessible to the intelligence of Man, since they occur in the depths of the Mind of God.

Moreover, although the Logos knows why it is the best possible world, that is, although there are divine reasons to take Δ as the best of the possible worlds, and not just any other world, it must be emphasized that the choice of Δ made by the Logos is absolutely free: The mind of God is not impelled or deterministically forced to choose Δ as the best of the worlds, once the logical reasons for it have been decanted into the mind of the Creator; It chooses Δ not only for rational or logical reasons, but also for Love to the World that will come from Δ, and that act of Love, in the Creator, takes place in a radically and absolutely free way.

3. RESEARCH METHODS

In order to give a mathematical picture for choosing the best of possible worlds, let us use the notion of epsilon operator ε, introduced in Mathematical Logic by the German mathematician David Hilbert.[4]

Usually, the interpretation given to the expression:

$$\Phi^o (\varepsilon\Phi (x))$$

is the following:

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[3] See LEIBNIZ, G, *Theodicy. Essays on the Goodness of God the Freedom of Man and the Origin of Evil*. IN: http://www.philvaz.com/apologetics/LeibnizBestPossibleWorldTheodicy.pdf

[4] see ACKERMANN, W., 1924, 'Begründung des ''tertium non datur'' mittels der Hilbertschen Theorie der Widerspruchsfreiheit', *Mathematische Annalen*, 93: 1–36.

*In any domain of objects **O**, the operator **ε** "takes" the objects that satisfy the propositional function **Φ (x)**), if there are such objects. If there are no such objects, then the operator **ε** "randomly" takes any object from **O**.*

From the notion of epsilon operator, the mathematical presentation of the choice of Δ as the best of possible worlds occurs as follows:

$$\Omega^{\Pi} \, (\varepsilon \, \Omega \, (x)) \;=\; \Delta,$$

where "$\Omega^{\Pi} \, (\varepsilon \, \Omega \, (x))$" is interpreted as the best of the possible worlds in Π.
The metaphysical causality[5] involved in the above expression is as follows:

$$\Pi \quad \succcurlyeq_{(\varepsilon \, \Omega \, (x))} \Delta,$$

which states that the possible world Δ *was caused metaphysically by* Π , from de **(ε Ω (x)).**

Having at Its disposal the possible world Δ, the Divine Logos operates the passage from this one-pointed world to the state of a continuum of points that will form the set-theoretic basis for the transition to the topological continuum which is the first expression., in the mind of God, of the structured and mathematically Physical World. So we can go from the possible world:

$$\Delta \;=\; <\delta_j>,$$

such that $j \in \mathbb{N}$, to the *continuum* **D,** the continuum of the physical-mathematical World, as follows:

$$2^{\Delta} \;=\; D.$$

The metaphysical causation implied in the above equality is as follows

$$\Delta \quad \succcurlyeq_{2^{\Delta}} \; D$$

Since the cardinality of Δ is equal with $\aleph_0$, we have:
$$Card \; 2^{\Delta} \;=\; Card \; D \;=\; c,$$
such that c the cardinal of the continuum – namely, $c \;=\; 2^{\aleph_0}$.

But **D** is an amorphous continuum, without any structure. We can not even speak of the parts of **D**, for the set of its parts, including the empty part, has not yet appeared in this metaphysical causation which originated in the appearance of the Divine Logos. For continuum **D** to be shown as a set with some internal differentiation structure, we need the hyper-set **D** 'of the parts of D, defined as follows

$$D' \;=\; \wp(D) = \{z/\, z \subset D\},$$
such that " $z \subset D$" is equivalent to:

for all x, if $x \in z$, then $x \in D$.

