

Refutation of tropical sum for Bell's theorem

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Abstract: We evaluate the tropical sum definition to show topped summing is refuted by mathematical logic and hence cannot occur in physics reality.

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. (See ersatz-systems.com.)

From: Geurdes, H. (2018). On Bell's experiment. vixra.org/pdf/1811.0247v1.pdf
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LET $p, q: x, y;$
 \sim Not; $+$ Or; $=$ Equivalent; $@$ Not Equivalent;
 $>$ Imply, greater than; $<$ Not Imply, lesser than;
 $((p+q)<(p@p))>\sim((p+q)<(p@p))$ ($|x+y|<1$)

Tropical sum. Let us define the tropical algebra sum on real, i.e. $\mathbb{R} \cap [-1, 1]$, values for x and y . We define

$$x \oplus y = \{ x + y, |x + y| < 1; +1, x + y > 1; -1, x + y < -1 \} \quad (7.1)$$

We note that the summation in (7.1) is allowed. If readers disagree they have to *prove* that this way of topped summing cannot for sure occur in physics reality.

$$\begin{aligned} (p@q)=((((((p+q)<(p@p))>\sim((p+q)<(p@p)))<(\%p\>\#p))>(p+q))+ \\ (((p+q)<(\%p\<\#p))>(\%p\<\#p)))+(\sim((\%p\>\#p)>(p+q))>(p+q))) ; \\ \mathbf{FTTF \ FTTF \ FTTF \ FTTF} \end{aligned} \quad (7.2)$$

Remark 7.2: Eq. 7.2 as rendered is *not* tautologous. This means topped summing is refuted by mathematical logic to occur in physics reality.