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Nota di contenuto	Logic-Based Methods for Optimization: Combining Optimization and Constraint Satisfaction; Preface; Contents; 1 Introduction; 1.1 Logic and Optimization; 1.1.1 Optimization and Constraint Satisfaction; 1.1.2 Constraint Programming; 1.1.3 Development of Logic-Based Methods; 1.1.4 Recent Applications and Software; 1.2 Organization of the Book; 1.2.1 How Much to Read; 1.2.2 Background Material; 1.2.3 A Practical Logic-Based System; 1.2.4 A Deeper Analysis; 2 Some Examples; 2.1 Logic-Based Modeling; 2.1.1 The Traveling Salesman Problem; 2.1.2 The Assignment Problem 2.1.3 The Quadratic Assignment Problem 2.1.4 A Job Shop Scheduling Problem; 2.2 A Knapsack Problem; 2.2.1 An Integer Programming Model; 2.2.2 An Integer Programming Solution; 2.2.3 A Logic-Based Solution; 2.3 Processing Network Design; 2.3.1 An Integer Programming Approach; 2.3.2 A Logic-Based Approach; 2.4 Lot Sizing;

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3.2.1 The Resolution Algorithm; 3.2.2 Projection; 3.2.3 Unit Resolution; 3.2.4 Constraint-Based Search; 4 The Logic of Discrete Variables; 4.1 Formulas of Discrete-Variable Logic; 4.1.1 Formulas and Semantics; 4.1.2 Multivalent Clauses; 4.2 Multivalent Resolution; 4.2.1 Full Resolution; 4.2.2 Projection; 4.2.3 Unit Resolution; 4.2.4 Constraint Generation; 4.3 Defined Predicates; 5 The Logic of 0-1 Inequalities; 5.1 Inequalities and Implication; 5.2 Resolution for 0-1 Inequalities; 5.2.1 The Algorithm; 5.2.2 Completeness of 0-1 Resolution; 5.2.3 Resolution and Cutting Planes
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8.2.1 Traveling Salesman, Assignment, and Job Shop Problems

Sommario/riassunto

A pioneering look at the fundamental role of logic in optimization and constraint satisfaction. While recent efforts to combine optimization and constraint satisfaction have received considerable attention, little has been said about using logic in optimization as the key to unifying the two fields. *Logic-Based Methods for Optimization* develops for the first time a comprehensive conceptual framework for integrating optimization and constraint satisfaction, then goes a step further and shows how extending logical inference to optimization allows for more powerful as well as flexible modeling.
