Confirmation of VŁ4 as complete

Abstract: Logic VŁ4 is defined as a bivalent classical logic that maps quantifiers to modalities as a tautology making VŁ4 complete. Paraconsistent, non bivalent, vector logics are defined as *non* tautologous fragments of VŁ4 as a universal logic.

We assume the method and apparatus of Meth8/VŁ4 with `T`autology 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); (A=B) (A~B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

Logic VŁ4, for variant $MŁ_4$, is a bivalent classical logic that maps quantifiers to modalities: the existential quantifier is equivalent to the modal operator of possibility; and the universal quantifier is equivalent to the modal operator of necessity. This definition is expressed in words as:

The possibility of p implying the necessity of p implies
the possibility of q implying the necessity of q. (1.1)

((%p>#p)>((%q>#q); `TTTT TTTT TTTT TTTT` (1.2)

Eq. 1.2 as rendered invokes the equivalence of the quantifiers to modal operators to map the logical value of non contingency `N` or truthity to imply the logical value of non contingency `N` or truthity. Eq. 1.2 results in `T` or tautology as self proving and complete.

Paraconsistent, non-bivalent, vector logics are expressed in words as:

The possibility of p implying the necessity of p implies
the possibility of q *not* implying the necessity of q. (1.1)

(%p>#p)>(%q<#q) ; `CCCC CCCC CCCC CCCC` (2.2)

Eq. 2.2 invokes the logical value of non contingency `N` or truthity to imply the logical value of contingency `C` or falsity. Eq. 2.2 results in `C` or falsity as *not* tautologous.

VŁ4 classifies conjectures as a tautologous or *not* tautologous result, with the latter to include the contradictory result. This qualifies VŁ4 as a universal logic because it maps known logics, some of which as *non* tautologous fragments of VŁ4, another indication that VŁ4 is complete.