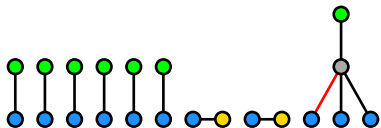
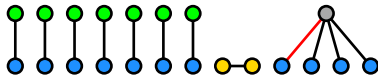


----- g,n: 5,7 graphs: 207 eliminated: 196 ----- Euler Characteristic (without resolving relations):
 ----- $5V_{17}-2V_{16}\boxtimes V_1-1V_{15}\boxtimes V_2+1V_{15}\boxtimes V_1^2-4V_{15}\boxtimes V_1\boxtimes V_1+3V_{14}\boxtimes V_1\boxtimes V_2+1V_{14}\boxtimes V_1\boxtimes V_1\boxtimes V_1$ -----
 ----- edges: 4 graphs: 9 -----
 ----- A3 case graphs: 8 -----

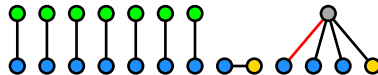
ID: 139 $V_{16}\boxtimes V_1$
 \mapsto ID 291



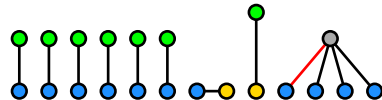
ID: 140 V_{17}
 \mapsto ID 219



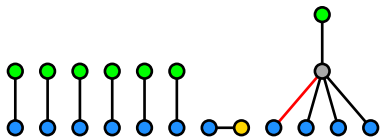
ID: 141 V_{17}
 \mapsto ID 292



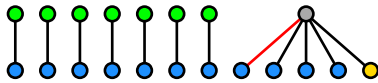
ID: 142 $V_{16}\boxtimes V_1$
 \mapsto ID 215



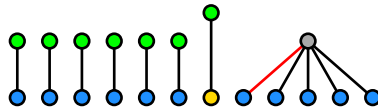
ID: 143 $V_{16}\boxtimes V_1$
 \mapsto ID 224



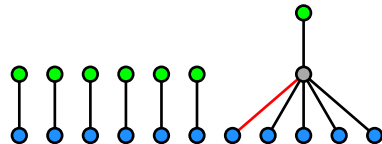
ID: 144 V_{17}
 \mapsto ID 220



ID: 145 $V_{16}\boxtimes V_1$
 \mapsto ID 221

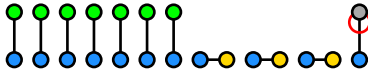


ID: 146 $V_{16}\boxtimes V_1$
 \mapsto ID 225



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

ID: 197 V_{1^7}
 \mapsto ID 351



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

ID: 203 $V_{1^5} \boxtimes V_2$
 \mapsto ID 448

ID: 204 $V_{1^5} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 372

ID: 205 $V_{1^5} \boxtimes V_2$
 \mapsto ID 373

ID: 206 $V_{1^6} \boxtimes V_1$
 \mapsto ID 410

ID: 207 $V_{1^5} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 456

ID: 208 $V_{1^5} \boxtimes V_2$
 \mapsto ID 452

ID: 209 $V_{1^5} \boxtimes V_2$
 \mapsto ID 374

ID: 210 $V_{1^5} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 453

ID: 211 $V_{1^5} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 378

ID: 212 $V_{1^5} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 379

ID: 213 $V_{1^5} \boxtimes V_2$
 \mapsto ID 380

ID: 214 $V_{1^5} \boxtimes V_2$
 \mapsto ID 381

ID: 215 $V_{1^6} \boxtimes V_1$
 \mapsto ID 142

ID: 216 $V_{1^6} \boxtimes V_1$
 \mapsto ID 465

ID: 217 $V_{1^6} \boxtimes V_1$
 \mapsto ID 384

ID: 218 $V_{1^6} \boxtimes V_1$
 \mapsto ID 422

ID: 219 V_{1^7}
 \mapsto ID 140

ID: 220 V_{1^7}
 \mapsto ID 144

ID: 221 $V_{1^6} \boxtimes V_1$
 \mapsto ID 145

ID: 222 $V_{1^6} \boxtimes V_1$
 \mapsto ID 429

ID: 223 $V_{1^6} \boxtimes V_1$
 \mapsto ID 386

ID: 224 $V_{1^6} \boxtimes V_1$
 \mapsto ID 143

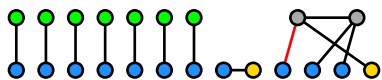
ID: 225 $V_{1^6} \boxtimes V_1$
 \mapsto ID 146

