

APPENDIX II. Number of common bulls

BSW

/1308r/BSW/ang/

common bulls below diagonal

common three quarter sib group above diagonal

CAN CHE FRA NLD USA

| | | | | | |
|-----|-----|-----|-----|----|-----|
| CAN | 0 | 90 | 56 | 22 | 110 |
| CHE | 76 | 0 | 104 | 27 | 217 |
| FRA | 49 | 68 | 0 | 24 | 75 |
| NLD | 24 | 26 | 21 | 0 | 25 |
| USA | 108 | 200 | 52 | 26 | 0 |

/1308r/BSW/bcs/

/1308r/BSW/bde/

common bulls below diagonal

common three quarter sib group above diagonal

CAN CHE FRA ITA NLD DEA SVN

| | | | | | | | |
|-----|----|-----|-----|-----|----|-----|----|
| CAN | 0 | 70 | 44 | 66 | 26 | 63 | 6 |
| CHE | 60 | 0 | 113 | 338 | 53 | 396 | 12 |
| FRA | 36 | 80 | 0 | 118 | 41 | 120 | 11 |
| ITA | 55 | 287 | 89 | 0 | 72 | 406 | 24 |
| NLD | 22 | 55 | 33 | 62 | 0 | 66 | 10 |
| DEA | 52 | 314 | 84 | 326 | 66 | 0 | 22 |
| SVN | 4 | 13 | 9 | 25 | 10 | 19 | 0 |

/1308r/BSW/cwi/

common bulls below diagonal

common three quarter sib group above diagonal

CAN CHE FRA ITA NLD USA DEA SVN

| | | | | | | | | |
|-----|-----|-----|-----|-----|----|-----|-----|----|
| CAN | 0 | 87 | 60 | 86 | 38 | 114 | 78 | 12 |
| CHE | 75 | 0 | 109 | 301 | 58 | 195 | 343 | 25 |
| FRA | 53 | 76 | 0 | 127 | 50 | 80 | 127 | 20 |
| ITA | 75 | 254 | 98 | 0 | 81 | 155 | 389 | 42 |
| NLD | 35 | 59 | 43 | 71 | 0 | 45 | 75 | 23 |
| USA | 111 | 176 | 56 | 113 | 45 | 0 | 162 | 15 |
| DEA | 65 | 267 | 93 | 308 | 73 | 127 | 0 | 40 |
| SVN | 10 | 24 | 18 | 41 | 22 | 13 | 37 | 0 |

/1308r/BSW/fan/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 41 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 68 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 55 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 91 | 156 | 419 | 56 |
| NLD | 39 | 66 | 46 | 79 | 0 | 50 | 83 | 29 |
| USA | 111 | 206 | 56 | 113 | 49 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 81 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 28 | 19 | 51 | 0 |

/1308r/BSW/hde/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 70 | 44 | 66 | 29 | 63 | 13 |
| CHE | 60 | 0 | 113 | 331 | 60 | 396 | 34 |
| FRA | 36 | 80 | 0 | 117 | 45 | 120 | 27 |
| ITA | 55 | 282 | 89 | 0 | 80 | 402 | 52 |
| NLD | 26 | 59 | 35 | 69 | 0 | 74 | 26 |
| DEA | 52 | 314 | 84 | 323 | 72 | 0 | 50 |
| SVN | 11 | 34 | 25 | 51 | 25 | 46 | 0 |

/1308r/BSW/ftl/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 41 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 58 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 52 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 81 | 156 | 419 | 56 |
| NLD | 34 | 59 | 43 | 67 | 0 | 53 | 74 | 27 |
| USA | 111 | 206 | 56 | 113 | 48 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 70 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 26 | 19 | 51 | 0 |

/1308r/BSW/ftp/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 91 | 57 | 36 | 110 | 67 | 10 |
| CHE | 77 | 0 | 117 | 47 | 220 | 358 | 19 |
| FRA | 50 | 82 | 0 | 47 | 77 | 116 | 18 |
| NLD | 31 | 46 | 39 | 0 | 48 | 60 | 16 |
| USA | 108 | 201 | 53 | 44 | 0 | 153 | 12 |
| DEA | 56 | 282 | 80 | 61 | 121 | 0 | 35 |
| SVN | 8 | 18 | 17 | 15 | 11 | 32 | 0 |

/1308r/BSW/fua/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 86 | 37 | 114 | 44 | 14 |
| CHE | 81 | 0 | 121 | 341 | 61 | 224 | 208 | 26 |
| FRA | 53 | 87 | 0 | 122 | 46 | 80 | 76 | 20 |
| ITA | 75 | 295 | 93 | 0 | 74 | 152 | 180 | 36 |
| NLD | 34 | 60 | 39 | 66 | 0 | 44 | 50 | 14 |
| USA | 111 | 206 | 56 | 113 | 44 | 0 | 84 | 15 |
| DEA | 37 | 156 | 48 | 148 | 50 | 61 | 0 | 20 |
| SVN | 12 | 28 | 19 | 38 | 14 | 13 | 17 | 0 |

/1308r/BSW/loc/

/1308r/BSW/ocs/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 87 | 47 | 86 | 42 | 114 | 44 | 6 |
| CHE | 75 | 0 | 85 | 296 | 56 | 194 | 204 | 12 |
| FRA | 45 | 62 | 0 | 90 | 37 | 62 | 65 | 9 |
| ITA | 75 | 249 | 72 | 0 | 78 | 152 | 180 | 22 |
| NLD | 37 | 57 | 35 | 68 | 0 | 55 | 50 | 11 |
| USA | 111 | 176 | 46 | 113 | 52 | 0 | 84 | 8 |
| DEA | 37 | 152 | 45 | 148 | 50 | 61 | 0 | 19 |
| SVN | 5 | 11 | 9 | 20 | 10 | 7 | 17 | 0 |

/1308r/BSW/ofl/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 87 | 47 | 85 | 43 | 114 | 80 | 6 |
| CHE | 75 | 0 | 87 | 298 | 60 | 195 | 354 | 13 |
| FRA | 45 | 63 | 0 | 93 | 42 | 62 | 96 | 9 |
| ITA | 75 | 253 | 76 | 0 | 88 | 152 | 410 | 23 |
| NLD | 38 | 61 | 39 | 75 | 0 | 57 | 84 | 12 |
| USA | 111 | 176 | 46 | 110 | 53 | 0 | 178 | 8 |
| DEA | 65 | 278 | 71 | 334 | 77 | 148 | 0 | 23 |
| SVN | 5 | 12 | 9 | 21 | 11 | 7 | 20 | 0 |

/1308r/BSW/ous/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 87 | 47 | 87 | 42 | 113 | 80 | 6 |
| CHE | 75 | 0 | 87 | 301 | 57 | 195 | 354 | 13 |
| FRA | 45 | 63 | 0 | 94 | 41 | 62 | 96 | 9 |
| ITA | 75 | 254 | 76 | 0 | 87 | 156 | 413 | 23 |
| NLD | 37 | 58 | 39 | 74 | 0 | 55 | 80 | 12 |
| USA | 109 | 176 | 46 | 113 | 52 | 0 | 178 | 8 |
| DEA | 65 | 278 | 71 | 337 | 76 | 148 | 0 | 23 |
| SVN | 5 | 12 | 9 | 21 | 11 | 7 | 20 | 0 |

/1308r/BSW/ran/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 41 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 58 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 52 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 81 | 156 | 419 | 56 |
| NLD | 34 | 59 | 43 | 67 | 0 | 53 | 74 | 27 |
| USA | 111 | 206 | 56 | 113 | 48 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 70 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 26 | 19 | 51 | 0 |

/1308r/BSW/rls/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 42 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 64 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 54 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 87 | 156 | 419 | 56 |
| NLD | 37 | 63 | 46 | 74 | 0 | 55 | 81 | 28 |
| USA | 111 | 206 | 56 | 113 | 52 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 77 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 27 | 19 | 51 | 0 |

/1308r/BSW/rtp/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 66 | 39 | 61 | 23 | 36 | 9 |
| CHE | 56 | 0 | 106 | 317 | 47 | 201 | 22 |
| FRA | 31 | 74 | 0 | 106 | 34 | 71 | 17 |
| ITA | 49 | 270 | 78 | 0 | 58 | 173 | 37 |
| NLD | 18 | 49 | 26 | 51 | 0 | 43 | 19 |
| DEA | 31 | 150 | 43 | 142 | 43 | 0 | 30 |
| SVN | 7 | 22 | 15 | 36 | 18 | 26 | 0 |

/1308r/BSW/ruh/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 39 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 64 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 52 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 84 | 156 | 419 | 56 |
| NLD | 36 | 63 | 45 | 73 | 0 | 46 | 78 | 28 |
| USA | 111 | 206 | 56 | 113 | 46 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 77 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 27 | 19 | 51 | 0 |

/1308r/BSW/ruw/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 39 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 64 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 52 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 84 | 156 | 419 | 56 |
| NLD | 36 | 63 | 45 | 73 | 0 | 46 | 78 | 28 |
| USA | 111 | 206 | 56 | 113 | 46 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 77 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 27 | 19 | 51 | 0 |

/1308r/BSW/rwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | NLD | USA | DEA |
|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 91 | 57 | 36 | 110 | 77 |
| CHE | 77 | 0 | 117 | 47 | 220 | 389 |
| FRA | 50 | 82 | 0 | 47 | 77 | 125 |
| NLD | 31 | 46 | 39 | 0 | 48 | 66 |
| USA | 108 | 201 | 53 | 44 | 0 | 177 |
| DEA | 63 | 313 | 88 | 63 | 148 | 0 |

/1308r/BSW/sta/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 41 | 114 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 57 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 51 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 79 | 156 | 419 | 56 |
| NLD | 34 | 58 | 41 | 63 | 0 | 53 | 72 | 27 |
| USA | 111 | 206 | 56 | 113 | 47 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 67 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 26 | 19 | 51 | 0 |

/1308r/BSW/ude/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 41 | 112 | 80 | 18 |
| CHE | 81 | 0 | 124 | 351 | 58 | 225 | 406 | 38 |
| FRA | 53 | 90 | 0 | 129 | 52 | 80 | 129 | 30 |
| ITA | 75 | 303 | 99 | 0 | 81 | 156 | 419 | 56 |
| NLD | 34 | 59 | 43 | 67 | 0 | 53 | 74 | 27 |
| USA | 109 | 206 | 56 | 113 | 48 | 0 | 180 | 22 |
| DEA | 66 | 325 | 94 | 340 | 70 | 152 | 0 | 54 |
| SVN | 16 | 39 | 29 | 56 | 26 | 19 | 51 | 0 |

/1308r/BSW/usu/

common bulls below diagonal

common three quarter sib group above diagonal

| | CAN | CHE | FRA | ITA | NLD | USA | DEA | SVN |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CAN | 0 | 95 | 60 | 87 | 42 | 114 | 80 | 6 |
| CHE | 81 | 0 | 124 | 351 | 64 | 225 | 406 | 13 |
| FRA | 53 | 90 | 0 | 129 | 54 | 80 | 129 | 9 |
| ITA | 75 | 303 | 99 | 0 | 87 | 156 | 419 | 23 |
| NLD | 37 | 63 | 46 | 74 | 0 | 55 | 81 | 12 |
| USA | 111 | 206 | 56 | 113 | 52 | 0 | 180 | 8 |
| DEA | 66 | 325 | 94 | 340 | 77 | 152 | 0 | 23 |
| SVN | 5 | 12 | 9 | 21 | 11 | 7 | 20 | 0 |

GUE

/1308r/GUE/ang/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 57 21
GBR 18 0 59 11
USA 46 58 0 25
AUS 19 8 21 0

/1308r/GUE/bcs/

/1308r/GUE/bde/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 57 21
GBR 18 0 59 11
USA 46 58 0 25
AUS 19 8 21 0

/1308r/GUE/cwi/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 57 21
GBR 18 0 59 11
USA 46 58 0 25
AUS 19 8 21 0

/1308r/GUE/fan/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 57 21
GBR 18 0 59 11
USA 46 58 0 25
AUS 19 8 21 0

/1308r/GUE/ftl/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/ftp/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/fua/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/loc/

/1308r/GUE/ocs/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 14 | 57 | 21 |
| GBR | 11 | 0 | 36 | 10 |
| USA | 46 | 34 | 0 | 25 |
| AUS | 19 | 7 | 21 | 0 |

/1308r/GUE/of1/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 20 | 57 | 21 |
| GBR | 17 | 0 | 57 | 11 |
| USA | 46 | 56 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/ous/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 20 | 55 | 20 |
| GBR | 17 | 0 | 57 | 11 |
| USA | 45 | 56 | 0 | 25 |
| AUS | 18 | 8 | 21 | 0 |

/1308r/GUE/ran/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/rlr/

common bulls below diagonal

common three quarter sib group above diagonal

CAN USA AUS

| | | | |
|-----|----|----|---|
| CAN | 0 | 27 | 7 |
| USA | 25 | 0 | 7 |
| AUS | 5 | 7 | 0 |

/1308r/GUE/rls/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/rtp/

common bulls below diagonal

common three quarter sib group above diagonal

CAN AUS

| | | |
|-----|---|---|
| CAN | 0 | 4 |
| AUS | 4 | 0 |

/1308r/GUE/ruh/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/rwi/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/sta/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

| | | | | |
|-----|----|----|----|----|
| CAN | 0 | 21 | 57 | 21 |
| GBR | 18 | 0 | 59 | 11 |
| USA | 46 | 58 | 0 | 25 |
| AUS | 19 | 8 | 21 | 0 |

/1308r/GUE/ude/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 55 20
GBR 18 0 59 11
USA 45 58 0 25
AUS 18 8 21 0

/1308r/GUE/usu/

common bulls below diagonal

common three quarter sib group above diagonal

CAN GBR USA AUS

CAN 0 21 57 21
GBR 18 0 59 11
USA 46 58 0 25
AUS 19 8 21 0

HOL

/1308r/HOL/ang/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | HUN | POL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| AUS | 0 | 264 | 582 | 224 | 652 | 564 | 410 | 442 | 607 | 593 | 479 | 749 | 302 | 343 | 222 | 375 | 372 | 58 | 8 | 305 | 185 | 379 |
| BEL | 192 | 0 | 312 | 206 | 478 | 386 | 311 | 377 | 397 | 418 | 483 | 390 | 217 | 286 | 143 | 213 | 290 | 44 | 32 | 251 | 120 | 334 |
| CAN | 427 | 271 | 0 | 369 | 1502 | 818 | 850 | 695 | 1005 | 1141 | 695 | 1947 | 527 | 614 | 278 | 830 | 683 | 96 | 13 | 320 | 393 | 615 |
| CHE | 166 | 190 | 237 | 0 | 414 | 305 | 282 | 250 | 332 | 331 | 324 | 378 | 195 | 222 | 137 | 208 | 239 | 28 | 8 | 209 | 126 | 264 |
| DEU | 243 | 349 | 402 | 249 | 0 | 1873 | 990 | 1431 | 1346 | 1947 | 1424 | 2278 | 709 | 1068 | 312 | 967 | 1218 | 142 | 113 | 485 | 338 | 765 |
| DFS | 281 | 321 | 466 | 246 | 616 | 0 | 689 | 982 | 1061 | 1218 | 1019 | 1313 | 538 | 802 | 302 | 607 | 844 | 117 | 42 | 451 | 301 | 668 |
| ESP | 257 | 294 | 419 | 228 | 446 | 458 | 0 | 644 | 764 | 922 | 663 | 1032 | 461 | 560 | 272 | 580 | 585 | 90 | 12 | 333 | 289 | 619 |
| FRA | 218 | 338 | 321 | 204 | 345 | 342 | 406 | 0 | 936 | 1209 | 779 | 1362 | 484 | 774 | 219 | 670 | 791 | 98 | 14 | 371 | 260 | 538 |
| GBR | 407 | 369 | 923 | 310 | 593 | 697 | 626 | 445 | 0 | 1221 | 934 | 1430 | 548 | 718 | 304 | 650 | 726 | 111 | 20 | 543 | 340 | 696 |
| ITA | 314 | 344 | 629 | 261 | 837 | 736 | 658 | 419 | 876 | 0 | 1082 | 1974 | 656 | 890 | 312 | 832 | 947 | 125 | 29 | 443 | 399 | 798 |
| NLD | 338 | 499 | 589 | 315 | 919 | 851 | 626 | 469 | 878 | 997 | 0 | 1109 | 492 | 758 | 266 | 482 | 815 | 126 | 57 | 447 | 272 | 685 |
| USA | 475 | 291 | 1519 | 285 | 692 | 680 | 586 | 455 | 1122 | 992 | 944 | 0 | 741 | 980 | 354 | 1308 | 1069 | 144 | 21 | 428 | 533 | 821 |
| HUN | 175 | 180 | 413 | 148 | 392 | 374 | 356 | 268 | 445 | 489 | 410 | 600 | 0 | 448 | 219 | 394 | 572 | 80 | 5 | 258 | 263 | 438 |
| POL | 167 | 220 | 368 | 151 | 517 | 486 | 362 | 316 | 504 | 585 | 632 | 672 | 339 | 0 | 216 | 482 | 689 | 114 | 49 | 302 | 294 | 572 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 242 | 255 | 151 | 284 | 265 | 258 | 366 | 186 | 151 | 0 | 220 | 211 | 42 | 4 | 188 | 168 | 262 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 158 | 126 | 188 | 187 | 177 | 234 | 146 | 129 | 123 | 0 | 517 | 74 | 2 | 244 | 314 | 413 |
| CZE | 182 | 202 | 388 | 162 | 672 | 454 | 395 | 389 | 480 | 586 | 694 | 682 | 483 | 466 | 162 | 125 | 0 | 107 | 24 | 302 | 300 | 532 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 43 | 37 | 65 | 77 | 86 | 99 | 54 | 74 | 23 | 20 | 67 | 0 | 2 | 60 | 53 | 93 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 50 | 13 | 5 | 60 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 18 |
| IRL | 244 | 240 | 288 | 207 | 324 | 364 | 324 | 287 | 606 | 394 | 448 | 384 | 222 | 226 | 186 | 112 | 231 | 35 | 10 | 0 | 142 | 345 |
| KOR | 110 | 70 | 343 | 80 | 153 | 194 | 203 | 119 | 261 | 314 | 197 | 585 | 212 | 209 | 139 | 122 | 210 | 34 | 0 | 101 | 0 | 292 |
| PRT | 246 | 340 | 607 | 243 | 544 | 601 | 663 | 492 | 684 | 787 | 751 | 789 | 419 | 558 | 254 | 154 | 468 | 73 | 17 | 331 | 243 | 0 |

