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Proof Methods; 6.6 Controlling Backtracking; 6.7 Negation as Failure; 6.8 Dynamic Databases; 6.9 Bibliographic Notes; 6.10 Exercises; Chapter 7. Rules in Production Systems; 7.1 Production Systems: Basic Operation; 7.2 Working Memory; 7.3 Production Rules; 7.4 A First Example; 7.5 A Second Example; 7.6 Conflict Resolution; 7.7 Making Production Systems More Efficient; 7.8 Applications and Advantages; 7.9 Some Significant Production Rule Systems; 7.10 Bibliographic Notes; 7.11 Exercises; Chapter 8. Object-Oriented Representation 8.1 Objects and Frames 8.2 A Basic Frame Formalism; 8.3 An Example: Using Frames to Plan a Trip; 8.4 Beyond the Basics; 8.5 Bibliographic Notes; 8.6 Exercises; Chapter 9. Structured Descriptions; 9.1 Descriptions; 9.2 A Description Language; 9.3 Meaning and Entailment; 9.4 Computing Entailments; 9.5 Taxonomies and Classification; 9.6 Beyond the Basics; 9.7 Bibliographic Notes; 9.8 Exercises; Chapter 10. Inheritance; 10.1 Inheritance Networks; 10.2 Strategies for Defeasible Inheritance; 10.3 A Formal Account of Inheritance Networks; 10.4 Bibliographic Notes; 10.5 Exercises; Chapter 11. Defaults 11.1 Introduction 11.2 Closed-World Reasoning; 11.3 Circumscription; 11.4 Default Logic; 11.5 Autoepistemic Logic; 11.6 Conclusion; 11.7 Bibliographic Notes; 11.8 Exercises; Chapter 12. Vagueness, Uncertainty, and Degrees of Belief; 12.1 Noncategorical Reasoning; 12.2 Objective Probability; 12.3 Subjective Probability; 12.4 Vagueness; 12.5 Bibliographic Notes; 12.6 Exercises; Chapter 13. Explanation and Diagnosis; 13.1 Diagnosis; 13.2 Explanation; 13.3 A Circuit Example; 13.4 Beyond the Basics; 13.5 Bibliographic Notes; 13.6 Exercises; Chapter 14. Actions; 14.1 The Situation Calculus 14.2 A Simple Solution to the Frame Problem

Sommario/riassunto

Knowledge representation is at the very core of a radical idea for understanding intelligence. Instead of trying to understand or build brains from the bottom up, its goal is to understand and build intelligent behavior from the top down, putting the focus on what an agent needs to know in order to behave intelligently, how this knowledge can be represented symbolically, and how automated reasoning procedures can make this knowledge available as needed. This landmark text takes the central concepts of knowledge representation developed over the last 50 years and illustrates them in a l