ID: 226 $V_{1^6} \boxtimes V_1$
 \mapsto ID 385

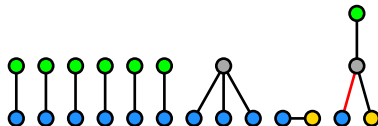
----- A2 case with weight 13 relations

relation groups: 3 -----

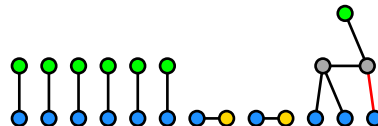
ID: 274 V_{17}
 \mapsto ID 425



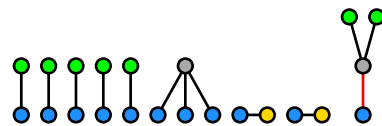
ID: 270 $V_1^6 \boxtimes V_1$
 \mapsto ID 525



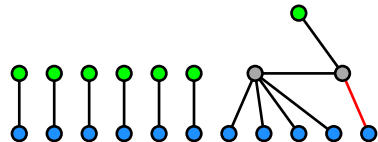
ID: 273 $V_1^6 \boxtimes V_1$
 Redundant



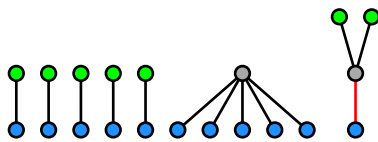
ID: 269 $V_1^5 \boxtimes V_2$
 \mapsto ID 408 RED



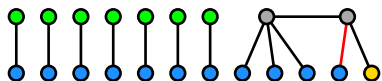
ID: 278 $V_1^6 \boxtimes V_1$
 \mapsto ID 430



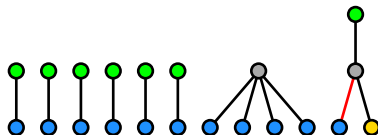
ID: 272 $V_1^5 \boxtimes V_2$
 \mapsto ID 416 RED



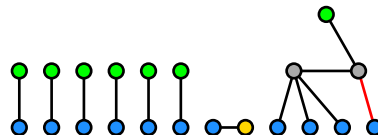
ID: 277 V_{17}
 \mapsto ID 424



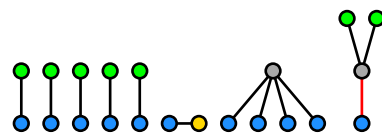
ID: 276 $V_1^6 \boxtimes V_1$
 \mapsto ID 421



ID: 275 $V_1^6 \boxtimes V_1$
 Redundant

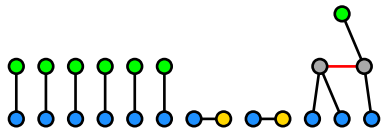


ID: 271 $V_1^5 \boxtimes V_2$
 \mapsto ID 412 RED

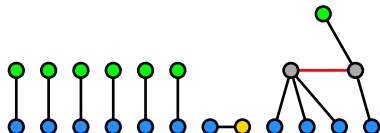


----- B,Birr cases without weight 11 relations graphs: 10 -----

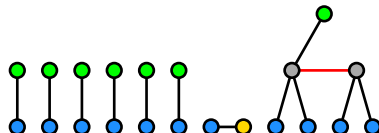
ID: 291 $V_1^6 \boxtimes V_1$
 \leftrightarrow ID 139



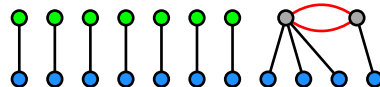
ID: 293 $V_1^6 \boxtimes V_1$
 \mapsto ID 469



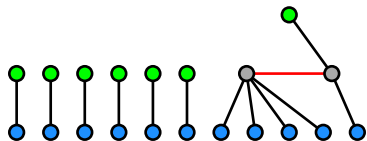
ID: 294 $V_1^6 \boxtimes V_1$
 \mapsto ID 471



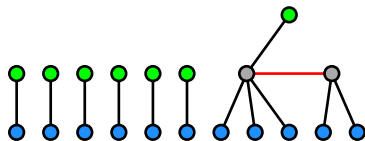
ID: 295 V_1^7
 \mapsto ID 423



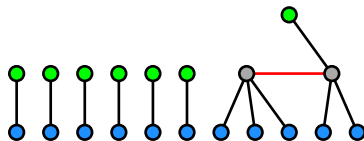
ID: 298 $V_1^6 \boxtimes V_1$
 \mapsto ID 472



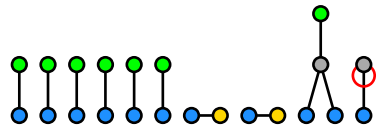
ID: 299 $V_1^6 \boxtimes V_1$
 \mapsto ID 474



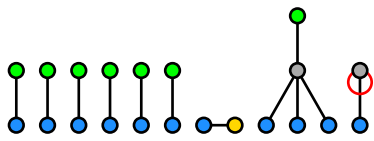
ID: 300 $V_1^6 \boxtimes V_1$
 \mapsto ID 473



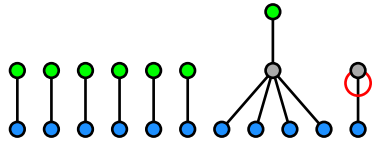
ID: 349 $V_1^6 \boxtimes V_1$
 \mapsto ID 535



