Explaining 'spooky action at a distance'

Abstract

Accepting Einstein's local realist viewpoint correlation in Bell tests is very well explainable.

If started from Einstein's viewpoint of local realism than spin of an elektron is a vektor with a fixed direction in space. Spin of entangled elektrons is than represented by two directional opposit vektors. Measuring these vektors by two detectors three issues are important:

1) The projection of the vektors on the detector'plane' as a consequence of the movement of the elektrons through the detector. This projection is responsable for the cosine-shape of the correlation.
2) The direction of both vektors respective of the 'center perpendicular planes' (cpp's) of both detectors. If the direction of the vektors is between the cpp's of the detectors than the measurement result is equal. If not than the result is opposit.
3) The positioning of the detectors.

While positioning the detectors two actions take place. One: the adjustment of the angle of measurement of the detectors and two: the perpendicular positioning of the detector'planes' to the direction of movement of the elektrons. This second action is extremely important because it defines which elektron pairs contribute to equal spin results (and which to opposit spin results) and these elektron pairs are not the ones one would expect. This perpendicular positioning has never been accounted for because the action is carried out completely unconscious and automaticly.

The 'spooky action at a distance' is nothing more than the positioning of the detectors.

When previous issues are taken into account the cosine-shaped correlation appears naturally. Both theory and experiments show that correlation $C = -\cos \varphi$. This means that correlation depends just and only just of the positioning of the detectors, as is mentioned before.

Bell did not use fixed opposit spin vektors. In his theorem he started from Bohr's viewpoint that entangled elektrons choose their spin voluntary and independant of each other while measrured at different angles. Except for measuring in the same direction: than their spin is opposit. He introduced a factor λ for local hidden variables to explain correlation in a local universe. However, this factor can never replace fixed opposit spin vektors so Bell's correlation can't be the right one. This is why Bell's inequalities are violated. Moreover, Bell stated in his theorem that the adjustment of detector A does not influence the measurement results at detector B and vice versa. This may be so but it is exactly the combination of detector adjustments that defines the combination of the measurement results.

This shows that the theorem of Bell is not applicable to spin measurement of entangled elektrons. It also demonstrates that Bohr's viewpoint concerning superposition (and also complementarity) is not the right viewpoint. On the contrary, Einstein's local realistic viewpoint can explain correlation very well.

For a more detailed explanation of correlation see my paper: 'Model and method to explain correlation in Bell-test experiments' at this same site.

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