

Contents

Dedication	iii
Acknowledgements	v
List of Tables	xii
List of Figures	xv
Glossary	xviii
Summary	xxiii
1 Introduction	1
1.1 Requirements Engineering	1
1.2 Consequences of Poor Requirements	6
1.3 Requirements Validation	8
1.4 Goals in Requirements Analysis	9
1.5 Overview of Remaining Chapters	10
2 Survey of Related Work	13
2.1 Analysis of Goals	15

2.1.1	Classification of Goals	16
2.1.2	Dependencies Among Goals	17
2.1.3	Refinement of Goals	18
2.2	Inquiry-Driven Analysis	20
2.3	Analysis of Scenarios	23
2.4	Viewpoints and Negotiation	24
2.5	Cross Disciplinary Influences	27
2.5.1	Human-Computer Interaction	28
2.5.2	System and Process Reengineering	29
2.5.3	Goal-Based Learning	30
2.5.4	Product Planning	31
2.5.5	Strategic Planning	31
2.6	Summary	33
3	Case Studies	35
3.1	Financial Services Office Case Study	37
3.2	Career Track Training System	45
3.3	The Meeting Scheduler	55
3.4	Summary	66
4	The Goal-Based Requirements Analysis Method	67
4.1	Overview of GBRAM	68
4.2	Goal Analysis Activities	72
4.3	Goal Refinement Activities	94

4.4	Goal Schemas	112
4.5	Tool Support	123
4.6	Summary	133
5	Heuristics and Guidelines	135
5.1	Goal-Based Instantiation of Inquiry Cycle	136
5.2	Identification Heuristics	141
5.3	Goal Classification Heuristics	161
5.4	Goal Refinement Heuristics	165
5.5	Goal Elaboration Heuristics	171
5.6	Summary	184
6	Validation	185
6.1	The Goal-Based Requirements Analysis Tool	187
6.2	CommerceNet Web Server	193
6.3	An Empirical Evaluation of the GBRAM	210
6.4	Summary	224
7	Conclusions	227
7.1	Chapter Synopsis	228
7.2	Summary of Contributions	230
7.3	Future Work	232
7.4	Conclusions	237
A	Vacation/Sick Leave Problem Description	239

B Bugs Problem Description	241
C Summary of GBRAM Heuristics	243
Bibliography	253
Vita	259