Refutation of Gettier problem of justified true/false belief

We assume the method and apparatus of Meth8/VŁ4 with \( \top \) as the designated \emph{proof} value, \( \bot \) as contradiction, \( \perp \) as truthity (non-contingency), and \( \bot \) as falsity (contingency). The 16-valued truth table is row-major and horizontal.

LET: \& And; \( \supset \) Imply, greater than, believes, knows; \( \neg \) Not Imply, less than;
\( = \) Equivalent, is; \( \# \) necessity, for all; \( \% \) possibility, for one or some;
p Proposition; q proposition; s Subject;
\( \%q\#q \) truthity; \( \%q\#q \) falsity; \( q=q \) tautology, justified.

From: allthatsinteresting.com/fascinating-unsolved-problems/2

Critics of justified true belief assert "it's impossible to justify anything which is not true (where "truth" is a construct designed for the sake of argument as being some irrefutable fact)."

Justified true belief is defined as:

A subject S knows that a proposition P is true if and only if:
\[ \begin{align*}
\text{P is true,} & \quad p=(\%q\#q) ; \quad \text{(1.1)} \\
\text{and S believes that P is true,} & \quad s>(p=(\%q\#q)) ; \quad \text{(2.1)} \\
\text{and S is justified in believing that P is true} & \quad (s>(q=q))>(s>(p=(\%q\#q))) ; \quad \text{(3.1)}
\end{align*} \]

Eqs. 1.1 and 2.1 and 3.1 are equivalent to 4.1.
\[ \begin{align*}
((p=(\%q\#q))&(s>(p=(\%q\#q))))&((s>(q=q))>(s>(p=(\%q\#q)))) \\
= (%s>(p=(\%q\#q))) ; \quad \text{(5.1)}
\end{align*} \]

Eq. 5.2 is \emph{not} tautologous. Therefore justified true belief is not a theorem.

To answer Eq. 0.0 we rewrite it using falsity instead of truthity to read justified false belief as:

A subject S knows a proposition is P is false if and only if P is false, and S believes P is false, and S is justified in believing P is false.

To answer Eq. 0.0, we cast Eq. 5.2 with falsity \( \%q\#q \) instead of truthity \( \%q\#q \).
\[ \begin{align*}
((p=(\%q\#q))&(s>(p=(\%q\#q))))&((s>(q=q))>(s>(p=(\%q\#q)))) \\
= (%s>(p=(\%q\#q))) ; \quad \text{(6.1)}
\end{align*} \]
Eq. 6.2 is not tautologous. Therefore justified false belief is also not a theorem.

This means the Gettier problem as the superset of the justified belief arguments is refuted as a problem and resolved as a non-problem.