ID: 350 $V_1^6 \boxtimes V_1$
 \mapsto ID 530



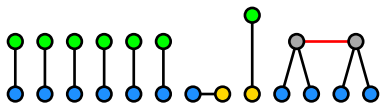
ID: 355 $V_1^6 \boxtimes V_1$
 \mapsto ID 536



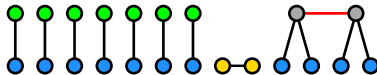
----- B,Birr cases with weight 11 relations

relation groups: 4 -----

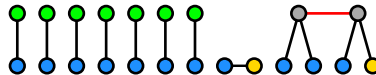
ID: 289 $V_{1^6} \boxtimes V_1$
 \mapsto ID 466



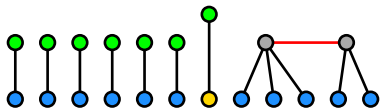
ID: 288 V_{1^7}
 Redundant



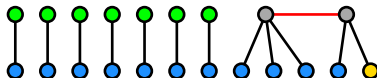
ID: 292 V_{1^7}
 \leftarrow ID 141



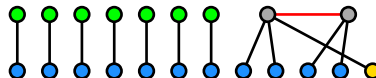
ID: 290 $V_{1^6} \boxtimes V_1$
 \mapsto ID 462



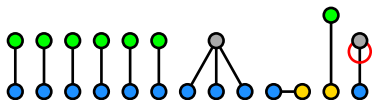
ID: 296 V_{1^7}
 \mapsto ID 467



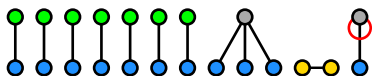
ID: 297 V_{1^7}
 Redundant



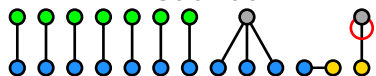
ID: 348 $V_{1^6} \boxtimes V_1$



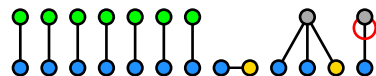
ID: 346 V_{1^7}



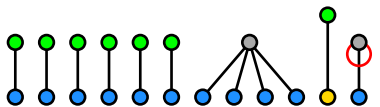
ID: 347 V_{1^7}
 Redundant



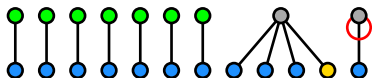
ID: 351 V_{1^7}
 \leftarrow ID 197



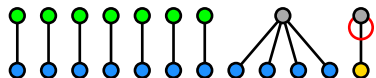
ID: 354 $V_{1^6} \boxtimes V_1$
 \mapsto ID 533



ID: 352 V_{1^7}
 \mapsto ID 531

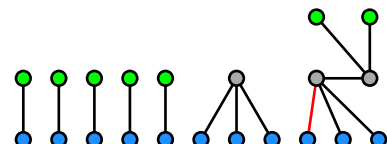


ID: 353 V_{1^7}
 Redundant

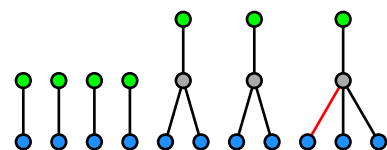


graphs: 19

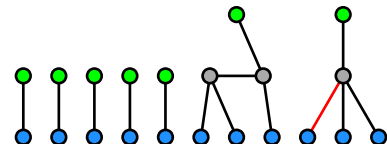
ID: 371 $V_1^5 \boxtimes V_2$
 \mapsto ID 553



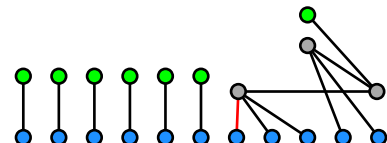
ID: 375 $V_1^4 \boxtimes V_2 \boxtimes V_1$
 \mapsto ID 586



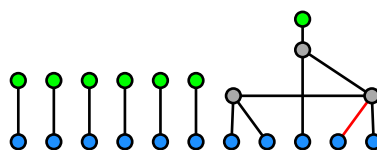
ID: 379 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftarrow ID 212



ID: 383 $V_1 \boxtimes V_1$
 \mapsto ID 565



ID: 386 $V_1^6 \boxtimes V_1$
 \leftarrow ID 223

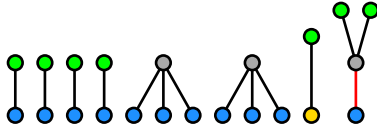
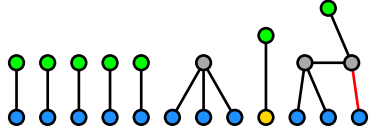