/1308r/HOL/bcs/

common bulls below diagonal

common three quarter sib group above diagonal

| | BEL | CHE | DEU | DFS | FRA | GBR | ITA | NLD | USA | CZE | FRR | JPN | IRL | KOR | CAN | PRT |
|-----|-----|-----|-----|-----|-----|------|------|------|------|-----|-----|-----|-----|-----|------|-----|
| BEL | 0 | 190 | 358 | 228 | 238 | 380 | 391 | 519 | 365 | 200 | 27 | 93 | 232 | 54 | 226 | 121 |
| CHE | 178 | 0 | 308 | 170 | 151 | 288 | 293 | 297 | 338 | 146 | 8 | 87 | 184 | 51 | 246 | 83 |
| DEU | 281 | 210 | 0 | 756 | 791 | 906 | 1436 | 1322 | 1448 | 762 | 51 | 417 | 324 | 148 | 827 | 224 |
| DFS | 177 | 136 | 297 | 0 | 384 | 602 | 673 | 766 | 645 | 404 | 3 | 180 | 267 | 101 | 286 | 173 |
| FRA | 198 | 126 | 207 | 134 | 0 | 502 | 711 | 633 | 751 | 441 | 9 | 305 | 203 | 102 | 387 | 166 |
| GBR | 355 | 276 | 472 | 342 | 242 | 0 | 1189 | 1130 | 1373 | 498 | 19 | 273 | 489 | 173 | 587 | 247 |
| ITA | 329 | 240 | 653 | 388 | 262 | 846 | 0 | 1251 | 1953 | 682 | 27 | 402 | 416 | 211 | 740 | 287 |
| NLD | 540 | 287 | 756 | 488 | 305 | 909 | 960 | 0 | 1359 | 714 | 65 | 280 | 477 | 152 | 473 | 256 |
| USA | 284 | 266 | 461 | 309 | 227 | 1101 | 982 | 942 | 0 | 751 | 20 | 554 | 392 | 276 | 1125 | 294 |
| CZE | 146 | 103 | 450 | 218 | 204 | 323 | 417 | 578 | 467 | 0 | 22 | 247 | 191 | 163 | 407 | 194 |
| FRR | 26 | 7 | 39 | 3 | 8 | 16 | 25 | 48 | 13 | 19 | 0 | 1 | 12 | 1 | 7 | 4 |
| JPN | 52 | 50 | 74 | 75 | 69 | 107 | 115 | 98 | 132 | 83 | 1 | 0 | 84 | 117 | 342 | 109 |
| IRL | 230 | 189 | 268 | 195 | 172 | 552 | 383 | 459 | 373 | 154 | 10 | 57 | 0 | 55 | 195 | 114 |
| KOR | 34 | 40 | 77 | 65 | 60 | 119 | 167 | 92 | 295 | 120 | 0 | 61 | 40 | 0 | 177 | 106 |
| CAN | 211 | 183 | 280 | 215 | 185 | 558 | 452 | 421 | 975 | 262 | 6 | 111 | 216 | 167 | 0 | 203 |
| PRT | 114 | 70 | 164 | 133 | 142 | 197 | 252 | 235 | 269 | 165 | 4 | 62 | 99 | 87 | 197 | 0 |

/1308r/HOL/bde/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|
| AUS | 0 | 275 | 574 | 223 | 647 | 561 | 394 | 491 | 603 | 590 | 633 | 744 | 136 | 302 | 345 | 467 | 223 | 374 | 372 | 60 | 8 | 306 | 187 | 376 |
| BEL | 192 | 0 | 322 | 209 | 505 | 397 | 313 | 402 | 411 | 430 | 596 | 412 | 173 | 225 | 295 | 235 | 149 | 224 | 299 | 44 | 33 | 258 | 126 | 342 |
| CAN | 426 | 273 | 0 | 370 | 1505 | 823 | 845 | 746 | 1006 | 1143 | 840 | 1947 | 254 | 527 | 615 | 359 | 279 | 830 | 684 | 97 | 13 | 322 | 396 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 278 | 268 | 332 | 331 | 341 | 378 | 237 | 195 | 222 | 196 | 137 | 208 | 240 | 28 | 8 | 209 | 127 | 264 |
| DEU | 243 | 353 | 402 | 250 | 0 | 1893 | 972 | 1513 | 1359 | 1956 | 2010 | 2281 | 384 | 711 | 1079 | 493 | 313 | 969 | 1224 | 143 | 113 | 493 | 341 | 766 |
| DFS | 281 | 322 | 466 | 246 | 616 | 0 | 675 | 1043 | 1074 | 1230 | 1349 | 1323 | 198 | 541 | 812 | 472 | 303 | 611 | 851 | 119 | 42 | 458 | 304 | 671 |
| ESP | 252 | 284 | 414 | 223 | 416 | 441 | 0 | 664 | 748 | 903 | 743 | 1017 | 158 | 455 | 554 | 316 | 267 | 574 | 579 | 88 | 12 | 323 | 288 | 597 |
| FRA | 246 | 351 | 356 | 224 | 398 | 368 | 417 | 0 | 999 | 1285 | 1181 | 1485 | 149 | 508 | 811 | 438 | 248 | 717 | 822 | 102 | 15 | 400 | 281 | 574 |
| GBR | 407 | 374 | 923 | 310 | 595 | 698 | 600 | 489 | 0 | 1230 | 1246 | 1439 | 203 | 550 | 732 | 499 | 306 | 652 | 733 | 114 | 20 | 558 | 343 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 623 | 469 | 886 | 0 | 1389 | 1979 | 241 | 658 | 900 | 502 | 315 | 833 | 955 | 127 | 30 | 449 | 402 | 800 |
| NLD | 448 | 627 | 650 | 326 | 1103 | 938 | 641 | 550 | 1007 | 1074 | 0 | 1599 | 345 | 577 | 913 | 613 | 293 | 655 | 982 | 145 | 77 | 547 | 318 | 807 |
| USA | 474 | 295 | 1519 | 285 | 693 | 680 | 572 | 534 | 1124 | 992 | 1197 | 0 | 303 | 742 | 984 | 568 | 356 | 1308 | 1075 | 145 | 21 | 433 | 539 | 821 |
| CHR | 103 | 156 | 207 | 241 | 254 | 161 | 119 | 131 | 188 | 202 | 327 | 274 | 0 | 103 | 162 | 114 | 71 | 101 | 161 | 23 | 35 | 127 | 69 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 349 | 281 | 445 | 489 | 446 | 600 | 86 | 0 | 451 | 275 | 219 | 394 | 574 | 80 | 5 | 260 | 264 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 488 | 347 | 325 | 512 | 589 | 693 | 675 | 128 | 339 | 0 | 312 | 217 | 483 | 698 | 116 | 49 | 307 | 297 | 574 |
| NZL | 364 | 185 | 326 | 176 | 275 | 320 | 265 | 238 | 424 | 391 | 583 | 520 | 102 | 229 | 219 | 0 | 206 | 300 | 352 | 53 | 8 | 342 | 172 | 360 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 242 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 186 | 151 | 193 | 0 | 220 | 214 | 43 | 4 | 188 | 169 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 155 | 131 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 117 | 123 | 0 | 518 | 74 | 2 | 246 | 314 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 382 | 411 | 483 | 589 | 765 | 683 | 112 | 483 | 470 | 255 | 162 | 125 | 0 | 111 | 24 | 309 | 302 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 40 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 33 | 23 | 20 | 68 | 0 | 2 | 62 | 53 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 306 | 316 | 622 | 398 | 504 | 386 | 116 | 222 | 227 | 302 | 186 | 112 | 233 | 35 | 10 | 0 | 144 | 347 |
| KOR | 112 | 71 | 345 | 80 | 155 | 195 | 203 | 128 | 265 | 316 | 212 | 594 | 47 | 213 | 210 | 140 | 140 | 122 | 211 | 34 | 0 | 101 | 0 | 294 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 627 | 519 | 684 | 787 | 879 | 789 | 148 | 419 | 558 | 310 | 254 | 154 | 468 | 73 | 17 | 331 | 245 | 0 |

/1308r/HOL/cwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|------|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 270 | 582 | 224 | 651 | 566 | 413 | 442 | 610 | 593 | 611 | 751 | 136 | 302 | 347 | 474 | 184 | 375 | 373 | 60 | 8 | 308 | 186 | 60 | 379 |
| BEL | 192 | 0 | 318 | 209 | 488 | 394 | 318 | 380 | 406 | 427 | 577 | 399 | 172 | 223 | 293 | 232 | 138 | 218 | 298 | 44 | 31 | 257 | 125 | 71 | 340 |
| CAN | 427 | 273 | 0 | 370 | 1499 | 823 | 852 | 695 | 1006 | 1143 | 811 | 1947 | 254 | 527 | 615 | 359 | 233 | 830 | 684 | 97 | 11 | 322 | 394 | 82 | 615 |
| CHE | 166 | 190 | 237 | 0 | 415 | 306 | 282 | 250 | 332 | 331 | 339 | 378 | 237 | 195 | 222 | 196 | 121 | 208 | 240 | 28 | 7 | 209 | 126 | 43 | 264 |
| DEU | 243 | 350 | 401 | 250 | 0 | 1881 | 1003 | 1433 | 1355 | 1953 | 1928 | 2275 | 384 | 711 | 1077 | 492 | 262 | 964 | 1224 | 142 | 95 | 493 | 338 | 131 | 766 |
| DFS | 281 | 322 | 466 | 246 | 616 | 0 | 698 | 987 | 1073 | 1229 | 1320 | 1323 | 198 | 541 | 811 | 472 | 259 | 611 | 851 | 119 | 37 | 458 | 303 | 115 | 671 |
| ESP | 258 | 298 | 420 | 228 | 461 | 465 | 0 | 650 | 771 | 932 | 762 | 1036 | 159 | 463 | 570 | 329 | 232 | 583 | 593 | 91 | 11 | 339 | 290 | 89 | 627 |
| FRA | 218 | 338 | 321 | 204 | 345 | 342 | 416 | 0 | 938 | 1210 | 1082 | 1363 | 146 | 485 | 775 | 389 | 195 | 670 | 791 | 100 | 14 | 373 | 260 | 78 | 538 |
| GBR | 408 | 374 | 923 | 310 | 595 | 698 | 633 | 445 | 0 | 1229 | 1225 | 1438 | 203 | 550 | 731 | 499 | 255 | 652 | 733 | 114 | 18 | 558 | 341 | 106 | 697 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 673 | 419 | 885 | 0 | 1355 | 1978 | 241 | 658 | 899 | 502 | 271 | 833 | 955 | 127 | 30 | 449 | 400 | 122 | 799 |
| NLD | 437 | 618 | 615 | 324 | 1067 | 933 | 668 | 486 | 992 | 1056 | 0 | 1511 | 337 | 572 | 903 | 599 | 249 | 629 | 976 | 144 | 69 | 543 | 311 | 122 | 797 |
| USA | 476 | 295 | 1519 | 285 | 689 | 680 | 587 | 455 | 1124 | 992 | 1029 | 0 | 303 | 742 | 983 | 568 | 295 | 1308 | 1075 | 145 | 19 | 433 | 536 | 104 | 821 |
| CHR | 103 | 155 | 207 | 241 | 254 | 161 | 122 | 128 | 188 | 202 | 321 | 274 | 0 | 103 | 162 | 114 | 67 | 101 | 161 | 23 | 31 | 127 | 68 | 39 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 357 | 268 | 445 | 489 | 449 | 600 | 86 | 0 | 451 | 275 | 197 | 394 | 574 | 80 | 5 | 260 | 263 | 63 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 488 | 368 | 316 | 511 | 588 | 694 | 675 | 128 | 339 | 0 | 312 | 196 | 483 | 698 | 116 | 49 | 307 | 296 | 100 | 573 |
| NZL | 365 | 185 | 326 | 176 | 275 | 320 | 277 | 208 | 424 | 391 | 570 | 520 | 102 | 229 | 219 | 0 | 175 | 300 | 352 | 53 | 7 | 342 | 171 | 58 | 360 |
| ZAF | 164 | 122 | 217 | 115 | 188 | 224 | 223 | 146 | 246 | 241 | 243 | 303 | 58 | 173 | 145 | 163 | 0 | 181 | 196 | 42 | 4 | 163 | 152 | 39 | 233 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 159 | 126 | 188 | 187 | 180 | 234 | 57 | 146 | 129 | 117 | 118 | 0 | 518 | 74 | 2 | 246 | 314 | 64 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 399 | 389 | 483 | 589 | 764 | 683 | 112 | 483 | 470 | 255 | 154 | 125 | 0 | 111 | 24 | 309 | 301 | 98 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 43 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 33 | 23 | 20 | 68 | 0 | 2 | 62 | 53 | 32 | 94 |
| FRR | 6 | 29 | 9 | 7 | 75 | 31 | 8 | 13 | 15 | 27 | 52 | 13 | 27 | 5 | 60 | 7 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 9 | 17 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 330 | 288 | 621 | 398 | 502 | 386 | 116 | 222 | 227 | 302 | 166 | 112 | 233 | 35 | 10 | 0 | 142 | 54 | 347 |
| KOR | 112 | 71 | 344 | 80 | 154 | 195 | 204 | 119 | 263 | 315 | 214 | 591 | 47 | 212 | 210 | 139 | 129 | 122 | 210 | 34 | 0 | 101 | 0 | 46 | 292 |
| SVN | 34 | 57 | 57 | 28 | 96 | 92 | 66 | 49 | 82 | 104 | 104 | 76 | 29 | 47 | 79 | 39 | 28 | 26 | 73 | 21 | 8 | 41 | 23 | 0 | 81 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 678 | 492 | 684 | 787 | 871 | 789 | 148 | 419 | 558 | 310 | 236 | 154 | 468 | 73 | 16 | 331 | 244 | 67 | 0 |

/1308r/HOL/fan/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|-----|------|-----|------|------|------|------|------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 248 | 574 | 150 | 327 | 559 | 401 | 562 | 599 | 586 | 628 | 743 | 135 | 299 | 343 | 222 | 374 | 368 | 57 | 8 | 303 | 185 | 72 | 376 |
| BEL | 191 | 0 | 303 | 155 | 332 | 375 | 300 | 385 | 385 | 397 | 532 | 369 | 165 | 208 | 278 | 137 | 202 | 280 | 42 | 28 | 246 | 118 | 79 | 323 |
| CAN | 426 | 268 | 0 | 272 | 945 | 822 | 848 | 853 | 1005 | 1136 | 835 | 1947 | 252 | 523 | 610 | 279 | 830 | 676 | 94 | 13 | 322 | 388 | 95 | 615 |
| CHE | 126 | 145 | 177 | 0 | 251 | 213 | 202 | 192 | 233 | 244 | 250 | 278 | 214 | 141 | 165 | 85 | 142 | 171 | 23 | 6 | 148 | 92 | 42 | 190 |
| DEU | 182 | 272 | 315 | 175 | 0 | 1017 | 694 | 935 | 810 | 1302 | 1201 | 1295 | 259 | 488 | 727 | 187 | 560 | 822 | 102 | 41 | 314 | 220 | 112 | 482 |
| DFS | 279 | 319 | 464 | 181 | 483 | 0 | 687 | 1137 | 1070 | 1218 | 1334 | 1320 | 196 | 535 | 809 | 302 | 611 | 836 | 116 | 42 | 457 | 299 | 134 | 670 |
| ESP | 256 | 292 | 419 | 150 | 342 | 453 | 0 | 726 | 762 | 914 | 759 | 1032 | 158 | 457 | 560 | 271 | 579 | 582 | 89 | 12 | 333 | 286 | 100 | 619 |
| FRA | 256 | 358 | 379 | 154 | 290 | 369 | 448 | 0 | 1080 | 1378 | 1252 | 1762 | 155 | 531 | 839 | 272 | 822 | 829 | 103 | 15 | 423 | 293 | 97 | 608 |
| GBR | 405 | 368 | 923 | 210 | 450 | 692 | 623 | 500 | 0 | 1222 | 1235 | 1433 | 200 | 546 | 727 | 304 | 650 | 723 | 111 | 20 | 549 | 337 | 125 | 696 |
| ITA | 313 | 334 | 629 | 188 | 599 | 731 | 647 | 492 | 880 | 0 | 1363 | 1975 | 234 | 653 | 882 | 312 | 831 | 942 | 122 | 27 | 444 | 394 | 140 | 797 |
| NLD | 448 | 564 | 662 | 234 | 728 | 935 | 671 | 574 | 1008 | 1071 | 0 | 1567 | 340 | 573 | 905 | 293 | 650 | 972 | 144 | 71 | 542 | 312 | 138 | 812 |
| USA | 473 | 285 | 1519 | 207 | 432 | 675 | 586 | 620 | 1122 | 992 | 1208 | 0 | 301 | 737 | 975 | 356 | 1308 | 1068 | 142 | 20 | 431 | 524 | 123 | 821 |
| CHR | 103 | 153 | 207 | 220 | 193 | 161 | 122 | 131 | 187 | 199 | 327 | 274 | 0 | 102 | 159 | 70 | 99 | 157 | 22 | 33 | 125 | 65 | 43 | 162 |
| HUN | 175 | 177 | 413 | 111 | 299 | 369 | 356 | 283 | 445 | 488 | 451 | 600 | 86 | 0 | 446 | 217 | 392 | 567 | 77 | 4 | 258 | 259 | 73 | 437 |
| POL | 168 | 216 | 368 | 122 | 407 | 485 | 361 | 332 | 510 | 579 | 694 | 675 | 127 | 337 | 0 | 216 | 480 | 689 | 111 | 48 | 303 | 291 | 111 | 571 |
| ZAF | 186 | 126 | 249 | 78 | 169 | 241 | 254 | 181 | 283 | 264 | 281 | 367 | 58 | 186 | 151 | 0 | 220 | 212 | 43 | 4 | 188 | 168 | 53 | 263 |
| JPN | 131 | 103 | 191 | 78 | 121 | 172 | 158 | 131 | 188 | 187 | 182 | 234 | 57 | 146 | 129 | 123 | 0 | 514 | 72 | 2 | 246 | 312 | 74 | 413 |
| CZE | 182 | 200 | 388 | 119 | 497 | 449 | 394 | 420 | 481 | 583 | 765 | 682 | 111 | 478 | 465 | 162 | 125 | 0 | 106 | 24 | 304 | 296 | 109 | 530 |
| EST | 19 | 28 | 49 | 15 | 59 | 66 | 43 | 37 | 64 | 76 | 96 | 99 | 14 | 53 | 73 | 23 | 20 | 66 | 0 | 2 | 61 | 53 | 32 | 94 |
| FRR | 6 | 27 | 9 | 6 | 31 | 32 | 8 | 13 | 16 | 25 | 49 | 13 | 26 | 4 | 60 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 243 | 239 | 288 | 144 | 259 | 364 | 322 | 319 | 612 | 396 | 504 | 384 | 115 | 222 | 227 | 185 | 112 | 233 | 35 | 10 | 0 | 141 | 67 | 347 |
| KOR | 110 | 70 | 341 | 64 | 131 | 191 | 197 | 125 | 257 | 307 | 211 | 570 | 46 | 210 | 208 | 139 | 122 | 208 | 34 | 0 | 100 | 0 | 52 | 289 |
| SVN | 44 | 63 | 68 | 30 | 96 | 109 | 78 | 57 | 97 | 120 | 123 | 90 | 33 | 54 | 88 | 37 | 28 | 84 | 22 | 10 | 53 | 25 | 0 | 96 |
| PRT | 246 | 334 | 607 | 172 | 426 | 600 | 663 | 526 | 684 | 787 | 888 | 788 | 148 | 419 | 558 | 254 | 154 | 468 | 73 | 17 | 331 | 240 | 84 | 0 |

