

Refutation of Gettier problem of justified true/false belief

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We assume the method and apparatus of Meth8/VL4 with τ 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: $\&$ And; $>$ Imply, greater than, believes, is, knows; $=$ Equivalent; $@$ Not Equivalent;
 $\#$ necessity, for all; $\%$ possibility, for one or some;
 p Proposition; s Subject; $(\%q\>\#q)$ truthity; $(\%q\<\#q)$ falsity;
 $(q=q)$ tautology, justified; $[(q@q)$ contradiction, not 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)." (0.0)

Justified true belief is defined as:

A subject S knows that a proposition P is true if and only if: (4.1)

$[=] \%s\>(p\>(\%q\>\#q))$; TNTN TNTN TNTN TNTN (4.2)

P is true, (1.1)

$p\>(\%q\>\#q)$; TNTN TNTN TNTN TNTN (1.2)

and S believes that P is true, (2.1)

$[\&] s\>(p\>(\%q\>\#q))$; TTTT TTTT TNTN TNTN (2.2)

and S is justified in believing that P is true (3.1)

$[\&] (s\>(q=q))\>(s\>(p\>(\%q\>\#q)))$; TTTT TTTT TNTN TNTN (3.2)

Eqs. 1.1 and 2.1 and 3.1 are equivalent to 4.1. (5.1)

$((p=(\%q\>\#q))\&(s\>(p=(\%q\>\#q))))\&((s\>(q=q))\>(s\>(p=(\%q\>\#q))))$
 $= (\%s\>(p=(\%q\>\#q)))$; CTCT CTCT TTTT TTTT (5.2)

Eq. 5.2 is *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. (0.1)

To answer Eq. 0.0, we cast Eq. 5.2 with falsity $(\%q\<\#q)$ instead of truthity $(\%q\>\#q)$. (6.1)

$((p=(\%q\<\#q))\&(s\>(p=(\%q\<\#q))))\&((s\>(q=q))\>(s\>(p=(\%q\<\#q))))$
 $= (\%s\>(p=(\%q\<\#q)))$; TCTC TCTC TTTT TTTT (6.2)

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.