Refutation of paraconsistent logic on one conjecture

Abstract: We evaluate the seminal equivalence and replacement formula of paraconsistent logic, that one formula is equivalent to another in the sense that either can be substituted for the other wherever they appear as a subformula. It is *not* tautologous, and hence relegates paraconsistent logic to a *non* tautologous fragment of the universal logic VŁ4.

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), (x ⊑ y); (A=B) (A~B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From: en.wikipedia.org/wiki/Paraconsistent_logic#An_ideal_three-valued_paraconsistent_logic

(4) To establish that a formula Γ is equivalent to Δ in the sense that either can be substituted for the other wherever they appear as a subformula, one must show

$$((\Gamma\rightarrow\Delta)\wedge(\Delta\rightarrow\Gamma))\wedge((\neg\Gamma\rightarrow\neg\Delta)\wedge(\neg\Delta\rightarrow\neg\Gamma)). \tag{4.1}$$

LET p, q: Γ, Δ.

((p>q)&(q>p))&((~p>~q)&(~q>~p)) ;
T**FF**T T**FF**T T**FF**T T**FF**T (4.2)

Remark 4.2: Eq. 4.2 as rendered is not tautologous. This refutes the seminal theorem of replacement in paraconsistent logic.