/1308r/HOL/ftl/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 275 | 574 | 223 | 647 | 558 | 394 | 564 | 601 | 590 | 650 | 743 | 136 | 296 | 345 | 223 | 367 | 372 | 60 | 8 | 304 | 192 | 74 | 376 |
| BEL | 192 | 0 | 323 | 210 | 505 | 395 | 313 | 426 | 412 | 432 | 614 | 413 | 173 | 223 | 295 | 149 | 224 | 299 | 44 | 33 | 258 | 130 | 82 | 343 |
| CAN | 426 | 273 | 0 | 370 | 1505 | 809 | 844 | 868 | 1006 | 1143 | 854 | 1947 | 254 | 516 | 615 | 279 | 824 | 683 | 97 | 13 | 322 | 403 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 304 | 277 | 278 | 332 | 331 | 339 | 378 | 237 | 193 | 223 | 137 | 208 | 240 | 28 | 8 | 209 | 130 | 54 | 264 |
| DEU | 243 | 354 | 402 | 250 | 0 | 1886 | 969 | 1708 | 1359 | 1956 | 2111 | 2281 | 384 | 694 | 1080 | 313 | 959 | 1223 | 143 | 113 | 493 | 350 | 154 | 766 |
| DFS | 269 | 315 | 440 | 241 | 606 | 0 | 667 | 1159 | 1063 | 1217 | 1373 | 1301 | 197 | 527 | 809 | 300 | 599 | 845 | 119 | 42 | 458 | 307 | 136 | 667 |
| ESP | 252 | 283 | 414 | 222 | 413 | 424 | 0 | 721 | 746 | 900 | 743 | 1017 | 158 | 451 | 550 | 267 | 563 | 579 | 88 | 12 | 322 | 296 | 99 | 594 |
| FRA | 256 | 363 | 379 | 232 | 458 | 363 | 418 | 0 | 1098 | 1402 | 1398 | 1801 | 156 | 525 | 852 | 274 | 822 | 842 | 105 | 16 | 430 | 309 | 99 | 611 |
| GBR | 406 | 374 | 923 | 310 | 595 | 670 | 598 | 499 | 0 | 1229 | 1258 | 1436 | 202 | 543 | 731 | 306 | 646 | 733 | 114 | 20 | 553 | 350 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 713 | 620 | 494 | 886 | 0 | 1404 | 1980 | 241 | 649 | 899 | 315 | 828 | 955 | 127 | 30 | 448 | 411 | 143 | 800 |
| NLD | 448 | 646 | 642 | 322 | 1112 | 906 | 631 | 594 | 1007 | 1055 | 0 | 1703 | 354 | 570 | 912 | 301 | 672 | 979 | 146 | 80 | 551 | 326 | 142 | 809 |
| USA | 473 | 295 | 1519 | 285 | 692 | 637 | 572 | 655 | 1122 | 992 | 1213 | 0 | 303 | 720 | 985 | 356 | 1289 | 1074 | 145 | 21 | 433 | 549 | 126 | 821 |
| CHR | 103 | 156 | 207 | 241 | 254 | 158 | 119 | 131 | 187 | 202 | 329 | 274 | 0 | 101 | 162 | 71 | 101 | 161 | 23 | 35 | 126 | 70 | 44 | 163 |
| HUN | 170 | 177 | 407 | 145 | 386 | 363 | 343 | 279 | 439 | 483 | 435 | 589 | 85 | 0 | 449 | 215 | 387 | 566 | 80 | 5 | 258 | 268 | 75 | 436 |
| POL | 167 | 219 | 368 | 151 | 520 | 477 | 345 | 332 | 509 | 586 | 679 | 673 | 128 | 337 | 0 | 218 | 481 | 698 | 116 | 49 | 306 | 304 | 114 | 574 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 233 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 181 | 151 | 0 | 218 | 214 | 43 | 4 | 189 | 173 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 167 | 155 | 131 | 188 | 187 | 180 | 234 | 57 | 143 | 129 | 123 | 0 | 517 | 73 | 2 | 244 | 322 | 75 | 412 |
| CZE | 182 | 203 | 388 | 163 | 672 | 441 | 382 | 420 | 483 | 589 | 756 | 682 | 112 | 477 | 469 | 162 | 125 | 0 | 111 | 24 | 308 | 308 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 65 | 40 | 37 | 65 | 77 | 95 | 99 | 14 | 54 | 75 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 244 | 242 | 288 | 207 | 325 | 356 | 305 | 319 | 616 | 398 | 505 | 384 | 115 | 218 | 226 | 186 | 112 | 233 | 35 | 10 | 0 | 148 | 68 | 347 |
| KOR | 114 | 72 | 353 | 81 | 158 | 191 | 207 | 133 | 270 | 323 | 214 | 618 | 48 | 215 | 215 | 142 | 126 | 217 | 35 | 0 | 103 | 0 | 54 | 301 |
| SVN | 44 | 66 | 68 | 35 | 111 | 110 | 73 | 57 | 97 | 123 | 122 | 90 | 33 | 54 | 91 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 589 | 624 | 526 | 684 | 787 | 872 | 788 | 148 | 415 | 558 | 254 | 154 | 468 | 73 | 17 | 331 | 252 | 84 | 0 |

/1308r/HOL/ftp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 270 | 582 | 224 | 653 | 563 | 403 | 572 | 610 | 593 | 654 | 751 | 136 | 302 | 348 | 475 | 223 | 375 | 373 | 60 | 8 | 308 | 189 | 59 | 379 |
| BEL | 192 | 0 | 319 | 210 | 489 | 392 | 315 | 416 | 407 | 428 | 586 | 400 | 172 | 223 | 294 | 235 | 148 | 218 | 298 | 44 | 33 | 257 | 128 | 70 | 341 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 809 | 846 | 868 | 1006 | 1143 | 854 | 1947 | 254 | 527 | 615 | 363 | 279 | 830 | 684 | 97 | 13 | 322 | 400 | 81 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 304 | 278 | 278 | 332 | 331 | 339 | 378 | 237 | 195 | 223 | 198 | 137 | 208 | 240 | 28 | 8 | 209 | 128 | 43 | 264 |
| DEU | 243 | 351 | 402 | 250 | 0 | 1886 | 975 | 1708 | 1360 | 1956 | 2112 | 2281 | 384 | 711 | 1081 | 499 | 313 | 969 | 1224 | 143 | 113 | 494 | 345 | 130 | 766 |
| DFS | 269 | 315 | 440 | 241 | 606 | 0 | 672 | 1159 | 1063 | 1217 | 1373 | 1301 | 197 | 537 | 810 | 473 | 300 | 605 | 845 | 119 | 42 | 459 | 303 | 114 | 667 |
| ESP | 252 | 285 | 414 | 223 | 421 | 427 | 0 | 724 | 751 | 906 | 749 | 1018 | 158 | 455 | 555 | 320 | 267 | 575 | 581 | 89 | 12 | 325 | 292 | 86 | 599 |
| FRA | 256 | 363 | 379 | 232 | 458 | 363 | 420 | 0 | 1099 | 1402 | 1398 | 1801 | 156 | 537 | 853 | 499 | 274 | 835 | 842 | 105 | 16 | 430 | 306 | 81 | 611 |
| GBR | 408 | 374 | 923 | 310 | 595 | 670 | 602 | 499 | 0 | 1230 | 1260 | 1439 | 203 | 550 | 732 | 505 | 306 | 652 | 733 | 114 | 20 | 560 | 346 | 105 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 713 | 628 | 494 | 886 | 0 | 1404 | 1980 | 241 | 658 | 899 | 507 | 315 | 834 | 955 | 127 | 30 | 449 | 407 | 121 | 800 |
| NLD | 448 | 626 | 642 | 322 | 1114 | 907 | 639 | 594 | 1009 | 1056 | 0 | 1704 | 354 | 580 | 913 | 637 | 301 | 679 | 979 | 146 | 80 | 551 | 323 | 121 | 809 |
| USA | 476 | 295 | 1519 | 285 | 693 | 638 | 572 | 655 | 1124 | 992 | 1215 | 0 | 303 | 742 | 985 | 574 | 356 | 1308 | 1075 | 145 | 21 | 435 | 544 | 103 | 821 |
| CHR | 103 | 155 | 207 | 241 | 254 | 158 | 119 | 131 | 188 | 202 | 329 | 274 | 0 | 103 | 162 | 118 | 71 | 101 | 161 | 23 | 35 | 127 | 69 | 38 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 366 | 349 | 283 | 445 | 489 | 441 | 600 | 86 | 0 | 452 | 277 | 219 | 394 | 574 | 80 | 5 | 260 | 267 | 62 | 439 |
| POL | 167 | 220 | 368 | 151 | 520 | 478 | 350 | 332 | 510 | 587 | 681 | 673 | 128 | 339 | 0 | 315 | 218 | 483 | 698 | 116 | 49 | 307 | 302 | 99 | 574 |
| NZL | 367 | 186 | 332 | 177 | 279 | 315 | 267 | 246 | 429 | 396 | 594 | 528 | 105 | 230 | 223 | 0 | 207 | 304 | 356 | 55 | 8 | 347 | 176 | 58 | 365 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 233 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 186 | 151 | 194 | 0 | 220 | 214 | 43 | 4 | 189 | 170 | 42 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 167 | 155 | 131 | 188 | 187 | 180 | 234 | 57 | 146 | 129 | 118 | 123 | 0 | 518 | 74 | 2 | 246 | 318 | 64 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 441 | 384 | 420 | 483 | 589 | 756 | 683 | 112 | 483 | 469 | 258 | 162 | 125 | 0 | 111 | 24 | 309 | 305 | 97 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 65 | 40 | 37 | 65 | 77 | 95 | 99 | 14 | 54 | 75 | 33 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 31 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 9 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 356 | 308 | 319 | 623 | 398 | 505 | 386 | 116 | 222 | 227 | 305 | 186 | 112 | 233 | 35 | 10 | 0 | 145 | 54 | 347 |
| KOR | 112 | 71 | 348 | 80 | 156 | 189 | 204 | 131 | 268 | 318 | 211 | 604 | 47 | 215 | 213 | 142 | 140 | 123 | 214 | 35 | 0 | 101 | 0 | 47 | 297 |
| SVN | 34 | 57 | 57 | 28 | 95 | 91 | 62 | 49 | 82 | 104 | 102 | 76 | 29 | 46 | 79 | 39 | 28 | 26 | 73 | 21 | 8 | 41 | 23 | 0 | 81 |
| PRT | 246 | 341 | 607 | 243 | 544 | 589 | 632 | 526 | 684 | 787 | 873 | 789 | 148 | 419 | 558 | 313 | 254 | 154 | 468 | 73 | 17 | 331 | 249 | 67 | 0 |

/1308r/HOL/fua/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 270 | 582 | 224 | 649 | 562 | 411 | 526 | 610 | 593 | 611 | 751 | 136 | 302 | 348 | 485 | 223 | 375 | 373 | 60 | 8 | 308 | 189 | 75 | 379 |
| BEL | 192 | 0 | 319 | 210 | 487 | 391 | 318 | 407 | 407 | 428 | 578 | 400 | 172 | 223 | 294 | 239 | 148 | 218 | 298 | 44 | 33 | 257 | 128 | 81 | 341 |
| CAN | 427 | 273 | 0 | 370 | 1499 | 809 | 850 | 789 | 1006 | 1143 | 808 | 1947 | 254 | 527 | 616 | 378 | 279 | 830 | 684 | 97 | 13 | 322 | 400 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 304 | 282 | 273 | 332 | 331 | 339 | 378 | 237 | 195 | 223 | 200 | 137 | 208 | 240 | 28 | 8 | 209 | 128 | 54 | 264 |
| DEU | 243 | 351 | 401 | 250 | 0 | 1868 | 994 | 1584 | 1354 | 1953 | 1922 | 2270 | 381 | 711 | 1077 | 517 | 312 | 964 | 1223 | 143 | 113 | 493 | 344 | 152 | 765 |
| DFS | 269 | 315 | 440 | 241 | 606 | 0 | 688 | 1082 | 1062 | 1215 | 1306 | 1300 | 197 | 536 | 809 | 487 | 300 | 605 | 845 | 119 | 42 | 458 | 303 | 136 | 666 |
| ESP | 257 | 295 | 419 | 228 | 448 | 444 | 0 | 703 | 768 | 928 | 752 | 1033 | 159 | 462 | 567 | 344 | 272 | 580 | 590 | 91 | 12 | 336 | 295 | 102 | 621 |
| FRA | 255 | 361 | 376 | 232 | 449 | 360 | 449 | 0 | 1038 | 1331 | 1203 | 1601 | 151 | 523 | 835 | 471 | 258 | 757 | 830 | 102 | 15 | 412 | 289 | 93 | 592 |
| GBR | 408 | 374 | 923 | 310 | 595 | 670 | 628 | 494 | 0 | 1230 | 1223 | 1439 | 203 | 550 | 733 | 522 | 306 | 652 | 733 | 114 | 20 | 559 | 346 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 713 | 661 | 484 | 886 | 0 | 1356 | 1979 | 241 | 658 | 900 | 523 | 315 | 833 | 955 | 127 | 30 | 449 | 407 | 142 | 800 |
| NLD | 437 | 618 | 613 | 324 | 1060 | 908 | 657 | 556 | 992 | 1055 | 0 | 1510 | 336 | 572 | 903 | 628 | 288 | 629 | 976 | 144 | 73 | 543 | 317 | 140 | 796 |
| USA | 476 | 295 | 1519 | 285 | 686 | 638 | 586 | 584 | 1124 | 992 | 1028 | 0 | 303 | 742 | 986 | 593 | 356 | 1308 | 1075 | 145 | 21 | 434 | 544 | 126 | 821 |
| CHR | 103 | 155 | 207 | 241 | 253 | 158 | 122 | 131 | 188 | 202 | 321 | 274 | 0 | 103 | 162 | 121 | 71 | 101 | 161 | 23 | 35 | 127 | 69 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 366 | 356 | 282 | 445 | 489 | 449 | 600 | 86 | 0 | 452 | 287 | 219 | 394 | 574 | 80 | 5 | 260 | 267 | 75 | 439 |
| POL | 168 | 220 | 368 | 151 | 517 | 479 | 364 | 332 | 512 | 589 | 694 | 675 | 128 | 339 | 0 | 325 | 218 | 484 | 698 | 116 | 49 | 307 | 302 | 114 | 574 |
| NZL | 375 | 190 | 347 | 177 | 287 | 324 | 284 | 246 | 441 | 409 | 593 | 545 | 107 | 233 | 233 | 0 | 210 | 309 | 370 | 59 | 8 | 354 | 182 | 73 | 379 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 233 | 255 | 179 | 284 | 265 | 276 | 367 | 58 | 186 | 151 | 195 | 0 | 220 | 214 | 43 | 4 | 189 | 170 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 167 | 158 | 131 | 188 | 187 | 180 | 234 | 57 | 146 | 129 | 119 | 123 | 0 | 518 | 74 | 2 | 246 | 318 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 441 | 395 | 418 | 483 | 589 | 763 | 683 | 112 | 483 | 470 | 266 | 162 | 125 | 0 | 111 | 24 | 309 | 305 | 110 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 65 | 43 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 36 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 356 | 325 | 317 | 622 | 398 | 502 | 386 | 116 | 222 | 227 | 311 | 186 | 112 | 233 | 35 | 10 | 0 | 145 | 68 | 347 |
| KOR | 112 | 71 | 348 | 80 | 156 | 189 | 205 | 130 | 268 | 318 | 218 | 604 | 47 | 216 | 213 | 146 | 140 | 123 | 214 | 35 | 0 | 101 | 0 | 54 | 296 |
| SVN | 44 | 65 | 68 | 35 | 110 | 110 | 78 | 57 | 97 | 122 | 122 | 90 | 33 | 55 | 91 | 50 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 589 | 666 | 523 | 684 | 787 | 870 | 789 | 148 | 419 | 558 | 322 | 254 | 154 | 468 | 73 | 17 | 331 | 248 | 84 | 0 |

