

Review of  
**CHARLES L. SILVER, *FROM SYMBOLIC LOGIC ...  
TO MATHEMATICAL LOGIC***

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For Silver, symbolic logic consists of sentential calculus and first-order predicate calculus without identity, but mathematical logic covers various advanced topics, like first-order number theory and the limitative theorems of Gödel and Church. In more familiar terminology, ‘symbolic logic’ refers to elementary logic without identity, and ‘mathematical logic’ to metamathematics. Thus, the title of this textbook informs that its material proceeds from elementary logical calculi to metamathematics. The author warns that this organization is also parallel to the increasing technical complexity of the text.

The book is divided into eleven chapters. Chapter 0 is devoted to mathematical preliminaries (sets, mathematical induction). Chapter 1 presents the formal syntax of sentential logic (SL, for brevity) together with a review of inference rules of this system. In the next section, we find short-cut rules for SL; also, an axiomatic version is briefly sketched. Chapter 3 deals with the semantics of SL through Boolean interpretation. Various facts are proved about Boolean models of SL, including compactness. Connections of syntax and semantics of SL are investigated in Chapter 6. In particular, we have here proofs of consistency (by purely syntactic resources), soundness and strong completeness; compactness is also revisited. The next two chapters are devoted to syntax and semantics of predicate logic (PL, for brevity). Among questions discussed, we have inference rules, derivations from assumptions, interpretations, truth for an interpretation, satisfiability, validity, invalidity, and logical consequence. Chapter 6 terminates the review of symbolic logic in the book.

Mathematical logic begins with Chapter 7 in which connections between the syntax and semantics of PL are shown. In particular, proofs of strong soundness, consistency, strong completeness and compactness