

M.A. Examination in Logic, January 2004

General Instructions

Answer *either* two questions from Part One and one from Part Two, *or* one question from Part One and two from Part Two. If you answer two questions from Part One, be sure you choose questions as directed.

Part One

You may answer only one question from each sub-part.

Sub-Part A

1. State, *sketch a proof of*, and explain the logical and philosophical significance of Church's undecidability theorem.
2. State, *sketch a proof of*, and explain the logical and philosophical significance of the completeness theorem for first-order logic.
3. State, *sketch a proof of*, and explain the logical and philosophical significance of the existence of a recursively enumerable, but not recursive set.

Sub-Part B

4. State, *sketch a proof of*, and explain the logical and philosophical significance of Gödel's first incompleteness theorem.
5. State, *sketch a proof of*, and explain the logical and philosophical significance of Gödel's second incompleteness theorem.
6. State, *sketch a proof of*, and explain the logical and philosophical significance of Tarski's indefinability theorem.

Part Two

1. "Which sentences are called logically true is highly arbitrary. For, certain symbols are called logical symbols, and their meanings are held fixed in all interpretations, while the meanings of other so-called non-logical symbols are allowed to vary from one interpretation to another. Then the logical truths are defined to be just those sentences that are true on all interpretations in which the logical symbols have their fixed meanings. Now, since any symbol's meaning can be so fixed, the choice of which sentences are logically true is arbitrary." Is the view expressed correct? Explain.

2. What is the philosophical significance of model theory?
3. Why think that the conditional of English is truth-functional? Why think the conditional of English is not truth-functional? What exactly should we think?
4. Why might someone think that the logic of a language with vague predicates cannot be classical? Would such a thought be correct?
5. What does the Liar Paradox teach us about natural language semantics?