/1308r/HOL/loc/

common bulls below diagonal

common three quarter sib group above diagonal

| | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CZE | IRL | KOR | SVN | PRT |
|-----|-----|------|-----|-----|------|-----|------|------|------|------|------|-----|-----|-----|-----|-----|
| BEL | 0 | 287 | 154 | 352 | 360 | 277 | 353 | 371 | 381 | 469 | 354 | 225 | 233 | 47 | 36 | 231 |
| CAN | 263 | 0 | 269 | 995 | 729 | 732 | 665 | 903 | 1066 | 692 | 1753 | 551 | 292 | 163 | 49 | 439 |
| CHE | 145 | 177 | 0 | 267 | 212 | 195 | 188 | 233 | 244 | 243 | 278 | 156 | 147 | 45 | 23 | 165 |
| DEU | 281 | 321 | 174 | 0 | 1161 | 723 | 1025 | 904 | 1434 | 1301 | 1438 | 831 | 341 | 119 | 71 | 415 |
| DFS | 313 | 461 | 181 | 506 | 0 | 600 | 984 | 1058 | 1199 | 1166 | 1301 | 659 | 434 | 116 | 66 | 460 |
| ESP | 265 | 348 | 149 | 344 | 404 | 0 | 586 | 656 | 809 | 641 | 893 | 470 | 279 | 118 | 49 | 429 |
| FRA | 331 | 319 | 153 | 284 | 342 | 380 | 0 | 935 | 1199 | 944 | 1355 | 648 | 363 | 114 | 49 | 395 |
| GBR | 357 | 837 | 210 | 473 | 692 | 503 | 446 | 0 | 1204 | 1049 | 1417 | 578 | 513 | 135 | 61 | 488 |
| ITA | 324 | 616 | 188 | 654 | 728 | 541 | 416 | 861 | 0 | 1180 | 1916 | 785 | 426 | 170 | 68 | 558 |
| NLD | 489 | 561 | 226 | 763 | 889 | 537 | 470 | 870 | 954 | 0 | 1217 | 792 | 470 | 130 | 68 | 537 |
| USA | 281 | 1409 | 207 | 461 | 676 | 447 | 455 | 1118 | 989 | 873 | 0 | 868 | 410 | 214 | 62 | 563 |
| CZE | 164 | 321 | 112 | 490 | 381 | 302 | 298 | 376 | 482 | 649 | 543 | 0 | 230 | 134 | 56 | 376 |
| IRL | 234 | 284 | 144 | 269 | 363 | 270 | 288 | 585 | 388 | 469 | 383 | 182 | 0 | 48 | 26 | 228 |
| KOR | 31 | 147 | 36 | 64 | 83 | 70 | 57 | 100 | 138 | 82 | 238 | 99 | 37 | 0 | 22 | 108 |
| SVN | 26 | 35 | 17 | 56 | 51 | 36 | 27 | 46 | 56 | 54 | 45 | 41 | 20 | 14 | 0 | 46 |
| PRT | 221 | 406 | 145 | 325 | 382 | 418 | 324 | 415 | 518 | 544 | 502 | 315 | 205 | 97 | 37 | 0 |

/1308r/HOL/ocs/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 276 | 582 | 224 | 653 | 567 | 405 | 456 | 610 | 593 | 656 | 750 | 136 | 302 | 347 | 452 | 375 | 373 | 60 | 8 | 308 | 194 | 37 | 379 |
| BEL | 192 | 0 | 322 | 209 | 505 | 395 | 315 | 389 | 411 | 431 | 617 | 412 | 173 | 225 | 295 | 214 | 224 | 299 | 44 | 33 | 258 | 131 | 45 | 342 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 823 | 846 | 711 | 1006 | 1143 | 876 | 1940 | 251 | 527 | 614 | 333 | 830 | 684 | 97 | 13 | 322 | 405 | 57 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 305 | 279 | 259 | 332 | 331 | 345 | 378 | 237 | 195 | 222 | 181 | 208 | 240 | 28 | 8 | 209 | 132 | 27 | 264 |
| DEU | 243 | 353 | 402 | 250 | 0 | 1855 | 980 | 1450 | 1360 | 1956 | 2140 | 2276 | 373 | 711 | 1077 | 458 | 969 | 1224 | 143 | 113 | 494 | 352 | 92 | 766 |
| DFS | 281 | 321 | 466 | 246 | 616 | 0 | 679 | 1003 | 1074 | 1228 | 1367 | 1323 | 191 | 542 | 809 | 442 | 611 | 850 | 119 | 35 | 459 | 314 | 80 | 672 |
| ESP | 253 | 285 | 414 | 223 | 426 | 444 | 0 | 648 | 754 | 910 | 763 | 1017 | 156 | 455 | 556 | 291 | 575 | 581 | 89 | 12 | 326 | 298 | 59 | 602 |
| FRA | 240 | 349 | 346 | 222 | 371 | 364 | 417 | 0 | 958 | 1229 | 1140 | 1383 | 147 | 493 | 783 | 374 | 681 | 799 | 100 | 14 | 385 | 278 | 57 | 550 |
| GBR | 408 | 374 | 923 | 310 | 595 | 698 | 605 | 485 | 0 | 1230 | 1276 | 1437 | 201 | 550 | 731 | 466 | 652 | 733 | 114 | 20 | 559 | 352 | 73 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 632 | 454 | 886 | 0 | 1422 | 1978 | 239 | 658 | 899 | 462 | 834 | 955 | 127 | 30 | 449 | 414 | 84 | 800 |
| NLD | 450 | 653 | 665 | 327 | 1161 | 940 | 659 | 535 | 1026 | 1091 | 0 | 1727 | 346 | 590 | 928 | 582 | 686 | 992 | 147 | 80 | 552 | 335 | 85 | 823 |
| USA | 475 | 295 | 1506 | 284 | 691 | 679 | 573 | 499 | 1121 | 989 | 1241 | 0 | 298 | 742 | 982 | 524 | 1305 | 1073 | 145 | 21 | 434 | 553 | 71 | 819 |
| CHR | 103 | 156 | 204 | 241 | 252 | 161 | 119 | 131 | 188 | 202 | 328 | 269 | 0 | 103 | 161 | 101 | 100 | 161 | 23 | 34 | 127 | 70 | 24 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 349 | 281 | 445 | 489 | 454 | 600 | 86 | 0 | 451 | 253 | 394 | 574 | 80 | 5 | 260 | 271 | 46 | 439 |
| POL | 167 | 220 | 368 | 151 | 520 | 486 | 351 | 323 | 510 | 587 | 702 | 671 | 128 | 339 | 0 | 287 | 482 | 698 | 116 | 49 | 307 | 306 | 73 | 574 |
| NZL | 336 | 167 | 290 | 159 | 249 | 290 | 240 | 208 | 382 | 343 | 534 | 460 | 90 | 205 | 193 | 0 | 281 | 316 | 49 | 7 | 323 | 165 | 36 | 331 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 155 | 130 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 108 | 0 | 518 | 74 | 2 | 246 | 324 | 41 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 384 | 405 | 483 | 589 | 772 | 682 | 112 | 483 | 469 | 218 | 125 | 0 | 111 | 24 | 309 | 310 | 71 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 40 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 29 | 20 | 68 | 0 | 2 | 62 | 54 | 23 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 31 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 7 | 1 | 21 | 2 | 0 | 12 | 2 | 4 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 310 | 315 | 622 | 398 | 507 | 386 | 116 | 222 | 227 | 280 | 112 | 233 | 35 | 10 | 0 | 150 | 35 | 347 |
| KOR | 117 | 75 | 356 | 84 | 161 | 204 | 210 | 133 | 273 | 327 | 226 | 625 | 50 | 221 | 217 | 130 | 128 | 220 | 35 | 1 | 106 | 0 | 35 | 303 |
| SVN | 19 | 34 | 40 | 19 | 69 | 64 | 42 | 34 | 56 | 71 | 72 | 54 | 19 | 33 | 58 | 24 | 15 | 53 | 15 | 4 | 28 | 17 | 0 | 55 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 636 | 515 | 684 | 787 | 895 | 785 | 148 | 419 | 558 | 283 | 154 | 468 | 73 | 17 | 331 | 255 | 44 | 0 |

/1308r/HOL/of1/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | JPN | CZE | EST | IRL | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|------|------|-----|-----|-----|-----|
| AUS | 0 | 268 | 574 | 223 | 601 | 562 | 405 | 440 | 601 | 582 | 636 | 741 | 136 | 295 | 344 | 366 | 371 | 60 | 296 | 37 | 376 |
| BEL | 192 | 0 | 317 | 209 | 475 | 394 | 317 | 380 | 405 | 425 | 584 | 395 | 172 | 219 | 292 | 214 | 298 | 44 | 247 | 45 | 339 |
| CAN | 426 | 273 | 0 | 370 | 1383 | 823 | 852 | 695 | 1006 | 1136 | 851 | 1939 | 251 | 515 | 615 | 813 | 682 | 97 | 311 | 57 | 615 |
| CHE | 166 | 190 | 237 | 0 | 405 | 306 | 282 | 250 | 332 | 329 | 345 | 376 | 237 | 192 | 222 | 207 | 240 | 27 | 205 | 27 | 264 |
| DEU | 236 | 348 | 388 | 248 | 0 | 1698 | 965 | 1411 | 1283 | 1886 | 1905 | 2095 | 359 | 683 | 1038 | 883 | 1195 | 138 | 461 | 91 | 740 |
| DFS | 281 | 322 | 466 | 246 | 607 | 0 | 701 | 988 | 1075 | 1221 | 1373 | 1310 | 197 | 530 | 813 | 599 | 848 | 119 | 441 | 80 | 672 |
| ESP | 258 | 299 | 420 | 228 | 459 | 467 | 0 | 653 | 774 | 930 | 780 | 1033 | 157 | 460 | 572 | 570 | 592 | 91 | 330 | 60 | 629 |
| FRA | 218 | 338 | 321 | 204 | 343 | 342 | 421 | 0 | 938 | 1205 | 1106 | 1356 | 146 | 481 | 776 | 662 | 789 | 100 | 366 | 57 | 538 |
| GBR | 406 | 374 | 922 | 310 | 579 | 697 | 631 | 445 | 0 | 1221 | 1257 | 1428 | 200 | 542 | 730 | 636 | 732 | 113 | 527 | 73 | 698 |
| ITA | 314 | 350 | 629 | 261 | 833 | 735 | 670 | 416 | 882 | 0 | 1385 | 1931 | 239 | 647 | 892 | 811 | 953 | 126 | 433 | 84 | 793 |
| NLD | 440 | 624 | 627 | 325 | 1042 | 938 | 679 | 490 | 1011 | 1076 | 0 | 1630 | 340 | 575 | 919 | 652 | 983 | 145 | 524 | 85 | 813 |
| USA | 473 | 293 | 1519 | 285 | 626 | 680 | 585 | 455 | 1120 | 992 | 1063 | 0 | 298 | 719 | 981 | 1254 | 1071 | 144 | 415 | 71 | 819 |
| CHR | 103 | 155 | 204 | 241 | 246 | 161 | 122 | 128 | 187 | 202 | 322 | 270 | 0 | 101 | 160 | 100 | 161 | 23 | 125 | 24 | 163 |
| HUN | 170 | 177 | 407 | 145 | 380 | 371 | 354 | 266 | 439 | 483 | 444 | 589 | 85 | 0 | 446 | 385 | 565 | 80 | 251 | 46 | 435 |
| POL | 168 | 220 | 368 | 151 | 504 | 489 | 371 | 316 | 511 | 589 | 703 | 673 | 128 | 337 | 0 | 481 | 696 | 115 | 297 | 73 | 574 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 159 | 126 | 188 | 187 | 181 | 234 | 57 | 143 | 129 | 0 | 515 | 73 | 230 | 41 | 407 |
| CZE | 182 | 203 | 388 | 163 | 659 | 454 | 400 | 389 | 482 | 586 | 767 | 682 | 112 | 477 | 470 | 125 | 0 | 110 | 298 | 71 | 533 |
| EST | 19 | 29 | 49 | 18 | 75 | 67 | 44 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 20 | 68 | 0 | 61 | 23 | 94 |
| IRL | 244 | 242 | 288 | 207 | 319 | 365 | 331 | 288 | 604 | 397 | 506 | 384 | 115 | 218 | 227 | 112 | 233 | 35 | 0 | 34 | 337 |
| SVN | 19 | 34 | 40 | 19 | 69 | 64 | 43 | 34 | 56 | 71 | 72 | 54 | 19 | 33 | 58 | 15 | 53 | 15 | 28 | 0 | 55 |
| PRT | 246 | 341 | 607 | 243 | 535 | 601 | 681 | 492 | 683 | 786 | 880 | 787 | 148 | 415 | 558 | 154 | 468 | 73 | 331 | 44 | 0 |

/1308r/HOL/ous/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | JPN | CZE | EST | FRR | IRL | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| AUS | 0 | 276 | 582 | 224 | 653 | 567 | 405 | 572 | 610 | 593 | 655 | 751 | 136 | 302 | 349 | 452 | 375 | 373 | 60 | 8 | 300 | 37 | 379 |
| BEL | 192 | 0 | 323 | 210 | 505 | 399 | 316 | 426 | 412 | 432 | 618 | 413 | 173 | 225 | 296 | 214 | 224 | 299 | 44 | 33 | 249 | 44 | 343 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 823 | 846 | 868 | 1006 | 1143 | 872 | 1947 | 251 | 527 | 616 | 333 | 830 | 684 | 97 | 13 | 311 | 57 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 279 | 278 | 332 | 331 | 345 | 378 | 237 | 195 | 223 | 181 | 208 | 240 | 28 | 8 | 205 | 27 | 264 |
| DEU | 243 | 354 | 402 | 250 | 0 | 1894 | 980 | 1708 | 1360 | 1956 | 2134 | 2281 | 373 | 711 | 1082 | 458 | 969 | 1224 | 143 | 113 | 475 | 91 | 766 |
| DFS | 281 | 322 | 466 | 246 | 616 | 0 | 680 | 1167 | 1075 | 1232 | 1394 | 1324 | 197 | 542 | 815 | 442 | 611 | 851 | 119 | 42 | 443 | 80 | 672 |
| ESP | 253 | 285 | 414 | 223 | 426 | 444 | 0 | 726 | 754 | 910 | 762 | 1019 | 156 | 455 | 557 | 291 | 575 | 581 | 89 | 12 | 316 | 59 | 602 |
| FRA | 256 | 363 | 379 | 232 | 458 | 371 | 423 | 0 | 1099 | 1402 | 1405 | 1801 | 154 | 537 | 853 | 458 | 835 | 842 | 105 | 16 | 411 | 57 | 611 |
| GBR | 408 | 374 | 922 | 310 | 593 | 697 | 602 | 498 | 0 | 1230 | 1271 | 1439 | 201 | 550 | 733 | 466 | 652 | 733 | 114 | 20 | 535 | 73 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 632 | 494 | 884 | 0 | 1419 | 1980 | 239 | 658 | 900 | 462 | 834 | 955 | 127 | 30 | 437 | 83 | 800 |
| NLD | 450 | 654 | 659 | 327 | 1155 | 941 | 658 | 608 | 1019 | 1083 | 0 | 1726 | 346 | 589 | 929 | 581 | 686 | 989 | 147 | 80 | 527 | 83 | 821 |
| USA | 476 | 295 | 1519 | 285 | 693 | 680 | 573 | 655 | 1123 | 992 | 1238 | 0 | 298 | 742 | 986 | 524 | 1308 | 1075 | 145 | 21 | 420 | 71 | 821 |
| CHR | 103 | 156 | 204 | 241 | 252 | 161 | 119 | 131 | 188 | 202 | 328 | 270 | 0 | 103 | 161 | 101 | 100 | 161 | 23 | 34 | 126 | 24 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 349 | 283 | 445 | 489 | 452 | 600 | 86 | 0 | 452 | 253 | 394 | 574 | 80 | 5 | 254 | 46 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 488 | 351 | 332 | 511 | 589 | 700 | 675 | 128 | 339 | 0 | 287 | 484 | 698 | 116 | 49 | 298 | 73 | 574 |
| NZL | 336 | 167 | 290 | 159 | 249 | 290 | 240 | 216 | 382 | 343 | 534 | 461 | 90 | 205 | 194 | 0 | 281 | 316 | 49 | 7 | 313 | 35 | 331 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 155 | 131 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 108 | 0 | 518 | 74 | 2 | 236 | 41 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 384 | 420 | 482 | 589 | 769 | 683 | 112 | 483 | 470 | 218 | 125 | 0 | 111 | 24 | 300 | 70 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 40 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 29 | 20 | 68 | 0 | 2 | 61 | 23 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 7 | 1 | 21 | 2 | 0 | 12 | 4 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 310 | 319 | 612 | 398 | 507 | 386 | 116 | 222 | 227 | 280 | 112 | 233 | 35 | 10 | 0 | 34 | 337 |
| SVN | 19 | 33 | 40 | 19 | 68 | 64 | 42 | 34 | 56 | 70 | 69 | 54 | 19 | 33 | 58 | 24 | 15 | 53 | 15 | 4 | 28 | 0 | 55 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 636 | 526 | 683 | 787 | 891 | 789 | 148 | 419 | 558 | 283 | 154 | 468 | 73 | 17 | 331 | 44 | 0 |

