Reply to "Comment on A New Proof of Bell's Theorem Based on Fourier Series Analysis" by Roderich Tumulka

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Tumulka hasn't paid enough attention to the Clauser-Horne (CH) model of Bell's theorem. What has been proved in [1] is: A local stochastic realistic model cannot reproduce all the predictions of quantum theory; this is the CH model of Bell's theorem. As is obvious from the literature, one of the great points of importance and significance of CH model is in its stochastic property (free of determinism assumption). All the argument presented by Tumulka is about the special completely deterministic configuration ($\theta_a = \theta_b$). As is clear from equation (9) of [1], Razmi has considered an experimentally trivial symmetry in the expansion of $P_1(\hat{a}, \lambda)$ and $P_2(\hat{b}, \lambda)$. Clearly and trivially, for two special configurations ($\theta_{ab} = \theta_a - \theta_b = 0$) and ($\theta_{ab} = \theta_a - \theta_b = \pi$), $P_1(\hat{a}, \lambda)$ and $P_2(\hat{b}, \lambda)$ have prior determined (deterministic) values 0 and 1. Although this is clear for EPR (Bell) singlet state, Tumulka can refer to [2] in which a complete explanation on special deterministic configurations in the stochastic CH model has been argued. In fact, the argument corresponding to equations (5) and (6) in Tumulka comment is nothing unless a "small picture" of the result(s) in [2].

The comment by Tumulka becomes trivial only by adding the following simple short expression "Consider the stochastic configurations $0 < \theta_{ab} < \pi$ (excluding the special deterministic cases $\theta_{ab} = 0, \pi$)" at the beginning of the proof in [1].

In summary, the content of [1] is nothing more than "A new proof of Bell's theorem (inconsistency of complete agreement between a local stochastic realistic model with quantum mechanical predictions) based on Fourier series analysis).

References

[1] H. Razmi, Annales de la Fondation Louis de Broglie, Vol. 32, No. 1, 69 (2007).

[2] H. Razmi, Journal of Physics A, Vol. 38, 3661 (2005).

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