

Taken from:

Uluçay, Vakkas; Şahin, Mehmet; Olgun, Necati; and Kiliçman, Adem.
 "On neutrosophic soft lattices".
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We evaluate the neutrosophic logic based on its most atomic level of soft lattices, as published by Springer-Verlag in 2016.

Of interest to us is the seminal Theorem 3.17 on un-numbered page 7 is this theorem:

$$\text{Every neutrosophic soft lattice is a one-sided distributive neutrosophic soft lattice.} \tag{3.17}$$

We assume the apparatus and method of Meth8 implementing variant logic system VL4.

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

Due to problematic font presentation of symbols in the paper, we substitute equations here, as:

LET: $p\ q\ r\ F_A\ F_B\ F_C$;
 \sim Not; $=$ Equivalent to; $\&$ And; \backslash Not And; $+$ Or; $-$ Not Or; $>$ Imply; $<$ Not Imply;
 $\backslash \sim \wedge$, Not And; $- \sim \vee$, Not Or;
 $\sim \leq$, Not less than or equal to (n.L.T.E): " $p \sim \leq q$ " is equivalent to " $\sim((p < q) + (p = q))$ ".

The designated *proof* value is T. The 16-valued tables are horizontal as row-major.

We evaluate Eq. 3.17 as stand-alone first, then as a consequence of the build up farther below.

$$F_A \sim \wedge F_B = (F_A \sim \wedge F_B) \sim \wedge (F_A \sim \wedge F_B) \sim \leq F_A \sim \wedge (F_B \sim \vee F_C) \tag{3.17.1}$$

This renders in Meth8 as:

$$(p \backslash q) = ((p \backslash q) \backslash \sim(((p \backslash q) < (p \backslash (q-r))) + ((p \backslash q) = (p \backslash (q-r))))); \text{TTTT TTTT TTTT TTTT} \tag{3.17.2}$$

Eq. 3.17.2 as rendered by Meth8 is *not* tautologous (all T) and hence not a theorem.

Without repeating build up arguments to Eq. 3.17.1, as "*Proof* Let ... Since ... and ..., Therefore," we present the entire argument rendered in Meth8 in 123 steps as:

$$\begin{aligned}
&(((p \sim ((q < p) + (q = p))) \& (p \sim ((q < \sim ((q < \sim ((q < (q-r)) + (q = (q-r)))) + (q = \sim ((q < (q-r)) + (q = (q-r))))))) \\
&+ (q = \sim ((q < \sim ((q < (q-r)) + (q = (q-r)))) + (q = \sim ((q < (q-r)) + (q = (q-r))))))) > ((p \sim ((q < p) + (q = p))) \\
&\& (p \sim ((q < (q-r)) + (q = (q-r)))))) > ((p \sim ((q < (q-r)) + (q = (q-r)))) + (p \sim ((q < (q-r)) + (q = (q-r)))))) ; \\
&\qquad\qquad\qquad \text{T T T F} \quad \text{T T T F} \quad \text{T T T F} \quad \text{T T T F} \qquad (3.17.3)
\end{aligned}$$

Eq. 3.17.3 as rendered by Meth8 is *not* tautologous (all T), at which we stopped.

The proof tables from Eqs. 3.17.2 and 3.17.3 are identical which means the build up arguments are confirmed to produce Eq. 3.17.1, but for which Eq. 3.17 is refuted as a conjectured theorem.

This brief evaluation implies that the field of soft set theory as originally introduced by D. Molodtsov is suspicious and specifically that the field of neutrosophic logic, as evidenced in its basis of soft set theory, is unworkable.

This conclusion is multitudinal because of the plethora of duplicated papers as translations in multiple fields at vixra.org regarding the neutrosophic logic system of Florentin Smarandache.