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Foreword

The management and processing of uncertain information has shown itself to be a crucial issue in the development of intelligent systems, beginning with its appearance in such seminal systems as Mycin and Prospector. The papers in this volume reflect the current range of interests of researchers in the field. Currently, the major approaches to uncertainty include fuzzy set theory, probabilistic methods, mathematical theory of evidence, non-standard logics such as default reasoning, and possibility theory.

The initial part of this volume is devoted to papers dealing with the foundations of these approaches. Recent attempts have been made to develop systems combining multiple approaches. Work in this direction is also reflected in this book. A significant portion of the book looks at the management of uncertainty in a number of the paradigmatic domains of intelligent systems such as expert systems, decision-making, data bases, image processing and reasoning networks.

The papers in this volume are extended versions of presentations at the third International Conference on Information Processing and Management of Uncertainty in knowledge-based systems (IPMU Conference). Two other companion volumes exist, based on the first two IPMU Conferences, entitled "Uncertainty in Knowledge-Based Systems" (LNCS 286) and "Uncertainty and Intelligent Systems" (LNCS 313). We would like to express our thanks to all the authors in this volume, as well as all the participants at IPMU '90. Special thanks are given to Ecole Nationale Supérieure de Techniques Avancées, who hosted the Conference, and to all the other sponsors of the Conference.

June 1991

B. Bouchon-Meunier
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Contents

1. Mathematical Theory of Evidence

On Spohn's Theory of Epistemic Beliefs
P.P. Shenoy 2

Fast Algorithms for Dempster-Shafer Theory
R. Kennes, P. Smets 14

On the Combination of Information Sources
R. Kruse, E. Schwecke 24

Application Aspects of Qualitative Conditional Independence
M. Spies 31

A Study of Probabilities and Belief Functions under Conflicting Evidence: Comparisons and New Methods
M. Deutsch-McLeish 41

Propagating Belief Functions Through Constraints Systems
J. Kohlas, P.-A. Monney 50

Updating Uncertain Information
S. Moral, L.M. de Campos 58

Assessing Multiple Beliefs According to One Body of Evidence - Why It May Be Necessary, and How We Might Do It Correctly
Yen-Teh Hsia 68

2. Probabilistic Methods

Probabilistic Default Reasoning
G. Paass 76

On Knowledge Representation in Belief Networks
B. Abramson 86

STOSS - A Stochastic Simulation System for Bayesian Belief Networks
Z. Luo, A. Gammerman 97

Conditional Events with Vague Information in Expert Systems
G. Coletti, A. Gilio, R. Scozzafava 106

On Representation of Source Reliability in Weight of Evidence
D.E. O'Leary 115

3. Fuzzy Sets

An Abstract Mechanism for Handling Uncertainty
T.P. Martin, J.F. Baldwin 126

A Method to Build Membership Functions
O. Bobrowicz, C. Choulet, A. Haurat, F. Sandoz, M. Tebaa 136

Algebraic Analysis of Fuzzy Indiscernibility
Jian-Ming Gao, A. Nakamura 143

On Modelling Fuzzy Preference Relations
S. Ovchinnikov 154

Conceptual Connectivity Analysis by Means of Fuzzy Partitions
J. Aguilar-Martin, M. Martín, N. Piera 165

Transitive Solutions of Relational Equations on Finite Sets and Linear Lattices
A. di Nola, W. Kolodziejczyk, S. Sessa 173

Generalized Cardinal Numbers and Their Ordering
M. Wygralak 183

An Interval-Based Approach for Working With Fuzzy Numbers
A. Gonzalez, M.-A. Vila 193

4. Non-monotonic Reasoning

Beyond Specificity
H.E. Kyburg Jr. 204

About the Logical Interpretation of Ambiguous Inheritance Hierarchies
E. Grégoire 213

Non-monotonic Reasoning and Modal Logic, from Negation as Failure to Default Logic
P. Balbiani 223

On the Notion of Uncertain Belief Revision Systems
C. Bernasconi, S. Rivoira, S. Termini 232

