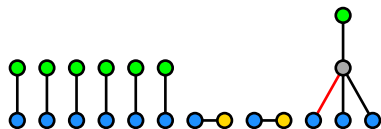


----- g,n: 5,7 graphs: 209 ----- Euler Characteristic (without resolving relations):
 ----- $6V_1^7+1V_1^6\boxtimes V_1-1V_1^5\boxtimes V_2+1V_1^5\boxtimes V_1^2-4V_1^5\boxtimes V_1\boxtimes V_1+3V_1^4\boxtimes V_1\boxtimes V_2+1V_1^4\boxtimes V_1\boxtimes V_1\boxtimes V_1$ -----
 edges: 4 graphs: 9 -----
 A3 case graphs: 8 -----

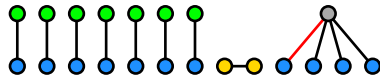
ID: 471

$V_1^6\boxtimes V_1$



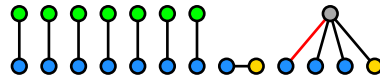
ID: 229

V_1^7



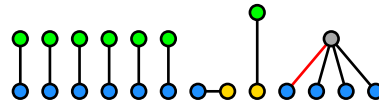
ID: 275

V_1^7



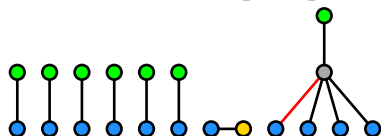
ID: 394

$V_1^6\boxtimes V_1$



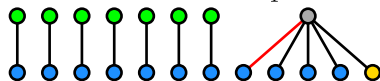
ID: 276

$V_1^6\boxtimes V_1$



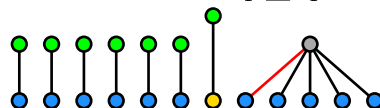
ID: 130

V_1^7



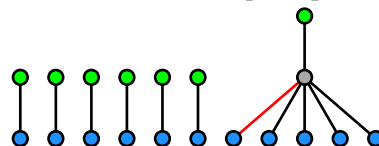
ID: 564

$V_1^6\boxtimes V_1$

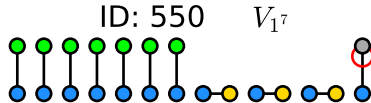


ID: 131

$V_1^6\boxtimes V_1$

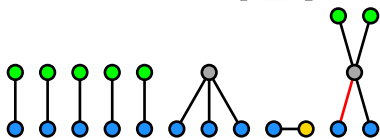


----- B,Birr cases without weight 11 relations graphs: 1 -----

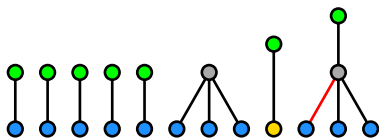


----- edges: 5 graphs: 57 -----
 ----- A3 case graphs: 24 -----

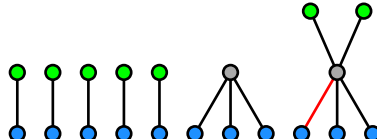
ID: 277 $V_1^5 \boxtimes V_2$



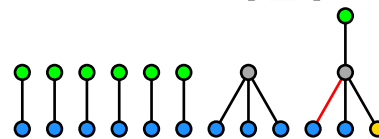
ID: 571 $V_1^5 \boxtimes V_1 \boxtimes V_1$



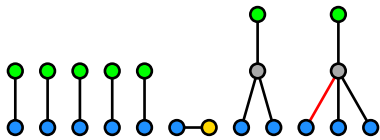
ID: 133 $V_1^5 \boxtimes V_2$



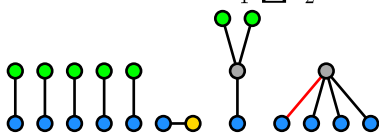
ID: 132 $V_1^6 \boxtimes V_1$



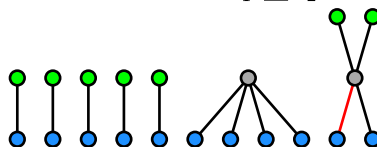
ID: 487 $V_1^5 \boxtimes V_1 \boxtimes V_1$



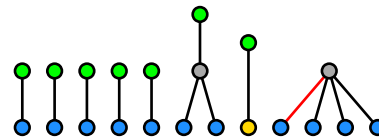
ID: 398 $V_1^5 \boxtimes V_2$



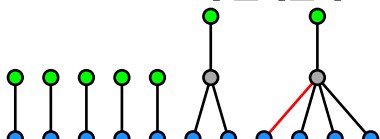
ID: 307 $V_1^5 \boxtimes V_2$



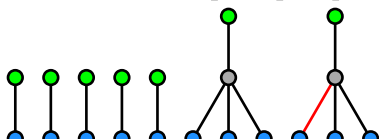
ID: 406 $V_1^5 \boxtimes V_1 \boxtimes V_1$



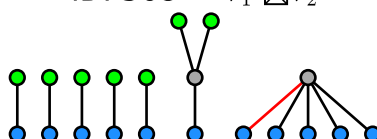
ID: 336 $V_1^5 \boxtimes V_1 \boxtimes V_1$



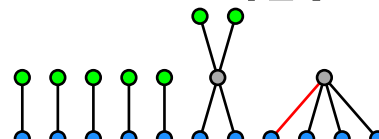
ID: 574 $V_1^5 \boxtimes V_1 \boxtimes V_1$



