

Contents

1	Background	1
1.1	History and notation	3
1.2	Permutation groups	6
1.3	Model theory	10
1.4	Category and measure	13
1.5	Ramsey's Theorem	16
2	Preliminaries	19
2.1	The objects of study	21
2.2	Reduction to the countable case	24
2.3	The canonical relational structure	26
2.4	Topology	27
2.5	The Ryll-Nardzewski Theorem	30
2.6	Homogeneous structures	32
2.7	Strong amalgamation	36
2.8	Appendix: Two proofs	39
2.9	Appendix: Quantifier elimination and model completeness	42
2.10	Appendix: The random graph	45
3	Examples and growth rates	49
3.1	Monotonicity	51
3.2	Direct and wreath products	54
3.3	Some primitive groups	57
3.4	Homogeneity and transitivity	61
3.5	$f_n = f_{n+1}$	64
3.6	Growth rates	68
3.7	Appendix: Cycle index	73
3.8	Appendix: A graded algebra	78

4 Subgroups	81
4.1 Beginnings	83
4.2 A theorem of Macpherson	85
4.3 The random graph revisited	86
4.4 Measure, continued	91
4.5 Category	95
4.6 Multicoloured sets	98
4.7 Almost all automorphisms?	103
4.8 Subgroups of small index	106
4.9 Normal subgroups	110
4.10 Appendix: The tree of an age	111
5. Miscellaneous topics	117
5.1 Jordan groups	119
5.2 Going forth	124
5.3 \aleph_0 -categorical, ω -stable structures	129
5.4 An example	134
5.5 Another example	137
5.6 Oligomorphic projective groups	139
5.7 Orbits on infinite sets	142
References	145
Index	155