Refutation of Bell's original inequality from 1964 with assumptions

Abstract: Bell's original inequality from 1964 is *not* tautologous and hence refuted.

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated *proof* value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables.

LET p, q, r, s: P, a, b, c; ~ Not; & And; + Or; > Imply, greater than;
< Not Imply, less than; = Equivalent; @ Not Equivalent;
(%p>#p) ordinal 1; (p@p) ordinal 0; (p=p) T;
~(y<x) x≤y; ~(x<(p@p)) | x |, (0 ≤ x).

From: Bell, J. S. (1964). On the Einstein Podolsky Rosen paradox. *Physics* 1, 195-200. cds.cern.ch/record/111654/files/vol1p195-200_001.pdf

Bell's original inequality is $1+P(b,c) \geq | P(a,b) - P(a,c) |$. (1.0)

This is equivalent to $| P(a,b)-P(a,c) | - P(b,c) \leq 1$. (1.1)

~((%p>#p)<~((~(((p&(q&r))-(p&(q&s)))<(p@p))-(p&(r&s)))<(p@p)))=(p=p) ;
CCCC CCCT CCCT CTCT (1.2)

Bell also makes three assumptions from his text:

P(a,b) = ± 1 (2.1.1)

(p&(q&r))=((%p>#p)+~(%p>#p)) ; **FFFF FFF**T **FFFF FFF**T (2.1.2)

P(a,b) = ± 1 (2.2.1)

(p&(q&s))=((%p>#p)+~(%p>#p)) ; **FFFF FFFF FFF**T **FFF**T (2.3.2)

P(a,b) = ± 1 (2.3.1)

(p&(r&s))=((%p>#p)+~(%p>#p)) ; **FFFF FFFF FFFF F**T**F**T (2.3.2)

We substitute Eqs. 2.1.1, 2.2.1, and 2.3.1 into 1.1. (3.1)

~((%p>#p)<~((~((((p&(q&r))=((%p>#p)+~(%p>#p)))-((p&(q&s))=((%p>#p)
+~(%p>#p))))<(p@p))-((p&(q&r))=((%p>#p)+~(%p>#p))))<(p@p)))=(p=p) ;
CCCC CCCT CCCT CCCT (3.2)

Eq. 1.2 as rendered and 3.2 are *not* tautologous, hence refuting Bell's inequality with assumptions.