----- A2 case with weight 13 relations

relation groups: 7 -----

ID: 407 $V_{15} \boxtimes V_1 \boxtimes V_1$

ID: 402 $V_{14} \boxtimes V_1 \boxtimes V_2$
 \mapsto ID 547

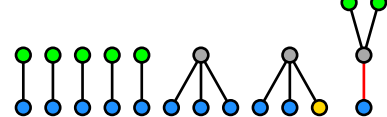
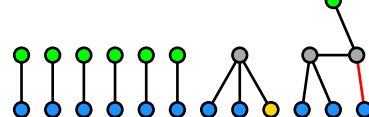
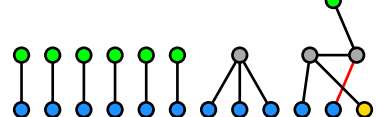
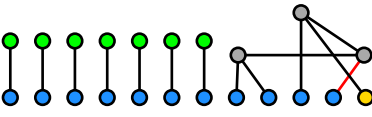


ID: 425 V_{17}
 \leftarrow ID 274

ID: 411 $V_{16} \boxtimes V_1$
 \mapsto ID 556

ID: 426 $V_{16} \boxtimes V_1$
 Redundant

ID: 408 $V_{15} \boxtimes V_2$
 \leftarrow ID 269 RED

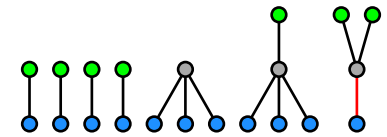
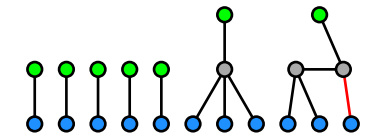
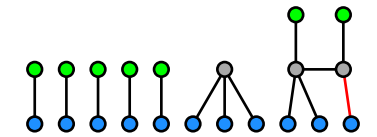
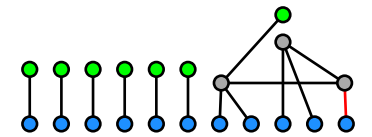


ID: 429 $V_{16} \boxtimes V_1$
 \leftarrow ID 222

ID: 409 $V_{15} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 552

ID: 418 $V_{15} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 562 RED

ID: 406 $V_{14} \boxtimes V_1 \boxtimes V_2$
 Redundant

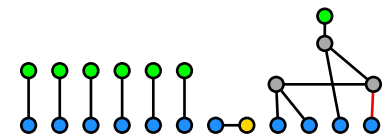
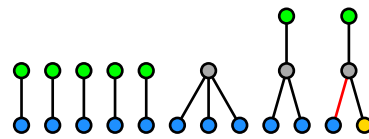
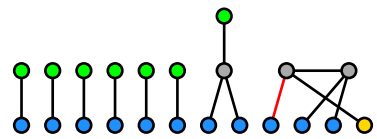
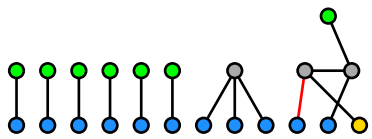


ID: 410 $V_{16} \boxtimes V_1$
 \leftarrow ID 206

ID: 422 $V_{16} \boxtimes V_1$
 \leftarrow ID 218

ID: 405 $V_{15} \boxtimes V_1 \boxtimes V_1$

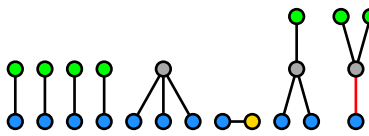
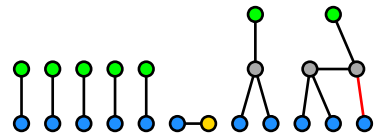
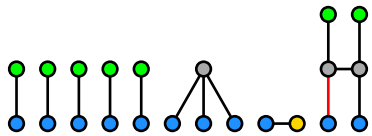
ID: 420 $V_{16} \boxtimes V_1$
 Redundant



ID: 404 $V_{15} \boxtimes V_1 \boxtimes V_1$
 Redundant

ID: 413 $V_{15} \boxtimes V_1 \boxtimes V_1$
 Redundant

ID: 403 $V_{14} \boxtimes V_1 \boxtimes V_2$
 Redundant

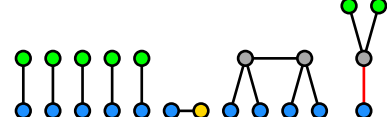
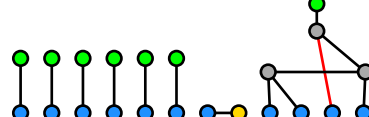
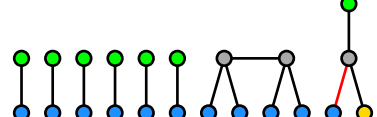
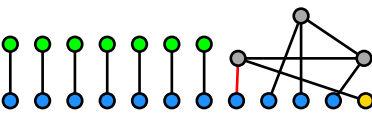


