

Take a picture of an electron to refute the uncertainty principle

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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). The 16-valued truth table is row-major and horizontal.

We evaluate the unoriginal thought experiment of taking a picture of an electron in a vacuum.

LET: ~ Not; & And, multiply; \ Not And,divide; + Or, add; - Not Or, subtract;
 > Imply, greater than; < Not Imply, less than; = Equivalent; @ Not Equivalent;
 % possible, for one or some; # necessary, for all or every;

p, q: photon, electron;

$$p=(p=p) ; \quad \text{FTFT FTFT FTFT FTFT} \quad (0.1)$$

$$q=(q=q) ; \quad \text{FETT FETT FETT FETT} \quad (0.2)$$

$$[r=(q=q) ; \quad \text{FFFF TTTT FFFF TTTT} \quad (0.3)]$$

$$[s=(q=q) ; \quad \text{FFFF FFFF TTTT TTTT} \quad (0.4)]$$

To take a picture of an electron requires shining light on it. The state of the electron is therefore combined with that of the photon wave to produce a combined state. The combined state may be additive or multiplicative:

$$\text{electron summed with photon} \quad (1.1)$$

$$(q+p) ; \quad \text{FTTT FTTT FTTT FTTT} \quad (1.2)$$

$$\text{electron multiplied with photon} \quad (2.1)$$

$$(q\&p) ; \quad \text{FFFT FFFT FFFT FFFT} \quad (2.2)$$

We ask, "Is a theorem derivable by trial and error for Eqs. 1.2 and 2.2, such as

$$\text{Eq. 2.2 implies Eq. 1.2?} \quad (3.1)$$

$$(q\&p)>(q+p) ; \quad \text{TTTT TTTT TTTT TTTT} \quad (3.2)$$

We ask, "If Eq. 3.2 is a theorem, then can we find

$$\text{other theorems as co-equal thereto?} \quad (4.1)$$

$$(((q\&p)>(q+p)) = (((q\&p)\sim p) = \sim((q+p)\sim p)) ; \quad \text{TTTT TTTT TTTT TTTT} \quad (4.2)$$

We ask, "Can we derive q back out of the theorem(s) in Eq. 4.1,

$$\text{only by logically removing p?} \quad (5.1)$$

$$(((q\&p)\sim p) \& ((q+p)\sim p)) > q ; \quad \text{TTTT TTTT TTTT TTTT} \quad (5.2)$$

Eq. 5.2 makes Eq. 3.2 inversive and is tautologous. This means the state of indeterminacy to take a picture of an electron using light is invertible. Therefore, the uncertainty principle is logically contradicted.