/1308r/HOL/ran/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 276 | 582 | 224 | 653 | 567 | 401 | 572 | 610 | 593 | 654 | 751 | 136 | 302 | 348 | 459 | 223 | 375 | 373 | 60 | 8 | 308 | 193 | 75 | 379 |
| BEL | 192 | 0 | 323 | 210 | 505 | 399 | 311 | 426 | 412 | 432 | 616 | 413 | 173 | 225 | 296 | 222 | 149 | 224 | 299 | 44 | 33 | 258 | 131 | 82 | 343 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 823 | 843 | 868 | 1006 | 1143 | 858 | 1947 | 254 | 527 | 615 | 339 | 279 | 830 | 684 | 97 | 13 | 322 | 404 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 277 | 278 | 332 | 331 | 340 | 378 | 237 | 195 | 223 | 185 | 137 | 208 | 240 | 28 | 8 | 209 | 131 | 54 | 264 |
| DEU | 243 | 354 | 402 | 250 | 0 | 1894 | 968 | 1708 | 1360 | 1956 | 2115 | 2281 | 384 | 711 | 1081 | 467 | 313 | 969 | 1224 | 143 | 113 | 494 | 351 | 154 | 766 |
| DFS | 281 | 322 | 466 | 246 | 616 | 0 | 671 | 1167 | 1075 | 1232 | 1388 | 1324 | 198 | 542 | 815 | 453 | 303 | 611 | 851 | 119 | 42 | 460 | 313 | 136 | 672 |
| ESP | 252 | 281 | 412 | 222 | 411 | 436 | 0 | 719 | 744 | 898 | 743 | 1015 | 158 | 453 | 550 | 299 | 267 | 571 | 578 | 87 | 12 | 322 | 296 | 99 | 593 |
| FRA | 256 | 363 | 379 | 232 | 458 | 371 | 417 | 0 | 1099 | 1402 | 1400 | 1801 | 156 | 537 | 853 | 470 | 274 | 835 | 842 | 105 | 16 | 430 | 310 | 99 | 611 |
| GBR | 408 | 374 | 923 | 310 | 595 | 698 | 596 | 499 | 0 | 1230 | 1263 | 1439 | 203 | 550 | 732 | 477 | 306 | 652 | 733 | 114 | 20 | 560 | 351 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 617 | 494 | 886 | 0 | 1406 | 1980 | 241 | 658 | 899 | 476 | 315 | 834 | 955 | 127 | 30 | 449 | 412 | 143 | 800 |
| NLD | 450 | 650 | 647 | 323 | 1120 | 933 | 633 | 598 | 1012 | 1062 | 0 | 1710 | 354 | 581 | 916 | 596 | 301 | 681 | 979 | 146 | 80 | 551 | 327 | 142 | 811 |
| USA | 476 | 295 | 1519 | 285 | 693 | 680 | 570 | 655 | 1124 | 992 | 1222 | 0 | 303 | 742 | 985 | 536 | 356 | 1308 | 1075 | 145 | 21 | 435 | 551 | 126 | 821 |
| CHR | 103 | 156 | 207 | 241 | 254 | 161 | 119 | 131 | 188 | 202 | 329 | 274 | 0 | 103 | 162 | 105 | 71 | 101 | 161 | 23 | 35 | 127 | 71 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 349 | 283 | 445 | 489 | 442 | 600 | 86 | 0 | 452 | 262 | 219 | 394 | 574 | 80 | 5 | 260 | 270 | 75 | 439 |
| POL | 167 | 220 | 368 | 151 | 520 | 487 | 344 | 332 | 510 | 587 | 684 | 673 | 128 | 339 | 0 | 295 | 218 | 483 | 698 | 116 | 49 | 307 | 305 | 114 | 574 |
| NZL | 343 | 173 | 298 | 162 | 255 | 300 | 248 | 225 | 396 | 359 | 549 | 477 | 92 | 215 | 199 | 0 | 202 | 288 | 328 | 51 | 7 | 330 | 170 | 66 | 339 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 242 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 186 | 151 | 188 | 0 | 220 | 214 | 43 | 4 | 189 | 173 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 155 | 131 | 188 | 187 | 180 | 234 | 57 | 146 | 129 | 111 | 123 | 0 | 518 | 74 | 2 | 246 | 323 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 381 | 420 | 483 | 589 | 758 | 683 | 112 | 483 | 469 | 229 | 162 | 125 | 0 | 111 | 24 | 309 | 309 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 39 | 37 | 65 | 77 | 95 | 99 | 14 | 54 | 75 | 30 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 7 | 3 | 1 | 21 | 2 | 0 | 12 | 2 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 305 | 319 | 623 | 398 | 506 | 386 | 116 | 222 | 227 | 288 | 186 | 112 | 233 | 35 | 10 | 0 | 149 | 68 | 347 |
| KOR | 115 | 73 | 353 | 82 | 159 | 201 | 207 | 134 | 271 | 323 | 216 | 619 | 49 | 219 | 215 | 136 | 142 | 126 | 218 | 35 | 1 | 104 | 0 | 54 | 302 |
| SVN | 44 | 66 | 68 | 35 | 111 | 111 | 73 | 57 | 97 | 123 | 122 | 90 | 33 | 55 | 91 | 43 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 622 | 526 | 684 | 787 | 876 | 789 | 148 | 419 | 558 | 290 | 254 | 154 | 468 | 73 | 17 | 331 | 253 | 84 | 0 |

/1308r/HOL/rlr/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 213 | 399 | 191 | 453 | 422 | 313 | 276 | 461 | 428 | 461 | 479 | 125 | 235 | 258 | 161 | 251 | 234 | 50 | 8 | 255 | 99 | 56 | 303 |
| BEL | 181 | 0 | 286 | 199 | 436 | 361 | 290 | 298 | 367 | 387 | 508 | 351 | 167 | 205 | 258 | 125 | 186 | 231 | 43 | 29 | 233 | 79 | 69 | 312 |
| CAN | 316 | 263 | 0 | 349 | 1299 | 731 | 781 | 544 | 905 | 1069 | 749 | 1756 | 237 | 506 | 562 | 218 | 708 | 560 | 92 | 11 | 293 | 288 | 79 | 574 |
| CHE | 155 | 185 | 234 | 0 | 405 | 305 | 280 | 206 | 330 | 328 | 336 | 377 | 237 | 193 | 205 | 121 | 202 | 189 | 27 | 7 | 204 | 85 | 43 | 258 |
| DEU | 212 | 328 | 379 | 247 | 0 | 1696 | 950 | 1133 | 1276 | 1884 | 1819 | 2100 | 363 | 695 | 983 | 251 | 854 | 979 | 138 | 92 | 457 | 237 | 126 | 729 |
| DFS | 265 | 314 | 461 | 246 | 602 | 0 | 684 | 761 | 1063 | 1213 | 1300 | 1321 | 198 | 535 | 757 | 259 | 566 | 672 | 119 | 37 | 436 | 211 | 113 | 659 |
| ESP | 233 | 286 | 407 | 227 | 444 | 457 | 0 | 521 | 756 | 917 | 746 | 1024 | 158 | 458 | 527 | 232 | 544 | 491 | 91 | 11 | 321 | 205 | 88 | 608 |
| FRA | 158 | 264 | 250 | 168 | 269 | 278 | 336 | 0 | 704 | 951 | 857 | 1016 | 126 | 401 | 666 | 148 | 517 | 611 | 86 | 9 | 282 | 173 | 67 | 428 |
| GBR | 352 | 355 | 839 | 309 | 574 | 692 | 621 | 334 | 0 | 1213 | 1194 | 1422 | 202 | 546 | 683 | 254 | 597 | 590 | 112 | 18 | 517 | 247 | 104 | 684 |
| ITA | 281 | 334 | 618 | 261 | 829 | 731 | 660 | 337 | 878 | 0 | 1333 | 1940 | 241 | 652 | 845 | 269 | 779 | 798 | 126 | 30 | 431 | 300 | 120 | 783 |
| NLD | 371 | 536 | 605 | 323 | 1010 | 932 | 670 | 399 | 983 | 1067 | 0 | 1439 | 333 | 564 | 852 | 250 | 594 | 828 | 145 | 70 | 510 | 224 | 120 | 781 |
| USA | 358 | 281 | 1410 | 285 | 623 | 675 | 585 | 321 | 1121 | 992 | 1025 | 0 | 303 | 738 | 925 | 295 | 1178 | 880 | 144 | 19 | 412 | 392 | 102 | 810 |
| CHR | 101 | 153 | 193 | 241 | 246 | 161 | 122 | 118 | 187 | 202 | 319 | 274 | 0 | 103 | 160 | 67 | 99 | 139 | 23 | 31 | 125 | 54 | 37 | 163 |
| HUN | 165 | 175 | 407 | 148 | 386 | 372 | 355 | 222 | 444 | 487 | 447 | 600 | 86 | 0 | 427 | 195 | 377 | 471 | 80 | 5 | 251 | 204 | 62 | 435 |
| POL | 154 | 205 | 349 | 140 | 476 | 462 | 334 | 273 | 484 | 567 | 664 | 635 | 127 | 324 | 0 | 179 | 448 | 598 | 113 | 48 | 274 | 241 | 98 | 536 |
| ZAF | 157 | 119 | 215 | 115 | 186 | 223 | 223 | 110 | 246 | 241 | 242 | 303 | 58 | 173 | 137 | 0 | 172 | 158 | 42 | 4 | 161 | 104 | 38 | 231 |
| JPN | 125 | 102 | 188 | 92 | 131 | 170 | 155 | 108 | 185 | 184 | 178 | 230 | 57 | 144 | 124 | 118 | 0 | 420 | 72 | 2 | 221 | 224 | 61 | 388 |
| CZE | 136 | 165 | 323 | 127 | 540 | 383 | 305 | 277 | 379 | 486 | 664 | 544 | 104 | 387 | 418 | 119 | 116 | 0 | 102 | 23 | 236 | 222 | 89 | 437 |
| EST | 19 | 29 | 49 | 18 | 75 | 67 | 43 | 33 | 65 | 77 | 96 | 99 | 14 | 54 | 74 | 23 | 20 | 63 | 0 | 2 | 60 | 44 | 30 | 93 |
| FRR | 6 | 28 | 9 | 7 | 73 | 31 | 8 | 8 | 15 | 27 | 53 | 13 | 27 | 5 | 60 | 3 | 1 | 19 | 2 | 0 | 12 | 1 | 8 | 17 |
| IRL | 223 | 233 | 286 | 206 | 316 | 363 | 322 | 223 | 588 | 397 | 499 | 384 | 115 | 222 | 213 | 166 | 111 | 183 | 35 | 10 | 0 | 88 | 53 | 333 |
| KOR | 56 | 49 | 253 | 56 | 107 | 139 | 126 | 92 | 177 | 233 | 142 | 411 | 39 | 160 | 181 | 81 | 91 | 162 | 29 | 0 | 63 | 0 | 35 | 215 |
| SVN | 34 | 56 | 57 | 28 | 95 | 91 | 66 | 43 | 82 | 103 | 103 | 76 | 29 | 46 | 79 | 28 | 26 | 70 | 21 | 8 | 41 | 20 | 0 | 81 |
| PRT | 228 | 325 | 571 | 236 | 521 | 586 | 654 | 421 | 670 | 775 | 854 | 771 | 148 | 415 | 529 | 234 | 150 | 380 | 72 | 16 | 324 | 180 | 67 | 0 |

/1308r/HOL/rls/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 276 | 582 | 224 | 653 | 567 | 409 | 572 | 610 | 593 | 658 | 751 | 136 | 302 | 349 | 474 | 223 | 375 | 373 | 60 | 8 | 308 | 185 | 75 | 379 |
| BEL | 192 | 0 | 323 | 210 | 505 | 399 | 318 | 426 | 412 | 432 | 619 | 413 | 173 | 225 | 296 | 235 | 149 | 224 | 299 | 44 | 33 | 258 | 126 | 82 | 343 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 823 | 849 | 868 | 1006 | 1143 | 879 | 1947 | 254 | 527 | 616 | 359 | 279 | 830 | 684 | 97 | 13 | 322 | 393 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 281 | 278 | 332 | 331 | 345 | 378 | 237 | 195 | 223 | 196 | 137 | 208 | 240 | 28 | 8 | 209 | 126 | 54 | 264 |
| DEU | 243 | 354 | 402 | 250 | 0 | 1894 | 987 | 1708 | 1360 | 1956 | 2141 | 2281 | 384 | 711 | 1082 | 493 | 313 | 969 | 1224 | 143 | 113 | 494 | 336 | 154 | 766 |
| DFS | 279 | 322 | 464 | 246 | 614 | 0 | 688 | 1167 | 1075 | 1232 | 1396 | 1324 | 198 | 542 | 816 | 473 | 303 | 611 | 851 | 119 | 42 | 460 | 301 | 136 | 672 |
| ESP | 254 | 289 | 416 | 225 | 434 | 447 | 0 | 737 | 763 | 920 | 777 | 1028 | 159 | 460 | 564 | 325 | 271 | 578 | 587 | 90 | 12 | 333 | 289 | 101 | 611 |
| FRA | 256 | 363 | 379 | 232 | 458 | 370 | 439 | 0 | 1099 | 1402 | 1407 | 1801 | 156 | 537 | 853 | 494 | 274 | 835 | 842 | 105 | 16 | 430 | 298 | 99 | 611 |
| GBR | 408 | 374 | 923 | 310 | 595 | 695 | 615 | 499 | 0 | 1230 | 1278 | 1439 | 203 | 550 | 733 | 499 | 306 | 652 | 733 | 114 | 20 | 560 | 338 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 735 | 645 | 494 | 886 | 0 | 1424 | 1980 | 241 | 658 | 900 | 502 | 315 | 834 | 955 | 127 | 30 | 449 | 397 | 143 | 800 |
| NLD | 450 | 655 | 667 | 327 | 1165 | 939 | 675 | 610 | 1028 | 1093 | 0 | 1732 | 357 | 590 | 932 | 628 | 304 | 687 | 993 | 147 | 80 | 552 | 319 | 144 | 824 |
| USA | 476 | 295 | 1519 | 285 | 692 | 675 | 580 | 655 | 1124 | 992 | 1243 | 0 | 303 | 742 | 986 | 568 | 356 | 1308 | 1075 | 145 | 21 | 435 | 531 | 126 | 821 |
| CHR | 103 | 156 | 207 | 241 | 254 | 161 | 120 | 131 | 188 | 202 | 332 | 274 | 0 | 103 | 162 | 114 | 71 | 101 | 161 | 23 | 35 | 127 | 68 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 373 | 352 | 283 | 445 | 489 | 454 | 600 | 86 | 0 | 452 | 275 | 219 | 394 | 574 | 80 | 5 | 260 | 261 | 75 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 489 | 354 | 332 | 512 | 589 | 706 | 675 | 128 | 339 | 0 | 312 | 218 | 484 | 698 | 116 | 49 | 307 | 293 | 114 | 574 |
| NZL | 365 | 185 | 326 | 176 | 275 | 320 | 272 | 242 | 424 | 391 | 587 | 519 | 102 | 229 | 219 | 0 | 206 | 300 | 352 | 53 | 8 | 342 | 169 | 72 | 360 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 241 | 254 | 181 | 284 | 265 | 285 | 367 | 58 | 186 | 151 | 193 | 0 | 220 | 214 | 43 | 4 | 189 | 168 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 156 | 131 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 117 | 123 | 0 | 518 | 74 | 2 | 246 | 311 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 452 | 389 | 420 | 483 | 589 | 773 | 682 | 112 | 483 | 470 | 255 | 162 | 125 | 0 | 111 | 24 | 309 | 299 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 41 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 33 | 23 | 20 | 68 | 0 | 2 | 62 | 53 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 364 | 318 | 319 | 623 | 398 | 507 | 386 | 116 | 222 | 227 | 302 | 186 | 112 | 233 | 35 | 10 | 0 | 141 | 68 | 347 |
| KOR | 112 | 71 | 342 | 79 | 153 | 192 | 202 | 125 | 261 | 311 | 213 | 585 | 47 | 210 | 209 | 139 | 139 | 122 | 209 | 34 | 0 | 99 | 0 | 52 | 291 |
| SVN | 44 | 66 | 68 | 35 | 111 | 111 | 76 | 57 | 97 | 123 | 125 | 90 | 33 | 55 | 91 | 49 | 37 | 28 | 85 | 23 | 10 | 53 | 25 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 600 | 649 | 526 | 684 | 787 | 896 | 788 | 148 | 419 | 558 | 310 | 254 | 154 | 468 | 73 | 17 | 331 | 243 | 84 | 0 |

/1308r/HOL/rtp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | POL | NZL | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 203 | 341 | 176 | 371 | 325 | 267 | 311 | 383 | 357 | 381 | 358 | 197 | 282 | 152 | 209 | 45 | 6 | 230 | 61 | 54 | 203 |
| BEL | 173 | 0 | 313 | 204 | 450 | 337 | 307 | 406 | 356 | 406 | 512 | 320 | 220 | 222 | 136 | 235 | 44 | 32 | 249 | 54 | 70 | 246 |
| CAN | 279 | 270 | 0 | 367 | 1313 | 638 | 836 | 864 | 829 | 1100 | 729 | 1539 | 508 | 344 | 529 | 562 | 95 | 13 | 314 | 204 | 81 | 453 |
| CHE | 146 | 189 | 236 | 0 | 388 | 252 | 276 | 273 | 302 | 320 | 320 | 335 | 171 | 188 | 139 | 186 | 27 | 7 | 203 | 50 | 43 | 194 |
| DEU | 189 | 338 | 369 | 237 | 0 | 1406 | 902 | 1485 | 1078 | 1798 | 1652 | 1628 | 865 | 414 | 609 | 963 | 135 | 93 | 439 | 165 | 127 | 520 |
| DFS | 222 | 284 | 415 | 208 | 523 | 0 | 549 | 897 | 816 | 1028 | 1126 | 899 | 644 | 354 | 368 | 637 | 105 | 37 | 369 | 145 | 106 | 459 |
| ESP | 200 | 284 | 403 | 221 | 403 | 364 | 0 | 704 | 650 | 869 | 671 | 845 | 449 | 295 | 395 | 479 | 88 | 12 | 311 | 146 | 86 | 437 |
| FRA | 189 | 362 | 371 | 228 | 377 | 321 | 405 | 0 | 819 | 1284 | 1052 | 1112 | 692 | 458 | 502 | 669 | 102 | 16 | 406 | 140 | 81 | 418 |
| GBR | 301 | 334 | 751 | 277 | 501 | 567 | 498 | 400 | 0 | 1022 | 988 | 1058 | 583 | 371 | 390 | 563 | 105 | 16 | 430 | 173 | 103 | 478 |
| ITA | 246 | 340 | 622 | 256 | 796 | 644 | 588 | 448 | 743 | 0 | 1219 | 1484 | 755 | 448 | 570 | 789 | 124 | 29 | 420 | 209 | 119 | 574 |
| NLD | 314 | 529 | 557 | 307 | 891 | 809 | 574 | 500 | 778 | 954 | 0 | 1110 | 739 | 502 | 426 | 796 | 140 | 64 | 481 | 155 | 118 | 553 |
| USA | 278 | 268 | 1254 | 269 | 501 | 545 | 471 | 395 | 890 | 847 | 800 | 0 | 775 | 359 | 750 | 824 | 135 | 14 | 350 | 275 | 96 | 534 |
| POL | 120 | 161 | 303 | 111 | 395 | 399 | 251 | 252 | 398 | 487 | 549 | 532 | 0 | 218 | 351 | 565 | 98 | 41 | 232 | 181 | 89 | 423 |
| NZL | 252 | 179 | 314 | 172 | 247 | 259 | 244 | 226 | 324 | 347 | 479 | 340 | 152 | 0 | 161 | 253 | 49 | 7 | 322 | 67 | 56 | 228 |
| JPN | 98 | 79 | 154 | 77 | 107 | 143 | 118 | 106 | 148 | 156 | 142 | 184 | 107 | 89 | 0 | 355 | 59 | 1 | 150 | 146 | 48 | 235 |
| CZE | 127 | 165 | 323 | 126 | 538 | 374 | 298 | 303 | 371 | 484 | 643 | 530 | 395 | 195 | 108 | 0 | 100 | 22 | 232 | 166 | 90 | 390 |
| EST | 19 | 29 | 49 | 18 | 74 | 61 | 40 | 37 | 62 | 76 | 93 | 96 | 62 | 32 | 19 | 62 | 0 | 2 | 58 | 34 | 31 | 81 |
| FRR | 4 | 30 | 9 | 7 | 74 | 31 | 8 | 13 | 14 | 27 | 49 | 11 | 54 | 7 | 1 | 19 | 2 | 0 | 12 | 1 | 9 | 11 |
| IRL | 202 | 239 | 282 | 202 | 304 | 304 | 299 | 306 | 446 | 380 | 468 | 343 | 172 | 282 | 89 | 182 | 35 | 10 | 0 | 53 | 54 | 236 |
| KOR | 37 | 34 | 175 | 38 | 74 | 99 | 80 | 63 | 116 | 164 | 91 | 293 | 133 | 57 | 63 | 121 | 23 | 0 | 39 | 0 | 31 | 138 |
| SVN | 33 | 57 | 57 | 28 | 95 | 90 | 64 | 49 | 81 | 104 | 102 | 76 | 71 | 37 | 22 | 70 | 21 | 8 | 41 | 18 | 0 | 70 |
| PRT | 154 | 228 | 412 | 163 | 350 | 386 | 416 | 334 | 419 | 536 | 558 | 503 | 414 | 185 | 109 | 327 | 56 | 11 | 211 | 118 | 57 | 0 |