ID: 424 V_{17}
 \leftarrow ID 277

ID: 421 $V_{16} \boxtimes V_1$
 \leftarrow ID 276

ID: 419 $V_{16} \boxtimes V_1$
 Redundant

ID: 412 $V_{15} \boxtimes V_2$
 \leftarrow ID 271 RED

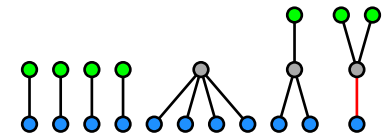
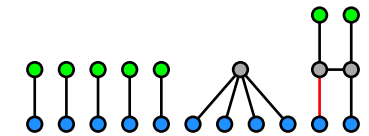
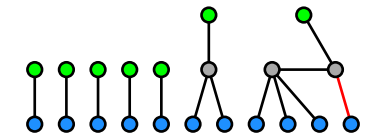
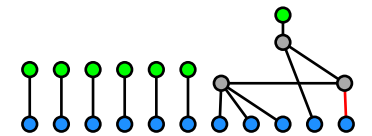


ID: 428 $V_{16} \boxtimes V_1$
 \mapsto ID 566

ID: 417 $V_{15} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 560

ID: 415 $V_{15} \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 558 RED

ID: 414 $V_{14} \boxtimes V_1 \boxtimes V_2$
 \mapsto ID 557 RED

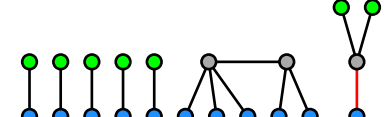
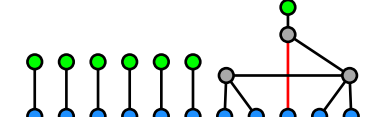
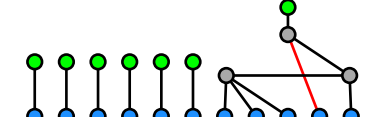
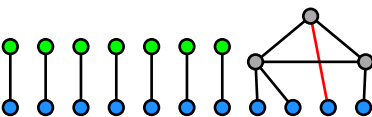


ID: 423 V_{17}
 \leftarrow ID 295

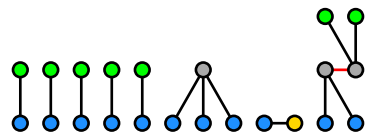
ID: 427 $V_{16} \boxtimes V_1$
 Redundant

ID: 430 $V_{16} \boxtimes V_1$
 \leftarrow ID 278

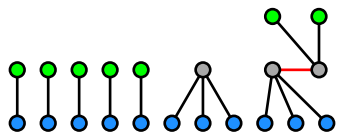
ID: 416 $V_{15} \boxtimes V_2$
 \leftarrow ID 272 RED



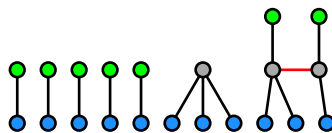
ID: 448 $V_1^5 \boxtimes V_2$
 \leftarrow ID 203



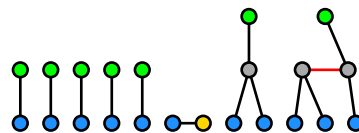
ID: 449 $V_1^5 \boxtimes V_2$
 \mapsto ID 581



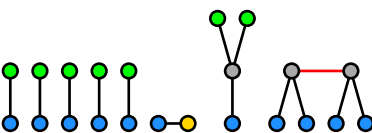
ID: 450 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 580



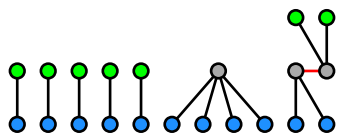
ID: 456 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftarrow ID 207



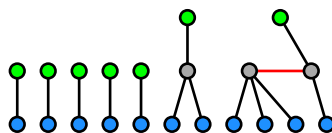
ID: 452 $V_1^5 \boxtimes V_2$
 \leftarrow ID 208



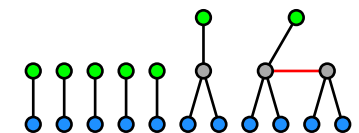
ID: 460 $V_1^5 \boxtimes V_2$
 \mapsto ID 590



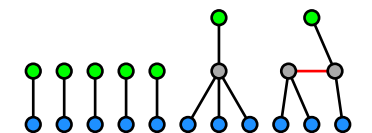
ID: 458 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 588



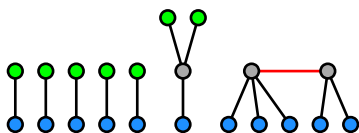
ID: 459 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 589



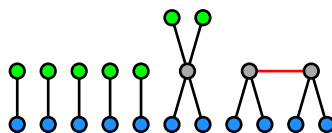
ID: 457 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 587



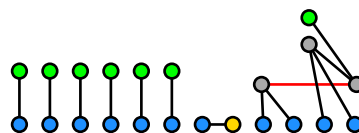
ID: 455 $V_1^5 \boxtimes V_2$
 \mapsto ID 585



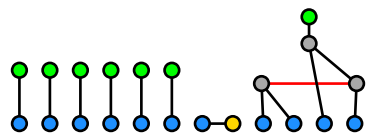
ID: 454 $V_1^5 \boxtimes V_2$
 \mapsto ID 583



