

Logic I
Fall 2009
Quiz 4

Complete the definitions below.

1. \mathbf{P} is derivable from Γ ($\Gamma \vdash \mathbf{P}$) iff...
2. \mathbf{P} is truth-functionally entailed by Γ ($\Gamma \models \mathbf{P}$) iff...
3. Γ is truth-functionally consistent iff...
4. Γ is maximally consistent in SD iff...

We can prove by mathematical induction that for any sentence \mathbf{P} of SL, on any TVA \mathbf{P} has the same truth-value as \mathbf{P} prefixed by any even number of negations. Complete the following proof, letting S be the ordered sequence of all non-negative even integers (this includes 0).

Basis Clause: ...

Inductive Step: If, for the i th member of S , on any TVA \mathbf{P} has the same truth-value as \mathbf{P} prefixed by n negation symbols, where n is the i th member of S , then ...

Proof of inductive step: ...

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