

Table of Contents

Chapter 1. Introduction (by Glenn Shafer and Judea Pearl)

Chapter 2. The Meaning of Probability

Introduction (by Glenn Shafer)

1. The Foundations of Statistics Reconsidered, by Leonard J. Savage.
2. Why Isn't Everyone a Bayesian? By Bradley Efron.
3. Judgment under Uncertainty: Heuristics and Biases, by Amos Tversky and Daniel Kahneman.
4. Languages and Designs for Probability Judgment, by Glenn Shafer and Amos Tversky.
5. Conditional Independence and Its Representations, by Judea Pearl, Dan Geiger, and Thomas Verma.

Chapter 3. Decision Making

Introduction (by Glenn Shafer)

1. A Tutorial Introduction to Decision Theory, by D. Warner North.
2. Evaluating Influence Diagrams, by Ross D. Shachter.
3. Rational Choice and the Framing of Decisions, by Amos Tversky and Daniel Kahneman.
4. Critical Decisions under Uncertainty: Representation and Structure, by Benjamin J. Kuipers, Alan J. Moskowitz, and Jerome P. Kassirer.
5. Savage Revisited, by Glenn Shafer.
6. Computer Programs to Support Clinical Decision Making, by Edward H. Shortliffe.

Chapter 4. Architectures for Reasoning under Uncertainty

Introduction (by Paul Cohen)

1. The Control of Reasoning under Uncertainty: A Discussion of Some Programs, by Paul Cohen.
2. Predictability versus Responsiveness: Coordinating Problem Solvers in Dynamic Domains, by Edmund H. Durfee and Victor R. Lesser.
3. A Robust Layered Control System for a Mobile Robot, by Rodney Brooks.
4. A Therapy Planning Architecture that Combines Decision Theory and Artificial Intelligence Techniques, by Curtis P. Langlotz, Lawrence M. Fagan, Samson W. Tu, Branimir I. Sikic, and Edward H. Shortliffe.
5. Summarizing and Propagating Uncertain Information with Triangular Norms, by Piero P. Bonissone.

Chapter 5. Numerical Uncertainty in Expert Systems

Introduction (by Judea Pearl)

1. A Model of Inexact Reasoning in Medicine, by E. H. Shortliffe and B. G. Buchanan.
2. Subjective Bayesian Methods for Rule-Based Inference Systems, by Richard O. Duda, Peter E. Hart, and Nils Nilsson.
3. Categorical and Probabilistic Reasoning in Medical Diagnosis, by Peter Szolovits and Stephen Pauker.
4. Probabilistic Interpretations for MYCIN's Certainty Factors, by David Heckerman.
5. A Statistical View of Uncertainty in Expert Systems, by David Spiegelhalter.
6. HUGIN—A Shell for Building Bayesian Belief Universes for Expert Systems, by Stig K. Anderson, Kristian G. Olesen, Finn V. Jensen, and Frank Jensen.

Chapter 6. The Bayesian Approach

Introduction (by Judea Pearl)

1. Bayes Decision Methods, by Judea Pearl.
2. Probability, Frequency, and Reasonable Expectation, by D.R. Cox.
3. Fusion, Propagation, and Structuring in Belief Networks, by Judea Pearl.
4. Local Computations with Probabilities on Graphical Structures and their Applications to Expert Systems, by S.L. Lauritzen and D. J. Spiegelhalter.
5. On Evidential Reasoning in a Hierarchy of Hypotheses, by Judea Pearl.

6. Stochastic Relaxations, Gibbs Distributions, and the Bayesian Restoration of Images, by S. Geman and D. Geman.

Chapter 7. Belief Functions

Introduction (by Glenn Shafer)

1. The Bayesian and Belief-Function Formalisms; A General Perspective for Auditing, by Glenn Shafer and Rajendra Srivastava.
2. Uncertain Evidence and Artificial Analysis, by A.P. Dempster and Augustine Kong.
3. The Dempster-Shafer Theory of Evidence, by Jean Gordon and Edward H. Shortliffe.
4. Bayesian and Belief-Function Formalisms for Evidential Reasoning: A Conceptual Analysis, by Judea Pearl.
5. Axioms for Probability and Belief-Function Propagation, by Prakash P. Shenoy and Glenn Shafer.
6. A Framework for Evidential-Reasoning Systems, by John D. Lowrance, Thomas D. Garvey, and Thomas M. Strat.
7. Evidential Reasoning using DELIEF, by Debra Zarley, Yen-Teh Hsia, and Glenn Shafer.

Chapter 8. Non-Numerical Approaches to Plausible Inference

Introduction (by Glenn Shafer and Judea Pearl)

1. Fragments of a Theory of Human Plausible Reasoning, by Allan Collins.
2. Nonmonotonic Reasoning, by Raymond Reiter.
3. Extended Inference Modes in Reasoning by Computer Systems, by Terry Winograd.
4. Implicit Ordering of Defaults in Inheritance Systems, by David S. Touretsky.
5. An Endorsement-Based Plan Recognition Program, by Michael Sullivan and Paul R. Cohen.

Chapter 9. Integrating Probability and Logic

Introduction (by Judea Pearl)

1. Probabilistic Logic, by Nils Nilsson.
2. Methodological Simplicity in Expert System Construction: The Case of Judgements and Reasoned Assumptions, by Jon Doyle.
3. Belief Maintenance: An Integrated Approach to Uncertainty Management, by K. B. Laskey and P. E. Lehner.
4. Probabilistic Semantics for Nonmonotonic Reasoning: A Survey, by Judea Pearl.
5. Qualitative Probabilistic Networks for Planning under Uncertainty, by Michael P. Wellman.
6. Defaults and Probabilities: Extensions and Coherence, by Eric Neufeld.
7. Embracing Causality in Formal Reasoning, by Judea Pearl.
8. An Introduction to Possibilistic and Fuzzy Logics, by Didier Dubois and Henri Prade.