

# Arbitrarily Exhaustive Hypergraph Generation of 4-, 6-, 8-, 16-, and 32-Dimensional Quantum Contextual Sets. Supplemental Material.

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## I. SAMPLES OF KS CRITICALS IN MMP HYPERGRAPH NOTATION

Whenever possible, an attempt has been made to show the sets not already drawn above. Smaller sets are presented in the MMP hypergraph figure-to-draw format: the edges before “,,,” build the maximal loop; “\*” following a character/vertex means that the vertex belongs to an edge from the loop. Thus,

the reader can easily turn each of the following smaller MMP hypergraph strings into an MMP hypergraph figure reversing the procedure we explained in the body of the paper on how to turn any MMP hypergraph figure into an MMP hypergraph string. Bigger sets are presented just as they were generated (without maximal loop denotations)—only a space is inserted after each comma for easier formatting; these spaces should be taken out before processing.

### A. 3-dim

Bub **49-36** (18-gon) 425, 5AB, BQN, NR9, 987, 7IE, EDC, C1F, FGH, HOL, L3K, Khk, klm, mnj, j6i, iTM, MZY, Ya4,,, 1\*2\*3\*, 2\*6\*7\*, 5\*JH\*, 3\*M\*N\*, L\*PE\*, D\*ST\*, D\*UV, F\*9\*W, XY\*C\*, a\*bW, XK\*c, cdW, X6\*e, efG\*, G\*gZ\*, h\*i\*F\*, h\*4\*V, C\*B\*m\*.

Conway-Kochen **51-37** (20-gon) 132, 245, 5GF, FLI, IMC, CAB, BQR, Rhc, cge, e1P, Pki, ifH, Hpm, m6V, VUE, EST, TnJ, JdO, OYZ, ZX1,,, 2\*6\*7, 5\*89, DE\*F\*, 3\*H\*I\*, 3\*J\*K, B\*N0\*, A\*9P\*, V\*WX\*, T\*ab, 1\*bc\*, d\*6\*e\*, Dd\*f\*, f\*4\*R\*, Z\*j\*i\*, m\*n\*A\*, o4\*n\*, 1\*A\*D.

Peres **57-40** (22-gon) 534, 467, 789, 92A, ABC, CON, Nrn, nhe, eml, 1kj, jig, gfc, cT1, 1pa, aZV, VPJ, JIH, HKL, LQR, RYX, XMF, FG5,,, 1\*2\*3\*, C\*D4\*, A\*EF\*, H\*7\*M\*, 0\*P\*Q\*, R\*ST\*, T\*UJ\*, V\*WX\*, L\*ba\*, \*de\*, Mb\*h\*i\*, n\*op\*, p\*qj\*, g\*sN\*, tu9\*, t1\*0\*, tv5\*, 1\*M\*0\*.

Kochen-Specker **192-118** (18-gon) 123, 345, 567, 789, 9AB, BC1, DEF, FGH, HIJ, JKL, LMN, NOD, PQR, RST, TUV, VWX, XYZ, ZaP, bcd, def, fgh, hij, jkl, lmb, 1no, opq, qrs, stu, uvw, wx1, yz!, !#, #%, %&, '(), )\*y, -/:, :;<, <=,>?@, @[\, \]-, ^\_, '{|, |}~, ~+1+2, +2+3+4, +4+5~, +6+7+8, +8+9+A, +A+B+C, +C+D+E, +E+F+G, +G+H+6, y+I+J, +J+K+L, +L+M+N, +N+0+P, +P+Q+R, +R+S+, +T+U+V, +V+W+X, +X+Y+Z, +Z+a+b, +b+c+d, +d+e+f, +f+g+h, +h+i+j, +j+k+l, +l+m+n, +n+o+p, +p+q+f, +r+s+t, +t+u+v, +v+w+x, +x+y+z, +z+!+", +"#+r, +\$%+&, +&'++(, +(+)++, +\*\*+-+/, +/+:+;, +;+<+\$, +T+=+>, +>?+@, +@+[+\\]+^, +^+\_+^, +'+'{+T, 4A+|, GM+}, SY+~, ek++1, pv++2, "(++3, ;[+4, {+3++5, +9+F++6, +K+Q++7, +W+c++8, +i+o++9, +u+!++A, +'+'++B, +?+\_++C, D7y, PJy, bVy, shy, -%+T, ^>+T, ~+C+T, +N+6+T, +f+Z1, +r+11, +\$+x1, +\+\*1, 1y+T.

