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- Type:** Monograph
- Title:** Abductive Reasoning: Logical Investigations into Discovery and Explanation
- Author:** Aliseda, Atocha
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- Abstract:** Abductive Reasoning: Logical Investigations into Discovery and Explanation is a much awaited original contribution to the study of abductive reasoning, providing logical foundations and a rich sample of pertinent applications. Divided into three parts on the conceptual framework, the logical foundations, and the applications, this monograph takes the reader for a comprehensive and erudite tour through the taxonomy of abductive reasoning, via the logical workings of abductive inference ending with applications pertinent to scientific explanation, empirical progress, pragmatism and belief revision.
- Table of Contents:** Foreword. Part I: Conceptual Framework. 1. LOGICS OF GENERATION AND EVALUATION. 1.1 Introduction. 1.2 Heuristics: A Legacy of the Greeks. 1.3 Is there a Logic of Discovery? 1.4 Karl Popper and Herbert Simon. 1.5 Logics for Scientific Methodology. 1.6 Discussion and Conclusions. 2. WHAT IS ABDUCTION? 2.1 Introduction. 2.2 What is Abduction? 2.3 The Founding Father: C.S. Peirce. 2.4 Philosophy of Science. 2.5 Artificial Intelligence. 2.6 Further Fields of Application. 2.7 A Taxonomy for Abduction. Part II: Logical Foundations. 3. ABDUCTION AS LOGICAL INFERENCE. 3.1 Introduction. 3.2 Logic: The Problem of Demarcation. 3.3 Abductive Explanatory Argument: A Logical Inference. 3.4 Abductive Explanatory Inference: Structural Characterization. 3.5 Discussion and Conclusions. 4. ABDUCTION AS COMPUTATION. 4.1 Introduction. 4.2 Semantic Tableaux. 4.3 Abductive Semantic Tableaux. 4.4 Computing Abductions with Tableaux. 4.5 Further Logical and Computational Issues. 4.6 Discussion and Conclusions. Part III: Applications. 5. SCIENTIFIC EXPLANATION. 5.1 Introduction. 5.2 Scientific Explanation as Abduction. 5.3 Discussion and Conclusions. 6. EMPIRICAL PROGRESS. 6.1 Introduction. 6.2 Kuipers' Empirical Progress. 6.3 Empirical Progress in (Abductive) Semantic Tableaux. 6.4 Discussion and Conclusions. 7. ABDUCTION AND PRAGMATISM IN PEIRCE. 7.1 Introduction. 7.2 Abduction and Epistemology. 7.3 Abduction and Pragmatism. 7.4 Discussion and Conclusions.

8. EPISTEMIC CHANGE. 8.1 Introduction. 8.2 Abduction as Epistemic Change. 8.3 Semantic Tableaux Revisited. 8.4 Discussion and Conclusions. References. Author Index. Topic Index.

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