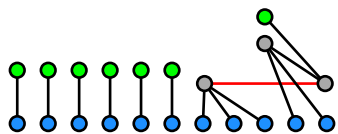
ID: 465 $V_1^6 \boxtimes V_1$
 \leftarrow ID 216



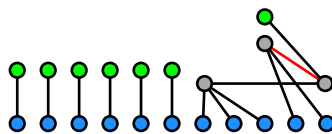
ID: 466 $V_1^6 \boxtimes V_1$
 \leftarrow ID 289



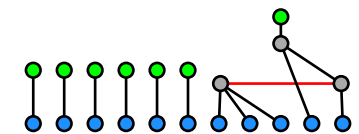
ID: 469 $V_1^6 \boxtimes V_1$
 \leftarrow ID 293



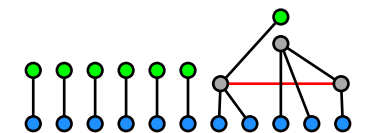
ID: 472 $V_1^6 \boxtimes V_1$
 \leftarrow ID 298



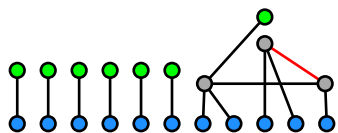
ID: 473 $V_1^6 \boxtimes V_1$
 \leftarrow ID 300



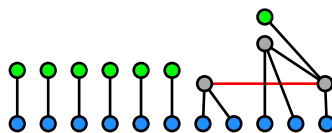
ID: 470 $V_1^6 \boxtimes V_1$
 \mapsto ID 591



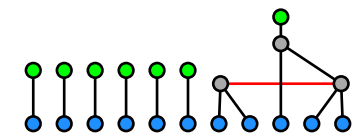
ID: 475 $V_1^6 \boxtimes V_1$
 \mapsto ID 592



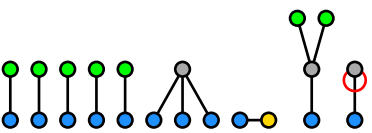
ID: 471 $V_1^6 \boxtimes V_1$
 \leftarrow ID 294



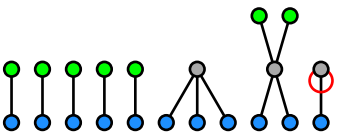
ID: 474 $V_1^6 \boxtimes V_1$
 \leftarrow ID 299



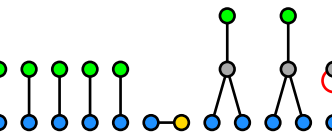
ID: 522 $V_1^5 \boxtimes V_2$
 \mapsto ID 611



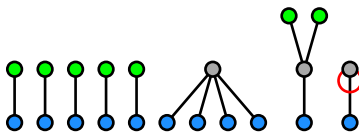
ID: 524 $V_1^5 \boxtimes V_2$
 \mapsto ID 612



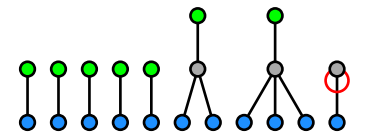
ID: 527 $V_1^5 \boxtimes V_2$



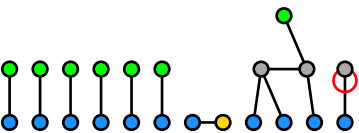
ID: 528 $V_1^5 \boxtimes V_2$
 \mapsto ID 613



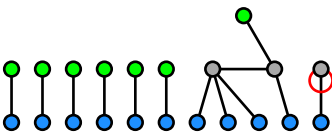
ID: 529 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 615



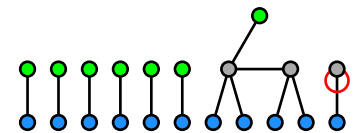
ID: 530 $V_1^6 \boxtimes V_1$
 \leftarrow ID 350



ID: 535 $V_1^6 \boxtimes V_1$
 \leftarrow ID 349



ID: 536 $V_1^6 \boxtimes V_1$
 \leftarrow ID 355



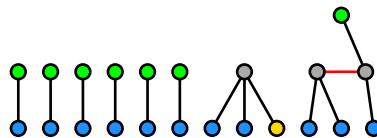
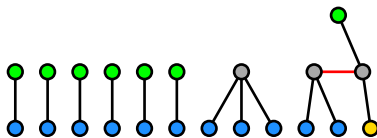
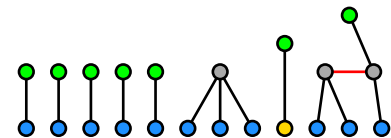
----- B,Birr cases with weight 11 relations

relation groups: 5 -----

ID: 447 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 579

ID: 451 $V_1^6 \boxtimes V_1$
 Redundant

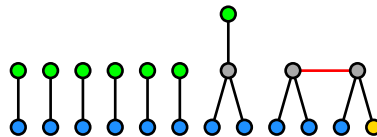
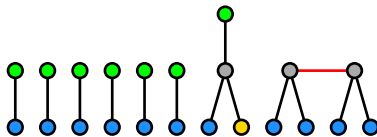
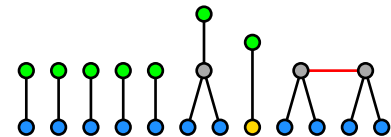
ID: 463 $V_1^6 \boxtimes V_1$
 \mapsto ID 593