### B. 4-dim 24-24

Maximal loops of all KS sets from the 24-24 class are hexagons.

Master set **24-24** 3241, 1576, 69LI, IHJD, DEGF, FBN3,,, 2\*89\*A, 5\*8B\*C, E\*KL\*M, H\*KN\*0, 7\*AJ\*M, 4\*CG\*0, 2\*5\*E\*H\*, 4\*B\*J\*L\*, 7\*9\*G\*N\*, 1\*8D\*K, 3\*CI\*M, 6\*AF\*0, 1\*2\*5\*8, I\*J\*L\*M, F\*G\*N\*0, 6\*7\*9\*A, 3\*4\*B\*C, D\*E\*H\*K.

**18-9** 1234, 4567, 789A, ABCD, DEFG, GHI1,,, I\*2\*9\*B\*, 3\*5\*C\*E\*, 6\*8\*F\*H\*.

**20-11** IHJK, KBCG, GDFE, ET48, 8154, 4291,,, 9\*A\*F\*J\*, 5\*67\*8\*, 1\*2\*34\*, 34\*C\*D\*, 68\*B\*H\*.

**20-11** HIJK, KEGH, F257, 76D3, 3ACB, B18H,,, C\*D\*G\*J\*, 8\*9A\*B\*, 45\*67\*, 2\*9B\*E\*, 1\*47\*I\*.

**22-13** JKLM, M29A, A486, 63CE, EBF1, I1HJ,,, F\*GH\*I\*, B\*C\*D\*E\*, 78\*9\*A\*, 3\*4\*56\*, 2\*D\*E\*L\*, 1\*56\*K\*, 7A\*GI\*.

**22-13** KJLM, MABE, ECDI, IFGH, H264, 415K,,, 9B\*H\*L\*, 8D\*G\*K\*, 7A\*C\*E\*, 6\*9F\*H\*, 5\*8J\*K\*, 1\*2\*34\*, 34\*7E\*.

**24-15** 43FG, G7E8, 86IK, KAHC, C9L0, 01N4,,, L\*MN\*0\*, H\*I\*JK\*, DE\*F\*G\*, 9\*A\*BC\*, 56\*7\*8\*, 1\*23\*4\*, BC\*DG\*, 24\*JK\*, 58\*M0\*.

### C. 4-dim 60-74

Master set is given in Appendix A.1 of the paper.

**26-13** ONQP, P2LB, BCDE, E8A9, 91M6, 657I, IGHF, F3KO,,, JK\*L\*M\*, 3\*47\*D\*, 2\*4A\*H\*, 1\*C\*G\*Q\*, 5\*8\*JN\*.

**30-15** LJKM, MIQH, H9T6, 6EN5, 51R3, 3AD4, 42S7, 7B08, 8CUF, GPL,, R\*S\*T\*U\*, N\*0\*P\*Q\*, C\*D\*E\*K\*, 9\*A\*B\*J\*, 1\*2\*G\*I\*.

**36-19** ZXYa, aNOP, P67A, A89S, SQRW, WTUV, VKLM, MBCD, D45G, GEFJ, JHIZ,,, 35\*U\*Y\*, 2C\*I\*0\*, 17\*F\*L\*, 26\*E\*R\*, 19\*H\*N\*, 13B\*Q\*, 24\*8\*K\*, 12T\*X\*.

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**38-19** aZcb, b340, OPRQ, QIJK, KCDE, E56W, WVXY, YTUS, S2HA, ABN9, 917a,, LMN\*R\*, FGH\*P\*, 7\*8MX\*, 4\*8B\*U\*, 3\*6\*J\*T\*, 1\*D\*GV\*, C\*FLC\*, 2\*5\*I\*Z\*.

**38-21** aZbc, cNOR, RPQU, USTY, YVWX, XDEI, IGHF, F5C3, 328J, JKML, L9Ba,,, C\*E\*M\*b\*, AB\*H\*W\*, 8\*B\*O\*T\*, 67G\*Q\*, 5\*7K\*V\*, 47AZ\*, 13\*6S\*, 3\*49\*D\*, 1B\*E\*P\*, 2\*7E\*N\*.

