

Example of M8VL4 decision making in military real time

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), (x ⊑ y); ~(x < y) (x ≥ y); (A=B) (A~B).
Notes: for clarity, we usually distribute quantifiers onto each designated variable; and for ordinal arithmetic, the result is implied.

The conjecture is translated from utterance of the non-opponent (or the opponent) as the assertion:

If the opponent is on high ground implying no path then the non-opponent implies a path *not* on high ground. (1.1)

LET p, q, r: path, opponent, high ground; where no path means stationary..

((q&r)>~p)>(~q>(p&~r)) ; **F**TTT **FF**TT **F**TTT **FF**TT in 11 steps (1.2)

Remark 1.2: The usual dictum taught is that a stationary opponent on higher ground is better than a moving non-opponent on lower ground.

A contra example of sorts is the assertion in 1.1 but with the final consequent as for a path on high ground:

If the opponent is on high ground implying no path then the non-opponent implies a path on high ground. (2.1)

((q&r)>~p)>(~q>(p& r)) ; **FF**TT **F**TTT **FF**TT **F**TTT in 11 steps (2.2)

Remark 2.2: This differs from the usual dictum in 1.1 to teach in contrast that a stationary opponent on higher ground is relatively less desirable with a moving non-opponent on lower ground. This may be due to projectile distance from the opponent as greater for the non-opponent at lower ground.

The truth table of 1.2 is binary 2's complement 00111111 00001111 00111111 00001111 or 1,057,963,791.
The truth table of 2.2 is binary 2's complement 00001111 00111111 00001111 00111111 or 255,790,911.
The range is contradiction of 0 to tautology (proof) of 4,294,967,295 or (2^32)-1.
The rounded relative percentages are 25% for truth table 1.2 and 6% for truth table 2.2.

In this case, the assertion of 1.1 is closer to proof than the assertion of 2.1. This means the non-opponent on lower ground is better because the projectile distance is farther away from the opponent on higher ground. This contradicts that normally taught as intuitive for higher stationary ground as better than a mobile path at a lower ground.