

# Contents

List of Tables	ix
Chapter 1. Introduction	1
1.1. Antecedents	1
1.2. Points and blocks	2
1.3. The main result	2
1.4. Applications	9
Chapter 2. Preliminaries	11
2.1. Conventions	11
2.2. Nichols algebras of diagonal type	11
2.3. On the Gelfand-Kirillov dimension	12
Chapter 3. Yetter-Drinfeld modules of dimension 2	15
3.1. Indecomposable modules and blocks	15
3.2. The Jordan plane	16
3.3. The super Jordan plane	16
3.4. Filtrations of Nichols algebras	18
3.5. Proof of Theorem 3.1.2	19
Chapter 4. Yetter-Drinfeld modules of dimension 3	23
4.1. The setting	23
4.2. Weak interaction	25
4.3. The Nichols algebras with finite GKdim	32
4.4. Mild interaction	38
Chapter 5. One block and several points	47
5.1. The setting	47
5.2. Proof of Theorem 5.1.1 ( $\epsilon = 1$ )	49
5.3. The Nichols algebras with finite GKdim, $V_{\text{diag}}$ connected	60
5.4. Proof of Theorem 5.1.2 ( $\epsilon = -1$ )	72
Chapter 6. Two blocks	85
6.1. The setting	85
6.2. $\epsilon_1 = 1$	86
6.3. $\epsilon_1 = \epsilon_2 = -1$	93
Chapter 7. Several blocks, several points	99
7.1. Notations	99
7.2. Several blocks, one point	99
7.3. The Nichols algebras $\mathfrak{P}(\mathfrak{q}, \mathcal{G})$	103

7.4. Several blocks, several points	105
Chapter 8. Appendix	111
8.1. Nichols algebras over abelian groups	111
8.2. Admissible flourished diagrams	122
Bibliography	123