ID: 453 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \mapsto ID 210

ID: 461 $V_1^6 \boxtimes V_1$
 \mapsto ID 594

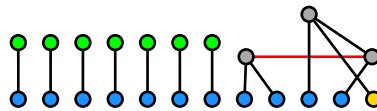
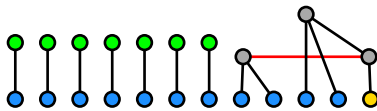
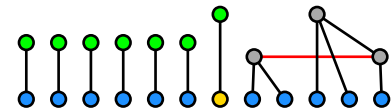
ID: 464 $V_1^6 \boxtimes V_1$
 Redundant



ID: 462 $V_1^6 \boxtimes V_1$
 \mapsto ID 290

ID: 467 V_1^7
 \mapsto ID 296

ID: 468 V_1^7
 Redundant

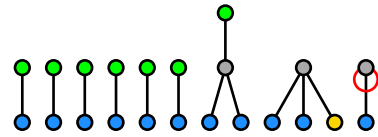
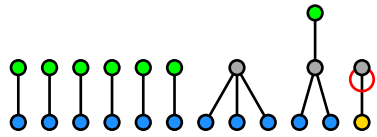
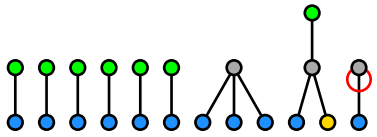
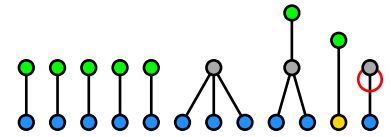


ID: 523 $V_1^5 \boxtimes V_1 \boxtimes V_1$

ID: 525 $V_1^6 \boxtimes V_1$
 \mapsto ID 270

ID: 526 $V_1^6 \boxtimes V_1$
 Redundant

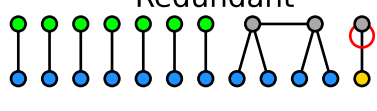
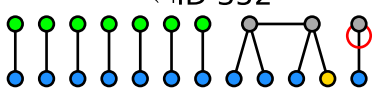
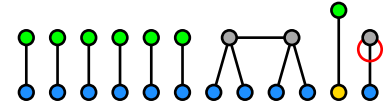
ID: 534 $V_1^6 \boxtimes V_1$
 \mapsto ID 616



ID: 533 $V_1^6 \boxtimes V_1$
 \mapsto ID 354

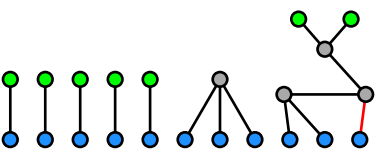
ID: 531 V_1^7
 \mapsto ID 352

ID: 532 V_1^7
 Redundant

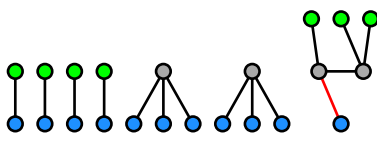


----- edges: 7 graphs: 49 -----
 ----- A2 case with weight 13 relations relation groups: 5 -----

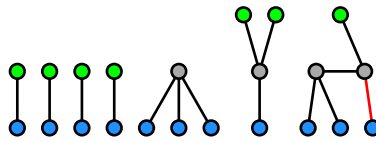
ID: 553 $V_1^5 \boxtimes V_2$
 \leftrightarrow ID 371



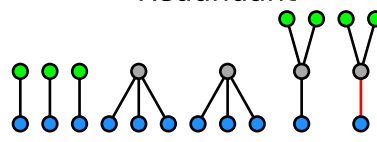
ID: 547 $V_1^4 \boxtimes V_1 \boxtimes V_2$
 \leftrightarrow ID 402



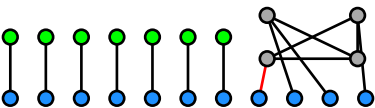
ID: 551 $V_1^4 \boxtimes V_2 \boxtimes V_1$
 Redundant



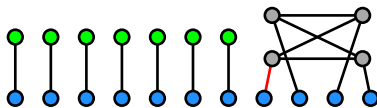
ID: 546 $V_1^3 \boxtimes V_2 \boxtimes V_2$
 Redundant