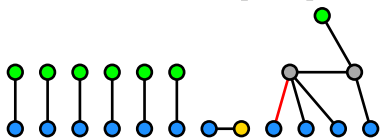
ID: 568 $V_1^5 \boxtimes V_2$



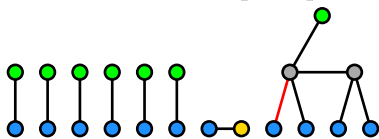
ID: 234 $V_1^5 \boxtimes V_2$



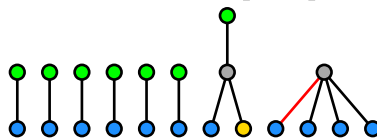
ID: 280 $V_1^6 \boxtimes V_1$



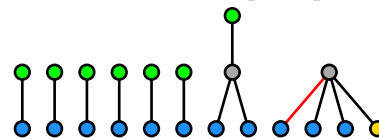
ID: 281 $V_1^6 \boxtimes V_1$



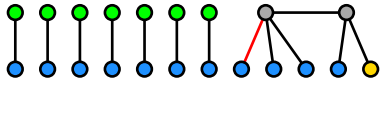
ID: 233 $V_1^6 \boxtimes V_1$



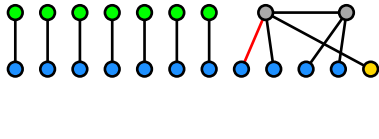
ID: 335 $V_1^6 \boxtimes V_1$



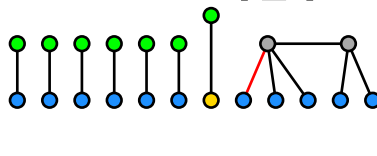
ID: 138 V_1^7



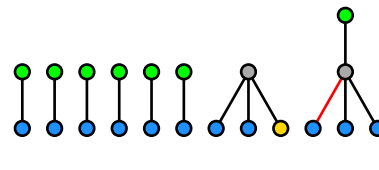
ID: 139 V_1^7



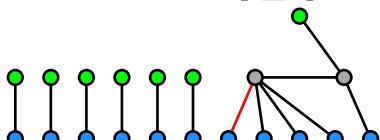
ID: 578 $V_1^6 \boxtimes V_1$



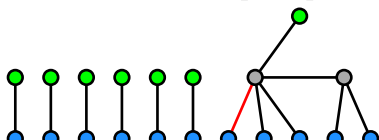
ID: 573 $V_1^6 \boxtimes V_1$



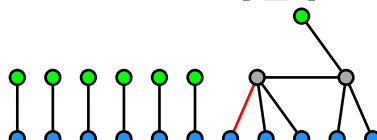
ID: 140 $V_1^6 \boxtimes V_1$



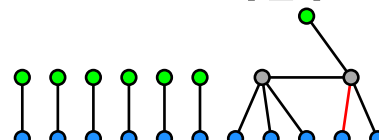
ID: 141 $V_1^6 \boxtimes V_1$



ID: 142 $V_1^6 \boxtimes V_1$

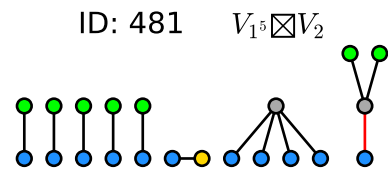
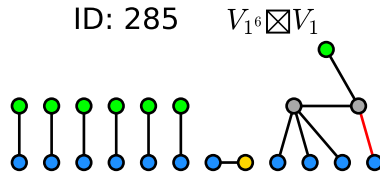
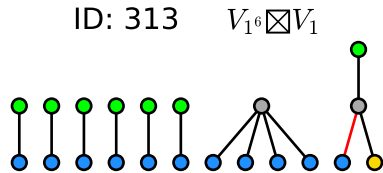
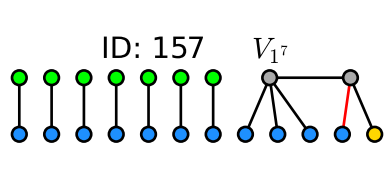
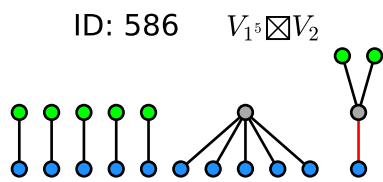
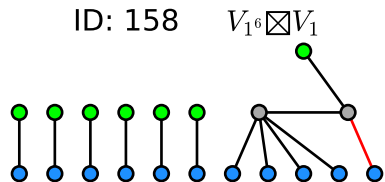
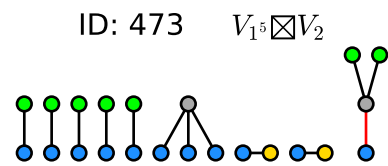
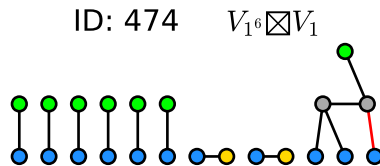
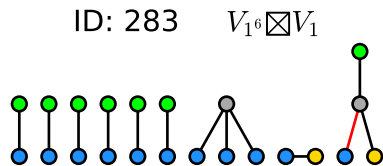
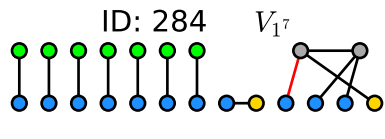


