

# Contents

<b>Introduction</b>	1
<b>1 Survey of results</b>	7
1.1 The definition of Mackey 2-functors	7
1.2 Rectification	11
1.3 Separable monadicity	14
1.4 Mackey 2-functors and Grothendieck derivators	15
1.5 Mackey 2-motives	16
1.6 Pointers to related works	18
<b>2 Mackey 2-functors</b>	19
2.1 Comma and iso-comma squares	19
2.2 Mackey squares	23
2.3 General Mackey 2-functors	25
2.4 Separable monadicity	28
2.5 Decategorification	29
<b>3 Rectification and ambidexterity</b>	33
3.1 Self iso-commas	33
3.2 Comparing the legs of a self iso-comma	39
3.3 The canonical morphism $\Theta$ from left to right adjoint	41
3.4 Rectification of Mackey 2-functors	58
<b>4 Examples</b>	63
4.1 Examples from additive derivators	63
4.2 Mackey sub-2-functors and quotients	66
4.3 Extending examples from groups to groupoids	68
4.4 Mackey 2-functors of equivariant objects	72
<b>5 Bicategories of spans</b>	81
5.1 Spans in a $(2,1)$ -category	81
5.2 The universal property of spans	95
5.3 Bicategorical upgrades of the universal property	106
5.4 Pullback of 2-cells in the bicategory of spans	113
5.5 Heuristic account and the 2-dual version	122
<b>6 Mackey 2-motives</b>	131
6.1 Mackey 2-motives and their universal property	131
6.2 A strict presentation and a calculus of string diagrams	143
6.3 The bicategory of Mackey 2-functors	150

<b>7 Additive Mackey 2-motives and decompositions . . . . .</b>	155
7.1 Additive Mackey 2-motives . . . . .	155
7.2 The Yoneda 2-embedding . . . . .	159
7.3 Presheaves over a Mackey 2-functor . . . . .	161
7.4 Crossed Burnside rings and Mackey 2-motives . . . . .	163
7.5 Motivic decompositions of Mackey 2-functors . . . . .	171
<b>Appendix A: Categorical reminders . . . . .</b>	175
A.1 Bicategories and 2-categories . . . . .	175
A.2 Mates . . . . .	182
A.3 String diagrams . . . . .	187
A.4 How to read string diagrams in this book . . . . .	194
A.5 The ordinary category of spans . . . . .	197
A.6 Additivity for categories . . . . .	199
A.7 Additivity for bicategories . . . . .	203
<b>Appendix B: Ordinary Mackey functors on a given group . . . . .</b>	215
<b>Bibliography . . . . .</b>	221
<b>Index . . . . .</b>	225