

CONTENTS

Foreword	xi
Charles R. Plott	
Preface	xiii
Introduction	1
 PART I/THE FORMAL REPRESENTATION OF CHOICE PROCESSES	
Chapter 1/Choice Functions	11
1.1 The Choice-Function Concept	11
1.2 Some Questions About this Approach	12
1.3 Classical Conditions of “Rational” Choice	16
1.4 What Is this Thing Called “Preference”?	20
Chapter 2/Individual Participation	24
2.1 Collective Choice as a Function of Individual Preference	24
Individual Preferences	24
Collective Choice, Preference, and Indifference	27
Decisive Sets	27
2.2 Preference Intensities	28
2.3 Preferences Involving Infeasible Alternatives	32
2.4 Simple Majority Rule	37
Sources and Related Contributions	41
 PART II/COLLECTIVE CHOICE AND COLLECTIVE RATIONALITY	
Chapter 3/Voting Paradoxes	47
3.1 The Classical Voting Paradox: Theme and Variations	47
3.2 Arrow’s Paradox	51
Theorem and Proof	51
Weaker Rationality Conditions	55

viii / CONTENTS

3.3	Collective P-Transitivity and Oligarchies	57
3.4	Transitivity Conditions Between Collective P-Transitivity and Collective P + I-Transitivity	60
3.5	Impossibility Theorems Based on Collective P-Acyclicity	63
	First Theorem: Minimum Resoluteness	63
	Second Theorem: Positive Responsiveness	65
3.6	A Really General Impossibility Theorem	68
3.7	Summary of Impossibility Theorems	81
Chapter 4/Extent of the Problem		85
4.1	Which Preference Profiles Give Rise to Cycles?	85
	Single Peakedness	85
	More Than One Dimension	87
	Nongeometric Generalizations of Single Peakedness	90
	Condorcet Freedom: Generalization of Black's Theorem	91
	Condorcet Effectiveness: A Necessary Condition	96
4.2	How Essential Is Binary Independence?	100
	Weakening Independence	100
	Allowing Nontransitive Individual Indifference	103
4.3	What If Collective Choices Reflected Individual-Preference Intensities?	104
4.4	What About Individual Choice?	113
Chapter 5/How Reasonable Is "Rationality"?		116
5.1	Pinning Blame	116
5.2	"Rationality" Conditions and Their Rationale	125
Sources and Related Contributions		131
PART III/THE GENERAL THEORY OF SOLUTIONS		
Chapter 6/GETCHA and GOCHA		139
6.1	Spaying BICH	139
	GETCHA	140
	GOCHA	141
	Dominant and Undominated Subsets	143
6.2	Equivalent Formulations: Top Cycles and Ancestals	144
6.3	BICH, GETCHA, and GOCHA: Their Connections	147
6.4	Stability Properties: Axiomatic Characterizations of the GOCHA and GETCHA Functions	152
6.5	The Pareto Efficiency Problem	155

Chapter 7/SOCO	159
7.1 Power	159
Power Structures: Definition	159
Properties of Power Structures	163
7.2 Exercise	164
7.3 Solutions	168
7.4 BICH, GETCHA, GOCHA, and SOCO	170
Chapter 8/Choosing By Voting	176
8.1 The Problem	176
8.2 The Solution	183
Sources and Related Contributions	187
PART IV/COLLECTIVE-CHOICE PROCESSES DISSECTED	
Chapter 9/Multistage Choice Processes	191
9.1 The Concept of a Multistage Choice	191
9.2 Some Salient Sorts of Multistage Choice Process	199
9.3 The Indeterminacy of Multistage Choice Processes	202
Multistage Choice and GOCHA	202
Multistage Choice and GETCHA	207
9.4 A General Determinacy Theorem	209
9.5 Special Cases	212
9.6 Cycles and Serial Choice	220
Chapter 10/Choosing the Set from Which to Choose	224
10.1 What Is Feasible?	224
10.2 Insensitivity to What Is Feasible	229
The Conditions: WARP and Variations	229
Their Logical Relationships	232
Insensitivity and “Rationality”	234
Weaker Conditions	239
10.3 Reduction and Adaptation	241
10.4 Choice by Specification	244
Formalization	244
The GOCHA* Set as Target	246
Chapter 11/Multiple Issues	252
11.1 Multi-Issue Choices and their Multiplicity	252
11.2 The Universal Instability Theorem	254
11.3 Eight Things Worth Noting About this Theorem	259

x / CONTENTS

11.4 Decentralization, Cooperation, and SOCO 2	266
The Concept of Cooperation	266
Economic Exchange	267
Prisoners' Dilemma	268
Sen's Liberal Paradox	269
Cooperation Problems Under Majority Rule	273
11.5 Collective Control and Individual Choice	274
Sources and Related Contributions	278
Conclusion	280
Appendix: Terms and Symbols of Set Theory	283
References and Selected Bibliography	293
Index	309