/1308r/HOL/ruh/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 270 | 582 | 224 | 653 | 479 | 406 | 569 | 610 | 593 | 639 | 751 | 136 | 302 | 348 | 485 | 223 | 375 | 373 | 60 | 8 | 308 | 189 | 75 | 379 |
| BEL | 192 | 0 | 319 | 210 | 489 | 370 | 316 | 415 | 407 | 428 | 586 | 400 | 172 | 223 | 294 | 239 | 148 | 218 | 298 | 44 | 33 | 257 | 128 | 82 | 341 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 694 | 847 | 853 | 1006 | 1143 | 851 | 1947 | 254 | 527 | 615 | 378 | 279 | 830 | 684 | 97 | 13 | 322 | 400 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 280 | 280 | 276 | 332 | 331 | 342 | 378 | 237 | 195 | 223 | 200 | 137 | 208 | 240 | 28 | 8 | 209 | 128 | 54 | 264 |
| DEU | 243 | 351 | 402 | 250 | 0 | 1528 | 982 | 1673 | 1359 | 1956 | 2025 | 2281 | 384 | 711 | 1081 | 519 | 313 | 969 | 1224 | 143 | 113 | 493 | 345 | 154 | 766 |
| DFS | 262 | 311 | 435 | 240 | 575 | 0 | 611 | 981 | 949 | 1111 | 1241 | 1143 | 191 | 503 | 756 | 433 | 259 | 523 | 775 | 113 | 38 | 416 | 282 | 132 | 628 |
| ESP | 253 | 286 | 414 | 223 | 426 | 420 | 0 | 717 | 756 | 912 | 758 | 1021 | 158 | 456 | 558 | 336 | 269 | 575 | 583 | 89 | 12 | 326 | 292 | 101 | 603 |
| FRA | 256 | 363 | 379 | 232 | 453 | 357 | 426 | 0 | 1084 | 1384 | 1290 | 1762 | 156 | 535 | 847 | 504 | 273 | 822 | 837 | 104 | 16 | 425 | 302 | 99 | 608 |
| GBR | 408 | 374 | 922 | 310 | 594 | 653 | 603 | 498 | 0 | 1230 | 1256 | 1439 | 203 | 550 | 732 | 522 | 306 | 652 | 733 | 114 | 20 | 559 | 346 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 697 | 632 | 492 | 885 | 0 | 1398 | 1980 | 241 | 658 | 899 | 523 | 315 | 834 | 955 | 127 | 30 | 449 | 407 | 143 | 800 |
| NLD | 448 | 627 | 661 | 327 | 1127 | 896 | 658 | 584 | 1015 | 1090 | 0 | 1612 | 347 | 581 | 921 | 644 | 295 | 657 | 988 | 146 | 77 | 547 | 328 | 141 | 816 |
| USA | 476 | 295 | 1519 | 285 | 693 | 623 | 573 | 620 | 1123 | 992 | 1211 | 0 | 303 | 742 | 985 | 593 | 356 | 1308 | 1075 | 145 | 21 | 434 | 544 | 126 | 821 |
| CHR | 103 | 155 | 207 | 241 | 254 | 158 | 119 | 131 | 188 | 202 | 328 | 274 | 0 | 103 | 162 | 121 | 71 | 101 | 161 | 23 | 35 | 127 | 69 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 360 | 349 | 283 | 445 | 489 | 454 | 600 | 86 | 0 | 452 | 287 | 219 | 394 | 574 | 80 | 5 | 260 | 267 | 75 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 473 | 352 | 332 | 511 | 588 | 704 | 674 | 128 | 339 | 0 | 325 | 218 | 483 | 698 | 116 | 49 | 307 | 302 | 114 | 574 |
| NZL | 374 | 190 | 347 | 177 | 287 | 314 | 276 | 250 | 441 | 409 | 607 | 545 | 107 | 233 | 233 | 0 | 210 | 309 | 370 | 59 | 8 | 354 | 182 | 74 | 379 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 225 | 253 | 181 | 284 | 265 | 284 | 367 | 58 | 186 | 151 | 195 | 0 | 220 | 214 | 43 | 4 | 189 | 170 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 164 | 155 | 131 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 119 | 123 | 0 | 518 | 74 | 2 | 246 | 318 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 437 | 385 | 420 | 483 | 589 | 773 | 683 | 112 | 483 | 470 | 266 | 162 | 125 | 0 | 111 | 24 | 309 | 305 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 64 | 40 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 36 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 346 | 310 | 319 | 622 | 398 | 504 | 386 | 116 | 222 | 227 | 311 | 186 | 112 | 233 | 35 | 10 | 0 | 145 | 68 | 347 |
| KOR | 112 | 71 | 348 | 80 | 156 | 184 | 204 | 131 | 268 | 318 | 219 | 604 | 47 | 215 | 213 | 147 | 140 | 123 | 214 | 35 | 0 | 101 | 0 | 54 | 297 |
| SVN | 44 | 66 | 68 | 35 | 111 | 110 | 76 | 57 | 97 | 123 | 125 | 90 | 33 | 55 | 91 | 50 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 577 | 637 | 526 | 684 | 787 | 890 | 789 | 148 | 419 | 558 | 322 | 254 | 154 | 468 | 73 | 17 | 331 | 249 | 84 | 0 |

/1308r/HOL/rwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|-----|------|-----|-----|-----|-----|-----|
| AUS | 0 | 251 | 582 | 224 | 653 | 567 | 401 | 493 | 610 | 593 | 652 | 751 | 136 | 302 | 347 | 474 | 223 | 185 | 373 | 60 | 8 | 308 | 188 | 379 |
| BEL | 191 | 0 | 305 | 204 | 464 | 377 | 294 | 377 | 385 | 405 | 533 | 370 | 170 | 209 | 280 | 216 | 137 | 134 | 283 | 44 | 31 | 247 | 118 | 322 |
| CAN | 427 | 268 | 0 | 370 | 1505 | 823 | 843 | 746 | 1006 | 1143 | 850 | 1947 | 254 | 527 | 614 | 359 | 279 | 530 | 684 | 97 | 13 | 322 | 398 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 277 | 268 | 332 | 331 | 337 | 378 | 237 | 195 | 222 | 196 | 137 | 140 | 240 | 28 | 8 | 209 | 127 | 264 |
| DEU | 243 | 345 | 402 | 250 | 0 | 1894 | 969 | 1513 | 1360 | 1956 | 2096 | 2281 | 384 | 711 | 1078 | 493 | 313 | 618 | 1224 | 143 | 113 | 494 | 343 | 766 |
| DFS | 281 | 320 | 466 | 246 | 616 | 0 | 672 | 1044 | 1075 | 1231 | 1378 | 1324 | 198 | 542 | 813 | 473 | 303 | 384 | 851 | 119 | 42 | 459 | 306 | 672 |
| ESP | 252 | 280 | 412 | 222 | 412 | 437 | 0 | 663 | 745 | 899 | 742 | 1016 | 158 | 454 | 551 | 316 | 267 | 395 | 578 | 88 | 12 | 322 | 290 | 594 |
| FRA | 246 | 350 | 356 | 224 | 398 | 368 | 416 | 0 | 999 | 1286 | 1199 | 1485 | 149 | 508 | 811 | 438 | 248 | 497 | 822 | 102 | 15 | 400 | 283 | 574 |
| GBR | 408 | 368 | 923 | 310 | 595 | 698 | 596 | 489 | 0 | 1230 | 1257 | 1439 | 203 | 550 | 731 | 499 | 306 | 404 | 733 | 114 | 20 | 559 | 345 | 698 |
| ITA | 314 | 342 | 629 | 261 | 837 | 737 | 618 | 469 | 886 | 0 | 1397 | 1980 | 241 | 658 | 899 | 502 | 315 | 573 | 955 | 127 | 30 | 449 | 405 | 800 |
| NLD | 448 | 563 | 641 | 321 | 1108 | 928 | 628 | 545 | 1004 | 1052 | 0 | 1696 | 353 | 580 | 911 | 626 | 301 | 430 | 978 | 145 | 80 | 551 | 319 | 807 |
| USA | 476 | 285 | 1519 | 285 | 692 | 679 | 570 | 534 | 1124 | 992 | 1208 | 0 | 303 | 742 | 983 | 568 | 356 | 792 | 1075 | 145 | 21 | 434 | 540 | 821 |
| CHR | 103 | 154 | 207 | 241 | 254 | 161 | 119 | 131 | 188 | 202 | 328 | 274 | 0 | 103 | 162 | 114 | 71 | 77 | 161 | 23 | 35 | 127 | 69 | 163 |
| HUN | 175 | 178 | 413 | 148 | 392 | 374 | 349 | 281 | 445 | 489 | 440 | 600 | 86 | 0 | 451 | 275 | 219 | 276 | 574 | 80 | 5 | 260 | 265 | 439 |
| POL | 167 | 218 | 368 | 151 | 520 | 487 | 345 | 325 | 510 | 587 | 679 | 673 | 128 | 339 | 0 | 312 | 217 | 369 | 698 | 116 | 49 | 307 | 299 | 574 |
| NZL | 365 | 181 | 326 | 176 | 275 | 320 | 265 | 238 | 424 | 391 | 584 | 519 | 102 | 229 | 218 | 0 | 206 | 166 | 352 | 53 | 8 | 342 | 174 | 360 |
| ZAF | 187 | 126 | 249 | 126 | 212 | 242 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 186 | 151 | 193 | 0 | 124 | 214 | 43 | 4 | 188 | 169 | 263 |
| JPN | 99 | 79 | 154 | 77 | 107 | 142 | 118 | 106 | 148 | 156 | 142 | 184 | 54 | 117 | 118 | 89 | 84 | 0 | 378 | 60 | 1 | 155 | 222 | 257 |
| CZE | 182 | 202 | 388 | 163 | 672 | 454 | 381 | 411 | 483 | 589 | 755 | 682 | 112 | 483 | 469 | 255 | 162 | 109 | 0 | 111 | 24 | 309 | 304 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 40 | 37 | 65 | 77 | 95 | 99 | 14 | 54 | 75 | 33 | 23 | 19 | 68 | 0 | 2 | 62 | 54 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 8 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 18 |
| IRL | 245 | 239 | 288 | 207 | 325 | 365 | 305 | 316 | 623 | 398 | 505 | 386 | 116 | 222 | 227 | 302 | 186 | 89 | 233 | 35 | 10 | 0 | 145 | 347 |
| KOR | 112 | 71 | 348 | 80 | 155 | 196 | 203 | 130 | 267 | 317 | 210 | 598 | 47 | 213 | 211 | 142 | 140 | 104 | 213 | 35 | 0 | 101 | 0 | 295 |
| PRT | 246 | 334 | 607 | 243 | 544 | 601 | 623 | 519 | 684 | 787 | 870 | 788 | 148 | 419 | 558 | 310 | 254 | 119 | 468 | 73 | 17 | 331 | 246 | 0 |

/1308r/HOL/sta/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 276 | 582 | 224 | 653 | 567 | 401 | 572 | 610 | 593 | 649 | 751 | 136 | 302 | 348 | 462 | 223 | 375 | 373 | 60 | 8 | 308 | 194 | 75 | 379 |
| BEL | 192 | 0 | 323 | 210 | 505 | 399 | 313 | 426 | 412 | 432 | 611 | 413 | 173 | 225 | 296 | 223 | 149 | 224 | 299 | 44 | 33 | 258 | 132 | 82 | 343 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 823 | 844 | 868 | 1006 | 1143 | 843 | 1947 | 254 | 527 | 616 | 342 | 279 | 830 | 684 | 97 | 13 | 322 | 405 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 306 | 277 | 278 | 332 | 331 | 335 | 378 | 237 | 195 | 224 | 186 | 137 | 208 | 240 | 28 | 8 | 209 | 132 | 54 | 264 |
| DEU | 243 | 354 | 402 | 250 | 0 | 1894 | 969 | 1708 | 1360 | 1956 | 2089 | 2281 | 384 | 711 | 1079 | 470 | 313 | 969 | 1224 | 143 | 113 | 494 | 352 | 154 | 766 |
| DFS | 281 | 322 | 466 | 246 | 616 | 0 | 673 | 1167 | 1075 | 1232 | 1377 | 1324 | 198 | 542 | 813 | 455 | 303 | 611 | 851 | 119 | 42 | 460 | 314 | 136 | 672 |
| ESP | 252 | 282 | 413 | 222 | 412 | 438 | 0 | 721 | 746 | 900 | 736 | 1017 | 158 | 455 | 551 | 301 | 267 | 573 | 579 | 88 | 12 | 322 | 298 | 99 | 594 |
| FRA | 256 | 363 | 379 | 232 | 458 | 371 | 418 | 0 | 1099 | 1402 | 1394 | 1801 | 156 | 537 | 851 | 472 | 274 | 835 | 842 | 105 | 16 | 430 | 312 | 99 | 611 |
| GBR | 408 | 374 | 923 | 310 | 595 | 698 | 597 | 499 | 0 | 1230 | 1250 | 1439 | 203 | 550 | 730 | 480 | 306 | 652 | 733 | 114 | 20 | 560 | 352 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 737 | 619 | 494 | 886 | 0 | 1386 | 1980 | 241 | 658 | 898 | 479 | 315 | 834 | 955 | 127 | 30 | 449 | 414 | 143 | 800 |
| NLD | 444 | 638 | 631 | 318 | 1078 | 921 | 618 | 583 | 992 | 1021 | 0 | 1692 | 352 | 574 | 904 | 597 | 300 | 675 | 971 | 145 | 80 | 551 | 325 | 141 | 795 |
| USA | 476 | 295 | 1519 | 285 | 693 | 680 | 571 | 655 | 1124 | 992 | 1196 | 0 | 303 | 742 | 985 | 540 | 356 | 1308 | 1075 | 145 | 21 | 435 | 553 | 126 | 821 |
| CHR | 103 | 156 | 207 | 241 | 254 | 161 | 119 | 131 | 188 | 202 | 325 | 274 | 0 | 103 | 162 | 106 | 71 | 101 | 161 | 23 | 35 | 127 | 71 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 374 | 349 | 283 | 445 | 489 | 431 | 600 | 86 | 0 | 451 | 265 | 219 | 394 | 574 | 80 | 5 | 260 | 271 | 75 | 439 |
| POL | 166 | 219 | 368 | 151 | 519 | 485 | 343 | 331 | 508 | 584 | 664 | 673 | 128 | 338 | 0 | 297 | 218 | 482 | 697 | 116 | 49 | 306 | 307 | 114 | 574 |
| NZL | 347 | 174 | 301 | 163 | 257 | 301 | 249 | 225 | 398 | 361 | 549 | 480 | 93 | 217 | 199 | 0 | 202 | 290 | 331 | 51 | 7 | 331 | 174 | 66 | 341 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 242 | 251 | 181 | 284 | 265 | 281 | 367 | 58 | 186 | 150 | 188 | 0 | 220 | 214 | 43 | 4 | 189 | 174 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 172 | 155 | 131 | 188 | 187 | 180 | 234 | 57 | 146 | 128 | 111 | 123 | 0 | 518 | 74 | 2 | 246 | 324 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 454 | 382 | 420 | 483 | 589 | 745 | 683 | 112 | 483 | 469 | 230 | 162 | 125 | 0 | 111 | 24 | 309 | 310 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 67 | 40 | 37 | 65 | 77 | 94 | 99 | 14 | 54 | 75 | 30 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 7 | 3 | 1 | 21 | 2 | 0 | 12 | 2 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 365 | 305 | 319 | 623 | 398 | 502 | 386 | 116 | 222 | 225 | 289 | 186 | 112 | 233 | 35 | 10 | 0 | 150 | 68 | 347 |
| KOR | 117 | 75 | 356 | 84 | 161 | 204 | 210 | 136 | 273 | 327 | 211 | 625 | 50 | 221 | 216 | 140 | 144 | 128 | 220 | 35 | 1 | 106 | 0 | 54 | 303 |
| SVN | 44 | 66 | 68 | 35 | 111 | 111 | 73 | 57 | 97 | 123 | 119 | 90 | 33 | 55 | 91 | 43 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 601 | 623 | 526 | 684 | 787 | 851 | 789 | 148 | 419 | 557 | 292 | 254 | 154 | 468 | 73 | 17 | 331 | 255 | 84 | 0 |

