Refutation of De Finettian logics of indicative conditionals

Abstract: We evaluate De Finettian logics which specifies four conditionals, as attributed to Aristotle, Boethius, Cooper-Cantwell, Jeffrey, and six axioms. None is tautologous. This refutes their use to justify connexive logic.

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). For results, the 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. Reproducible transcripts for results are available. (See ersatz-systems.com.)

LET p, q, r, s: A, B, C, D;
~ 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, ∅, Null, ⊥, zero;
(%z<#z) C as contingency, Δ, ordinal 1; (%z>#z) N as non-contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆y); (A=B) (A~B).

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Remark 0: Because formulas in the paper are not labelled, equations are keyed to the respective section and number of consecutive appearance.

$A\rightarrow B\models_{TT}\neg(A\rightarrow\neg B)$ (3.1.5.1)

(p>q)>~(p>~q) ; **F**T**F**T **F**T**F**T **F**T**F**T **F**T**F**T (3.1.5.2)

$\neg A\vee B\not\models_{TT}\neg(\neg A\vee\neg B)$ (3.1.6.1)

~((~p+q)>~(~p+~q))=(p=p) ; T**F**T**F** T**F**T**F** T**F**T**F** T**F**T**F** (3.1.6.2)

$A\rightarrow B\models_{SS}A\wedge B$ (3.2.1.1)

(p>q)>(p&q) ; **F**T**F**T **F**T**F**T **F**T**F**T **F**T**F**T (3.2.1.2)

$A\rightarrow B\models_{SS}B\rightarrow A$ (3.2.2.1)

(p>q)>(q>p) ; TT**F**T TT**F**T TT**F**T TT**F**T (3.2.2.2)

$A\rightarrow B\not\models_{TT}A\wedge B$ (3.2.3.1)

~((p>q)>(p&q))=(p=p) ; T**F**T**F** T**F**T**F** T**F**T**F** T**F**T**F** (3.2.3.2)

$A\rightarrow B\nvDash_{TT}B\rightarrow A$ (3.2. 4.1)

~((p>q)>(q>p))=(p=p) ; **FF**T**F** **FF**T**F** **FF**T**F** **FF**T**F** (3.2.4.2)

$(A\rightarrow B)\rightarrow A$ (4.2.1.1)

(p>q)>p ; **F**T**F**T **F**T**F**T **F**T**F**T **F**T**F**T (4.2.1.2)

Aristotle's thesis: $\neg(\neg A\rightarrow A)$ (5.3.1.1)

~(~p>p)=(p=p) ; T**F**T**F** T**F**T**F** T**F**T**F** T**F**T**F** (5.3.1.2)

Boethius' thesis: $(A\rightarrow C)\rightarrow\neg(A\rightarrow\neg C)$ (5.3.2.1)

(p>r)>~(p>~r) ; **F**T**F**T **F**T**F**T **F**T**F**T **F**T**F**T (5.3.2.2)

Holds for Cooper-Cantwell conditional : $\neg(A\rightarrow B)\equiv_{m}(A\rightarrow\neg B)$ (5.3.3.1)

~(p>q)=(p>~q) ; **F**T**F**T **F**T**F**T **F**T**F**T **F**T**F**T (5.3.3.2)

Holds for any Jeffrey conditional: $A\rightarrow B\nvDash_{TT}\neg B\rightarrow\neg A$ (5.6.1.1)

~((p>q)>(~q>~p))=(p=p) ; **FFFF** **FFFF** **FFFF** **FFFF** (5.6.1.2)

None of the ten equations above as rendered is tautologous. This denies that use to justify connexive logic with which we dispensed previously elsewhere.