ID: 143 $V_1^6 \boxtimes V_1$



----- A2 case with weight 13 relations

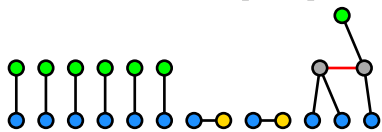
relation groups: 3 -----



----- B,Birr cases without weight 11 relations graphs: 10 -----

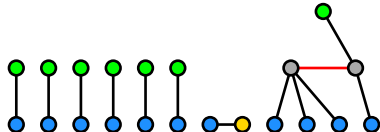
ID: 476

$V_{1^6} \boxtimes V_1$



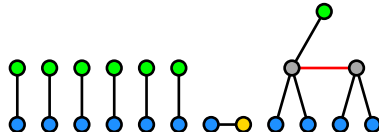
ID: 294

$V_{1^6} \boxtimes V_1$



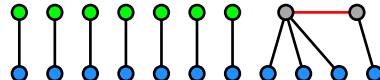
ID: 295

$V_{1^6} \boxtimes V_1$



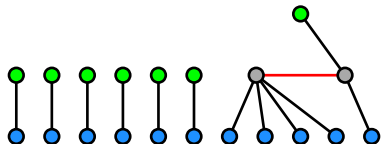
ID: 187

V_{1^7}



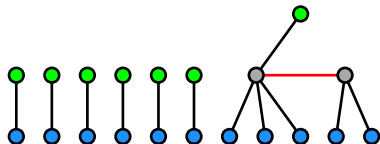
ID: 192

$V_{1^6} \boxtimes V_1$



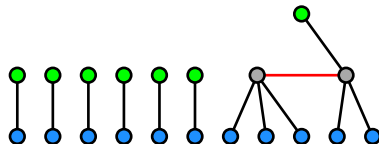
ID: 193

$V_{1^6} \boxtimes V_1$



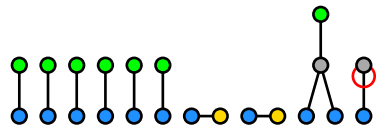
ID: 194

$V_{1^6} \boxtimes V_1$



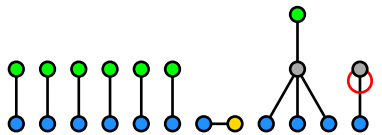
ID: 552

$V_{1^6} \boxtimes V_1$



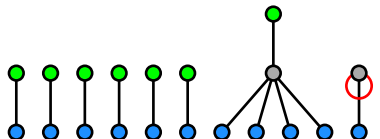
ID: 445

$V_{1^6} \boxtimes V_1$



ID: 262

$V_{1^6} \boxtimes V_1$

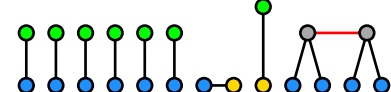


----- B,Birr cases with weight 11 relations

relation groups: 4 -----

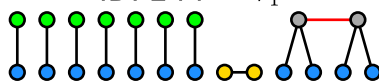
ID: 418

$V_1^6 \boxtimes V_1$



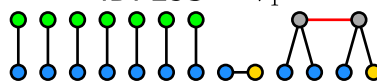
ID: 244

V_1^7



ID: 293

V_1^7



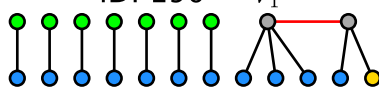
ID: 599

$V_1^6 \boxtimes V_1$



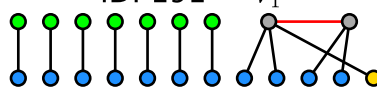
ID: 190

V_1^7



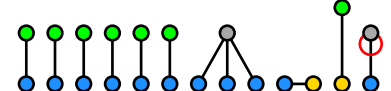
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V_1^7



