

## Refutation of neutrosophy as generalized from Hegel's dialectic

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We assume the method and apparatus of Meth8/VL4 where  $\tau$ autology is the designated *proof* value,  $F$  is contradiction,  $N$  is truthity (non-contingency), and  $C$  is falsity (contingency). The 16-valued truth table is row-major and horizontal. We evaluate the following in *one* variable of  $p$ .

From: [fs.gallup.unm.edu/FlorentinSmarandache.htm](http://fs.gallup.unm.edu/FlorentinSmarandache.htm)

In philosophy he introduced in 1995 the 'neutrosophy', as a generalization of Hegel's dialectic, which is the basement of his researches in mathematics and economics, such as 'neutrosophic logic', 'neutrosophic set', 'neutrosophic probability', 'neutrosophic statistics'.

Neutrosophy is a new branch of philosophy that studies the origin, nature, and scope of neutralities, as well as their interactions with different ideational spectra. This theory considers every notion or idea  $\langle A \rangle$  together with its opposite or negation  $\langle \text{Anti-A} \rangle$  and the spectrum of "neutralities"  $\langle \text{Neut-A} \rangle$  (i.e. notions or ideas located between the two extremes, supporting neither  $\langle A \rangle$  nor  $\langle \text{Anti-A} \rangle$ ). The  $\langle \text{Neut-A} \rangle$  and  $\langle \text{Anti-A} \rangle$  ideas together are referred to as  $\langle \text{Non-A} \rangle$ . According to this theory every idea  $\langle A \rangle$  tends to be neutralized and balanced by  $\langle \text{Anti-A} \rangle$  and  $\langle \text{Non-A} \rangle$  ideas - as a state of equilibrium. As a consequence, he generalized the triad thesis-antithesis-synthesis to the tetrad thesis-antithesis-neutrothesis-neutrosynthesis ... .

LET: # necessity, for all (as in for every); % possibility, for one (as in for some);  
 $\sim$  Not; + Or; - Not Or; & And; \ Not And; = Equivalent; @ Not Equivalent;  
 $>$  Imply, greater than;  $<$  Not Imply, less than;  $(\%p>\#p)$  1;  $((\%p>\#p)-(\%p>\#p))$  0;

$p$  A as notions or ideas;  
 $\#p$  every  $\langle A \rangle$ , hereafter, and *thesis* (0.1.1);(0.1.2)

$\sim\#p$   $\langle \text{Anti-A} \rangle$  not every notion or idea, hereafter, and *antithesis* (0.2.1);(0.2.2)

$\sim(\#p+\sim\#p)$  Not ( $\langle A \rangle$  Or  $\langle \text{Anti-A} \rangle$ ), as in neither  $\#p$  nor  $\sim\#p$ , and *synthesis* (0.3.1);(0.3.2)

$\langle \text{Neut-A} \rangle$  spectrum of "neutralities" as notions or ideas between extrema of  $\langle A \rangle$  and  $\langle \text{Anti-A} \rangle$ . In other words,  $\langle \text{Neut-A} \rangle$  is greater than  $\langle \text{Anti-A} \rangle$  and is less than  $\langle A \rangle$ , but not equal to either, as *neutrothesis* (1.1)

$(\sim(\#p+\sim\#p)>\sim\#p)\&(\sim(\#p+\sim\#p)<\#p)$ ; FFFF FFFF FFFF FFFF (1.2)

$\langle \text{Non-A} \rangle = (\langle \text{Neut-A} \rangle \text{ and } \langle \text{Anti-A} \rangle)$  (2.1)

$((\sim(\#p+\sim\#p)>\sim\#p)\&(\sim(\#p+\sim\#p)<\#p))\&\sim\#p$ ; FFFF FFFF FFFF FFFF (2.2)

every  $\langle A \rangle$  tends to be neutralized and balanced by  $\langle \text{Anti-A} \rangle$  and  $\langle \text{Non-A} \rangle$  as a state of equilibrium, and *neutrosynthesis*. That state is assumed to be zero.

$\langle A \rangle > [\langle \text{Anti-A} \rangle + \langle \text{Non-A} \rangle = 0]$  (3.1)

$\#p>(\sim\#p\&(((\sim(\#p+\sim\#p)>\sim\#p)\&(\sim(\#p+\sim\#p)<\#p))\&\sim\#p))$ ; TCTC TCTC TCTC TCTC (3.2)

As a consequence, he generalized the triad thesis-antithesis-synthesis to the tetrad thesis-antithesis-neurothesis-neurosynthesis [*ie, the triad is a subset of the tetrad*] as

$$\text{Eqs. } ((0.1.1 \& 0.2.1) > 0.3.1) < ((0.1.1 \& 0.2.1) > (1.1 > 3.1)) \quad (4.1)$$

$$\begin{aligned} & ((\#p \& \sim \#p) > \sim (\#p + \sim \#p)) < ((\#p \& \sim \#p) > (((\sim (\#p + \sim \#p) > \sim \#p) \& (\sim (\#p + \sim \#p) < \#p)) \& \\ & (\#p > \sim \#p \& (((\sim (\#p + \sim \#p) > \sim \#p) > (\sim (\#p + \sim \#p) < \#p)) \& \sim \#p))))); \text{FFFF FFFF FFFF FFFF} \quad (4.2) \end{aligned}$$

Eq. 4.2 as rendered is *not* tautologous and a contradiction. This refutes the definition of neutrosophy and consequently invalidates it as a generalization of Hegel's dialectic.

**Remark:** Hegel's dialectical philosophy lacks a quantified and modalized symbolic logic; to map it into a modal logic model checker is hence potentially problematic.