Refutation of Shevenyonov extension nary antropic to propositional logic

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 VŁ4.

We assume the method and apparatus of Meth8/VŁ4 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.)

LET ~ Not, ¬ ; + Or, ∨, ∪, ⊔ ; - Not Or; & And, ∧, ∩, ⊓, ·; \ Not And;
> Imply, greater than, →, ⇒, ↦, ≻, ⊃, ↠ ; < Not Imply, less than, ∈, ≺, ⊂, ⊬, ⊭, ↞, ≲ ;
= Equivalent, ≡, :=, ⇔, ↔, ≜, ≈, ≃ ; @ Not Equivalent, ≠;
% possibility, for one or some, ∃, ◊, M; # necessity, for every or all, ∀, □, L;
(z=z) T as tautology, ⊤, ordinal 3; (z@z) **F** as contradiction, Ø, Null, ⊥ , zero;
(%z>#z) N as non-contingency, Δ, ordinal 1; (%z<#z) C as contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆ y), (x ⊑ y); (A=B) (A~B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From: Shevenyonov, A. (2016). Propositional logic: an extension nary antropic.
vixra.org/pdf/1611.0415v1.pdf

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)) ;
TTTT T**F**T**F** T**F**TT **FF**TT (1.0.0.2)

((((~q&#r)>(~p&r))&((~p&%r)>(~q&r)))+((~p&%r)>(q&r)))>((q&#r)>(q&r)) ;
TTTT TTTT TTTT TTTT (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)) ;
TTTT T**F**T**F** T**F**TT **FF**TT (1.2)

(((%s>#s)+(p@r))&(q&s))=(((%s>#s)+(~q@s))&(~p&r)) ;
TTTT **F**TCT TTC**F** CTTC (1.5.2)

~(((~p&r)-(p&s))\(~p-p))=((r&s)&(p+~p)) ;
TTTT TTTT TTTT **FFFF** (1.5.2.2)

(p=q)>(~(((~p&r)-(p&s))\(~p-p))=((r&s)&(p+~p))) ;
TTTT TTTT TTTT **F**T**F**T (1.5.3.2)

[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 (1.8.3.2)

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

((((%s>#s)+r)&s)=(((%s>#s)+(~q&s))&(~p&r)))+((r>s)=((~q&s)>(~p&r))) ;
TTTT CTCT CCTT T**F**TT (1.9.3.2)

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

(r-s)=(r&~s) ;	**FFFF** **FFFF** TTTT TTTT	
(r+s)=(s+r) ;	[trivial theorem by inspection]	
(r+r)=(s@s) ;	TTTT **FFFF** TTTT **FFFF**	
((%s>#s)+s)=~s ;	NNNN NNNN **FFFF** **FFFF**,	}
((%s>#s)+(%s>#s))=(s@s) ;	CCCC CCCC CCCC CCCC	}
(r+s)=(r&s) ;	TTTT **FFFF** **FFFF** TTTT,	}
(r&s)=((r+s)+(r&s)) ;	TTTT **FFFF** **FFFF** TTTT	}
(r>s)=(((%s>#s)+r)&s) ;	**FFFF** TTTT NNNN TTTT	
((r>r)=(((%s>#s)+r)&r))=((r+r)=(s@s)) ;	**FFFF** **FFFF** **FFFF** **FFFF**	
(r=s)=(r+s) ;	**FFFF** **FFFF** **FFFF** TTTT	

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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