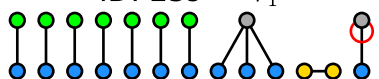
ID: 442

$V_1^6 \boxtimes V_1$



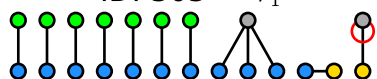
ID: 259

V_1^7



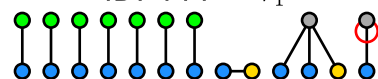
ID: 303

V_1^7



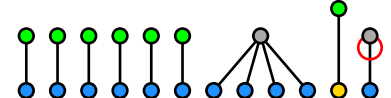
ID: 444

V_1^7



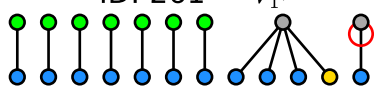
ID: 449

$V_1^6 \boxtimes V_1$



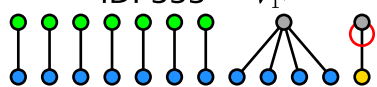
ID: 261

V_1^7



ID: 333

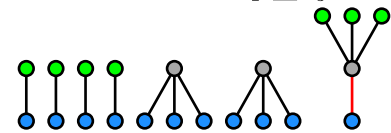
V_1^7



----- edges: 6 graphs: 91 -----
 ----- A3 case graphs: 19 -----

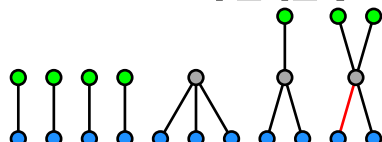
ID: 134

$V_1^4 \boxtimes V_3$



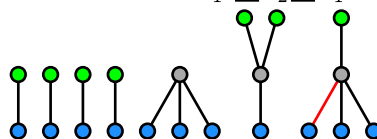
ID: 337

$V_1^4 \boxtimes V_1 \boxtimes V_2$



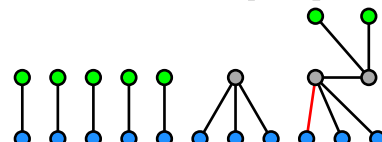
ID: 575

$V_1^4 \boxtimes V_2 \boxtimes V_1$



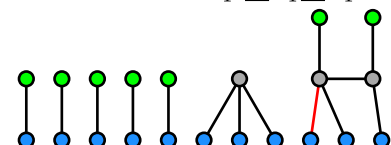
ID: 144

$V_1^5 \boxtimes V_2$



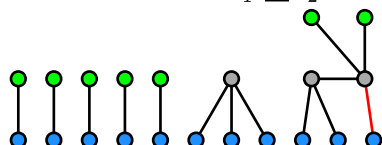
ID: 145

$V_1^5 \boxtimes V_1 \boxtimes V_1$



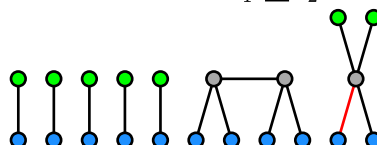
ID: 146

$V_1^5 \boxtimes V_2$



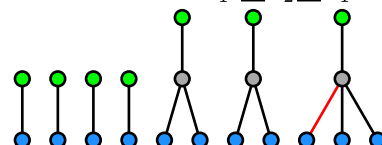
ID: 367

$V_1^5 \boxtimes V_2$



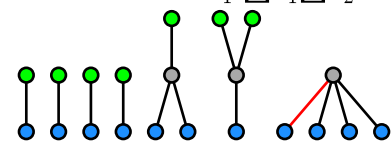
ID: 519

$V_1^4 \boxtimes V_2 \boxtimes V_1$



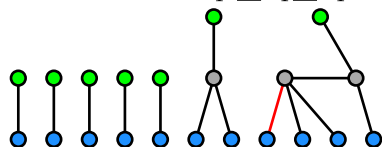
ID: 410

$V_1^4 \boxtimes V_1 \boxtimes V_2$



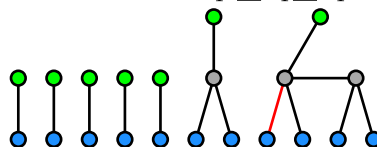
ID: 340

$V_1^5 \boxtimes V_1 \boxtimes V_1$



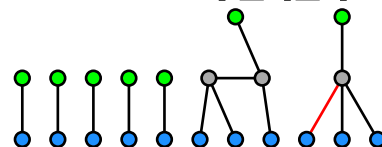
ID: 341

$V_1^5 \boxtimes V_1 \boxtimes V_1$



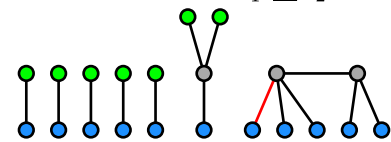
ID: 577

$V_1^5 \boxtimes V_1 \boxtimes V_1$



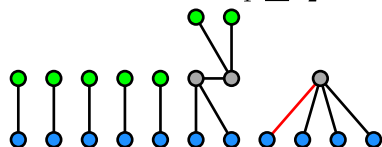
ID: 582

$V_1^5 \boxtimes V_2$



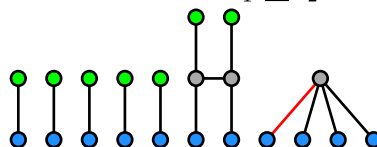
ID: 240

$V_1^5 \boxtimes V_2$



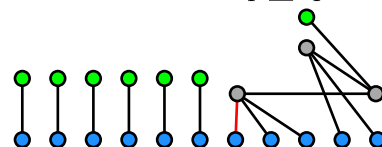
ID: 241

$V_1^5 \boxtimes V_2$



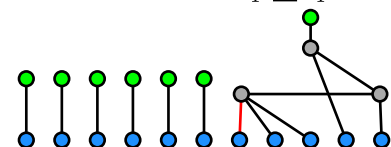
ID: 151

$V_1^6 \boxtimes V_1$



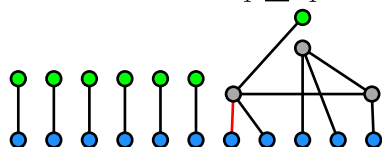
ID: 152

$V_1^6 \boxtimes V_1$



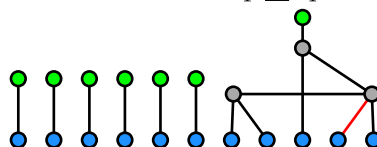
ID: 153

$V_1^6 \boxtimes V_1$



ID: 154

$V_1^6 \boxtimes V_1$



----- A2 case with weight 13 relations

relation groups: 7 -----

ID: 592 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 585 $V_1^4 \boxtimes V_1 \boxtimes V_2$

ID: 166 V_1^7

ID: 160 $V_1^6 \boxtimes V_1$

ID: 594 $V_1^6 \boxtimes V_1$

ID: 587 $V_1^5 \boxtimes V_2$

ID: 170 $V_1^6 \boxtimes V_1$

ID: 161 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 595 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 588 $V_1^4 \boxtimes V_1 \boxtimes V_2$

ID: 159 $V_1^6 \boxtimes V_1$

ID: 344 $V_1^6 \boxtimes V_1$

ID: 343 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 289 $V_1^6 \boxtimes V_1$

ID: 286 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 490 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 489 $V_1^4 \boxtimes V_1 \boxtimes V_2$

ID: 165 V_1^7

ID: 373 $V_1^6 \boxtimes V_1$

ID: 288 $V_1^6 \boxtimes V_1$

ID: 497 $V_1^5 \boxtimes V_2$

ID: 169 $V_1^6 \boxtimes V_1$

ID: 345 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 316 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 509 $V_1^4 \boxtimes V_1 \boxtimes V_2$

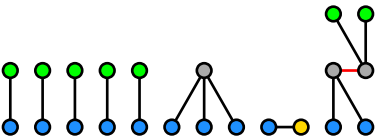
ID: 163 V_1^7

ID: 168 $V_1^6 \boxtimes V_1$

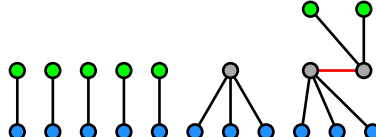
ID: 171 $V_1^6 \boxtimes V_1$

ID: 590 $V_1^5 \boxtimes V_2$

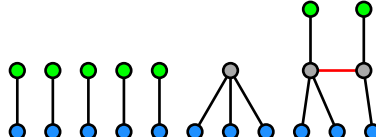
ID: 296 $V_1^5 \boxtimes V_2$



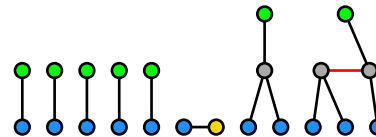
ID: 196 $V_1^5 \boxtimes V_2$



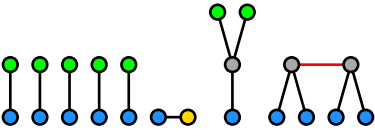
ID: 197 $V_1^5 \boxtimes V_1 \boxtimes V_1$



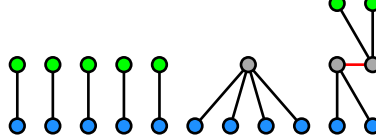
ID: 492 $V_1^5 \boxtimes V_1 \boxtimes V_1$



