

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Preference Representation Structure and Aggregation Function	1
1.1.1	Preference Representation Structure	2
1.1.2	Aggregation Function	4
1.2	Consensus Reaching Process	5
1.2.1	Literature Review Regarding Consensus	6
1.2.2	General Consensus Framework	7
1.2.3	The Core Problem in the Consensus Reaching Process	9
	References	11
<b>2</b>	<b>Consensus with Utility Preferences</b>	<b>17</b>
2.1	Basic Idea of the Consensus with Minimum Adjustments	17
2.1.1	Consensus with Minimum Adjustments or Cost	17
2.1.2	Internal Aggregation Function	19
2.2	Consensus Under Aggregation Function	21
2.2.1	Minimum Cost Consensus Model	21
2.2.2	Maximum Expert Consensus Model	31
2.3	Comparison Analysis	42
2.3.1	Consensus Based on IR and DR Rules	42
2.3.2	Comparison Results	43
	References	46
<b>3</b>	<b>Consensus with Preference Relations</b>	<b>49</b>
3.1	Integrating Individual Consistency into Consensus	49
3.2	Consensus with Multiplicative Preference Relations	50
3.2.1	Prioritization and Aggregation Methods	51
3.2.2	Consistency and Consensus in Multiplicative Preference Relations	53
3.2.3	Iteration-Based Consensus Model	54
3.3	Consensus with Additive Preference Relations	66

3.3.1	Consistency and Consensus in Additive Preference Relations . . . . .	66
3.3.2	LP-Based Consensus Model. . . . .	68
References	. . . . .	74
<b>4</b>	<b>Consensus Under Linguistic Context . . . . .</b>	<b>77</b>
4.1	Consensus Under the 2-tuple Linguistic Context. . . . .	77
4.1.1	Several Symbolic Linguistic Computational Models . . . . .	77
4.1.2	The Consensus Operator . . . . .	82
4.1.3	Properties of the Operator . . . . .	91
4.2	Consensus Under Hesitant Linguistic Context . . . . .	95
4.2.1	Hesitant Consensus Problem . . . . .	95
4.2.2	Hesitant Consensus Measure . . . . .	97
4.2.3	Minimizing the Adjusted Simple Terms . . . . .	98
4.2.4	Properties of the Hesitant Model . . . . .	118
References	. . . . .	124
<b>5</b>	<b>Consensus with Heterogeneous Preference Representation</b>	
Structures	. . . . .	127
5.1	Direct Consensus Model . . . . .	127
5.1.1	Direct Consensus Framework. . . . .	127
5.1.2	Direct Selection Process . . . . .	130
5.1.3	Direct Consensus Process . . . . .	134
5.1.4	Properties of the Direct Model. . . . .	143
5.2	Prospect Theory Based Consensus Model . . . . .	147
5.2.1	Prospect Theory and Preference-Approval Structures. . . . .	147
5.2.2	Prospect Theory Based Consensus Framework. . . . .	149
5.2.3	Selection Process with Reference Points . . . . .	150
5.2.4	Consensus Process with Reference Points . . . . .	153
5.2.5	Numerical Analysis . . . . .	155
5.3	Consensus with Minimum Adjustments Under Prospect Theory . . . . .	166
5.3.1	Minimum Adjustments with Reference Points . . . . .	166
5.3.2	Comparison Analysis . . . . .	168
References	. . . . .	170
<b>6</b>	<b>Consensus in Multiple Attribute Decision Making . . . . .</b>	<b>173</b>
6.1	Consensus Problem with Multiple Attributes . . . . .	173
6.2	Multiple Attribute Consensus Rules . . . . .	176
6.2.1	Distance-Based Consensus Rule . . . . .	176
6.2.2	Count-Based Consensus Rule. . . . .	180
6.3	Multiple Attribute Consensus Reaching Process . . . . .	183
6.3.1	The Interactive Consensus Reaching Process . . . . .	183
6.3.2	Convergence Analysis. . . . .	185

- 6.3.3 Mixing Use of Multiple Attribute Consensus Rules . . . . . 190
- 6.4 Numerical and Comparison Analysis. . . . . 191
  - 6.4.1 Numerical Analysis . . . . . 191
  - 6.4.2 Comparison Analysis . . . . . 195
- References . . . . . 200

Consensus Building in Group Decision Making  
Searching the Consensus Path with Minimum  
Adjustments

Dong, Y.; Xu, J.

2016, XI, 201 p., Hardcover

ISBN: 978-981-287-890-8