Refutation of Shevenyonov extension nary antropic to propositional logic

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Abstract: Out of 18 equations evaluated, two were trivial theorems, and 16 were not tautologous. This refutes the Shevenyonov extension nary antropic to propositional logic and relegates it to a non tautologous fragment of the universal logic $VL^4$.

We assume the method and apparatus of Meth8/$VL^4$ with Tautology 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, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)


Remark 0: We do not re-typeset the author’s equations as keyed to the text because of no point of contact. The equations in the Appendix attributed to Stall are in order.

Abstract: The proposed extension of propositional logic appears to bridge gaps across areas as diverse as inductive strength and deductive validity, morphisms and Russellian attempts at formal axiomatization, anthropic alternates, and generalized games - ultimately pointing to gradiency and orduality rationales.

Eqs. Beginning at top of page 2:

LET $p, q, r, s$: $p, q, A, B.$

$((p&r)>(q&s))=((~q&s)>(~p@r))$;

\[
\begin{array}{cccc}
TTTT & TFTF & TFFT & FFTT \\
\end{array}
\] (1.0.0.2)

$(((~q&#r)>(~p&r))&((~p&%r)>(~q&r)))+((~p&%r)>(q&r)))>((q&#r)>(q&r))$;

\[
\begin{array}{cccc}
TTTT & TTTT & TTTT & TTTT \\
\end{array}
\] (1.0.2)

Remark 1.0.2: Eq. 1.0.2 as rendered is the seminal “form”, which is a trivial theorem.

$((p&r)>(q&s))=((~q&s)>(~p@r))$;

\[
\begin{array}{cccc}
TTTT & TFTT & TFTT & FFTT \\
\end{array}
\] (1.2)

$(((%s>#!s)+(p@r))&(q&s))=((((%s>#!s)+(~q@s))&(~p@r))$;

\[
\begin{array}{cccc}
TTTT & FTCT & TTCF & CTTC \\
\end{array}
\] (1.5.2)
\[ \neg(((p \& r) -(p \& s)) - (p - p)) = ((r \& s) \& (p \& \neg p)) \]

| TTTT | TTTT | TTTT | FFFF |

\[ (p = q) > \neg(((p \& r) -(p \& s)) - (p - p)) = ((r \& s) \& (p \& \neg p)) \]

| TTTT | TTTT | TTTT | FTTT |

[A] non-commutative generalization of the naive-case equivalence:

\[ ((s \& ((%s > #s) + r)) \& (r \& ((%s > #s) + s))) + ((r > s) @ (s > r)) \]

| TTTT | FFFF | FFFF | TTTT |

[T]he more 'rigorous' approach would be to embark on the initial conventions:

\[ (((%s > #s) + r) \& s) = (((%s > #s) + (\neg q \& s)) \& (\neg p \& r)) + ((r > s) = ((\neg q \& s) > (\neg p \& r))) \]

| TTTT | CCTT | CCTT | TFFT |

**Appendix:** The following conventions can be looked up as early as Stoll (1960), or discerned directly from a handful of basic identities:

\[
\begin{align*}
(r - s) &= (r \& \neg s) ; \\
(r + s) &= (s + r) ; & \text{[trivial theorem by inspection]} \\
(r + r) &= (s \& s) ; \\
((%s > #s) + s) &= \neg s ; \\
((%s > #s) + (%s > #s)) &= (s \& s) ; \\
(r + s) &= (r \& s) ; \\
(r \& s) &= ((r + s) + (r \& s)) ; \\
(r > s) &= ((%s > #s) + r) \& s ; \\
(r > r) &= (((%s > #s) + r) \& r) = ((r + r) = (s \& s)) ; \\
(r = s) &= (r + s) ;
\end{align*}
\]

**Remark Appendix:** The equations above were not verified against Stoll, R. (1960). Sets, logic, and axiomatic theories. London. WH Freeman & Co. because none is tautologous.

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