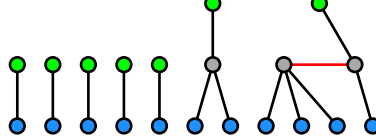
ID: 422 $V_1^5 \boxtimes V_2$



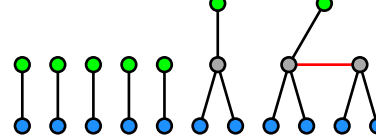
ID: 326 $V_1^5 \boxtimes V_2$



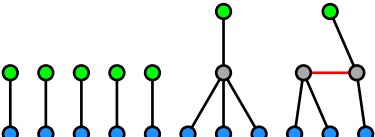
ID: 354 $V_1^5 \boxtimes V_1 \boxtimes V_1$



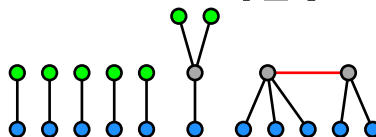
ID: 355 $V_1^5 \boxtimes V_1 \boxtimes V_1$



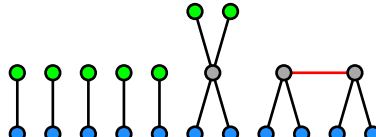
ID: 609 $V_1^5 \boxtimes V_1 \boxtimes V_1$



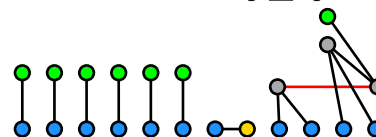
ID: 603 $V_1^5 \boxtimes V_2$



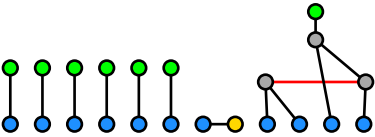
ID: 249 $V_1^5 \boxtimes V_2$



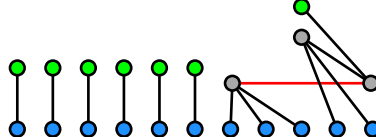
ID: 300 $V_1^6 \boxtimes V_1$



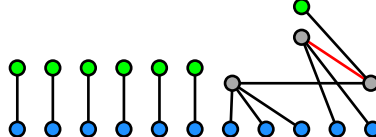
ID: 301 $V_1^6 \boxtimes V_1$



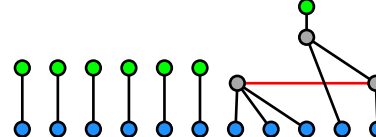
ID: 208 $V_1^6 \boxtimes V_1$



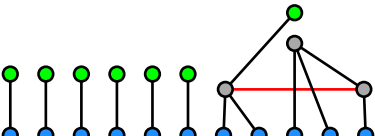
ID: 209 $V_1^6 \boxtimes V_1$



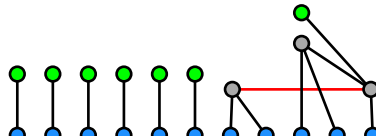
ID: 210 $V_1^6 \boxtimes V_1$



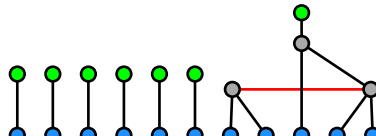
ID: 211 $V_1^6 \boxtimes V_1$



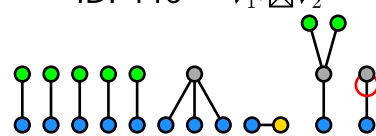
ID: 212 $V_1^6 \boxtimes V_1$



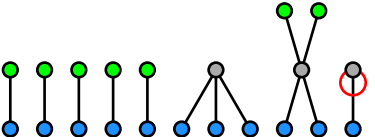
ID: 213 $V_1^6 \boxtimes V_1$



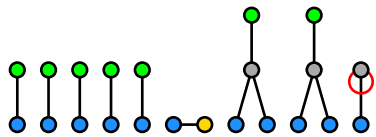
ID: 446 $V_1^5 \boxtimes V_2$



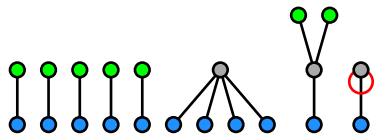
ID: 264 $V_1^5 \boxtimes V_2$



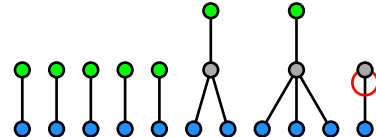
ID: 557 $V_1^5 \boxtimes V_2$



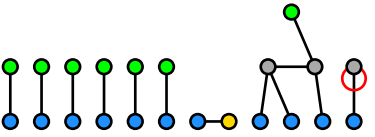
ID: 453 $V_1^5 \boxtimes V_2$



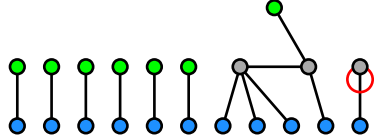
ID: 459 $V_1^5 \boxtimes V_1 \boxtimes V_1$



