

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

Justo Lambare<sup>1</sup>

<sup>1</sup> Universidad Nacional de Asunción

**Potential competing interests:** No potential competing interests to declare.

I think that the author here conflates an interpretation of quantum mechanics with the interpretation of Bell's theorem. I do not contend with the author's interpretation of quantum mechanics, however, his interpretation of the Bell theorem is completely misleading.

Although these two issues may be indirectly related, I believe that an inappropriate, but unfortunately, very common meaningless derivation of the Bell inequality misled the author to metaphysical speculations that have nothing to do with the Bell theorem.

The Bell theorem has to do neither with "realism" if by realism we mean preexisting values, nor with quantum nonlocality. Regarding the interpretation of Bell's theorem, I fully agree with John Bell but not with all the incredible metaphysical extravaganzas introduced by later commentators of his work.

The concrete implications of the Bell theorem are:

- 1) A local hidden variable theory that respects statistical independence cannot reproduce the statistical predictions of quantum mechanics ( no realism, no quantum nonlocality).
- 2) Empirical violations of the Bell inequality confirm that nature cannot be modeled by non-conspiratorial local hidden variables (again, nothing to do with preexisting values or quantum nonlocality).

So, regarding the Bell theorem, this paper only promotes the usual widespread confusion with the Bell theorem. However its interpretation of quantum mechanics may be valuable.