Review of: "Bell's theorem is an exercise in the statistical theory of causality"

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EPR experiments provide crucial evidence for the weirdest consequences of quantum mechanics, such as entanglement and nonlocality. Bell's theorem, condensed in an emblematic inequality, in turn is a cornerstone of their interpretation, as it states clear conditions, in terms of correlations of measurement outcomes, for a violation of classical locality. Its derivation and analysis is therefore a matter of fierce debate since it has been proposed in the 1960ies.

In a recent series of papers, a third author (Marian Kupczynski) has argued that the statistical model invoked by Bell to derive his inequality is incomplete, and that with a suitable modification, the inequality can no longer be derived, hence experimental evidence based on it proves inconclusive. The objective and central result of the present manuscript is to show that a correct account of Kupczynski's argument, based on an appropriate Bayesian network, does allow to obtain inequalities equivalent to Bell's, thus restoring the established conclusions concerning quantum nonlocality. That may well give the discussion a new turn. However, the presentation is extremely brief and indeed too scarce precisely as to where and why the author's calculation starts deviating from Kupczynski's. A deeper analysis how the slightly different construction of the statistical model in this paper can lead to opposed conclusions concerning causality is missing as well.

The author's reasoning appears plausible and I have no reason to doubt its validity (it is not my role as reviewer assuming a position pro or con). Still, I do not consider this manuscript as suitable for being published as a stand-alone article in Qeios. The reason is that this "short note", as the author himself calls it, clearly has the

character of an argument in an ongoing discussion that already has reached a high level of technical sophistication and specialization. Accordingly, the present paper strongly refers to the preceding lines of reasoning, in particular the pertinent papers by M. Kupczynski, and even adopts the terminology and notation introduced in the precursory literature. It can hardly be appreciated, not even understood in the first place, by readers not familiar with all the foregoing debate. Therefore, an appropriate place to publish this work would be in one of the journals where Kupczynski's papers, the author refers to, have appeared, presenting it explicitly as a reply to the respective reference.