

**Barendregt, H. P.**

**The lambda calculus. Its syntax and semantics. Rev. ed.** (English) Zbl 0551.03007

*Studies in Logic and the Foundations of Mathematics*, 103. Amsterdam-New York-Oxford: North-Holland. XV, 621 p. hbk: \$ 70.00; Dfl. 250.00; pbk: \$ 35.00; Dfl. 125.00 (1984).

This revised version of the lambda calculus book by H. Barendregt can be considered as a fundamental work in the subject (for a review of the first edition (1981) see [[Zbl 0467.03010](#)]). The various aspects of that calculus have been explored and explained: conversion, reduction, theories and models. After the classical books by *H. B. Curry* and *R. Feys* [Combinatory logic. Vol. I (1958; [Zbl 0081.241](#))] and *H. B. Curry, J. R. Hindley, J. P. Seldin* [Combinatory logic. Vol. II (1972; [Zbl 0242.02029](#))], the lambda calculus community finds in Barendregt's book a very interesting and comprehensive account of what has been done in the area, especially during the 70's and the early 80's. The revised edition of that book gives a closer look at the models of lambda calculus and includes recent results.

Another reference for persons interested in the subject is *J. W. Klop's* work: [Combinatory reduction systems (1980; [Zbl 0466.03006](#))].

Reviewer: [A.Pettorossi](#)

**MSC:**

- [03B40](#) Combinatory logic and lambda calculus
- [03-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to mathematical logic and foundations
- [03-02](#) Research exposition (monographs, survey articles) pertaining to mathematical logic and foundations
- [68Q65](#) Abstract data types; algebraic specification
- [68Q55](#) Semantics in the theory of computing

Cited in **12** Reviews  
Cited in **496** Documents

**Keywords:**

syntax; semantics; reduction systems; type-free lambda calculus; models