/1308r/HOL/ude/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|-----|------|------|------|------|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 273 | 574 | 223 | 647 | 558 | 394 | 564 | 601 | 590 | 650 | 743 | 136 | 302 | 345 | 223 | 374 | 372 | 60 | 8 | 304 | 187 | 74 | 376 |
| BEL | 192 | 0 | 321 | 209 | 501 | 393 | 313 | 422 | 409 | 429 | 610 | 410 | 172 | 223 | 294 | 148 | 222 | 297 | 44 | 33 | 256 | 125 | 82 | 341 |
| CAN | 426 | 272 | 0 | 370 | 1505 | 809 | 845 | 868 | 1006 | 1143 | 854 | 1947 | 251 | 527 | 615 | 279 | 830 | 684 | 97 | 13 | 322 | 397 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 304 | 278 | 278 | 332 | 331 | 339 | 378 | 237 | 195 | 223 | 137 | 208 | 240 | 28 | 8 | 209 | 127 | 54 | 264 |
| DEU | 243 | 353 | 402 | 250 | 0 | 1886 | 971 | 1708 | 1359 | 1956 | 2112 | 2281 | 373 | 711 | 1081 | 313 | 969 | 1224 | 143 | 113 | 493 | 342 | 154 | 766 |
| DFS | 269 | 315 | 440 | 241 | 606 | 0 | 669 | 1159 | 1063 | 1217 | 1373 | 1301 | 196 | 537 | 810 | 300 | 605 | 845 | 119 | 42 | 458 | 300 | 136 | 667 |
| ESP | 252 | 284 | 414 | 223 | 415 | 426 | 0 | 721 | 748 | 902 | 745 | 1017 | 156 | 455 | 552 | 267 | 574 | 579 | 88 | 12 | 323 | 290 | 99 | 596 |
| FRA | 256 | 363 | 379 | 232 | 458 | 363 | 418 | 0 | 1098 | 1402 | 1398 | 1801 | 154 | 537 | 853 | 274 | 835 | 842 | 105 | 16 | 430 | 304 | 99 | 611 |
| GBR | 406 | 374 | 923 | 310 | 595 | 670 | 600 | 499 | 0 | 1229 | 1259 | 1436 | 200 | 550 | 732 | 306 | 651 | 733 | 114 | 20 | 553 | 344 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 713 | 622 | 494 | 886 | 0 | 1404 | 1980 | 239 | 658 | 899 | 315 | 834 | 955 | 127 | 30 | 448 | 404 | 143 | 800 |
| NLD | 448 | 643 | 642 | 322 | 1114 | 907 | 633 | 594 | 1009 | 1056 | 0 | 1704 | 344 | 580 | 913 | 301 | 679 | 979 | 146 | 80 | 551 | 319 | 142 | 809 |
| USA | 473 | 294 | 1519 | 285 | 693 | 638 | 572 | 655 | 1122 | 992 | 1215 | 0 | 298 | 742 | 985 | 356 | 1308 | 1075 | 145 | 21 | 433 | 540 | 126 | 821 |
| CHR | 103 | 156 | 204 | 241 | 252 | 158 | 119 | 131 | 187 | 202 | 325 | 270 | 0 | 103 | 161 | 71 | 100 | 161 | 23 | 34 | 126 | 68 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 366 | 349 | 283 | 445 | 489 | 441 | 600 | 86 | 0 | 452 | 219 | 394 | 574 | 80 | 5 | 260 | 265 | 75 | 439 |
| POL | 167 | 220 | 368 | 151 | 520 | 478 | 346 | 332 | 510 | 587 | 681 | 673 | 128 | 339 | 0 | 218 | 483 | 698 | 116 | 49 | 307 | 298 | 114 | 574 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 233 | 251 | 181 | 284 | 265 | 283 | 367 | 58 | 186 | 151 | 0 | 220 | 214 | 43 | 4 | 189 | 169 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 167 | 155 | 131 | 188 | 187 | 180 | 234 | 57 | 146 | 129 | 123 | 0 | 518 | 74 | 2 | 246 | 317 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 441 | 382 | 420 | 483 | 589 | 756 | 683 | 112 | 483 | 469 | 162 | 125 | 0 | 111 | 24 | 308 | 304 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 65 | 40 | 37 | 65 | 77 | 95 | 99 | 14 | 54 | 75 | 23 | 20 | 68 | 0 | 2 | 62 | 54 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 244 | 242 | 288 | 207 | 325 | 356 | 306 | 319 | 616 | 398 | 505 | 384 | 115 | 222 | 227 | 186 | 112 | 233 | 35 | 10 | 0 | 145 | 68 | 347 |
| KOR | 111 | 71 | 348 | 80 | 156 | 187 | 204 | 131 | 267 | 316 | 210 | 599 | 47 | 214 | 212 | 140 | 123 | 214 | 35 | 0 | 101 | 0 | 54 | 295 |
| SVN | 44 | 66 | 68 | 35 | 111 | 110 | 73 | 57 | 97 | 123 | 122 | 90 | 33 | 55 | 91 | 37 | 28 | 85 | 23 | 10 | 53 | 26 | 0 | 97 |
| PRT | 246 | 340 | 607 | 243 | 544 | 589 | 626 | 526 | 684 | 787 | 873 | 789 | 148 | 419 | 558 | 254 | 154 | 468 | 73 | 17 | 331 | 247 | 84 | 0 |

/1308r/HOL/usu/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | BEL | CAN | CHE | DEU | DFS | ESP | FRA | GBR | ITA | NLD | USA | CHR | HUN | POL | NZL | ZAF | JPN | CZE | EST | FRR | IRL | KOR | SVN | PRT |
|-----|-----|-----|------|-----|------|------|------|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 270 | 582 | 224 | 653 | 563 | 416 | 572 | 610 | 593 | 658 | 751 | 136 | 302 | 349 | 488 | 223 | 375 | 373 | 60 | 8 | 308 | 184 | 75 | 379 |
| BEL | 192 | 0 | 319 | 210 | 489 | 392 | 320 | 416 | 407 | 428 | 590 | 400 | 172 | 223 | 294 | 243 | 148 | 218 | 298 | 44 | 33 | 257 | 125 | 82 | 341 |
| CAN | 427 | 273 | 0 | 370 | 1505 | 809 | 853 | 868 | 1006 | 1143 | 879 | 1947 | 254 | 527 | 616 | 384 | 279 | 830 | 684 | 97 | 13 | 322 | 390 | 98 | 615 |
| CHE | 166 | 190 | 237 | 0 | 416 | 304 | 282 | 278 | 332 | 331 | 345 | 378 | 237 | 195 | 223 | 203 | 137 | 208 | 240 | 28 | 8 | 209 | 125 | 54 | 264 |
| DEU | 243 | 351 | 402 | 250 | 0 | 1886 | 1009 | 1708 | 1360 | 1956 | 2141 | 2281 | 384 | 711 | 1082 | 526 | 313 | 969 | 1224 | 143 | 113 | 494 | 333 | 154 | 766 |
| DFS | 269 | 315 | 440 | 241 | 606 | 0 | 696 | 1159 | 1063 | 1217 | 1383 | 1301 | 197 | 537 | 810 | 494 | 300 | 605 | 845 | 119 | 42 | 459 | 293 | 136 | 667 |
| ESP | 258 | 299 | 420 | 229 | 466 | 452 | 0 | 753 | 776 | 937 | 797 | 1039 | 159 | 465 | 575 | 354 | 273 | 584 | 594 | 91 | 12 | 340 | 289 | 103 | 632 |
| FRA | 256 | 363 | 379 | 232 | 458 | 363 | 469 | 0 | 1099 | 1402 | 1406 | 1801 | 156 | 537 | 853 | 518 | 274 | 835 | 842 | 105 | 16 | 430 | 295 | 99 | 611 |
| GBR | 408 | 374 | 923 | 310 | 595 | 670 | 636 | 499 | 0 | 1230 | 1278 | 1439 | 203 | 550 | 733 | 529 | 306 | 652 | 733 | 114 | 20 | 560 | 336 | 126 | 698 |
| ITA | 314 | 350 | 629 | 261 | 837 | 713 | 676 | 494 | 886 | 0 | 1424 | 1980 | 241 | 658 | 900 | 531 | 315 | 834 | 955 | 127 | 30 | 449 | 394 | 143 | 800 |
| NLD | 450 | 633 | 667 | 327 | 1165 | 918 | 703 | 609 | 1028 | 1095 | 0 | 1733 | 357 | 590 | 931 | 670 | 304 | 686 | 992 | 147 | 80 | 552 | 315 | 144 | 823 |
| USA | 476 | 295 | 1519 | 285 | 692 | 637 | 587 | 655 | 1124 | 992 | 1244 | 0 | 303 | 742 | 986 | 601 | 356 | 1308 | 1075 | 145 | 21 | 435 | 526 | 126 | 821 |
| CHR | 103 | 155 | 207 | 241 | 254 | 158 | 123 | 131 | 188 | 202 | 332 | 274 | 0 | 103 | 162 | 123 | 71 | 101 | 161 | 23 | 35 | 127 | 67 | 44 | 163 |
| HUN | 175 | 181 | 413 | 148 | 392 | 366 | 360 | 283 | 445 | 489 | 454 | 600 | 86 | 0 | 452 | 288 | 219 | 394 | 574 | 80 | 5 | 260 | 259 | 75 | 439 |
| POL | 168 | 220 | 368 | 151 | 520 | 479 | 373 | 332 | 512 | 589 | 705 | 675 | 128 | 339 | 0 | 329 | 218 | 484 | 698 | 116 | 49 | 307 | 291 | 114 | 574 |
| NZL | 381 | 193 | 356 | 180 | 291 | 329 | 293 | 256 | 448 | 416 | 620 | 550 | 110 | 234 | 235 | 0 | 213 | 313 | 375 | 59 | 9 | 359 | 177 | 75 | 388 |
| ZAF | 187 | 129 | 249 | 126 | 212 | 233 | 256 | 181 | 284 | 265 | 285 | 367 | 58 | 186 | 151 | 197 | 0 | 220 | 214 | 43 | 4 | 189 | 167 | 54 | 263 |
| JPN | 131 | 103 | 191 | 92 | 133 | 167 | 159 | 131 | 188 | 187 | 181 | 234 | 57 | 146 | 129 | 119 | 123 | 0 | 518 | 74 | 2 | 246 | 308 | 76 | 413 |
| CZE | 182 | 203 | 388 | 163 | 672 | 441 | 400 | 420 | 483 | 589 | 772 | 682 | 112 | 483 | 470 | 270 | 162 | 125 | 0 | 111 | 24 | 309 | 297 | 111 | 534 |
| EST | 19 | 29 | 49 | 18 | 78 | 65 | 44 | 37 | 65 | 77 | 96 | 99 | 14 | 54 | 75 | 36 | 23 | 20 | 68 | 0 | 2 | 62 | 53 | 34 | 94 |
| FRR | 6 | 30 | 9 | 7 | 91 | 32 | 8 | 13 | 16 | 27 | 53 | 13 | 27 | 5 | 60 | 9 | 3 | 1 | 21 | 2 | 0 | 12 | 1 | 11 | 18 |
| IRL | 245 | 242 | 288 | 207 | 325 | 356 | 331 | 319 | 623 | 398 | 507 | 386 | 116 | 222 | 227 | 314 | 186 | 112 | 233 | 35 | 10 | 0 | 140 | 68 | 347 |
| KOR | 110 | 69 | 339 | 78 | 151 | 183 | 199 | 124 | 258 | 309 | 210 | 578 | 46 | 209 | 209 | 144 | 137 | 121 | 208 | 34 | 0 | 98 | 0 | 51 | 289 |
| SVN | 44 | 66 | 68 | 35 | 111 | 110 | 79 | 57 | 97 | 123 | 125 | 90 | 33 | 55 | 91 | 50 | 37 | 28 | 85 | 23 | 10 | 53 | 24 | 0 | 97 |
| PRT | 246 | 341 | 607 | 243 | 544 | 589 | 684 | 526 | 684 | 787 | 895 | 788 | 148 | 419 | 558 | 328 | 254 | 154 | 468 | 73 | 17 | 331 | 240 | 84 | 0 |

JER

/1308r/JER/ang/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 99 | 57 | 66 | 47 | 179 | 100 | 12 |
| CAN | 104 | 0 | 59 | 83 | 53 | 229 | 105 | 10 |
| DFS | 36 | 45 | 0 | 63 | 68 | 116 | 96 | 16 |
| GBR | 64 | 85 | 55 | 0 | 47 | 106 | 75 | 9 |
| ITA | 45 | 53 | 68 | 46 | 0 | 72 | 70 | 14 |
| USA | 166 | 227 | 88 | 109 | 77 | 0 | 205 | 21 |
| ZAF | 100 | 107 | 79 | 74 | 68 | 230 | 0 | 18 |
| NLD | 9 | 8 | 15 | 10 | 13 | 25 | 19 | 0 |

/1308r/JER/bcs/

/1308r/JER/bde/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 68 | 40 | 44 | 26 | 113 | 74 | 10 |
| CAN | 71 | 0 | 37 | 59 | 31 | 47 | 60 | 6 |
| DFS | 20 | 26 | 0 | 46 | 48 | 60 | 67 | 12 |
| GBR | 46 | 64 | 41 | 0 | 32 | 52 | 47 | 7 |
| ITA | 27 | 32 | 49 | 32 | 0 | 28 | 43 | 7 |
| NZL | 102 | 53 | 38 | 52 | 27 | 0 | 83 | 11 |
| ZAF | 69 | 56 | 51 | 47 | 41 | 77 | 0 | 13 |
| NLD | 11 | 7 | 11 | 7 | 8 | 13 | 15 | 0 |

/1308r/JER/cwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 141 | 188 | 103 | 23 |
| CAN | 104 | 0 | 59 | 83 | 53 | 75 | 230 | 94 | 17 |
| DFS | 38 | 45 | 0 | 65 | 68 | 78 | 117 | 89 | 22 |
| GBR | 67 | 85 | 57 | 0 | 47 | 76 | 108 | 74 | 15 |
| ITA | 45 | 53 | 68 | 46 | 0 | 45 | 72 | 69 | 20 |
| NZL | 131 | 80 | 55 | 74 | 45 | 0 | 178 | 116 | 23 |
| USA | 175 | 227 | 89 | 111 | 77 | 196 | 0 | 186 | 35 |
| ZAF | 107 | 97 | 76 | 74 | 68 | 122 | 211 | 0 | 30 |
| NLD | 18 | 14 | 19 | 14 | 18 | 22 | 44 | 32 | 0 |

/1308r/JER/fan/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 97 | 57 | 65 | 47 | 178 | 100 | 25 |
| CAN | 102 | 0 | 59 | 83 | 53 | 229 | 105 | 18 |
| DFS | 36 | 45 | 0 | 63 | 68 | 116 | 96 | 24 |
| GBR | 63 | 85 | 55 | 0 | 47 | 106 | 75 | 17 |
| ITA | 45 | 53 | 68 | 46 | 0 | 72 | 70 | 21 |
| USA | 165 | 227 | 88 | 109 | 77 | 0 | 205 | 38 |
| ZAF | 100 | 107 | 79 | 74 | 68 | 230 | 0 | 31 |
| NLD | 20 | 16 | 23 | 15 | 19 | 48 | 34 | 0 |

/1308r/JER/ftl/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 97 | 57 | 65 | 47 | 178 | 92 | 21 |
| CAN | 102 | 0 | 59 | 83 | 53 | 229 | 93 | 15 |
| DFS | 36 | 45 | 0 | 63 | 68 | 116 | 87 | 19 |
| GBR | 63 | 85 | 55 | 0 | 47 | 106 | 70 | 13 |
| ITA | 45 | 53 | 68 | 46 | 0 | 72 | 69 | 18 |
| USA | 165 | 227 | 88 | 109 | 77 | 0 | 177 | 31 |
| ZAF | 95 | 97 | 74 | 70 | 68 | 202 | 0 | 26 |
| NLD | 16 | 13 | 17 | 12 | 16 | 37 | 26 | 0 |

/1308r/JER/ftp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 143 | 188 | 111 | 21 |
| CAN | 104 | 0 | 59 | 83 | 53 | 77 | 230 | 106 | 15 |
| DFS | 38 | 45 | 0 | 65 | 68 | 80 | 117 | 98 | 19 |
| GBR | 67 | 85 | 57 | 0 | 47 | 76 | 108 | 79 | 13 |
| ITA | 45 | 53 | 68 | 46 | 0 | 46 | 72 | 70 | 18 |
| NZL | 134 | 83 | 57 | 75 | 47 | 0 | 183 | 131 | 22 |
| USA | 175 | 227 | 89 | 111 | 77 | 202 | 0 | 214 | 32 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 137 | 239 | 0 | 27 |
| NLD | 16 | 13 | 17 | 12 | 16 | 21 | 38 | 27 | 0 |

/1308r/JER/fua/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 145 | 188 | 111 | 24 |
| CAN | 104 | 0 | 59 | 83 | 53 | 83 | 230 | 106 | 18 |
| DFS | 38 | 45 | 0 | 65 | 68 | 81 | 117 | 98 | 23 |
| GBR | 67 | 85 | 57 | 0 | 47 | 79 | 108 | 79 | 16 |
| ITA | 45 | 53 | 68 | 46 | 0 | 49 | 72 | 70 | 21 |
| NZL | 137 | 89 | 58 | 77 | 49 | 0 | 190 | 134 | 26 |
| USA | 175 | 227 | 89 | 111 | 77 | 210 | 0 | 214 | 36 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 140 | 239 | 0 | 31 |
| NLD | 19 | 15 | 20 | 14 | 19 | 23 | 45 | 33 | 0 |

/1308r/JER/loc/

/1308r/JER/ocs/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 37 | 47 | 136 | 188 | 23 |
| CAN | 104 | 0 | 59 | 39 | 53 | 72 | 230 | 17 |
| DFS | 38 | 45 | 0 | 33 | 68 | 74 | 117 | 22 |
| GBR | 41 | 45 | 30 | 0 | 21 | 43 | 45 | 9 |
| ITA | 45 | 53 | 68 | 22 | 0 | 42 | 72 | 19 |
| NZL | 128 | 77 | 52 | 46 | 43 | 0 | 170 | 22 |
| USA | 175 | 227 | 89 | 48 | 77 | 189 | 0 | 35 |
| NLD | 18 | 14 | 19 | 12 | 17 | 22 | 43 | 0 |