**38-22** aZbc, cHIR, RPXQ, Q6G8, 84CJ, JKVL, L57U, USYT, T2FA, A3BM, MNWO, ODEa,,, V\*W\*X\*Y\*, F\*G\*L\*b\*, B\*C\*U\*Z\*, 9A\*I\*K\*, 7\*8\*H\*N\*, 5\*A\*E\*P\*, 18\*D\*S\*, 13\*L\*R\*, 2\*4\*O\*R\*, 6\*90\*U\*.

**39-23** ZWXY, YOPN, N2Tb, b8I7, 713B, BCGL, DJUC, c9AL, LKMS, SRVQ, Q4H6, 65dZ,,, ab\*c\*d\*, T\*U\*V\*Z\*, H\*I\*J\*P\*, EFG\*d\*, C\*M\*X\*b\*, B\*O\*R\*a\*, 4\*8\*FK\*, 3\*A\*EH\*, 1\*Q\*W\*c\*, 2\*4\*9\*B\*, 3\*5\*K\*N\*.

**40-23** dbce, eYaZ, ZTUS, SMWI, IHKJ, JEDD, D6B5, 548N, NGXA, A273, 3FL1, 1CVP, PQRd,,, V\*W\*X\*a\*, L\*M\*N\*O\*, F\*G\*K\*R\*, B\*C\*U\*c\*, 9A\*E\*T\*, 7\*8\*C\*H\*, 6\*9H\*b\*, 3\*5\*Q\*Y\*, 4\*9F\*W\*, 2\*D\*P\*S\*.

**49-30** lknm, mMTX, X56F, FA1b, bBNj, jgih, h2SU, U4ZJ, JD0G, G1YV, V3H8, 879Q, QPRe, ecfD, dCaW, WKL1,,, Y\*Z\*a\*b\*, U\*V\*W\*X\*, S\*T\*b\*f\*, N\*O\*R\*n\*, H\*I\*J\*M\*, EF\*G\*L\*, D\*Q\*b\*k\*, A\*P\*V\*i\*, 9\*B\*X\*c\*, 6\*C\*H\*S\*, 4\*9\*A\*K\*, 7\*EN\*U\*, 1\*5\*K\*N\*, 1\*C\*Q\*g\*.

**51-29** omnip, pjlk, kGW9, 96D7, 73AU, USXT, T8B0, OLNM, MHVY, YZba, aIJK, KCER, RPQe, ecfD, d125, 54Fg, ghiO,,, V\*W\*X\*f\*, b\*d\*i\*1\*, F\*G\*H\*U\*, D\*E\*H\*n\*, A\*B\*C\*c\*, 8\*K\*h\*j\*, 5\*N\*Q\*S\*, A\*M\*P\*g\*, 3\*E\*L\*k\*, 9\*B\*Q\*Z\*, 3\*4\*8\*Y\*, 5\*7\*V\*m\*.

**54-30** qprs, smmo, o8fD, DABC, C7c6, 6590, OMNL, L4bF, FEGR, RQgl, lijk, kPda, aYZX, X3eI, IJKH, H12S, SThW, WUVq,,, e\*f\*g\*h\*, b\*c\*d\*r\*, 9\*K\*P\*T\*, 7\*8\*V\*Z\*, 4\*5\*8\*J\*, 2\*3\*N\*p\*, 4\*Q\*U\*Y\*, 6\*S\*j\*n\*, 3\*B\*G\*P\*, 1\*7\*M\*Q\*, I\*L\*i\*m\*, 2\*9\*D\*F\*.

**55-31** sqrt, tnpo, oYZX, X4Kb, bacd, dUWV, VLhE, E56e, efjg, gFMG, GAC8, 823I, IHJN, NBi9, 91DP, POQT, TRSm, mk1s,,, h\*i\*j\*p\*, K\*L\*M\*N\*, D\*E\*G\*c\*, C\*S\*Z\*r\*, C\*J\*Q\*b\*, A\*B\*Y\*a\*, I\*W\*X\*f\*, 78\*9\*R\*, 4\*P\*V\*q\*, 3\*4\*B\*F\*, 1\*M\*S\*n\*, 1\*3\*U\*e\*, 1\*A\*H\*h\*.

