

Why Bell's inequalities are violated by Quantum Mechanics and experiments

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Abstract:

Because of wrong interpretation of Quantum Mechanics, Bell applied in his theorem $P = \frac{1}{2}$ for chances of opposite spincombination results whereas in reality these chances are $\cos^2(\varphi/2)$. That is when definite spin of entangled electrons is assumed and when projection and perspective are applied correctly. For that reason Bell's inequalities are violated.

Particles of an entangled pair have opposite spin. Everyone, Einstein as well as Copenhagen Interpretation followers, agree on that. Nevertheless Copenhagen Interpretation followers claim that particles, also particles of entangled pairs, choose their spindirection randomly when being measured. These two statements contradict: they mutually exclude each other.

When spin is considered to be a vector, then opposite spin is: two vectors pointing in any opposite direction. This is not the same as two vectors pointing in any direction (two particles choosing their spin randomly when being measured).

The latter idea is caused by a wrong interpretation of Quantum Mechanics. Quantum Mechanics itself is not bothered by its interpretation so it will give the correct result for correlation in Bell-test experiments. But when Bell calculates inequalities starting from this wrong interpretation, it is not surprisingly that his results don't correspond to Quantum Mechanic results. This is the reason why Bell's inequalities are violated by Quantum Mechanics. Bell's statement that Quantum Mechanic correlation is not possible in a local Universe therefor is also wrong.

However, assuming opposite spin and applying projection and perspective correctly, Quantum Mechanic correlation in Bell-test experiments is perfectly explicable in a local-real way. See also ref. 1).

References:

1) <https://www.youtube.com/watch?v=g1quDMTEIFE> (video)