Superposition refutes Schrödinger's cat experiment

Abstract: Quantum logic (QL) maps Schrödinger's cat experiment in words the same as does bivalent logic, with the expression as not tautologous (FFFF FTFF FFFT FFFF) and nearly contradictory. QL assumes such variables are natural numbers. To support the aim of justification of superposition, QL also injects a probability of equal to or greater than one, under the guise of the inequality of equal to or greater than zero. What follows is that any "principle of uncertainty" is irrelevant because certainty or uncertainty is bivalently mappable as the status of known or unknown, as in the cat experiment.

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: Probability, A extant status (dead/alive), B box apparatus, C known status;
~ Not; + Or; & And; > Imply, greater than;
= Equivalent; @ Not Equivalent;
(p=p) Tautology; (p@p) **F** as contradiction, ordinal zero; ~(p<q) (p≥q).

Bivalent logic maps Schrödinger's cat experiment in words,

The probability of the inviolated box apparatus (sealed to begin the experiment), not the extant status, and the unknown status,
Or
The probability of the violated box apparatus (unsealed to end the experiment), the extant status, and the known status. (1.0)

$$(p\&((\sim q\&r)\&\sim s))+(p\&((q\&\sim r)\&s)) \;;\quad \text{FFFF FTFF FFFT FFFF} \tag{1.2}$$

Quantum logic (QL) maps the cat experiment in words,

The probability of the non extant status, inviolated box, and unknown status
Or
The probability of the extant status, violated box, and known status (2.0)

$$P(\sim A \& B \& \sim C) + P(A \& \sim B \& C) \tag{2.1}$$

$$(p\&((\sim q\&r)\&\sim s))+(p\&((q\&\sim r)\&s)) \;;\quad \text{FFFF FTFF FFFT FFFF} \tag{2.2}$$

are equal to or greater than zero. (3.0)

$$P(\sim A \& B \& \sim C) + P(A \& \sim B \& C) \geq 0 \tag{3.1}$$

$$(\sim((p\&((\sim q\&r)\&\sim s))+(p\&((q\&\sim r)\&s)))<(p@p))=(p=p) \;;\quad \text{TTTT TFTT TTTF TTTT} \tag{3.2}$$

Remarks 3.: Eqs. 1.2 and 2.2 as rendered are identical. Eq. 3.0 assumes that respectively A, B, C are ≥ 0. This assumption forms the basis of QL and ultimately is the cause of Eq. 3.2 being *not* tautologous.

If Eq. 3.1 is rendered as P(~A & B & ~C) + P(A & ~B & C) ≤ 1, (3.1.1)
then the expression is tautologous:

(~((p&((~q&r)&~s))+(p&((q&~r)&s)))>(p=p))=(p=p) ;

TTTT TTTT TTTT TTTT (3.1.2)

Furthermore, Eq. 3.1 makes sense because Probability is ≤ 1.

An equivalent quantum logic rendition of Eq. 2.0 maps in words,

The probability of extant status and violated box
Or
The probability of inviolated box and unknown status
Is equivalent to
The probability of extant status and unknown status (4.0)

P(A & ~B) + P(B & ~C) = P(A & ~C) (4.1)

((p&(q&~r))+(p&(r&~s)))=(p&(q&~s)) ; TTTT T**F**TT TTT**F** TTTT (4.2)

Eq. 4.1 is rewritten as this inequality with the injection of zero.

P(A & ~B) + P(B & ~C) - P(A & ~C) ≥ 0 (5.1)

(~(((p&(q&~r))+(p&(r&~s)))-(p&(q&~s)))<(p@p))=(p=p) ;

FFFT **F**T**F**T **FFF**T **FFFF** (5.2)

Remarks 4.: Eq. 5.2 is *not* tautologous, and suffers from the same defects in Rem. 3.

If Eq. 5.1 is rendered as P(A & ~B) + P(B & ~C) - P(A & ~C) ≤ 1 (5.1)
then the expression is tautologous:

(~(((p&(q&~r))+(p&(r&~s)))-(p&(q&~s)))>(p=p))=(p=p) ;

TTTT TTTT TTTT TTTT (3.1.2)

Eqs. 1.2 and 2.2 show that bivalent logic and quantum logic map Schrödinger's cat experiment as the same. However, when quantum logic injects a probability greater than one to support superposition, the Eqs. are *not* tautologous, and hence QL refutes itself.

Remark 5.: What follows is that any "principle of uncertainty" is irrelevant because certainty or uncertainty is bivalently mappable as the status of known or unknown, as in the cat experiment.