Review of: "Quantum Mind-Induced Subjective Realism: a Quantum Consciousness-Based Management Model of Reality Perception"

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Potential competing interests: No potential competing interests to declare.

Unfortunately, I have not had the time now to look at all the details of this article, but I have seen enough to get a rough impression.

In my mind, the author gives a good background in his description of the prevailing views on quantum mechanics; he has given a thought-provoking discussion, and his application to management science and his model of reality perception are enlightening.
It is a very good paper.

I want to take up one aspect, however, namely the universal assumption of including superpositions of state vectors in quantum theory. This seems to be the prevailing assumption in the literature, but in my recent foundation article Helland (2024), I have argued against it.

My point is the following:

The basis for any understanding of science, including quantum mechanics, should be that of theoretical variables, which can be associated with the mind of any actor, for instance, a scientist, or with the joint minds of a group of communicating agents. In a scientific context, some variables will be accessible, possible to measure with arbitrary accuracy, and some are inaccessible, like the vector (position, momentum). In op.cit., I have the following result. Make some weak basic assumptions, and look at a situation with two different accessible variables that are maximal as accessible variables. Then there exists a Hilbert space H such that every accessible variable is associated with a unique operator in H. In the discrete case, the eigenvalues of the operator are the possible values of the variable, and an accessible variable is maximal if and only if the

operator only has one-dimensional eigenspaces.

To me, this is the basis for the whole of quantum theory, and in particular for introducing quantum states. Every pure state must be the eigenvector of some physically meaningful operator. It is important that this also is true for certain entangled states, like the singlet state in the two-particle spin case, see Subsection 7.5 of op.cit.
Using this version of quantum theory, it is in my opinion easy to understand several so-called paradoxes in quantum mechanics, like Schrödinger's cat, the two-slit experiment, and Wigner's friend, see Helland (2023).

I welcome any discussions of this, and I look forward to reading this article in more detail later.

References

Helland, I.S. (2023). Possible connections between relativity theory and a version of quantum theory based upon theoretical variables. arXiv: 2305.15435 [physics.hist-ph]
Helland, I.S, (2024). An alternative foundation of quantum theory. Foundations of Physics 54, 3.