

Implication combinations derived from $(p>q)>r$

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We assume the method and apparatus of Meth8/VL4 with Tautology as the designated *proof* value, F as contradiction, N as truthity (non-contingency), and C as falsity (contingency). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables.

LET: + Or; & And; > Imply; = Equivalent.

The commencing antecedent is:

$$(p>q)>r ; \quad \text{FTFF} \quad \text{TTTT} \quad \text{FTFF} \quad \text{TTTT} \quad (\text{n.1})$$

The subsequent consequents as pairs producing tautology are:

$$((p>q)>r)>(((p>q)>(p>r))>(q>r)) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (11)$$

$$((p>q)>r)>(((p>q)+(p>r))+(q>r)) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (13)$$

$$((p>q)>r)>(((p+q)+(p+r))+(q+r)) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (33)$$

However, the consequents of Eqs. 11, 13, and 33 are not equivalents:

$$((p>q)>(p>r))>(q>r) ; \quad \text{TTFT} \quad \text{TTTT} \quad \text{TTFT} \quad \text{TTTT} \quad (11.2)$$

$$((p>q)+(p>r))+(q>r) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (13.2)$$

$$((p+q)+(p+r))+(q+r) ; \quad \text{FTTT} \quad \text{TTTT} \quad \text{FTTT} \quad \text{TTTT} \quad (33.2)$$

We ask, what other equations are derived from Eq. n.1 as antecedent with consequent pair types.

$$(p\&q)>(p>q) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (4n.2)$$

$$((p>q)>r)>(((p\&q)>(p>q))>((p\&r)>(p>r))>((q\&r)>(q>r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (41)$$

$$((p>q)>r)>(((p\&q)>(p>q))\&((p\&r)>(p>r))\&((q\&r)>(q>r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (42)$$

$$((p>q)>r)>(((p\&q)>(p>q))+(p\&r)>(p>r))+(q\&r)>(q>r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (43)$$

$$(p>q)+(p+q) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (5n.2)$$

$$((p>q)>r)>(((p>q)+(p+q))>((p>r)+(p+r))>((q>r)+(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (51)$$

$$((p>q)>r)>(((p>q)+(p+q))\&((p>r)+(p+r))\&((q>r)+(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (52)$$

$$((p>q)>r)>(((p>q)+(p+q))+(p>r)+(p+r))+(q>r)+(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (53)$$

$$(p\&q)>(p+q) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (6n.2)$$

$$((p>q)>r)>(((p\&q)>(p+q))>((p\&r)>(p+r))>((q\&r)>(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (61)$$

$$((p>q)>r)>(((p\&q)>(p+q))\&((p\&r)>(p+r))\&((q\&r)>(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (62)$$

$$((p>q)>r)>(((p\&q)>(p+q))+(p\&r)>(p+r))+(q\&r)>(q+r))) ; \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad \text{TTTT} \quad (63)$$

Eqs. with whole numbers are named general forms of $(p>q)>r$ by implication on Meth8/VL4.