

APPENDIX II. Number of common bulls

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BSW dlo

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common bulls below diagonal

common three quarter sib group above diagonal

CAN CHE DEA NLD NZL USA ITA FRA GBR SVN

|     |     |     |     |    |    |     |     |     |    |    |
|-----|-----|-----|-----|----|----|-----|-----|-----|----|----|
| CAN | 0   | 89  | 98  | 43 | 52 | 123 | 91  | 66  | 48 | 26 |
| CHE | 73  | 0   | 471 | 61 | 48 | 270 | 369 | 121 | 45 | 57 |
| DEA | 84  | 372 | 0   | 95 | 59 | 273 | 567 | 157 | 48 | 82 |
| NLD | 38  | 57  | 87  | 0  | 30 | 63  | 91  | 61  | 27 | 35 |
| NZL | 50  | 42  | 47  | 21 | 0  | 61  | 54  | 35  | 32 | 17 |
| USA | 120 | 257 | 249 | 59 | 57 | 0   | 203 | 103 | 59 | 35 |
| ITA | 80  | 314 | 461 | 72 | 44 | 143 | 0   | 141 | 47 | 76 |
| FRA | 58  | 83  | 112 | 47 | 27 | 65  | 107 | 0   | 37 | 40 |
| GBR | 52  | 40  | 35  | 25 | 29 | 62  | 39  | 33  | 0  | 17 |
| SVN | 22  | 55  | 73  | 30 | 13 | 29  | 72  | 36  | 15 | 0  |

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GUE dlo

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common bulls below diagonal

common three quarter sib group above diagonal

AUS CAN NZL USA GBR ZAF

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| AUS | 0  | 42 | 37 | 50 | 32 | 41 |
| CAN | 41 | 0  | 20 | 56 | 25 | 36 |
| NZL | 37 | 17 | 0  | 42 | 22 | 23 |
| USA | 46 | 45 | 41 | 0  | 69 | 81 |
| GBR | 27 | 19 | 19 | 71 | 0  | 36 |
| ZAF | 39 | 36 | 17 | 87 | 34 | 0  |

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HOL dlo

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common bulls below diagonal

common three quarter sib group above diagonal

|     | AUS  | BEL | CAN  | CHE | DEU  | DFS  | ESP  | FRA  | GBR  | IRL | ISR | ITA  | NLD  | NZL | USA  | HUN  | CHR | CZE  | SVN |
|-----|------|-----|------|-----|------|------|------|------|------|-----|-----|------|------|-----|------|------|-----|------|-----|
| AUS | 0    | 337 | 848  | 276 | 1123 | 855  | 568  | 867  | 1004 | 511 | 83  | 861  | 968  | 954 | 1251 | 571  | 199 | 659  | 107 |
| BEL | 240  | 0   | 308  | 194 | 475  | 355  | 289  | 408  | 410  | 254 | 44  | 371  | 518  | 273 | 407  | 277  | 169 | 333  | 75  |
| CAN | 685  | 256 | 0    | 376 | 1589 | 801  | 838  | 923  | 1141 | 362 | 73  | 1126 | 829  | 573 | 2138 | 750  | 274 | 805  | 105 |
| CHE | 222  | 171 | 242  | 0   | 448  | 305  | 274  | 284  | 352  | 215 | 32  | 330  | 329  | 234 | 403  | 253  | 262 | 269  | 59  |
| DEU | 631  | 368 | 651  | 339 | 0    | 1897 | 1019 | 1766 | 1617 | 642 | 119 | 1930 | 2124 | 806 | 2545 | 1048 | 442 | 1601 | 176 |
| DFS | 473  | 275 | 442  | 251 | 857  | 0    | 652  | 1138 | 1153 | 549 | 108 | 1143 | 1293 | 674 | 1348 | 732  | 223 | 963  | 143 |
| ESP | 382  | 262 | 408  | 228 | 598  | 460  | 0    | 744  | 780  | 359 | 85  | 854  | 712  | 441 | 1048 | 586  | 176 | 668  | 108 |
| FRA | 459  | 345 | 426  | 248 | 639  | 402  | 473  | 0    | 1203 | 555 | 100 | 1436 | 1356 | 666 | 1912 | 780  | 184 | 1012 | 111 |
| GBR | 811  | 353 | 1237 | 327 | 1044 | 797  | 665  | 636  | 0    | 727 | 113 | 1269 | 1339 | 834 | 1669 | 821  | 253 | 966  | 143 |
| IRL | 397  | 221 | 284  | 215 | 490  | 403  | 341  | 374  | 738  | 0   | 76  | 505  | 648  | 556 | 574  | 383  | 141 | 443  | 73  |
| ISR | 57   | 25  | 42   | 23  | 90   | 82   | 58   | 45   | 90   | 62  | 0   | 111  | 119  | 95  | 133  | 103  | 22  | 113  | 37  |
| ITA | 497  | 271 | 590  | 266 | 944  | 682  | 586  | 539  | 912  | 401 | 79  | 0    | 1273 | 693 | 2046 | 909  | 248 | 1074 | 143 |
| NLD | 728  | 505 | 535  | 306 | 1323 | 893  | 575  | 563  | 1123 | 552 | 99  | 805  | 0    | 861 | 1693 | 813  | 366 | 1198 | 148 |
| NZL | 934  | 206 | 579  | 200 | 561  | 454  | 347  | 340  | 776  | 464 | 78  | 498  | 774  | 0   | 921  | 507  | 166 | 617  | 98  |
| USA | 1036 | 293 | 1771 | 309 | 1197 | 755  | 611  | 753  | 1417 | 452 | 106 | 998  | 1063 | 873 | 0    | 1144 | 370 | 1382 | 136 |
| HUN | 425  | 214 | 645  | 204 | 775  | 588  | 514  | 517  | 817  | 355 | 87  | 794  | 671  | 467 | 1181 | 0    | 171 | 883  | 112 |
| CHR | 168  | 158 | 228  | 282 | 356  | 190  | 144  | 165  | 241  | 129 | 13  | 215  | 333  | 151 | 352  | 145  | 0   | 219  | 52  |
| CZE | 417  | 250 | 516  | 202 | 1221 | 589  | 524  | 577  | 780  | 351 | 92  | 746  | 978  | 490 | 1077 | 893  | 169 | 0    | 136 |
| SVN | 71   | 56  | 69   | 40  | 146  | 112  | 84   | 63   | 112  | 55  | 29  | 120  | 122  | 70  | 101  | 95   | 36  | 110  | 0   |

