

Confirmation of the conjecture that all force speed is greater than a light speed

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Abstract: We evaluate two versions of the conjecture that all force speed is greater than a light speed. The conjecture is confirmed as tautologous.

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). 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 \sim Not, \neg ; + Or, \vee , \cup , \sqcup ; - Not Or; & And, \wedge , \cap , \sqcap , \cdot ; \ Not And;
 $>$ Imply, greater than, \rightarrow , \Rightarrow , \mapsto , $>$, \supset , \Rightarrow ; $<$ Not Imply, less than, \in , $<$, **C**, \neq , \neq , \ll , \leq ;
 $=$ Equivalent, \equiv , $:=$, \Leftrightarrow , \leftrightarrow , $\hat{=}$, \approx , \cong ; @ Not Equivalent, \neq ;
 $\%$ possibility, for one or some, \exists , \diamond , **M**; # necessity, for every or all, \forall , \square , **L**;
 $(z=z)$ **T** as tautology, \top , ordinal 3; $(z@z)$ **F** as contradiction, \emptyset , Null, \perp , zero;
 $(\%z\>\#z)$ **N** as non-contingency, Δ , ordinal 1; $(\%z\<\#z)$ **C** as contingency, ∇ , ordinal 2;
 $\sim(y < x)$ ($x \leq y$), ($x \subseteq y$), ($x \sqsubseteq y$); $(A=B)$ $(A\sim B)$.

Note for clarity, we usually distribute quantifiers onto each designated variable.

We evaluate force speed greater than light speed. In modal terms, we write this as necessity of force speed (passing through matter unhindered) is greater than possibility of light speed (varying as to medium). In quantified terms, we write this as all force speed greater than at least one light speed.

Definition 6.1: The necessity of force speed greater than the possibility of light speed implies that: the combination of the necessity of force speed and possibility of light speed is greater than the necessity of force speed lesser than the possibility of light speed implying the combination of the necessity of force speed and possibility of light speed. (6.1)

LET p, q, r, s : force speed, q, r , light speed.

$$(\#p\>\%s)\>((\#p\&\%s)\>((\#p\<\%s)\>(\#p\&\%s))) ; \text{TTTT TTTT TTTT TTTT} \quad (6.2)$$

Remark 6.2: Eq. 6.1 can be written with the consequent having a negation clause.

Definition 7.1: The necessity of force speed greater than the possibility of light speed implies that: the combination of the necessity of force speed and possibility of light speed is greater than not the combination of the necessity of force speed and possibility of light speed implying the necessity of force speed lesser than the possibility of light speed. (7.1)

$$(\#p\>\%s)\>((\#p\&\%s)\>\sim((\#p\&\%s)\>(\#p\<\%s))) ; \text{TTTT TTTT TTTT TTTT} \quad (7.2)$$

Eqs. 6.2 and 7.2 as rendered are tautologous, hence confirming all force speed is greater than a light speed.