

Commentary**Commentary on Smetham's "The Grand Designer: Can Hawking's Godless Theory of Everything Run without GOD"****Richard D. Ruquist*****ABSTRACT**

The string theory perspective mitigates Smetham's dismissal of the primacy of mathematics as in this statement; "Thus consciousness, not mathematics, must be the primary mover of the universal process", which is true except that mathematics may be the basis of a cosmic consciousness that includes perhaps the invisible human mind as well. I presume that visible human consciousness has a physical neurological basis suggestive of a mind/brain duality .

Key Words: grand designer, Godless, Hawking, string theory, mathematics, emergence.

I support Graham Smetham's argument and conclusions regarding the need for consciousness to select a "privileged set of potentialities" from the "vast maze of cosmic potentiality". But from a string cosmology perspective the primary selection mechanism is closer to Ward's omnipotent God than human consciousness.

More specifically, cosmic consciousness is required to choose a single quantum superposition from all the possible states that a particle might have in order to obtain a single universe rather than the deterministic multiverse of parallel worlds that Hawking apparently believes in. I also agree that in addition human consciousness can make similar choices, but also animal consciousness and perhaps even plant and bacterial consciousness.

However, the universe came into existence before any life evolved and a cosmic consciousness was required then to avoid determinism- and I think now. It seems that the scientific aversion to considering the existence of the supernatural prevents any consideration of a cosmic consciousness even when its requirement is staring in your face. Nevertheless, as indicated below, Bohm theory may allow for a middle ground between human consciousness and cosmic omnipotence.

That consciousness may be based in mathematics is the contention of Penrose in his book "Shadows of the Mind: A search for the missing science of consciousness", ie., that consciousness may be an emergent, non-computational process as perhaps indicated by Goedel's Incompleteness Theorem, that consistent-system processes must admit phenomena that cannot be derived from fundamental axioms or principles of the system.

* Correspondence: Richard D. Ruquist, PhD retired. E-Mail: yanniru@aim.com

"In 1931, Goedel had taken it [system requirements] to be a version of simple type theory over a number-theoretical base, but he soon weakened that to a form of the first-order system of Peano Arithmetic" [Feferman]. Others have suggested that even Robinson Arithmetic may be emergent. But that is controversial. It seems to me that emergence and consciousness are not exactly the same. Rather the realm of emergence borders the realm of consciousness, ie., that emergence can generate consciousness and that emergence may be the shadow of a higher space that connects to each of us. That must be very close to Smetham's perspective. Emergence does seem to be beyond mathematics.

Penrose together with Hameroff has also proposed a neurological quantum mechanism involving cellular microtubules of the brain which obviously cannot be cosmic. But at least in the neurological case a specific mechanism was proposed. Penrose never suggested any natural mechanism for Peano Consciousness, a collective consciousness involving large numbers of discrete and distinct elements.

My conjecture is that Peano cosmic consciousness is a property of 10 dimensional supersymmetric string theory's Calabi-Yau Compact Manifold CYCM. The CYCM is a closely packed subspace of six-dimensional CYCM units (of diameter equal to about 1000 Planck lengths) that result from compactification of the six extra dimensions of 10d superstring theory. That is, two dimensions must curl up with opposite spin for one space dimension to inflate.

Professor Shing-Tung Yau, the head of Harvard's Math Dept., describes the CYCM at length in his recent book "The Shape of Inner Space(2010)". He has made it legitimate to think that the nature of our universe includes an invisible subspace that contains the laws of physics, which is more than an Aether in which quantum waves can exist, a kind of Platonism.

The requirement for Compact Manifold Consciousness is that each discrete (10^{-30} cm. dia.) CYCM unit must be distinct and numerable. The 10^{500} or more ways that flux in 10 quantum states can weave through the 500 topological holes in each CYCM unit provides more than ample numbers for every unit in the space of the universe to be distinct. If the flux had only 6 quantum states, the 6^{500} possible windings are just enough to fill our Universe with distinct units. Small variations of neighboring units would make them numerable. That the arrays of these CYCM units are in 3 space dimensions, rather than being a one dimensional arithmetic, may also contribute to their collective consciousness, an interesting math problem.

At this point one could claim omnipotence for the CYCM since it apparently contains the laws of physics and controls all particle interactions using vacuum Zero-Point Energy ZPE virtual particles from the Planck scale when required. However Planck scale physics is separate from Compact scale consciousness.

On the other hand the CYCM units are so ultrasopic that 10^{50} of them would fill an electron volume at the Lorentz radius ($3/10^{13}$ cm). Therefore in agreement with one aspect of Bohm Quantum Mechanics QM, I expect that all physical particles could have some degree of cosmic consciousness and the ability to select QM superpositions. If so then the Creator God, if one exists, has also given over its quantum-superposition selection ability to all the particles of nature, a kind of Pantheism.

Moreover the CYCM is not possibly a Creator God because it was created during the Big Bang. More accurately, its creation was instrumental in the creation of the Universe according to string theory. There may be a conscious Creator god and its consciousness might be continuous to CYCM consciousness via emergence, but that is beyond the scope of string theory.

From the string theory perspective a cosmic consciousness may exist and the ability to make conscious choices, what some call intelligence, may be spread throughout all levels of natural complexity from physical particles to evolved physical life.

References

Feferman, Penrose's Goedelian argument, Stanford U. citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.130

Smetham, G. P. (2010). The Grand Designer: Can Hawking's Godless Theory of Everything Run without GOD. Scientific GOD Journal; 1:7: pp. 460-483.