1. Record Nr. UNINA9910754088803321 Autore Fitting Melvin Titolo First-Order Modal Logic / / by Melvin Fitting, Richard L. Mendelsohn Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2023 9783031407147 **ISBN** 3031407148 Edizione [2nd ed. 2023.] 1 online resource (464 pages) Descrizione fisica Collana Synthese Library, Studies in Epistemology, Logic, Methodology, and Philosophy of Science, , 2542-8292 ; ; 480 MendelsohnRichard L Altri autori (Persone) Disciplina 160 Soggetti Logic Logic, Symbolic and mathematical Computational linguistics Mathematical Logic and Foundations Computational Linguistics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Preface -- Acknowledgments -- Part I. Background: Propositional Classical Logic. 1. Background: Propositional Language -- 2. Background: Propositional Axiomatics -- 3. Background: Propositional Tableaus -- Part II. Propositional Modal Logic, 4. Modal Logic, an Introduction -- 5. Propositional Modal Logic -- 6. Propositional Modal Axiom Systems -- 7. Propositional Modal Tableaus -- Part III. First-Order Modal Logic. 8. Quantified Modal Logic -- 9. First-Order Modal Tableaus -- 10. First-Order Modal Axiomatics -- Part IV. Equality and Existence. 11. Equality -- 12. Existence -- Part V. Predicate Abstraction and Scope. 13. Predicate Abstraction, Informally -- 14. Predicate Abstraction, Formally -- 15. Tableaus for Predicate Abstraction -- 16. Tableau Soundness and Completeness. Part VI. Applications. 17. Equality and Predicate Abstraction -- 18. Designation -- 19. Rigidity --20. Definite Descriptions -- Afterward. This revised edition of the highly recommended book "First-Order Sommario/riassunto

Modal Logic", originally published in 1998, contains both new and modified chapters reflecting the latest scientific developments. Fitting

and Mendelsohn present a thorough treatment of first-order modal logic, together with some propositional background. They adopt throughout a threefold approach. Semantically, they use possible world models; the formal proof machinery is tableaus; and full philosophical discussions are provided of the way that technical developments bear on well-known philosophical problems. The book covers quantification itself, including the difference between actualist and possibilist quantifiers; equality, leading to a treatment of Frege's morning star/evening star puzzle; the notion of existence and the logical problems surrounding it; non-rigid constants and function symbols; predicate abstraction, which abstracts a predicate from a formula, in effect providing a scoping function for constants andfunction symbols, leading to a clarification of ambiguous readings at the heart of several philosophical problems; the distinction between nonexistence and nondesignation; and definite descriptions, borrowing from both Fregean and Russellian paradigms. Review of the First Edition: "This Text is an excellent and most useful volume. It is pitched correctly: the exercises are just right... It sets a high standard for anything following. It is to be highly recommended." (Bulletin of Symbolic Logic, 8:3).