

# Contents

Introduction	vii
<b>Part 1. Quasiminimal Excellence and Complex Exponentiation</b>	<b>1</b>
Chapter 1. Combinatorial Geometries and Infinitary Logics	3
1.1. Combinatorial Geometries	3
1.2. Infinitary Logic	4
Chapter 2. Abstract Quasiminimality	7
Chapter 3. Covers of the Multiplicative Group of $\mathbb{C}$	17
<b>Part 2. Abstract Elementary Classes</b>	<b>25</b>
Chapter 4. Abstract Elementary Classes	27
Chapter 5. Two Basic Results about $L_{\omega_1, \omega}(Q)$	39
5.1. Non-definability of Well-order in $L_{\omega_1, \omega}(Q)$	39
5.2. The Number of Models in $\omega_1$	41
Chapter 6. Categoricity Implies Completeness	45
6.1. Completeness	45
6.2. Arbitrarily Large Models	50
6.3. Few Models in Small Cardinals	52
6.4. Categoricity and Completeness for $L_{\omega_1, \omega}(Q)$	54
Chapter 7. A Model in $\aleph_2$	57
<b>Part 3. Abstract Elementary Classes with Arbitrarily Large Models</b>	<b>63</b>
Chapter 8. Galois types, Saturation, and Stability	67
Chapter 9. Brimful Models	73
Chapter 10. Special, Limit and Saturated Models	75
Chapter 11. Locality and Tameness	83
Chapter 12. Splitting and Minimality	91
Chapter 13. Upward Categoricity Transfer	99
Chapter 14. Omitting Types and Downward Categoricity	105

Chapter 15. Unions of Saturated Models	113
Chapter 16. Life without Amalgamation	119
Chapter 17. Amalgamation and Few Models	125
<b>Part 4. Categoricity in <math>L_{\omega_1, \omega}</math></b>	<b>133</b>
Chapter 18. Atomic AEC	137
Chapter 19. Independence in $\omega$ -stable Classes	143
Chapter 20. Good Systems	151
Chapter 21. Excellence Goes Up	159
Chapter 22. Very Few Models Implies Excellence	165
Chapter 23. Very Few Models Implies Amalgamation over Pairs	173
Chapter 24. Excellence and *-Excellence	179
Chapter 25. Quasiminimal Sets and Categoricity Transfer	185
Chapter 26. Demystifying Non-excellence	193
26.1. The Basic Structure	193
26.2. Solutions and Categoricity	196
26.3. Disjoint Amalgamation for Models of $\phi_k$	200
26.4. Tameness	201
26.5. Instability and Non-tameness	202
Appendix A. Morley's Omitting Types Theorem	205
Appendix B. Omitting Types in Uncountable Models	211
Appendix C. Weak Diamonds	217
Appendix D. Problems	223
Bibliography	227
Index	233