/1308r/JER/of1/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 97 | 57 | 65 | 47 | 178 | 23 |
| CAN | 102 | 0 | 59 | 83 | 53 | 229 | 17 |
| DFS | 36 | 45 | 0 | 63 | 68 | 116 | 23 |
| GBR | 63 | 84 | 55 | 0 | 47 | 106 | 15 |
| ITA | 45 | 53 | 68 | 46 | 0 | 72 | 20 |
| USA | 165 | 227 | 88 | 109 | 77 | 0 | 37 |
| NLD | 19 | 15 | 21 | 15 | 18 | 47 | 0 |

/1308r/JER/ous/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 136 | 188 | 24 |
| CAN | 104 | 0 | 59 | 83 | 72 | 227 | 18 |
| DFS | 38 | 45 | 0 | 65 | 74 | 117 | 24 |
| GBR | 67 | 84 | 57 | 0 | 73 | 108 | 16 |
| NZL | 128 | 77 | 52 | 71 | 0 | 170 | 23 |
| USA | 175 | 225 | 89 | 111 | 189 | 0 | 37 |
| NLD | 19 | 15 | 21 | 14 | 22 | 45 | 0 |

/1308r/JER/ran/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 136 | 188 | 111 | 21 |
| CAN | 104 | 0 | 59 | 83 | 53 | 72 | 230 | 106 | 15 |
| DFS | 38 | 45 | 0 | 65 | 68 | 74 | 117 | 98 | 19 |
| GBR | 67 | 85 | 57 | 0 | 47 | 73 | 108 | 79 | 13 |
| ITA | 45 | 53 | 68 | 46 | 0 | 42 | 72 | 70 | 18 |
| NZL | 128 | 77 | 52 | 71 | 43 | 0 | 170 | 125 | 21 |
| USA | 175 | 227 | 89 | 111 | 77 | 189 | 0 | 214 | 32 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 130 | 239 | 0 | 27 |
| NLD | 16 | 13 | 17 | 12 | 16 | 20 | 38 | 27 | 0 |

/1308r/JER/rlr/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | ITA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 37 | 17 | 15 | 34 | 8 |
| CAN | 34 | 0 | 33 | 29 | 46 | 7 |
| DFS | 12 | 22 | 0 | 45 | 44 | 12 |
| ITA | 14 | 28 | 46 | 0 | 31 | 8 |
| ZAF | 32 | 40 | 34 | 29 | 0 | 11 |
| NLD | 8 | 7 | 12 | 7 | 9 | 0 |

/1308r/JER/rls/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 141 | 188 | 111 | 23 |
| CAN | 104 | 0 | 59 | 83 | 53 | 75 | 230 | 106 | 17 |
| DFS | 38 | 45 | 0 | 65 | 68 | 78 | 117 | 98 | 22 |
| GBR | 67 | 85 | 57 | 0 | 47 | 76 | 108 | 79 | 15 |
| ITA | 45 | 53 | 68 | 46 | 0 | 45 | 72 | 70 | 19 |
| NZL | 131 | 80 | 55 | 74 | 45 | 0 | 178 | 128 | 23 |
| USA | 175 | 227 | 89 | 111 | 77 | 196 | 0 | 214 | 35 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 133 | 239 | 0 | 30 |
| NLD | 18 | 14 | 19 | 14 | 17 | 22 | 43 | 32 | 0 |

/1308r/JER/rtp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | NZL | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 36 | 17 | 60 | 42 | 6 |
| CAN | 33 | 0 | 26 | 45 | 55 | 6 |
| DFS | 11 | 20 | 0 | 45 | 54 | 12 |
| NZL | 51 | 50 | 30 | 0 | 79 | 11 |
| ZAF | 41 | 50 | 43 | 73 | 0 | 11 |
| NLD | 6 | 6 | 11 | 12 | 13 | 0 |

/1308r/JER/ruh/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 48 | 69 | 47 | 144 | 188 | 111 | 23 |
| CAN | 104 | 0 | 46 | 83 | 53 | 82 | 230 | 106 | 17 |
| DFS | 31 | 38 | 0 | 47 | 64 | 63 | 97 | 78 | 21 |
| GBR | 67 | 85 | 44 | 0 | 47 | 77 | 107 | 78 | 15 |
| ITA | 45 | 53 | 64 | 46 | 0 | 48 | 72 | 68 | 19 |
| NZL | 136 | 88 | 45 | 75 | 49 | 0 | 188 | 132 | 24 |
| USA | 175 | 227 | 73 | 110 | 77 | 208 | 0 | 212 | 34 |
| ZAF | 112 | 107 | 67 | 77 | 67 | 138 | 237 | 0 | 28 |
| NLD | 18 | 14 | 18 | 14 | 17 | 23 | 42 | 31 | 0 |

/1308r/JER/rwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 141 | 188 | 111 | 21 |
| CAN | 104 | 0 | 59 | 83 | 53 | 75 | 230 | 106 | 15 |
| DFS | 38 | 45 | 0 | 65 | 68 | 78 | 117 | 98 | 19 |
| GBR | 67 | 85 | 57 | 0 | 47 | 76 | 108 | 79 | 13 |
| ITA | 45 | 53 | 68 | 46 | 0 | 45 | 72 | 70 | 18 |
| NZL | 131 | 80 | 55 | 74 | 45 | 0 | 178 | 128 | 21 |
| USA | 175 | 227 | 89 | 111 | 77 | 196 | 0 | 214 | 31 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 133 | 239 | 0 | 27 |
| NLD | 16 | 13 | 17 | 12 | 16 | 20 | 37 | 27 | 0 |

/1308r/JER/sta/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 136 | 188 | 111 | 20 |
| CAN | 104 | 0 | 59 | 83 | 53 | 72 | 230 | 106 | 14 |
| DFS | 38 | 45 | 0 | 65 | 68 | 75 | 117 | 98 | 18 |
| GBR | 67 | 85 | 57 | 0 | 47 | 74 | 108 | 79 | 12 |
| ITA | 45 | 53 | 68 | 46 | 0 | 43 | 72 | 70 | 17 |
| NZL | 128 | 77 | 53 | 72 | 44 | 0 | 171 | 126 | 21 |
| USA | 175 | 227 | 89 | 111 | 77 | 190 | 0 | 214 | 30 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 131 | 239 | 0 | 26 |
| NLD | 15 | 11 | 15 | 11 | 15 | 20 | 35 | 26 | 0 |

/1308r/JER/ude/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 97 | 57 | 65 | 47 | 178 | 100 | 21 |
| CAN | 102 | 0 | 59 | 83 | 53 | 226 | 105 | 15 |
| DFS | 36 | 45 | 0 | 63 | 68 | 116 | 96 | 19 |
| GBR | 63 | 84 | 55 | 0 | 47 | 106 | 75 | 13 |
| ITA | 45 | 53 | 68 | 46 | 0 | 72 | 70 | 18 |
| USA | 165 | 225 | 88 | 109 | 77 | 0 | 205 | 32 |
| ZAF | 100 | 107 | 79 | 74 | 68 | 230 | 0 | 26 |
| NLD | 16 | 13 | 17 | 12 | 16 | 38 | 26 | 0 |

/1308r/JER/usu/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DFS | GBR | ITA | NZL | USA | ZAF | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 100 | 59 | 69 | 47 | 147 | 188 | 111 | 23 |
| CAN | 104 | 0 | 59 | 83 | 53 | 85 | 230 | 106 | 17 |
| DFS | 38 | 45 | 0 | 65 | 68 | 84 | 117 | 98 | 22 |
| GBR | 67 | 85 | 57 | 0 | 47 | 80 | 108 | 79 | 15 |
| ITA | 45 | 53 | 68 | 46 | 0 | 50 | 72 | 70 | 19 |
| NZL | 141 | 91 | 60 | 78 | 50 | 0 | 193 | 137 | 26 |
| USA | 175 | 227 | 89 | 111 | 77 | 215 | 0 | 214 | 35 |
| ZAF | 112 | 107 | 81 | 78 | 68 | 145 | 239 | 0 | 30 |
| NLD | 18 | 14 | 19 | 14 | 17 | 24 | 44 | 32 | 0 |

RDC

/1308r/RDC/ang/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 7 | 30 | 7 | 11 | 6 |
| CAN | 20 | 0 | 7 | 75 | 46 | 105 | 5 |
| DEU | 7 | 7 | 0 | 28 | 0 | 0 | 4 |
| DFS | 22 | 71 | 19 | 0 | 27 | 46 | 15 |
| GBR | 6 | 46 | 0 | 24 | 0 | 36 | 2 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 3 |
| NLD | 6 | 5 | 4 | 15 | 2 | 3 | 0 |

/1308r/RDC/bcs/

/1308r/RDC/bde/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 30 | 7 | 1 | 20 | 11 | 5 |
| CAN | 20 | 0 | 6 | 75 | 46 | 0 | 41 | 104 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 1 | 6 | 0 | 5 |
| DFS | 22 | 71 | 18 | 0 | 27 | 22 | 67 | 46 | 12 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 0 |
| NOR | 1 | 0 | 1 | 16 | 0 | 0 | 3 | 0 | 7 |
| NZL | 23 | 40 | 6 | 66 | 26 | 3 | 0 | 25 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 24 | 0 | 1 |
| NLD | 5 | 3 | 5 | 12 | 0 | 7 | 5 | 1 | 0 |

/1308r/RDC/cwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 7 | 30 | 7 | 20 | 11 | 5 |
| CAN | 20 | 0 | 7 | 75 | 46 | 41 | 105 | 3 |
| DEU | 7 | 7 | 0 | 29 | 0 | 7 | 0 | 4 |
| DFS | 22 | 71 | 20 | 0 | 27 | 67 | 46 | 12 |
| GBR | 6 | 46 | 0 | 24 | 0 | 28 | 36 | 0 |
| NZL | 23 | 40 | 7 | 66 | 26 | 0 | 25 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 24 | 0 | 1 |
| NLD | 5 | 3 | 4 | 12 | 0 | 5 | 1 | 0 |

/1308r/RDC/fan/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 3 | 31 | 7 | 11 | 11 | 6 |
| CAN | 20 | 0 | 3 | 75 | 46 | 3 | 105 | 4 |
| DEU | 3 | 3 | 0 | 13 | 0 | 4 | 0 | 4 |
| DFS | 22 | 71 | 8 | 0 | 27 | 67 | 46 | 18 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 36 | 1 |
| NOR | 8 | 3 | 4 | 54 | 0 | 0 | 0 | 17 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 0 | 2 |
| NLD | 5 | 4 | 4 | 18 | 1 | 17 | 2 | 0 |

/1308r/RDC/ftl/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 104 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 64 | 46 | 17 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 36 | 0 |
| NOR | 8 | 3 | 6 | 51 | 0 | 0 | 0 | 14 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 0 | 1 |
| NLD | 5 | 3 | 6 | 17 | 0 | 14 | 1 | 0 |

/1308r/RDC/ftp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 44 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 67 | 74 | 46 | 15 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 0 |
| NOR | 8 | 3 | 6 | 54 | 0 | 0 | 22 | 0 | 14 |
| NZL | 23 | 44 | 6 | 74 | 27 | 21 | 0 | 27 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 26 | 0 | 1 |
| NLD | 5 | 3 | 6 | 15 | 0 | 14 | 5 | 1 | 0 |

/1308r/RDC/fua/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 22 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 49 | 105 | 4 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 7 | 0 | 4 |
| DFS | 22 | 71 | 18 | 0 | 27 | 70 | 86 | 46 | 16 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 1 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 26 | 0 | 16 |
| NZL | 25 | 50 | 7 | 85 | 27 | 24 | 0 | 29 | 7 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 29 | 0 | 2 |
| NLD | 5 | 4 | 4 | 16 | 1 | 16 | 7 | 2 | 0 |

/1308r/RDC/loc/

/1308r/RDC/ocs/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 43 | 3 | 37 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 5 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 69 | 63 | 46 | 18 |
| GBR | 6 | 43 | 0 | 24 | 0 | 0 | 23 | 33 | 0 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 19 | 0 | 14 |
| NZL | 23 | 35 | 5 | 61 | 21 | 17 | 0 | 24 | 5 |
| USA | 10 | 95 | 0 | 43 | 30 | 0 | 23 | 0 | 1 |
| NLD | 5 | 3 | 6 | 18 | 0 | 14 | 5 | 1 | 0 |

/1308r/RDC/of1/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 43 | 3 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 70 | 46 | 18 |
| GBR | 6 | 43 | 0 | 24 | 0 | 0 | 33 | 0 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 0 | 15 |
| USA | 10 | 95 | 0 | 43 | 30 | 0 | 0 | 1 |
| NLD | 5 | 3 | 6 | 18 | 0 | 15 | 1 | 0 |

/1308r/RDC/ous/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 43 | 3 | 37 | 102 | 4 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 5 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 70 | 69 | 46 | 20 |
| GBR | 6 | 43 | 0 | 24 | 0 | 0 | 23 | 33 | 1 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 19 | 0 | 16 |
| NZL | 23 | 35 | 5 | 67 | 21 | 17 | 0 | 24 | 6 |
| USA | 10 | 94 | 0 | 43 | 30 | 0 | 23 | 0 | 2 |
| NLD | 5 | 4 | 6 | 20 | 1 | 16 | 6 | 2 | 0 |

/1308r/RDC/ran/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 37 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 5 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 67 | 66 | 46 | 16 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 27 | 36 | 0 |
| NOR | 8 | 3 | 6 | 54 | 0 | 0 | 20 | 0 | 14 |
| NZL | 23 | 35 | 5 | 64 | 25 | 18 | 0 | 24 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 23 | 0 | 1 |
| NLD | 5 | 3 | 6 | 16 | 0 | 14 | 5 | 1 | 0 |

/1308r/RDC/rlr/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | NOR | NLD |
|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 9 | 6 | 18 | 9 | 6 |
| CAN | 9 | 0 | 6 | 71 | 3 | 3 |
| DEU | 6 | 6 | 0 | 26 | 6 | 4 |
| DFS | 12 | 68 | 17 | 0 | 67 | 14 |
| NOR | 7 | 3 | 6 | 54 | 0 | 16 |
| NLD | 5 | 3 | 4 | 14 | 16 | 0 |

/1308r/RDC/rls/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 41 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 70 | 79 | 46 | 18 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 0 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 21 | 0 | 14 |
| NZL | 23 | 40 | 6 | 78 | 26 | 20 | 0 | 25 | 6 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 24 | 0 | 1 |
| NLD | 5 | 3 | 6 | 18 | 0 | 14 | 6 | 1 | 0 |

/1308r/RDC/rtp/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | NOR | NZL | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 6 | 5 | 14 | 7 | 6 | 6 |
| CAN | 6 | 0 | 6 | 65 | 3 | 37 | 3 |
| DEU | 5 | 6 | 0 | 20 | 6 | 5 | 4 |
| DFS | 9 | 61 | 15 | 0 | 58 | 56 | 13 |
| NOR | 5 | 3 | 6 | 48 | 0 | 16 | 14 |
| NZL | 7 | 36 | 5 | 56 | 15 | 0 | 4 |
| NLD | 5 | 3 | 4 | 13 | 14 | 4 | 0 |

/1308r/RDC/ruh/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 22 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 48 | 105 | 3 |
| DEU | 6 | 6 | 0 | 24 | 0 | 6 | 7 | 0 | 5 |
| DFS | 22 | 71 | 16 | 0 | 27 | 70 | 85 | 46 | 15 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 0 |
| NOR | 8 | 3 | 6 | 56 | 0 | 0 | 26 | 0 | 14 |
| NZL | 25 | 49 | 7 | 84 | 27 | 24 | 0 | 29 | 6 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 29 | 0 | 1 |
| NLD | 5 | 3 | 5 | 15 | 0 | 14 | 6 | 1 | 0 |

/1308r/RDC/rwi/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 30 | 7 | 20 | 11 | 5 |
| CAN | 20 | 0 | 6 | 75 | 46 | 41 | 105 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 67 | 46 | 14 |
| GBR | 6 | 46 | 0 | 24 | 0 | 28 | 36 | 0 |
| NZL | 23 | 40 | 6 | 66 | 26 | 0 | 25 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 24 | 0 | 1 |
| NLD | 5 | 3 | 6 | 14 | 0 | 5 | 1 | 0 |

/1308r/RDC/sta/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 20 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 37 | 105 | 3 |
| DEU | 6 | 6 | 0 | 28 | 0 | 6 | 5 | 0 | 6 |
| DFS | 22 | 71 | 19 | 0 | 27 | 60 | 70 | 46 | 18 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 27 | 36 | 0 |
| NOR | 8 | 3 | 6 | 49 | 0 | 0 | 16 | 0 | 14 |
| NZL | 23 | 35 | 5 | 68 | 25 | 14 | 0 | 24 | 5 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 23 | 0 | 1 |
| NLD | 5 | 3 | 6 | 18 | 0 | 14 | 5 | 1 | 0 |

/1308r/RDC/ude/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 102 | 3 |
| DEU | 6 | 6 | 0 | 27 | 0 | 6 | 0 | 6 |
| DFS | 22 | 71 | 18 | 0 | 27 | 69 | 46 | 17 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 36 | 0 |
| NOR | 8 | 3 | 6 | 55 | 0 | 0 | 0 | 14 |
| USA | 10 | 94 | 0 | 43 | 32 | 0 | 0 | 1 |
| NLD | 5 | 3 | 6 | 17 | 0 | 14 | 1 | 0 |

/1308r/RDC/usu/

common bulls below diagonal

common three quarter sib group above diagonal

| | AUS | CAN | DEU | DFS | GBR | NOR | NZL | USA | NLD |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| AUS | 0 | 21 | 6 | 31 | 7 | 11 | 24 | 11 | 6 |
| CAN | 20 | 0 | 6 | 75 | 46 | 3 | 52 | 105 | 3 |
| DEU | 6 | 6 | 0 | 28 | 0 | 6 | 8 | 0 | 6 |
| DFS | 22 | 71 | 19 | 0 | 27 | 60 | 84 | 46 | 17 |
| GBR | 6 | 46 | 0 | 24 | 0 | 0 | 28 | 36 | 0 |
| NOR | 8 | 3 | 6 | 49 | 0 | 0 | 21 | 0 | 15 |
| NZL | 27 | 54 | 8 | 83 | 28 | 19 | 0 | 30 | 7 |
| USA | 10 | 95 | 0 | 43 | 32 | 0 | 29 | 0 | 1 |
| NLD | 5 | 3 | 6 | 17 | 0 | 15 | 7 | 1 | 0 |