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

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This preprint, posted also on Arxiv [1], is neither a research paper nor a review. It does not contain any new material and contrary to author's claim, it has nothing to say about Kupczynski's contextual hidden variable models [2][3][4][5][6][7] describing the final data in specific Bell Tests in a causal and local way. Figures 1 and 2, have been well known, since many years, and they describe so called Bell-game, which is an unrealistic and oversimplified model of real spin polarization correlation experiments. Outcomes of Bell games may be described by a local stochastic hidden variable model and Bell-CHSH inequalities may be derived using an appropriate probabilistic coupling.

Final data in some Bell Tests violate not only Bell-CHSH inequalities but also no-signaling. In our model, in which the settings are denoted usually (x, y), pairwise expectationsin 4 incompatible experimental setting (a, b) are defined [6][7]:

$$E\left(X_{ab}Y_{ab}\right) = E(XY \mid A = a, B = b) = \sum_{\lambda \in \Lambda_{ab}} X_a\left(\lambda_1, \lambda_a\right) Y_b\left(\lambda_2, \lambda_b\right) \mathrm{p}\left(\lambda_1, \lambda_2\right) p_{ab}\left(\lambda_a, \lambda_b\right) \quad (1)$$

where p (λ_1, λ_2), p (λ_a, λ_b) do not need to factorize. The hidden variables explicitly depend on settings, what violates *statistical independence* and Bell-CHSH inequalities cannot be derived using (1). The author did not even notice, that in my model we do not use (Λ_x, Λ_y) but (Λ_A, Λ_B), Violation of statistical independence in (1) reflects *contextuality* and has nothing to do with the violation of *experimenter's free choice* or *spooky influencies* [6][7]. In Bell Tests, discussed in the papers criticized in [1][8][9][10], to which we responded in [11][12][13], *the violation of statistical independence* is due to setting dependent pairing of distant outcomes. Different, plausible physical arguments have to be found for more recent Bell Tests based on the entanglement swapping. Only splitting hidden variables into two sets can succeed to rationally explain cos (θ_{ab}) dependence predicted by quantum mechanics and consistent with the experimental data. Angles θ_a, θ_b and θ_{ab}= θ_b- θ_a correspond to particular measuring set-ups, measuring procedures etc; they are absent in the description of states of entangled physical systems.

Please note that in (1) we are using the notation and , which is consistent with Kochen-Specker contextuality [14] and Contextuality-by- Default approach [15][16][17], because the random variables measuring the same content in a different contexts are in fact stochastically unrelated. This is why, as we discussed in [6], the final data in Bell-Tests are in fact described by 8 random variables, instead of 4, and we can study their properties by testing the plausibility of various probabilistic couplings.

In conclusion, this preprint has nothing to do with our contextual model (1) and with the views of "the *vociferous probabilistic opposition*". Therefore, the statements: *It is absolutely clear that Kupczynski's notion of a probabilistic contextual local causal model is of this form. It is a special case of the non-local contextual model* and several other statements in [8][9][10], to which we responded in [11][12][13], are incorrect, misleading and defamatory.

Therefore, this misleading preprint should be retracted or completely re-written. As we wrote in the beginning of our review, this preprint is neither a research paper nor a review. However, since Pearl's excellent book [18] written 23 years ago, there has been a significant progress in understanding of various classical and quantum causal models, thus the author, if he wants, should study up-to-date literature on this topic and write a comprehensive review, which would probably merit to be published. If the author decides to follow our advice, we recommended to him a couple of papers in which he may find other important references [19][20][21][22][23].

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