In other words, " $z \subset D$" is satisfied by all subsets of **D.**

As it is known from set theory, the cardinality of $\wp(D) = D'$ is equal to 2^c , where **D'** is therefore a larger set than the continuum **D**. In fact, **D** is the basis from which **D '**emerges by through a metaphysical causality propitiated by the operation $\wp(D)$, that is:

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[5]On Metaphysical Causality, see my article "The Divine Logos and Possible Worlds", IN: International Journal of Theology, Philosophy and Science, Vol 1, No 1/2017, p.75

$$\mathbf{D} \;\succcurlyeq_{\wp(\mathbf{D})}\; \mathbf{D'}.$$

From the hyper-set **D'**, we can return to the set **D**, such that in this passage from **D'** to **D**, there is the first determination of **D** as a space itself, a space in which are located regions that are interrelated by neighborhood and proximity relations. In other words, we can generate a topological space in **D** from a topology τ defined in **D**.

In general, a topology τ in a set **X** is a collection of parts of **X** that have the following properties[6]:

1) $\varnothing$ (the empty set) and X belong to τ;

2) If A_i e A_j belong to τ, then $A_i \cap A_j$ belong to τ;

3) If $A_1, A_2, A_3, \dots A_k, \dots$ belong to τ, then $A_1 \cup A_2 \cup A_3 \cup \dots \cup A_k \cup \dots$ belong to τ

A topological space, thus, is a pair $<X, \tau>$ where X is a set and τ is a topology at X.

We can consider a topological space as the first properly spatial manifestation of a set, a rather abstract manifestation that does not fit into intuitive representations: it is, as it were, a purely conceptual space, in which its points, so to speak, are elements belonging to sets, the *open sets* of the topological space.

Thus, in the Divine Logos, we can glimpse that the first and most fundamental presence of a space in the sense of a differentiated set of regions that interconnect and compose to form larger and wider regions occurs when the mind of God returns to **D** by means of a topology τ that generates, from **D** '= $\wp(\mathbf{D})$, the topological space $<\tau, \mathbf{D}>$ whose properties, by immediate instantiation of the above defining postulates of a general topological space $<X, \tau>$, are following:

1) $\varnothing$ and **D** belong to τ;
2) If B_i and B_j belong to τ, then $B_i \cap B_j$ belong to τ;
3) Se $B_1, B_2, B_3, \dots B_k, \dots$ pertencem a τ, then $B_1 \cup B_2 \cup B_3 \cup \dots \cup B_k \cup \dots$ belong to τ.

The metaphysical causality involved in the appearance of **D** as a topological space $<\tau, \mathbf{D}>$ is as follows:

$$\wp(\mathbf{D}) \;\succcurlyeq_{\tau}\; <\tau,\mathbf{D}>$$

D = $<\tau, \mathbf{D}>$ is in the mind of God as the set of all possible regions that will give rise to the physical-mathematical world. In a way, the physical-mathematical World is potentially given in the structure of $<\tau, \mathbf{D}>$.

4. CONCLUSION

In this topological space, each postulate from 1) to 3) has a metaphysical significance broader than mere mathematical analysis of its meanings could detract from. In reality, in its entirety, what is said metaphysically by postulates 1) to 3) is this: *everything is in the space of the Divine Logos.*

In 1), for example, we have the assertion that Being full of reality, represented by **D**, as well as relative not Being, which is purely potential (here represented by the empty set) are in the space contained in the Logos.

In 2), we have that any ontological regions, as well as their boundaries and intersections, are also in the space of the Divine Logos.

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[6] On topological space, see NIER, F & IFTMIE, D. *Introduction à la Topologie.License de Mathématiques.* Université des Rennes 1.

Finally, in 3), there is the thesis that regions of manifestation of reality, even if taken in infinite numbers, once considered together, are also in the space of the Logos. In sum, postulates 1) to 3), read theologically and metaphysically, clearly state: reality, seen as a set of ontological regions, is entirely situated in the space of the *Consciousness of the Creator.*

This reality that is in the space of the Divine Mind must pass through more determinations until arriving at the physical-mathematical World. But such a passage will be theme for forthcoming articles and will not be addressed for the time being.

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