



Communication

Comment on Thomas Bradley's IPI lecture

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This Communication article was inspired by Thomas Bradley's IPI Lecture, "The Laws of Physics Embodied by Fundamental Replicators: Exploring Femes", delivered on the 9th of Nov. 2024 to the members of the Information Physics Institute [1,2].

Why does the universe have the form it does? Scientists believe theories must be supported by experiments in labs. Does their faith in the existence of objective reality mean they are classical scientists who reject quantum mechanics' statements that observers and the observed are permanently and inextricably united? In the case of observer/observed union, scientists would unavoidably and unconsciously influence every experiment and form of mathematics. In the end, they may be unavoidably and unconsciously influencing the uni-verse which is the home of all experiments and all mathematics. If Earth's science has a role to play in what John Wheeler called a Participatory Universe, the unavoidable influence on experiments and maths will not change known reality. Our planet's science must play an essential role in giving the laws of physics the form they have - because if it didn't, experiments and maths would not display what Eugene Wigner called "The Unreasonable Effectiveness of Mathematics in the Natural Sciences".

Future spacetime warping - whose initial steps are being investigated by e.g. physicists Harold G. (Sonny) White [3] and Ronald Mallett [4] - would convert Einstein's curved spacetime into a circular Wick rotation, causing past, present and future to be inter-connected and feedback on each other. When general relativity had become a backwater of physics in the early 1950s, John Wheeler was the only one of the world's leading physicists at the time who envisioned a future in which curved spacetime would be fundamental to the nature of matter and the astrophysical universe [5]. He wondered if time is circular and has loops in which past, present, and future feed back on each other [6].

Albert Einstein's explanation of the photoelectric effect gave practicality to the quanta which Max Planck regarded for years as mere mathematical convenience. Future spacetime warping could likewise make the math "trickery" of Wick rotation - the Complex Plane revealing so-called "imaginary" numbers' special relationship with cycles - practical.

An evolutionary explanation for fine-tuning may not work because it may not provide enough information. The amount of information required might necessitate a looped spacetime and feedback of temporal periods - and, therefore, intelligent technology. How would the need for additional information and intelligent technology affect evolution in a biological

sense? Life could have begun with all the brains of past and future history acquiring increasingly sophisticated knowledge of time and space, then applying that knowledge by using – in addition to computers and electronics - terra forming, time travel to the lifeless past, bioengineering from collected amino acids and other molecules. All living things would then naturally undergo endless adaptations and mutations as the eons passed.

References

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- [5] Charles Misner, Kip Thorne, and Woyciech Zurek, "John Wheeler, relativity, and quantum information", Physics Today 62 (4), 40–46, <https://doi.org/10.1063/1.3120895> (2009)
- [6] Law of Insights, "This Scientist Warns We're Stuck in a Time Loop", <https://www.youtube.com/watch?v=JveLmdMXOjc>