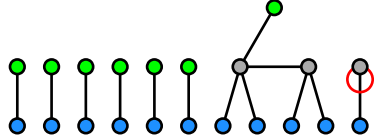
ID: 448 $V_1^6 \boxtimes V_1$



ID: 268 $V_1^6 \boxtimes V_1$



ID: 269 $V_1^6 \boxtimes V_1$



----- B,Birr cases with weight 11 relations

relation groups: 5 -----

ID: 606

$V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 195

$V_1^6 \boxtimes V_1$

ID: 608

$V_1^6 \boxtimes V_1$

ID: 430

$V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 248

$V_1^6 \boxtimes V_1$

ID: 353

$V_1^6 \boxtimes V_1$

ID: 613

$V_1^6 \boxtimes V_1$

ID: 205

V_1^7

ID: 206

V_1^7

ID: 456

$V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 263

$V_1^6 \boxtimes V_1$

ID: 363

$V_1^6 \boxtimes V_1$

ID: 458

$V_1^6 \boxtimes V_1$

ID: 463

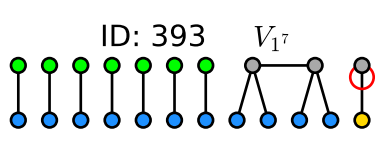
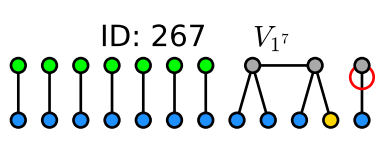
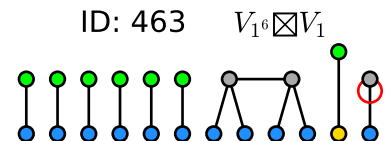
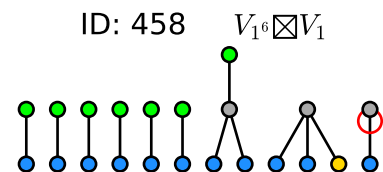
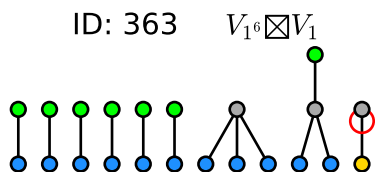
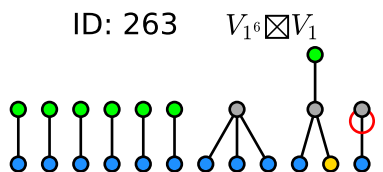
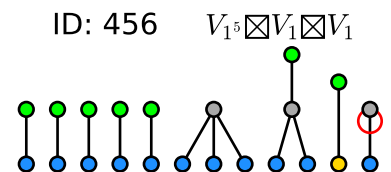
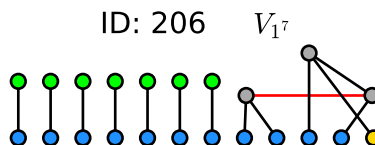
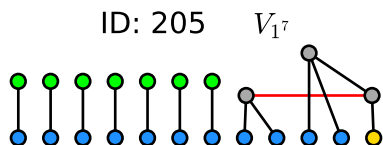
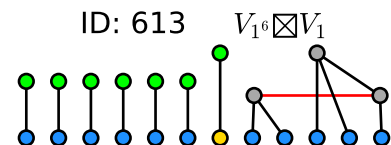
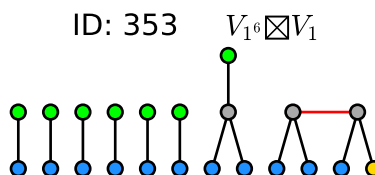
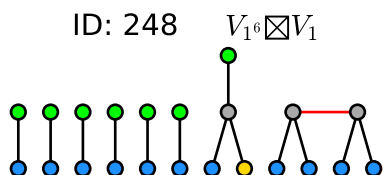
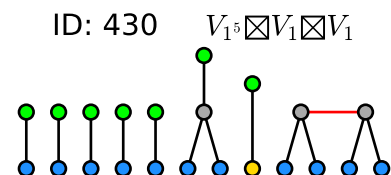
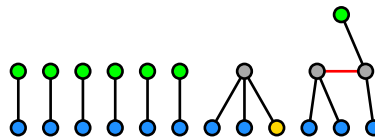
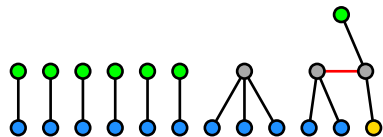
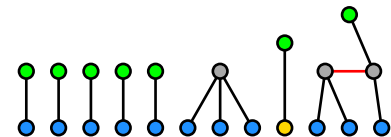
$V_1^6 \boxtimes V_1$

ID: 267

V_1^7

ID: 393

V_1^7



----- edges: 7 graphs: 52 -----
 ----- A2 case with weight 13 relations relation groups: 5 -----