**57-31** tsuv, vpqr, rHea, aYZb, bInT, TRSU, UJok, kj11, i7M1, 148K, KLQM, MFGE, E265, 5Nd9, 9ABD, DCPX, XVWh, hfgt,,, m\*n\*o\*u\*, cd\*e\*1\*, N\*OP\*Q\*, 8\*B\*G\*0\*, 7\*B\*H\*J\*, 6\*A\*I\*L\*, 4\*F\*S\*W\*, 4\*9\*R\*g\*, 39\*V\*Z\*, 2\*3\*f\*j\*, 1\*A\*cq\*, 2\*B\*Y\*p\*, 1\*2\*C\*s\*.

**58-32** utvw, wqrs, shim, mjlk, kQRy, YXcg, gdef, fSUT, TAVM, MLBn, NFGW, W129, 97Z8, 86nC, CbaK, KHIJ, J3oD, DEPu,,, n\*o\*pv\*, Z\*a\*b\*c\*, V\*W\*1\*r\*, OP\*U\*p, E\*R\*S\*i\*, 9\*Q\*T\*t\*, 456\*c\*, 8\*D\*e\*h\*, 3\*C\*X\*j\*, 2\*B\*D\*L\*, 3\*7\*d\*i\*, 2\*A\*Od\*, 1\*6\*J\*M\*, C\*OR\*q\*.

**60-40** xvwy, ysut, tgih, hABZ, ZYfa, apkD, D4nS, SU1T, TLWC, CMrQ, QPRX, Xeom, mbcq, q8N7, 79KE, E2F3, 3JV6, 60jx,, p\*q\*r\*x\*, n\*o\*r\*u\*, j\*k\*l\*m\*, de\*f\*i\*, V\*W\*X\*p\*, M\*N\*O\*e\*, J\*K\*L\*e\*, HIR\*s\*, F\*Go\*w\*, E\*IU\*x\*, K\*S\*c\*w\*, 9\*B\*GO\*, A\*J\*n\*v\*, 56\*T\*o\*, 4\*9\*m\*s\*, 6\*D\*b\*h\*, 6\*8\*f\*s\*, 3\*N\*P\*u\*, 7\*A\*C\*d, 5B\*Q\*y\*, 3\*C\*g\*m\*, 1D\*e\*y\*.

## D. 4-dim 60-105

Master set is given in Appendix A.1 of the paper.

**22-11** JKLM, M135, 56B9, 97C8, 824F, FGIH, HIED, DAKJ,,, A\*B\*C\*E\*, 3\*4\*6\*G\*, 1\*2\*7\*L\*.

**25-13** MNPO, OPKL, L89D, DCIG, GJFE, EFBA, A374, 4165, 56HM,,, H\*I\*J\*N\*, 7\*9\*B\*K\*, 24\*8\*C\*, 1\*23\*4\*.

**27-15** OPRQ, QRMN, NCDG, GBA9, 9A68, 8154, 42EH, HIJL, LKPO,,, E\*FG\*J\*, B\*D\*FG\*, 5\*6\*78\*, 1\*2\*34\*, 78\*I\*K\*, 34\*C\*M\*.

**28-15** PQSR, RSAF, FDEG, GCON, NOML, LMKB, B3I4, 4158, 86H9, 9JQP,,, H\*I\*J\*K\*, 5\*6\*78\*, 1\*23\*4\*, 78\*C\*E\*, 24\*A\*D\*.

**30-15** RSTU, U132, 23LK, KLMQ, QPON, NOED, D5A6, 64FG, GJIH, HIC9, 9B87, 78SR,, F\*J\*M\*P\*, A\*B\*C\*E\*, 1\*4\*5\*T\*.

**30-16** TRSU, UFGI, IHML, LMJK, K304, 418E, ECDT,,, NO\*PQ, BG\*PQ, 9ABH\*, 5678\*, 1\*2J\*N, 24\*F\*S\*, 23\*7D\*, C\*K\*NR\*, 8\*BD\*I\*.

