Review of: "On the Bell Experiment and Quantum Foundation"

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The author presents a solution to comprehending the outcomes of Bell's experiments by approaching quantum theory through accessible conceptual variables. This new approach leads the author to the conclusion it must be abandoned that “physical variables exist independently of being observed or measured, sometimes called the assumption of realism.” The author asserts that the challenges of quantum mechanics are not merely related to mathematics but rather to what mathematics describes. However, to my opinion, this argument pushes the boundaries of physics, venturing into realms beyond its explanatory capabilities.

Physics does not elucidate the fundamental nature of the world. Instead, it observes the appearances of the world, formulates laws based on empirical observations, and predicts future appearances by utilizing these derived laws. The concept of “realism” concerning the world is never addressed within the realm of physics, as it remains intangible and unaffected by any mode of observation. Therefore, physics should be regarded as pragmatism—it is useful but falls short of providing a complete explanation of nature.

Immanuel Kant, 300 years ago, criticized scientific realism for making unwarranted metaphysical claims about the nature of the world that surpass the limits of human cognition. According to Kant, while science imparts valuable knowledge about the empirical phenomena we experience, it is incapable of delving beyond these phenomena to ascertain their ultimate nature or the existence of "things in themselves."

In the context of quantum mechanics, these arguments suggest that quantum theory is valuable only because it yields accurate predictions that classical theories cannot achieve. Nevertheless, purely rational inquiry fails to answer questions such as the nature of a wave function (quantum state in a Hilbert space). The wave function serves merely as a practical tool.

Conversely, the author proposes a novel interpretation of quantum theory by introducing "accessible and inaccessible variables." However, it appears that this new interpretation cannot stand independently without the foundation of the original quantum theory, as quantum states (wave functions) and operators are repeatedly invoked in the arguments. Consequently, the new approach fails to contribute anything novel or useful beyond the existing framework of quantum theory.

In conclusion, I contend that the article is not concerned with physics but rather delves into the realm of philosophy. Nevertheless, even from a philosophical standpoint, the question posed by the author was already addressed by Kant

several hundred years ago with a no-go argument.