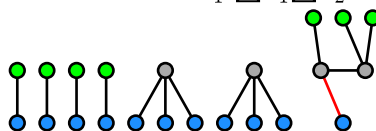
ID: 173

$V_1^5 \boxtimes V_2$



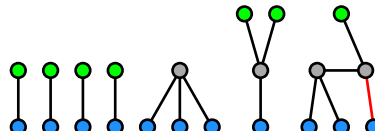
ID: 162

$V_1^4 \boxtimes V_1 \boxtimes V_2$



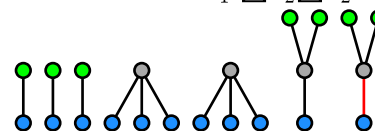
ID: 596

$V_1^4 \boxtimes V_2 \boxtimes V_1$



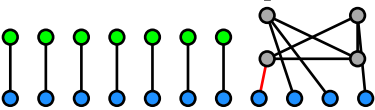
ID: 589

$V_1^3 \boxtimes V_2 \boxtimes V_2$



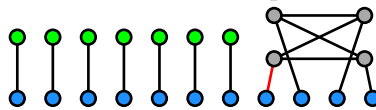
ID: 176

V_1^7



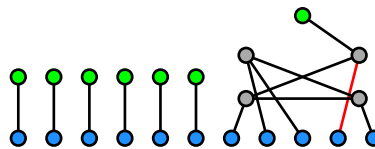
ID: 177

V_1^7



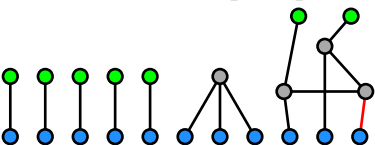
ID: 183

$V_1^6 \boxtimes V_1$



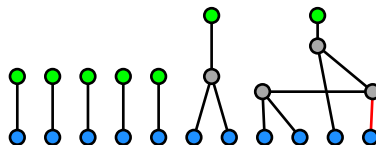
ID: 175

$V_1^5 \boxtimes V_1^2$



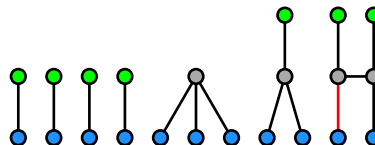
ID: 349

$V_1^5 \boxtimes V_1 \boxtimes V_1$



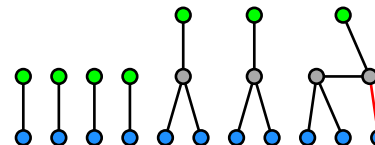
ID: 346

$V_1^4 \boxtimes V_1 \boxtimes V_1 \boxtimes V_1$



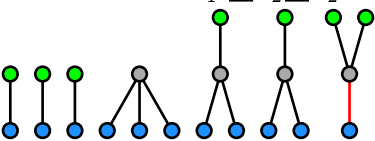
ID: 522

$V_1^4 \boxtimes V_2 \boxtimes V_1$



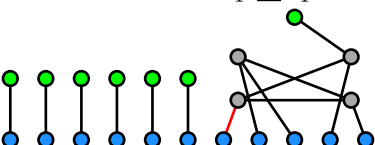
ID: 521

$V_1^3 \boxtimes V_2 \boxtimes V_2$



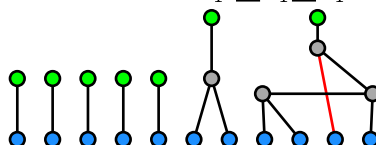
ID: 182

$V_1^6 \boxtimes V_1$



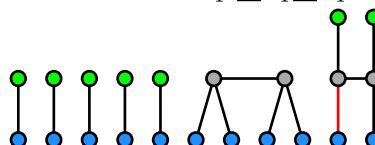
ID: 348

$V_1^5 \boxtimes V_1 \boxtimes V_1$



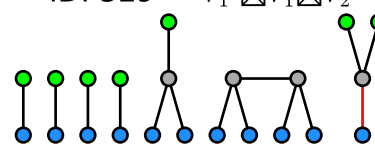
ID: 376

$V_1^5 \boxtimes V_1 \boxtimes V_1$



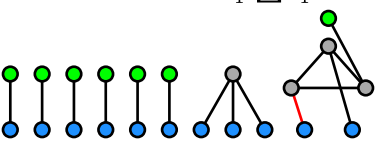
ID: 529

$V_1^4 \boxtimes V_1 \boxtimes V_2$



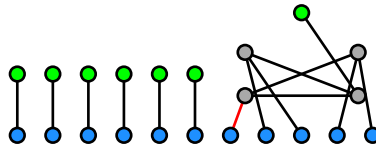
ID: 167

$V_1^6 \boxtimes V_1$



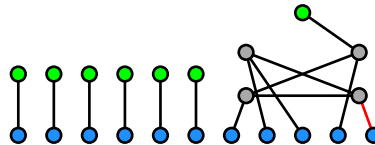
ID: 181

$V_1^6 \boxtimes V_1$



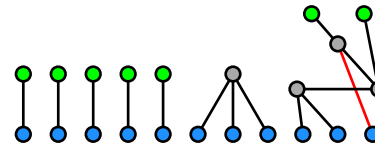
ID: 184

$V_1^6 \boxtimes V_1$



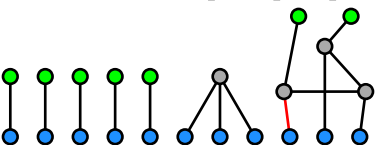
ID: 172

$V_1^5 \boxtimes V_1 \boxtimes V_1$



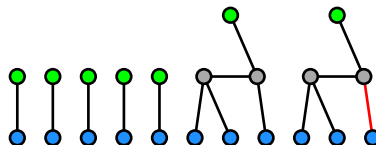
ID: 174

$V_1^5 \boxtimes V_1 \boxtimes V_1$



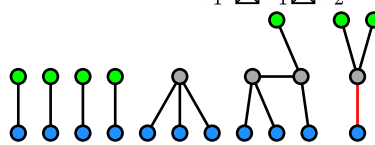
ID: 598

$V_1^5 \boxtimes V_1 \boxtimes V_1$

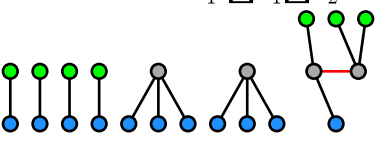


ID: 591

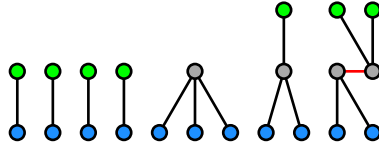
$V_1^4 \boxtimes V_1 \boxtimes V_2$



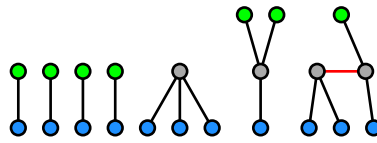
ID: 198 $V_1^4 \boxtimes V_1 \boxtimes V_2$



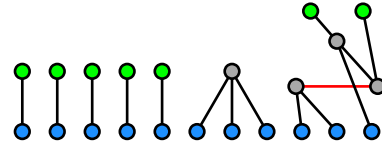
ID: 356 $V_1^4 \boxtimes V_1 \boxtimes V_2$



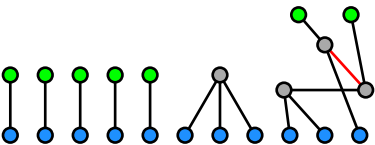
ID: 610 $V_1^4 \boxtimes V_2 \boxtimes V_1$



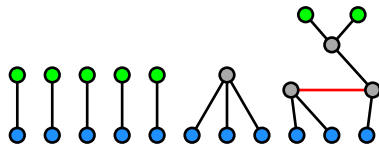
ID: 214 $V_1^5 \boxtimes V_1 \boxtimes V_1$



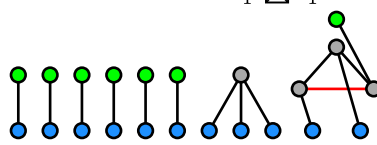
ID: 215 $V_1^5 \boxtimes V_1 \boxtimes V_1$



