Refutation of the meet-tree

Abstract: Two equations defining the meet-tree are *not* tautologous, thereby contradicting the claim that "proof is straightforward (using similinearity)". Therefore these results form 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); (A=B) (A~B); (B>A) (A⊢B); (B>A) (A⊨B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

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On the automorphism group of the universal homogeneous meet-tree.
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The following simple observation, reminiscent of the ultrametric triangle inequality, will be immensely useful in the rest of this paper.

Fact 2.18. *Let a; b; c be elements of a meet-tree T. Then:*

a ^ b ^ c = a ^ b or a ^ b ^ c = a ^ c, (2.18.1.1)
LET p, q, r: a, b, c.
((p&q)&r)=(((p&q)+((p&q)&r))=(p&r)) ; **FFF**T **F**T**F**T **FFF**T **F**T**F**T (2.18.1.2)

if a ^ b > a ^ c, then a ^ c = b ^ c, (2.18.2.1)
((p&q)>(p&r))>((p&r)=(q&r)) ; TTTT T**FF**T TTTT T**FF**T (2.18.2.2)

If a ^ b ≥ a ^ c, then a ^ c ≤ b ^ c. (2.18.3.1)
~((p&r)>(p&q))>~((q&r)<(p&r)) ; TTTT TTTT TTTT TTTT (2.18.3.2)

Proof. The proof is straightforward (using semilinearity).

The two Eqs.2.18.1.2-..2.2 are *not* tautologous, thereby contradicting that "proof is straightforward (using similinearity)" of the meet-tree.