Review of: "Zeno and Einstein"

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This paper claims that there is a common paradoxical nature in Zeno's negation of motion and in Einstein's negation of absolute simultaneity. This common nature rests on their propensity for abstractions and on their disregard for everyday experience. In the first section, the author critiques the usual solution given to Zeno's paradoxes in terms of infinite series. In the second section, he tries to show the difference between the relativity of simultaneity and time dilation. Finally, in a third section, he proposes to view the time we experience as "instantiations" linked to the collapse of the wave function.

I think the angle adopted here by the author is interesting. It is reminding of the critique addressed by Bergson to SRT. I also feel that informed critiques of the tendency of scientists to reduce reality to scientific models are missing nowadays and more should be published. Yet, I have some issues with the treatment of physics in the paper and I also think that the paper could benefit from narrowing down its scope. Here are my issues with the treatment of physics:

1. I always taught that the problem with the absolute notion of simultaneity, given the constant speed of light, is that it conflicts with the relativity of physical laws (they are the same in all inertial frames of reference). If we have an absolute notion of simultaneity, given the constant speed of light, we have a preferred state of rest. The negation of absolute simultaneity is then a way to avoid conflict between relativity and that constant speed. It may be that the author only wanted to address a confusion between the relativity of simultaneity and time dilation. Yet, I think it is important to take notice that the negation of absolute simultaneity is forced on us by our desire to accommodate two important propositions of physics and as such does not need confirmation.

2. Given my point in 1, it seems to me that Zeno's negation of motion and STR's negation of absolute simultaneity are different. One is a logical challenge to the way we understand continuity and infinity. The other is the derivation of a consequence from physically credible propositions.

3. What is called "quantum jump" by the author seems to me closer to what is usually called the collapsing of the wave.

4. I am not sure I followed the author on the grounding of classical time in the time of the wave evolution. The time used in the equation seems to me the exact same time as the one used in other evolution equations. Moreover, the point made concerning the mathematical continuum in Galileo, Descartes, Leibniz and Kant would need further elucidation. In Leibniz, for instance, the continuum is taken as a whole which is prior to its parts. The same goes for space and time in Kant, I believe. But this conception of continuum seems to align with the position of the author.

As for the narrowing down of the scope, it seems to me that the opinions presented in section 4 would benefit from a more

detailed exposition. It could be interesting to make another paper out of them. As mentioned already, the conception of time as grounded in the time evolution of quantum mechanics is contentious. It don't see how this time is different from the usual mathematical time t. Moreover, it could be interesting to expand on the different statements made about the continuum. The author goes from Cantor to Galileo and Leibniz to Newton and it is not clear to me on this fit together. I suspect that they have a more detailed picture of time to offer and would be interested in knowing it.