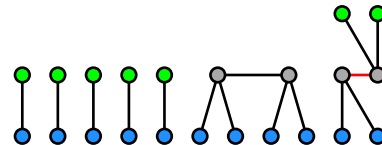
ID: 216 $V_1^5 \boxtimes V_2$



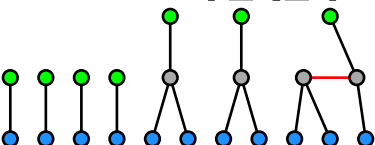
ID: 207 $V_1^6 \boxtimes V_1$



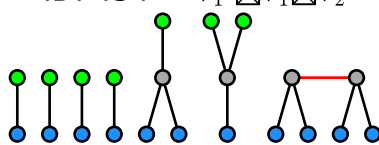
ID: 386 $V_1^5 \boxtimes V_2$



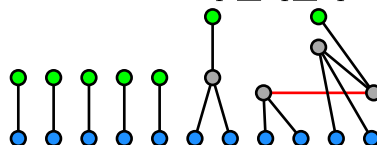
ID: 524 $V_1^4 \boxtimes V_2 \boxtimes V_1$



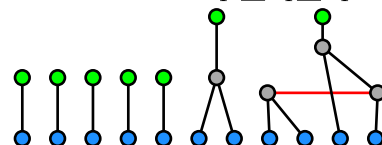
ID: 434 $V_1^4 \boxtimes V_1 \boxtimes V_2$



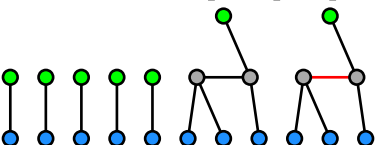
ID: 360 $V_1^5 \boxtimes V_1 \boxtimes V_1$



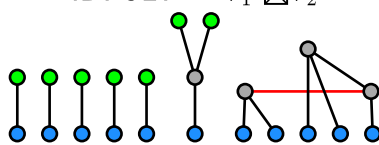
ID: 361 $V_1^5 \boxtimes V_1 \boxtimes V_1$



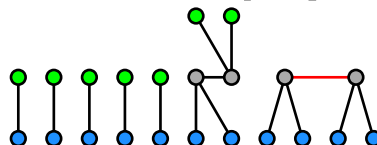
ID: 612 $V_1^5 \boxtimes V_1 \boxtimes V_1$



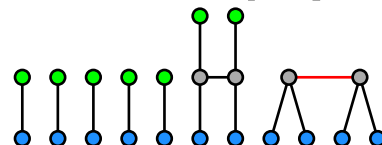
ID: 617 $V_1^5 \boxtimes V_2$



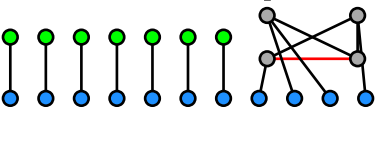
ID: 255 $V_1^5 \boxtimes V_2$



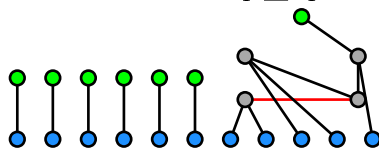
ID: 256 $V_1^5 \boxtimes V_2$



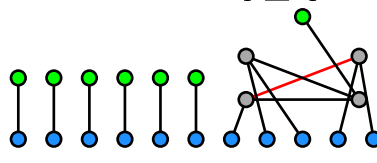
ID: 217 V_1^7



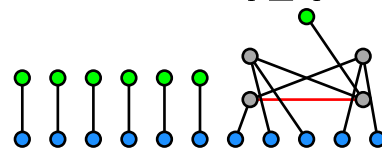
ID: 222 $V_1^6 \boxtimes V_1$



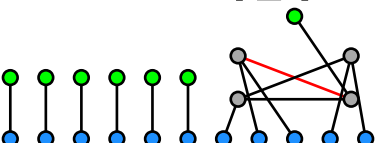
ID: 223 $V_1^6 \boxtimes V_1$



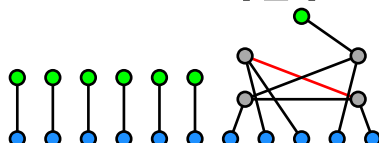
ID: 224 $V_1^6 \boxtimes V_1$



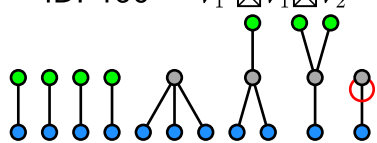
ID: 225 $V_1^6 \boxtimes V_1$



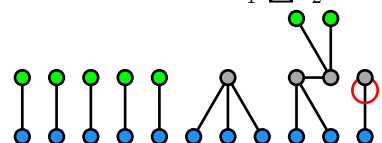
ID: 226 $V_1^6 \boxtimes V_1$



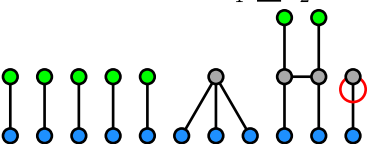
ID: 460 $V_1^4 \boxtimes V_1 \boxtimes V_2$



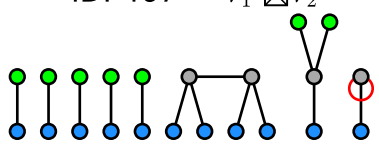
ID: 270 $V_1^5 \boxtimes V_2$



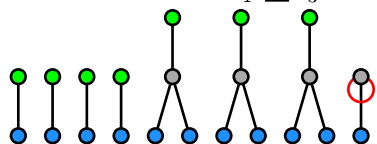
ID: 271 $V_1^5 \boxtimes V_2$



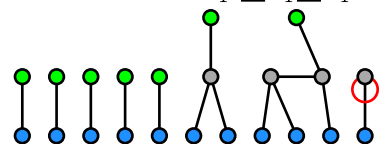
ID: 467 $V_1^5 \boxtimes V_2$



ID: 562 $V_1^4 \boxtimes V_3$



ID: 462 $V_1^5 \boxtimes V_1 \boxtimes V_1$



ID: 273 $V_1^6 \boxtimes V_1$