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JER dlo

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common bulls below diagonal

common three quarter sib group above diagonal

|     | AUS | CAN | DFS | NLD | NZL | USA | GBR | ZAF |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0   | 152 | 100 | 55  | 328 | 336 | 152 | 163 |
| CAN | 160 | 0   | 66  | 29  | 127 | 234 | 117 | 102 |
| DFS | 72  | 57  | 0   | 68  | 126 | 142 | 121 | 106 |
| NLD | 49  | 24  | 67  | 0   | 68  | 63  | 67  | 60  |
| NZL | 379 | 150 | 105 | 65  | 0   | 295 | 170 | 159 |
| USA | 361 | 240 | 119 | 70  | 384 | 0   | 169 | 212 |
| GBR | 166 | 125 | 122 | 68  | 183 | 203 | 0   | 126 |
| ZAF | 154 | 100 | 85  | 55  | 168 | 221 | 133 | 0   |

RDC dlo

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common bulls below diagonal

common three quarter sib group above diagonal

AUS CAN DEU DFS NZL USA GBR NLD ZAF

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|     |     |     |    |     |     |     |    |    |     |
|-----|-----|-----|----|-----|-----|-----|----|----|-----|
| AUS | 0   | 74  | 19 | 124 | 101 | 70  | 44 | 10 | 41  |
| CAN | 75  | 0   | 8  | 77  | 74  | 159 | 61 | 4  | 106 |
| DEU | 18  | 7   | 0  | 38  | 11  | 4   | 3  | 9  | 1   |
| DFS | 114 | 72  | 30 | 0   | 134 | 91  | 42 | 25 | 55  |
| NZL | 108 | 79  | 11 | 132 | 0   | 78  | 55 | 10 | 44  |
| USA | 75  | 141 | 4  | 90  | 77  | 0   | 62 | 10 | 85  |
| GBR | 45  | 63  | 3  | 41  | 53  | 60  | 0  | 5  | 53  |
| NLD | 9   | 4   | 9  | 26  | 10  | 10  | 5  | 0  | 1   |
| ZAF | 44  | 113 | 1  | 54  | 41  | 82  | 49 | 1  | 0   |

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SIM dlo

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common bulls below diagonal

common three quarter sib group above diagonal

FRM NLD CZE SVN

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|     |     |    |     |    |
|-----|-----|----|-----|----|
| FRM | 0   | 89 | 161 | 0  |
| NLD | 110 | 0  | 67  | 0  |
| CZE | 190 | 64 | 0   | 21 |
| SVN | 0   | 0  | 20  | 0  |

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