by Fred Diether Jan. 2021 for CHSH analysis

CHSH Statistical Analysis of Particle Data From Imported Data

In[252]:=
```
dataA = Import["CA5K-2.csv"];
dataB = Import["CB5K-2.csv"];
a1 = dataA[[All, 1]];
trials = Length[a1];
b1 = dataB[[All, 1]];
A1 = dataA[[All, 2]];
B1 = dataB[[All, 2]];
nP1 = 0; nN1 = 0; nP2 = 0; nN2 = 0; nP3 = 0; nN3 = 0; nP4 = 0;  nN4 = 0;
Do[aliceD = A1[[j]]; bobD = B1[[j]];
 If[a1[[j]] == 0 && b1[[j]] == 45 && aliceD * bobD == 1, nP1++];
 If[a1[[j]] == 0 && b1[[j]] == 45 && aliceD * bobD == -1, nN1++];
 If[a1[[j]] == 0 && b1[[j]] == 135 && aliceD * bobD == 1, nP2++];
 If[a1[[j]] == 0 && b1[[j]] == 135 && aliceD * bobD == -1, nN2++];
 If[a1[[j]] == 90 && b1[[j]] == 45 && aliceD * bobD == 1, nP3++];
 If[a1[[j]] == 90 && b1[[j]] == 45 && aliceD * bobD == -1, nN3++];
 If[a1[[j]] == 90 && b1[[j]] == 135 && aliceD * bobD == 1, nP4++];
 If[a1[[j]] == 90 && b1[[j]] == 135 && aliceD * bobD == -1, nN4++], {j, trials}]
E1 = N[(nP1 - nN1) / (nP1 + nN1)];
E2 = N[(nP2 - nN2) / (nP2 + nN2)];
E3 = N[(nP3 - nN3) / (nP3 + nN3)];
E4 = N[(nP4 - nN4) / (nP4 + nN4)];
CHSH = Abs[E1 - E2 + E3 + E4];
Print["CHSH = ", CHSH]
total = nP1 + nN1 + nP2 + nN2 + nP3 + nN3 + nP4 + nN4;
Print["Total trials = ", total]
```

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CHSH = 2.82283
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Total trials = 5000
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