

Translational Systems Sciences Volume 29

Analysis of Legal Argumentation Documents:
A Computational Argumentation Approach

Hayato HIRATA, Katsumi NITTA

ISBN978-981-19-2927-4

ISBN978-981-19-2928-1(eBook)

Springer Nature Singapore

Table of contents

Chapter 1 : Introduction 1

 1.1 Background and Purpose of the Study 1

 1.2 Structure of This Book 3

 References 3

Chapter 2 : Related Research 5

 2.1 Research on Argumentation Education 5

 2.1.1 The Socratic Method 5

 2.1.2 Case Method 5

 2.1.3 The Problem Method 6

 2.2 Factor-Based Legal Argumentation Support System 7

 2.2.1 Structure of Precedents 7

 2.2.2 HYPO, a Legal Argumentation System Using Precedents 8

 2.2.3 CATO, an Argumentation System Using Case Law 10

 2.3 Related Techniques for Argumentation Evaluation 11

 2.3.1 Toulmin Diagram 13

 2.3.2 Argumentation Protocol 16

 2.4 Legal Topoi (Legal Value) 13

 2.4.1 Topoi Catalog 24

 2.4.2 Expanded Topoi Catalog 24

 2.5 Computational Argumentation Theory 25

 2.5.1 Argumentation Framework (AF) 25

 2.5.2 Bipolar Argumentation Framework (BAF) 28

 2.5.3 Extended Argumentation Framework (EAF) 29

 2.6 Factor-based Argumentation Analysis 30

 2.6.1 Argumentation Analysis by Factors 31

 2.6.2 Argumentation Protocol and Factor 31

 2.6.3 Legal Topoi and Factors 32

 2.6.4 Argumentation Frameworks and Factors 33

 References 34

Chapter 3: Factor-Based Argumentation Evaluation 39

 3.1 Background and Objectives 39

3.2 Evaluation Criteria for Argumentations	40
3.2.1 Scoring Items for Arbitration (Competitive Argumentations)	40
3.2.2 Scoring Items for Negotiation (Cooperative Argumentations)	42
3.3 Analysis of Argumentation Skills	45
3.3.1 Overview of the Analysis	45
3.3.2 Feature Calculation	47
3.3.3 Correlation Analysis and Discriminant Analysis	48
3.4 Example of Argumentation Skill Analysis	49
3.4.1 Controversial Issue (Garbage House Problem)	50
3.4.2 Factors of the Garbage House Problem	51
3.4.3 Argumentation Data and Experts' Argumentation Evaluation	56
3.4.4 Tagging	61
3.4.5 Features in the Garbage House	61
3.4.6 Correlation Analysis	84
References	101

Chapter 4: Case Analysis using Factors and Legal Topoi to Case Law Education
103

4.1 Background and Objectives	103
4.2 Overview of Case Law Analysis by Factors and Legal Topoi	104
4.2.1 Preliminary Preparation (Construction of Hierarchy of Factors)	105
4.2.2 Preliminary Preparation (Construction of Topoi Hierarchy)	106
4.2.3 Analysis of Cases by Factors and Legal Topoi	108
4.3 Examples of Analysis in Tax Law Cases	109
4.3.1 Tax Law Cases to be Analyzed	109
4.3.2 Factors and Legal Topoi of Taxation Issues	111
4.3.3 Analysis of Individual Tax Cases	116
4.3.4 Comparison Between Cases	117
4.3.5 Conclusion	121
References	122

Chapter 5: Case Analysis for Case Law Education Using Factors and Computational

Argumentation Theory	125
5.1 Background and Objectives	125
5.2 Overview of Case Law Analysis Using Factors and BAF/EAF	126
5.2.1 Preliminary Preparation (Construction of Hierarchy of Factors)	126
5.2.2 Analysis of Precedents Using Factors and BAF/EAF	127
5.3 Examples of Analysis in Labor Cases	128
5.3.1 Targeted Labor Cases	128
5.3.2 List of Factors from Labor Court Cases	134
5.3.3 Importance Analysis of Factors in Labor Court Cases	136
5.3.4 Issue Analysis by BAF with Factors	140
5.3.5 EAF Extraction and Logic Verification from Labor Case Studies	145
5.4 Conclusion	149
References	150
Chapter 6 Conclusion	153
6.1 Summary	153
6.2 Future Research Topics	155