Contents

Preface ix

Part I Two-Person Zero-Sum Games 1
1 The Nature of Games 3
2 Matrix Games: Dominance and Saddle Points 7
3 Matrix Games: Mixed Strategies 13
4 Application to Anthropology: Jamaican Fishing 23
5 Application to Warfare: Guerrillas, Police, and Missiles 27
6 Application to Philosophy: Newcomb’s Problem and Free Will 32
7 Game Trees 37
8 Application to Business: Competitive Decision Making 44
9 Utility Theory 49
10 Games Against Nature 56

Part II Two-Person Non-Zero-Sum Games 63
11 Nash Equilibria and Non-Cooperative Solutions 65
12 The Prisoner’s Dilemma 73
13 Application to Social Psychology: Trust, Suspicion, and the F-Scale 81
14 Strategic Moves 85
15 Application to Biology: Evolutionarily Stable Strategies 93
16 The Nash Arbitration Scheme and Cooperative Solutions 102
17 Application to Business: Management-Labor Arbitration 112
18 Application to Economics: The Duopoly Problem 118

Part III N-Person Games 125
19 An Introduction to N-Person Games 127
20 Application to Politics: Strategic Voting 134
21 N-Person Prisoner’s Dilemma 139
22 Application to Athletics: Prisoner’s Dilemma and the Football Draft 145
23 Imputations, Domination, and Stable Sets 150
24 Application to Anthropology: Pathan Organization 161
25 The Core 165
26 The Shapley Value 171
27 Application to Politics: The Shapley-Shubik Power Index 177
28 Application to Politics: The Banzhaf Index and the Canadian Constitution 185
CONTENTS

29 Bargaining Sets 190
30 Application to Politics: Parliamentary Coalitions 196
31 The Nucleolus and the Gately Point 202
32 Application to Economics: Cost Allocation in India 209
33 The Value of Game Theory 213

Bibliography 217
Answers to Exercises 225
Index 241