Non-monotonic Reasoning in a Semantic Network
M. Cori 239

5. Non-standard Logics

Inference in Possibilistic Hypergraphs
D. Dubois, H. Prade 250

Semantic Evaluation in Possibilistic Logic, Application to Min-Max Discrete Optimisation Problems
J. Lang 260

Formalizing Multiple-Valued Logics as Institutions
J. Agustí-Cullell, F. Esteva, P. Garcia, L. Godo 269

Empirical Plausible Reasoning by Multiple-Valued Logic
P. Bottoni, L. Mari, P. Mussio 279

Time, Tense and Relativity Revisited
F.D. Anger, R.V. Rodriguez 286

6. Information

Information and the Mind-Body Problem
G. Longo 298

A General Information for Fuzzy Sets
P. Benvenuti, D. Vivona, M. Divari 307

Information Theory Based on Fuzzy (Possibilistic) Rules
A. Ramer 317

Measuring Uncertainty Given Imprecise Attribute Values
J.M. Morrissey 327

Discrimination by Optimizing a Local Consistency Criterion
A. Zighed, D. Tounissoux, J.P. Auray, C. Largeron 337

Minimum Loss of Information and Image Segmentation
B. Forte, V. Kolbas 349

7. Hybrid Approaches to Uncertainty

Towards a General Theory of Evidential Reasoning
J.F. Baldwin 360

A Pragmatic Way Out of the Maze of Uncertainty Measures
G. Longo, A. Sgarro 370

Models for Reasoning with Multitype Uncertainty in Expert Systems
J.C.A. van der Lubbe, E. Backer, W. Krijgsman 377

A Hybrid Belief System for Doubtful Agents
A. Saffiotti 393

How to Reason With Uncertain Knowledge
N. Roos 403

Computation and Uncertainty in Regulated Synergetic Machines
P.A. Ligomenides 413

8. Uncertainty in Intelligent Systems

Inductive Learning From Incomplete and Imprecise Examples
J. Kacprzyk, C. Iwański 424

Some Algorithms for Evaluating Fuzzy Relational Queries
P. Bosc, O. Pivert 431

Time and Incompleteness in a Deductive Database
M.H. Williams, Q. Kong 443

An Approach to the Linguistic Summarization of Data
R.R. Yager, K.M. Ford, A.J. Cañas 456

Management of Uncertainty in the Attachment Problem in Natural Language Processing
P. Terenziani, L. Lesmo, E. Gerbino 469

A Topological Approach to Some Cluster Methods
J. Jacas, J. Recasens 479

A Fuzzy Knowledge-Based System for Biomedical Image Interpretation
E. Binaghi, A. della Ventura, A. Rampini, R. Schettini 488

Management of Chaotic Systems with the Model for the Regulation of Agonistic Antagonistic Couples
E. Bernard-Weil 498

9. Decision-Making Under Uncertainty

Fuzzy Multicriteria Techniques: An Application to Transport Planning
A.D. Pearman, J. Montero, J. Tejada 510

Fuzzy Logic Approach to Modelling in Ecosystem Research
A. Salski, C. Sperlbaum 520

An Application of Fuzzy Multi-Criteria Decision Making for Topological Design of Large Networks
A. Kershenbaum, T. Rubinson 528

A Distance Measure for Decision Making in Uncertain Domains
F. Esposito, D. Malerba, G. Semeraro 538

Decisions and Lack of Precision in Crop Management: The Role of Processing Both Objects and Procedures Through Semantic Networks
M. Cerf, S. Poitrenaud, J.-F. Richard, M. Sebillotte, C.A. Tijus 548

10. Neural Networks

A Neural Network Expert System With Confidence Measurements
S.I. Gallant, Y. Hayashi 562

Dealing With Uncertainty in a Distributed Expert System Architecture
L. Console, C. Borlo, A. Casale, P. Torasso 568

The Combinatorial Neural Network: A Connectionist Model for Knowledge Based Systems
R.J. Machado, A.F. da Rocha 578

A Medical Decision Aid Based on a Neural Network Model
M.E. Cohen, D.L. Hudson 588

A Fuzzy Neuron Based Upon Maximum Entropy Ordered Weighted Averaging
M. O'Hagan 598