

Review of: "Neural Quantum Superposition and the Change of Mind"

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Potential competing interests: No potential competing interests to declare.

Review by Jürgen Krüger of "Neural Quantum Superposition and the Change of Mind" by M. Marsili

Qeios ID: 10QN54.2

Note to Alberto Bedogni: Differences of version 2 or higher with respect to earlier versions should be marked by colour or otherwise.

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The article may be published, in my opinion, with 3 stars, if some clarifications are made.

With respect to "I am a liar": If I am myself that liar, what is going on within my mind is that I will tell some lies. But internally I am unable to put doubt on the nature of my Self. I am what I am, whatever that is. The structure of the phenomenal content of my brain does not encompass the option "It is false that I am a liar because I produced that statement which is a lie". - The matter is different when I pronounce that incriminated sentence. Physically, the utterance is a meaningless sequence of air waves that has to be interpreted by other persons. Now, if I am one of these persons who hear that sentence, then, first, I have to understand the sentence in a normal way, i.e. to make a phenomenal content of it. Then, in a second step, I have to rely on my newly generated content and, with this, I generate an additional phenomenal content that negates the validity of the entire sentence. - Thus, "[...]true and false can coexist within a single statement S in the human consciousness" can (at least for this example) at best exist when it is intertwined with the sufficiently intransparent mechanisms governing language. - Thus, please make clear that such a conflict cannot occur within myself without the involvement of another person. Please eliminate such a belief that might occur in many readers.

The point is valid for the entire article. $\text{Sigma(not sure)} = \text{Psi(yes)} + \text{Psi(no)}$ does not occur in this way in my own brain, without any utterance. I may have a well-prepared neuronal procedure (i.e., a pre-established network connectivity) to treat the case "yes", and another one for "no", but there may be neuronal signal ensembles that can neither be treated by the "yes" nor by the "no" procedure. This is a very common case. It is a complicated matter how the brain can generate a signal from the general situation "there is no established procedure for the case at hand" that might then be used for generating the utterance "I do not know". Rightly, in section 3 you mention the "grandma/lightbulb"-example in which your main points cannot work.

Yet, it is interesting that the way how the mathematics of quantum mechanics works (which implies that complex numbers can be treated like real numbers) may be used to describe at least some phenomena occurring within consciousness.

However, in section 4 the term "energy" appears, and there it seems as if the story is not meant to be a mere analogy to the mathematics of quantum mechanics but "energy" is meant to be true physical energy. Please clarify that point.

I cannot see the predictive value of sections 5 and 6. Obviously the dominant point is the existence of a factor of undecidedness but it does not become clear why a classical description in terms of neuronal facilitation cannot do the job. Please make clear, for the given examples what is missing in such a classical view, in your opinion.