

Contents

| | |
|--|-----------|
| PREFACE TO THE REVISED EDITION | vii |
| PREFACE TO THE FIRST EDITION | ix |
| | |
| CHAPTER 1. INTRODUCTION | |
| Nature of the Subject | 1 |
| An Historical Theory | 6 |
| Lessons and Parallels | 6 |
| Sectarian Remarks on Method | 8 |
| Players and Persons | 11 |
| The Payoff | 14 |
| Strategies | 16 |
| The Game Matrix | 17 |
| Implicit Assumptions | 20 |
| The Criterion | 22 |
| Example 1. The Campers | 24 |
| | |
| CHAPTER 2. TWO-STRATEGY GAMES | |
| | |
| PART 1: 2×2 Games | 29 |
| The Approach | 29 |
| Fluctuations | 30 |
| Saddle-points | 34 |
| Mixed Strategies | 36 |
| The Oddment | 39 |
| Rules for Finding Odds | 39 |
| Value of the Game | 43 |
| Scale Effects | 44 |
| Good Play vs. Poor | 46 |
| Example 2. The Hidden Object | 47 |
| Example 3. The Daiquiris | 48 |
| Example 4. The River Tale | 50 |
| Example 5. The Attack-Defense Game | 51 |
| Example 6. The Music Hall Problem | 52 |
| Example 7. The Darkroom | 53 |

CONTENTS

| | |
|--|-----------|
| Example 8. The Birthday | 55 |
| Example 9. The Huckster | 56 |
| Example 10. The Squad Car | 57 |
| Summary of 2×2 Methods | 60 |
| <i>Exercises 1</i> | 63 |
| PART 2: $2 \times m$ Games | 65 |
| Saddle-points | 66 |
| Dominance | 66 |
| Mixed Strategies | 68 |
| Graphical Solution | 71 |
| Example 11. The Spellers | 72 |
| Example 12. The Sports Kit | 74 |
| Example 13. The Hi-Fi | 76 |
| Chance Devices | 78 |
| Summary of $2 \times m$ Methods | 80 |
| <i>Exercises 2</i> | 82 |

CHAPTER 3. THREE-STRATEGY GAMES

| | |
|--|------------|
| PART 1: 3×3 Games | 86 |
| Morale-building Discourse | 86 |
| Saddle-points | 88 |
| Dominance | 89 |
| Value of the Game | 90 |
| Three Active Strategies | 91 |
| Games We Wish You'd Never Met | 95 |
| Example 14. Scissors-Paper-Stone | 98 |
| Example 15. The Coal Problem | 100 |
| Example 16. The Heir | 101 |
| Example 17. The Cattle Breeders' Separation | 103 |
| Example 18. The Date | 106 |
| Summary of 3×3 Methods | 107 |
| <i>Exercises 3</i> | 108 |
| PART 2: $3 \times m$ Games | 112 |
| Method of Solving | 112 |
| Example 19. The Bass and the Professor | 120 |
| Example 20. The Bedside Manner | 122 |
| Example 21. The Chessers | 125 |
| Summary of $3 \times m$ Methods | 127 |
| <i>Exercises 4</i> | 127 |

CHAPTER 4. FOUR-STRATEGY GAMES AND LARGER ONES

| | |
|---|-----|
| Solution via Revelation | 132 |
| Saddle-points | 135 |
| Dominance | 135 |
| All-strategies-active | 136 |
| Example 22. The Secondhand Car | 146 |
| Example 23. The Silviculturists | 148 |
| Example 24. Color Poker | 150 |
| Example 25. For Older Children | 152 |
| Example 26. The Process Server | 154 |
| Example 27. The Palm Game | 155 |
| Example 28. The Administrator's Dilemma | 157 |
| Example 29. The Colonel Blotto Problem | 159 |
| Example 30. Morra | 163 |
| Example 31. The Maze | 165 |
| Example 32. Merlin | 168 |
| Summary of $4 \times m$ Methods | 170 |
| <i>Exercises 5</i> | 172 |

CHAPTER 5. MISCELLANY

| | |
|-----------------------------------|-----|
| Approximations | 180 |
| More on Dominance | 186 |
| Simple Solutions | 188 |
| Multiple Solutions | 191 |
| <i>Exercise 6</i> | 193 |
| On Measurement | 193 |
| Qualitative Payoffs | 198 |
| Example 33. Portia | 201 |
| Example 34. The Lady or the Tiger | 203 |
| Games Played Only Once | 206 |
| Symmetric Games | 208 |
| Linear Programming | 210 |
| Example 35. The Diet | 210 |
| Non-zero-sum Games | 213 |
| Conclusion | 214 |

CONTENTS

**CHAPTER 6. GENERAL METHOD OF
SOLVING GAMES**

| | |
|-------------------------|-----|
| First Example | 219 |
| Basic Solutions | 229 |
| Second Example | 232 |
| Summary of Pivot Method | 244 |
| How to Check the Work | 245 |
| Control Sums | 248 |

| | |
|---|-----|
| APPENDIX. Table of Random Digits | 253 |
| Solutions to Exercises | 261 |

| | |
|--------------|-----|
| INDEX | 267 |
|--------------|-----|