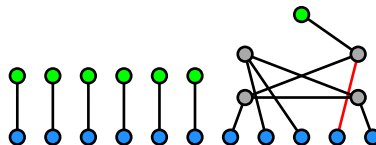
ID: 563 V_1^7



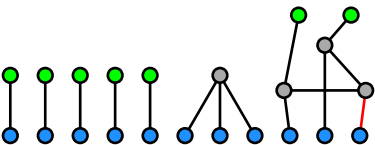
ID: 564 V_1^7
 Redundant



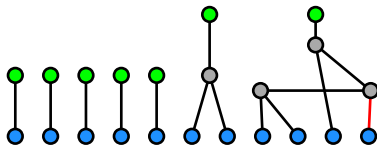
ID: 567 $V_1^6 \boxtimes V_1$
 Redundant



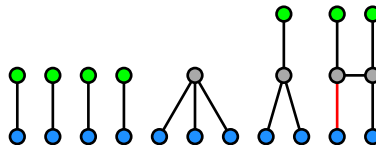
ID: 555 $V_1^5 \boxtimes V_1^2$



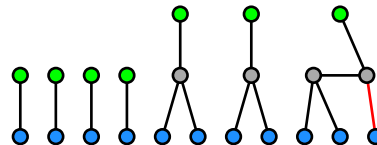
ID: 561 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftrightarrow ID 377



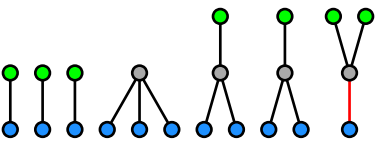
ID: 549 $V_1^4 \boxtimes V_1 \boxtimes V_1 \boxtimes V_1$



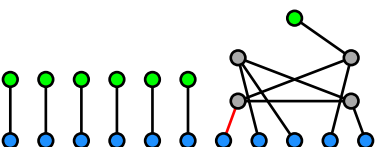
ID: 559 $V_1^4 \boxtimes V_2 \boxtimes V_1$
 Redundant



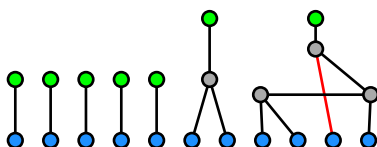
ID: 548 $V_1^3 \boxtimes V_2 \boxtimes V_2$
 Redundant



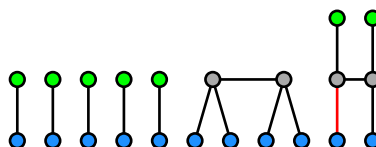
ID: 566 $V_1^6 \boxtimes V_1$
 \leftrightarrow ID 428



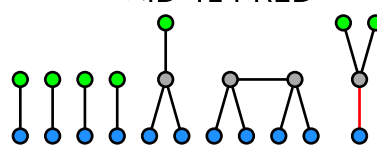
ID: 560 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftrightarrow ID 417



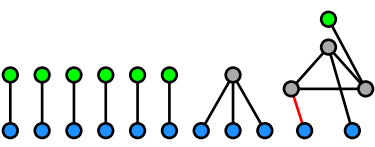
ID: 558 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftrightarrow ID 415 RED



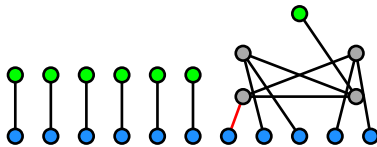
ID: 557 $V_1^4 \boxtimes V_1 \boxtimes V_2$
 \leftrightarrow ID 414 RED



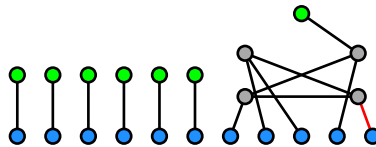
ID: 556 $V_1^6 \boxtimes V_1$
 \leftrightarrow ID 411



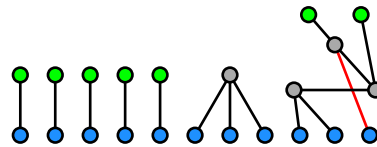
ID: 565 $V_1^6 \boxtimes V_1$
 \leftrightarrow ID 383



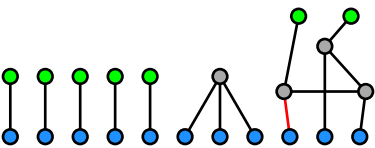
ID: 568 $V_1^6 \boxtimes V_1$
 Redundant



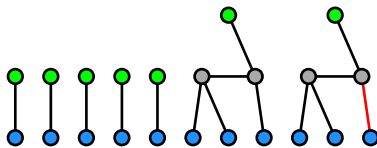
ID: 552 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftrightarrow ID 409



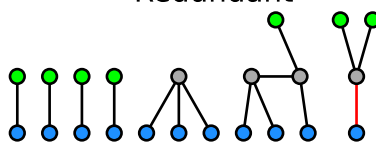
ID: 554 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 Redundant



ID: 562 $V_1^5 \boxtimes V_1 \boxtimes V_1$
 \leftrightarrow ID 418 RED



ID: 550 $V_1^4 \boxtimes V_1 \boxtimes V_2$
 Redundant



graphs: 26 -----

