

Many questions and many answers

© Copyright 2018 by Colin James III All rights reserved.

We assume the method and apparatus of Meth8/VL4 with \top 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: \sim Not; $\&$ And; $\>$ Imply, greater than; $=$ Equivalent; $@$ Not Equivalent;
 $\#$ necessity, for all; $\%$ possibility, for one or some;
 p answer; q question.

For many questions, there is at least one answer. (1.1)

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

[Supposedly reciprocal] For at least one question, there are many answers. (2.1)

$\%q \# p$; NNFN NNFN NNFN NNFN (2.2)

Eq. 1.1 or Eq. 2.1 (3.1)

$(\#q \> \%p) + (\%q \# p)$; TTCT TTCT TTCT TTCT (3.2)

If Eq. 2.1 is the reciprocal of Eq. 1.1, then Eq. 1.1 or Eq 2.1 should be tautologous, but the result is not. Eq. 2.1 is *not* the reciprocal of Eq. 1.1

Eq. 1.1 implies Eq. 2.1 (4.1)

$(\#q \> \%p) \> (\%q \# p)$; NNNN NNNN NNNN NNNN (4.2)

If Eq. 1.1 implies Eq. 2.2 then the result should be tautologous (\top), but it is not. The result is a truthity (N for non-contingency).

Eq. 2.1 implies Eq. 1.1 (5.1)

$(\%q \# p) \> (\#q \> \%p)$; TTTT TTTT TTTT TTTT (5.2)

If Eq. 2.2 implies Eq. 1.1 then the result should be tautologous, as it is.

We conclude that:

If for some questions there are many answers, then for many questions there are some answers, this is a theorem.

If for many questions there are some answers, then for some questions there are many answers, this is not a theorem but a truthity.