**34-20** SRUT, TPYB, BV1, 1V7F, FEGK, KJML, LMHI, I8D9, 94W2, 2WXA, AXOS,,, V\*W\*X\*Y\*, NO\*P\*Q, CD\*QU\*, 567\*j\*, 7\*9\*CG\*, 4\*6D\*F\*, 34\*CH\*, A\*E\*J\*W\*, 8\*B\*H\*V\*.

**38-19** WVYX, XYQP, PICB, BC87, 78Z2, 2c65, 56KG, GMUT, TUSR, RSJF, FH43, 34b1, 1aA9, 9AED, DELN, NOWV,, Z\*a\*b\*c\*, K\*L\*M\*O\*, H\*I\*J\*Q\*.

**38-24** aZcb, bcXY, YKNL, LACB, BCQ1, 1DWI, IHJG, G5F8, 87S9, 960a,, TUVW\*, Q\*RS\*W\*, 0\*PZ\*a\*, MN\*X\*Y\*, F\*J\*Pa\*, D\*EH\*I\*, 45\*6\*R, 3C\*Vc\*, 2B\*Ub\*, 1\*6\*9\*T, 5\*8\*A\*K\*, EI\*MY\*, 348\*b\*, 25\*7\*c\*.

**42-21** degf, f165, 56CD, DERQ, QRba, abcZ, ZUKJ, JKGF, FG24, 43IH, HINM, MNLP, POYX, XYWV, VWB9, 9A87, 78ed,,, STU\*c\*, C\*E\*L\*0\*, A\*B\*ST\*, 1\*2\*3\*g\*.

**46-22** ijk, jkgf, fgTa, aYZb, bWVX, VPUN, N80B, B9AC, C7MS, SQdc, cdei,,, U\*X\*e\*h\*, RS\*W\*Z\*, 0\*P\*T\*Y\*, KLM\*Q\*, IJM\*R, FGHO\*, DEHN\*, 567\*8\*, 348\*C\*, 127\*B\*, HP\*Q\*R.

**46-23** hijk, k132, 23HG, GHIJ, JKWV, WVYX, XYTU, ULNM, MNFE, EF46, 65DC, CDPO, OPQa, aZbc, cfgS, SBRA, A987, 78ih,, def\*g\*, R\*b\*de, I\*K\*Q\*Z\*, 9\*B\*L\*T\*, 1\*4\*5\*5\*j\*.

**47-23** ilkj, jkaZ, ZaOP, PNcb, bced, deTW, WVgU, UfML, LMKF, F7GA, A89I, IHQR, RSYX, XYhi,,, f\*g\*h\*1\*, Q\*S\*T\*V\*, H\*I\*JK\*, G\*K\*N\*0\*, DEG\*J, BCF\*J, 567\*H\*, 34A\*H\*, 127\*I\*.

**52-26** onqp, pqed, dERS, SQgc, cZab, bLfM, M8FB, B9AC, C7JP, PNOT, ThiY, YWxm, mjk1, lUVo,,, f\*g\*h\*i\*, KS\*X\*k\*, IJ\*W\*Y\*, HM\*V\*j\*, GKQ\*U\*, DEF\*L\*, 567\*8\*, 348\*C\*, 127\*B\*, F\*HKR\*, HIL\*0\*, J\*0\*U\*n\*.

**57-29** stvu, uvrq, qr1m, mYzC, cBHL, LIJK, KGdT, T7SA, A89i, ifhg, gOWR, RPQV, VUBj, jkps,,, nop\*t\*, d\*eh\*i\*, ab\*c\*k\*, W\*Xf\*g\*, XZ\*g\*l\*, T\*eno, S\*Y\*ae, MNO\*U\*, EFG\*H\*, CDS\*d\*, 567\*h\*, 347\*i\*, 12A\*h\*, H\*K\*R\*U\*, G\*L\*0\*V\*.

**58-30** wtuv, vMsK, KIJb, bcde, eVWY, WCNB, Bpq7, 76A8, 8Efi, ijk0, olnm, mYza, aGhF, F9rw,,, p\*q\*r\*s\*, f\*g\*hn\*, ghj\*k\*, STUD\*, PQRc\*, LM\*N\*0, DE\*O\*x\*, 9\*A\*E\*H\*, Z\*l\*s\*w\*, 7\*C\*G\*Y\*, RUR\*v\*, 56\*DF\*, 34q\*u\*, 12p\*t\*, QTq\*t\*, 6\*C\*t\*u\*.

