Refutation of the Heisenberg principle of uncertainty by mathematical logic

The Heisenberg principle of uncertainty is written with h for an approximation of Planck's constant as

$$\sigma(X) * \sigma(p) \geq (h/(4*\pi)) \quad (1)$$

From Eq. 1 we rewrite it as

$$(h/(4*\pi)) * \sigma(X) * \sigma(p) \geq 1 \quad (2)$$

Eq. 2 may be stated in the negative as Not < 1 as

$$\text{Not } [(h/(4*\pi)) * \sigma(X) * \sigma(p) < 1] \quad (3.1)$$

Assuming the apparatus and method of Meth8/VŁ4, we map Eq. 3.1 below.

LET: p q r s p, X, (h/(4*π)), σ;
~ Not; & And, *; \ Not And; > Imply; < Not Imply, less than; = Equivalent to;
# Necessity, for all; % Possibility, for some (one);

Definition	Axiom	Symbol	Name	Meaning	2-tuple	Ordinal
1	p=p	T	Tautology	proof	11	3
2	p@p	F	Contradiction	absurdum	00	0
3	%p>#p	N	Non-contingency	truth	01	1
4	%p<#p	C	Contingency	falsity	10	2

(%p>#p) 1; (p=p) T tautology, as the designated *proof* value.

The 16-valued truth table is presented row-major and horizontally.

~((r&((s&q)&(s&p))) < (%p>#p)) = (p=p) ; TTTT TTTT TTTN TTTN (3.2)

It is permissible to remove the r term because it is a scalar constant.

~(((s&q)&(s&p)) < (%p>#p)) = (p=p) ; TTTT TTTT TTTN TTTN (3.3)

Eqs. 3.2 and 3.3 result in the same truth table, rendering Eq. 2 as *not* tautologous.

This means the Heisenberg uncertainty principle is untenable.