

Refutation of the three lights experiment for qutrits

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We assume the method and apparatus of Meth8/VL4 with \top as the designated *proof* value, F as contradiction, N as truthity (non-contingency), and C as falsity (contingency). The 16-valued truth table is row-major and horizontal.

LET p, q, r, s : blue light, green green, red light, measurement;
 \sim Not; $\&$ And; $+$ Or; $>$ Imply, greater than; $=$ Equivalent;
 $(s@s)$ off; $(s=s)$ on.

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"Quantum mechanics is so successful that it is difficult to imagine how to go beyond the present theory without contradicting existing experiments. However, going beyond our present understanding of quantum mechanics can enable us to solve long-standing problems like the formulation of quantum gravity. Some of the most puzzling questions in quantum theory are connected to the measurement process." (0.0)

"FIG. 1 Two possible explanations for the measurement process. Suppose a measurement with three possible outcomes represented by red, green, and blue lights. The process that generates the final outcome (represented by the blue light flashing) can be either
 (a) a sequence of two steps:
 (1) The red outcome is precluded by a classical mechanism (e.g., the initial position of the measured system).
 (2) A general two-outcome measurement selects between the two remaining outcomes.
 Or (b), the measurement is genuinely ternary in the sense that it cannot be explained as in (a)." (0.1)

We rewrite Eq. 0.1 to mean:

If (blue, red, and green lights imply measurement) then measurement implies both (blue light implies flashing and red and green lights imply not flashing). (1.1)

$((p\&q)\&r)>s)>(s>((p>((s=s)+(s\&s)))\&((q\&r)>\sim((s=s)+(s\&s)))));$
 TTTT TTTT TTTT TTF (1.2)

Eq. 1.2 as rendered is *not* tautologous. This means the experiment to measure outcomes for three lights with blue flashing is ill-formed. Furthermore, the declaration of Eq. 0.0 is also falsified, namely, that quantum mechanics is *not* so successful in the imagination.

Remark: What follows by extension is that such papers published by arxiv.org are suspicious, and that its owner Cornell University is an organ of academic cronyism to promote misfeasant mainstream physics.