**60-33** rsut, tubc, ceiH, HfS3, 3ST4, 4TK0, ONPQ, Q9MU, U2j1, lxym, mCkD, DAWW, VVYX, XYAi, I157, 7gh8, 86nr,,, vwx\*y\*, n\*opq, j\*k\*vw, f\*g\*h\*i\*, de\*pq, Za\*os\*, RS\*T\*U\*, JK\*L\*M\*, EFGH\*, A\*BC\*D\*, BD\*b\*d\*, 5\*6\*FG, 6\*7\*LP\*, 4\*I\*S\*Z, 2\*9\*RU\*, 2\*5\*8\*R.

**60-34** rsut, tuAB, B8HL, LNOM, M6Iy, y7aZ, Zabc, cEUX, XWih, higf, fgVe, e3dG, Gvon, noqp, pqST, TQRP, PFsr,, v\*wxy\*, jklm, d\*exxy\*, Yc\*lm, U\*b\*jk, H\*I\*JK, G\*K0\*w, F\*JN\*R\*, Q\*S\*Yc\*, CDE\*d\*, 8\*9A\*B\*, 6\*7\*DV\*, 45F\*S\*, 3\*H\*L\*v\*, 9B\*U\*c\*, 126\*x\*, 57\*P\*x\*.

## E. 4-dim 300-675

The master set is given in the repository. Particular smaller sets that also belong to the 60-74 class are in IB; See Sec. VII. The first three sets below are the sets obtained by Waegel and Aravind [52], just translated into MMP hypergraphs. They do not belong to the 60-74 class.

**38-19** 4123, 3C6L, LZSE, EDGF, FOVU, URbX, XNWJ, JIKH, HPQM, M794,,, 56\*7\*8, 9\*ABC\*, B5N\*1\*, 80\*A2\*, R\*S\*TI\*, P\*YZ\*a\*, cb\*Q\*G\*, V\*K\*cY, TW\*D\*a.

**42-21** 2143, 36CP, PIOe, eGcW, WVXU, ULdg, gFHa, aRZY, YbfT, TJNS, S8A2,,, 56\*78\*, 9A\*BC\*, DEF\*G\*, H\*I\*J\*K, L\*MN\*O\*, 4\*79Q, 1\*5BR\*, Q\*b\*c\*d\*, EV\*MZ\*, DKf\*x\*.

**48-25** 1243, 36CP, PcdE, eVUX, XQYZ, ZmiE, EFGD, DabO, OMNL, LIhk, kjgR, R5B1,,, 5\*6\*78, 9AB\*C\*, HI\*JK, 4\*79Q\*, 2\*8AS, SJTU\*, R\*V\*N\*W, G\*Hfg\*, Sa\*h\*i\*, F\*j\*d\*l\*, c\*TY\*W, SfM\*1, R\*Km\*b\*.

**211-127** 1234, 5678, 9ABC, DEFG, HIJK, LMNO, PQRS, STUV, WXYZ, abc8, defg, hijk, lmno, pqoZ, rstY, uvwV, xyzc, !"#g, %\$&, ()\*-, /:;3, <=zR, >?Q7, [\]0, \_`'N, { }N, ~`yN, +1}xQ, +2@fQ, +3+4+5:, +6+7+8+9, +A+BXU, +C+D+E-, +F+G+EG, +H'QF, +I+J+K+D, +L+M+N, +O+P+Qe, +R+TQ, +S+TtN, +U+V+WF, +X+Y+5k, +Z+a+b', +c+dqS, +e+f+gl, +h+i+j=, +k+g+WP, +l+m+n6, +o+Q+Gn, +p+q+r+s, +t+u+v~, +w+o&5, +x+s+Ej, +y+D+98, +z+!K, +"#+PK, +1\?j, +\$+#+2j, +%+&+'k, +(+'+T\*, +)\*\*+jP, +-+rcG, +/+M2, +;+s#b, +<+<+f%, +>+?+@#+, +[+q+, +]~+''E, +\_-+'eW, +{+|+}D, +~++1+v+Q, +2+2+3>E, +4+3+nC, +5+&+!L, +6+w+4J, +7+\$+Ba, +7+@%1, +8+u+8D, +9+5+CB, +A+B+5, +B+C+oR, +"i3, +D+b+m, +v+m+2w, +E+F+p", +D+9+i+B, +G+9+(+z, +H+I+6+q, +A+l+T+K, +6+2+2s, +2+/\I, +J[tA, +4+J+7, +K+J+DL, +I]eb, +&+S+NC, +?+:+S, +L+FvE, +M+C+Nu, +EK9, +'ujH, +N+S+D], +0+K4, ++P)L9, +Q+hd0, +4+y+e\$, +d+7[<, +R+E64, +F+B+?8, +P++N+8H, +E+b+MO, +Q+H+d", +^+<+e+K, +R+:h{, +D+}h1, +A+A+4+cI, +K++H%(<, +t+deJ, +G(tH, +S+5a, +C+1t1, +8+(<E[, +S+h!J, +U+m{P, +V+K+a].

