

## Refutation of Bell's original inequality from 1964

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

We assume the method and apparatus of Meth8/VL4 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](https://cds.cern.ch/record/111654/files/vol1p195-200_001.pdf)

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

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

$$\sim((\%p>\#p)<\sim((\sim(((p\&(q\&r))-(p\&(q\&s)))<(p@p))-(p\&(r\&s)))<(p@p)))=(p=p) ; \quad (1.2)$$

CCCC CCCT CCCT CTCT

Eq. 1.2 as rendered is *not* tautologous, hence refuting Bell's original inequality.