

Table of Content

Table of Content.....	i
Copyright.....	v
Foreword	vi
Preface	vii
Acknowledgments.....	ix
Contributors	x
Chapter 1. Let There Be Light.....	1
Opening Salvo.....	1
Resources.....	6
What's in Here?4	8
Chapter 2. Introduction to the Topic Maps Paradigm.....	13
Managing Complex Knowledge Networks.....	13
Primary Constructs.....	14
The Big Picture: Merging Information and Knowledge	16
Design Principles for XTM.....	17
From ISO/IEC 13250 to XTM.....	19
Summary.....	23
Acknowledgments	23
Chapter 3. A Perspective on the Quest for Global Knowledge Interchange	24
Information Is Interesting Stuff.....	25
Information and Structure Are Inseparable.....	26
Formal Languages Are Easier to Compute Than Natural Languages	26
Generic Markup Makes Natural Languages More Formal	27
A Brief History of the Topic Maps Paradigm	29
Data and Metadata: The Resource-Centric View.....	31
Subjects and Data: The Subject-Centric View	32
Understanding Sophisticated Markup Vocabularies	34
The Topic Maps Attitude.....	36
Summary.....	38
Chapter 4. The Rise and Rise of Topic Maps	39
Milestones in Standards and Specifications.....	40
Milestones in Software.....	49
The Future of Topic Maps	49
Chapter 5. Topic Maps from Representation to Identity Conversation, Names, and Published Subject Indicators.....	51
What Is the Conversation About?	51
So What about Published Subject Indicators?.....	56
Back to the Conversation Subject.....	58
Chapter 6. How to Start Topic Mapping Right Away with the XTM Specification.....	61
XTM Topic Mapping	61
Why Topic Maps?	61
Appetizer	63
Main Course	67
Dessert	71
Brandy, Cigars	74
Summary.....	76
Acknowledgments	76
Resources.....	77
Chapter 7. Knowledge Representation, Ontological Engineering, and Topic Maps	79
Knowledge as Interpretation	79
Data, Knowledge, and Information	79
Knowledge Issues: Acquisition, Representation, and Manipulation	81

The Roots of Ontological Engineering: Knowledge Technologies.....	83
New Knowledge Technology Branches: Toward Ontological Engineering	89
Ontological Engineering	91
Ontologies and Topic Maps	95
Summary.....	101
Acknowledgments	102
References	102
Selected Information and Research Sites	115
Chapter 8. Topic Maps in the Life Sciences.....	117
A Literature Review.....	117
The Need for Classification	117
The Five Kingdoms	119
Kingdom Animalia.....	120
Creating Topic Maps for a Web Site ^[7]	122
Summary.....	132
Resources for More Information on the Life Sciences.....	133
Chapter 9. Creating and Maintaining Enterprise Web Sites with Topic Maps and XSLT.....	134
The XTM Framework for the Web.....	135
XTM as Source Code for Web Sites.....	137
HTML Visualization of Topic Map Constructs	139
Topics	140
XSLT Layers.....	146
The XSLT Layout Layer.....	147
The XSLT Back-End and Presentation Layers	151
Summary.....	158
Acknowledgments	159
References	159
Chapter 10. Open Source Topic Map Software	161
About Open Source Software	161
Four Projects	162
SemanText	165
XTM Programming with TM4J	171
Nexist Topic Map Testbed	199
GooseWorks Toolkit.....	214
Chapter 11. Topic Map Visualization	219
Requirements for Topic Map Visualization	219
Visualization Techniques.....	221
Summary.....	232
References	233
Chapter 12. Topic Maps and RDF	234
A Sample Application: The Family Tree.....	234
RDF and Topic Maps	235
Modeling RDF Using Topic Map Syntax	244
Summary.....	269
References	269
Chapter 13. Topic Maps and Semantic Networks	271
Semantic Networks: The Basics	271
Comparing Topic Maps, RDF, and Semantic Networks.....	273
Building Semantic Networks from Topic Maps	273
Harvesting the Knowledge Identified in Markup	293
Identifying and Interpreting the Knowledge Found within Documents	293
Summary.....	294
References	294
Chapter 14. Topic Map Fundamentals for Knowledge Representation	296

A Simple KR Example.....	296
A Quick Review of Concepts for Topic Maps and KR	298
Topic Map Templates	298
Class Hierarchies.....	300
Association Properties	302
Inference Rules.....	303
Consistency Constraints.....	310
Summary.....	315
References	315
Chapter 15. Topic Maps in Knowledge Organization^[1]	317
Suggestions for Reading This Chapter	317
What Is KO? ^[17]	323
KO as a Use Case for TMs	349
Illustrative Examples	359
A Look into the Future: Toward Innovative TM-Based Information Services.....	368
Summary.....	371
Acknowledgments	372
Selected Abbreviations	372
References	375
Chapter 16. Prediction: A Profound Paradigm Shift.....	394
Language	394
Transmitting the Word.....	395
Lightness of Being	396
A Brief History of Knowledge Representation and Education	400
The Ephemeral Nature of Many New Ideas	402
What the Research Suggests about Knowledge Representation and Learning	403
A Paradigm Shift: Patterning Speech to Patterning Thought	410
Summary.....	411
Acknowledgments	412
References	412
Chapter 17. Topic Maps, the Semantic Web, and Education^[1]	419
What Is the Semantic Web?	419
How Can Topic Maps Play an Important Role in the Semantic Web?	422
What's Next?	422
Closing Salvo	436
References	436
Glossary	438
Appendix A. Tomatoes Topic Map	449
Appendix B. Topic Map for Chapter 9	452
Appendix C. XSLT Style Sheet for Chapter 9	465
Appendix D. Genealogical Topic Map	471