**226-142** 1234, 5678, 9ABC, DEFG, HIJK, LMNO, PQRS, TUVW, XYZa, bcde, fghi, jklm, nopq, rstu, vwxy, 2zf!, "#%, 45&9, '(B), \*-A/, 4wE:, 1:\$<, "xF/, 3=>, v@{G, \z(>, v\$A!, ], 9y, ~6/\_, 5'F{, @1%}, w=B<, 2%y, ^C:, ]7!=, z[9^, +1+2+3+4, +5N+6+7, +8+9+A+B, IO+C+B, +D+5+E+4, +F+E+G+H, +I+JV+K, +L+MT+N, +LS+O+K, +P+Q+R+S, +J+TX+U, +P+VW+U, +I+W+R+N, +X+M+Y+Z, +a+b+c+d, +e+fcf, +e+gk+h, +i+j+k+l, +b+mi+n, +o+pei, +qbj+r, +s+tc+l, +ud+d+v, +q+g+w+x, +i+ydg, +s+z+ml, +f+k+n, +e#+\$, +%+&p+, +(+)\*\*u, +-/os, +%(+:+;+, +<+=+?+, +@+[+]+, +^+\_-+'{, +|+>q{, +^+o+pu, +<+(>+], +~+1+1+2r, +/+/3+?+, +1+4+!+, +I++5+, "J"+6+-, +7+8+9+A, +BK++A+, +D+5+C, +7+D+E+F, +G+9+, +8+L+e+, \I+s+, +B+G+L+E, v++H+a+, +I+4+o+, H+9+5+J, +L+6+6+, +7+J+4+C, +W+K+L+, +M+N+p+, +5+Q+g, +6+M+t+, +KP+z(+, 8+Q+z++0, #+X+p+p, w++QS+0, +R+S+}, +T+M+w+, =+9e+U, (+V++W+c, -+X++Y+), \$+Te+[, +T+Vc+, xL+w[,, (+E+m+1, +Z+0+a+, M+We>, 9+bk+c, Fa+x?, +d+em+\, D+Gi++2, C+fxFx, G+AV1, +gYjn, +hT+#+i, E+jg+c, %3a+i, D+f+So, CXkp, +eW+k\*, +fj+?, +d+AY+c, %Uin, A+S1+\*, +6V+x++2, Vgp, +Ym+i, DY+k+:, A+jT?, +d+C+S+x, 9++hZi, F+gf+\*, +fU+d+c, y+H+nr, }+7+1+{, +B+Z+n+, ?+U+\$+], /+K+ku.

**226-143** 1234, 5678, 9ABC, DEFG, HIJK, LMNK, OPQR, STUV, WXYV, ZabY, cdef, ghiR, jkli, mnO, pqfJ, rste, uvwx, yzKG, !tFC, "#K8, %\$q8, &'#o, ()\*M, -/4, '1bF, ;<>, ?@[: , ]\_~, '{ }, ~1+2B, +3+4+5x, +6+7+8+9, +A+B+C%, +D'zq, +EnbJ, +F+G>\*, +H+I+J[], +K+2[], +L+M+N+G, +O+P+QQ, +R+S+T+U, +V+W+G+9, +X+Y+Z, +a+b+c+K, +d+e+U, +f[h7, +g+hhX, +i+j+kp, +l+m+nh, +o+p+q!, +r+s+t+n, +u+v+w+x, +y+z+!/, +#+\$+, +&+(-+A, +-+NdX, +/5\_W, +:++Kd, +<+ma, +E#E, +>+9, +Q+J+4, +\*+!+e3, +?+@+[+], +\+]++9, +~(>w, +'\_+R, +{qTN, +l+DmI, +/++x+d, +}|^L, +w+n:s, +~++1+Us, +2+[dY, +\*+I\$, +3+4+5J, +6+7+8", +9+@+I3, +A+B+CP, +D+E+>D, +F++8+\$>, +]dtm, +Gp16, +H+I+km, +J+K+L+, +M+'xV, +{f+cc, +t+haC, +N++1+>N, +0+Z)i, +E+<+T, +G+<(<, +|+^+@, +P+j+D2, +2+&#+Y, +:+\$k, +7+[vo, +Q+R+<+4, +S+?+!+H, +T+ug, +L+5>V, +N+>j, +C+P+z, +B\*ZO, +U+b+Yk, +R+qle, +V+W+j, +C+~3&, +G+S+8:, +U+"[1, +W++X+\$h, +d+U+Ic, +b+pL, +X+{)1, +Y++ZWG, +a++PtP, +b+b+IyC, +c+c+L5, +d+S+FA, +mf5, +e+f+X+&, +W+j1, +gSOG, +T+Q+4&, +V+??2, +T+M+~8, +g+S+I1, +}{+E7, +7+k+60, +B+&+QZ, +bTHF, +V+bge, +0+bz7, +~+MpA, +0+~"b, +U+q~R, +G+~\$D, +h+Ai2, +i+QnU, +j)n8, +k\*T5.

**240-156** 5678, 9ABC, HIJK, LMNO, PQRS, TUVW, bcde, nopq, vwxy, z!"#, ()\*-, /:;<, =>?@, \_`'{ }, }1~+1, +4+59+6, \_3+7+6, +8+9+C+A, }+B+C+D, +E+F+G!, +E2+CE, +H+I+5+J, +K+LG+D, +M'9+N, 17C|, +M+O~+J, +PM+Q+R, I+S+T+U, +VL+W+X, +c+d+e+i, +gN+h+i, +j+S+e+k, +V+L+R+m, +n+T+a+o, +K+p+q+r, +Y+s+t+u, ILS+v, +wP+W+f, +P+w+v+m, J+s+z+, +l+Q+q+a+i, L+d+!+r, +YR+!+U, HOP+a, I+l+#+f, K+w+t+i, N+T%+m, +Y+Y'+(, WXk++, Wiw+-, +/Zu", :+o+\*+, +;hnt, +<jv", U=+u+, +<i+o, +?+@+[+, +]-<^, +5+6+7+, +8>+9, +~>+A, +?+1+6+D, +E+E/F/?+, +G+2+, +H+I<@, +J+J>+K, +&'+L+7, '+5+=, \$:++M+, +E+E+8+N+, +0+5+P++Q, +@?++R, +a[+b+c, +d+e+f+c, +S+g+b+h, +i+j[j++k, +d+d+n+n+o+p, +W+q+r+c, +s+a+t+t+u, +x+U+y+c, +S+q+]z, +!+m+, +?+i, +H+&+H+d, +8IV+i, +8+n+&, +/++&(+, +VW+H+, +H+YV\$, +K+g+&+i, I+<+\*, 3MY+q, +L+Zb+a, +INC+f, +d+@+j, +SX+I+", +:++/Y+, +S+q+, +9X++;+a, 10Z++<, Mf)+=+, +B+w(++, 1++/F+a, 3+?i@, 2d+\*e, +se+\*+q, 2NX+>, 3+1+I+T, +CQk~, +F+Q+\*+r, 8R++[: , +t+1+G, So+[+n, +]j;+^, +0+p+=+g, +\Q+8+^, 8k+L+n, +Fn[, Rp++J+g, +5+''+J+, 6+Tn++|, {+}p+L, +C+t;+g, +d++[+8[ Pq++G+r, +]hs++Z, +G+~3+m, +7#++N+k, G+z+Q+, +Ww++2+t, +7++2w?, Br=+y, +]++3+2+f, +G+Wt++4, +hv++3+k, 9+e++2+o, +G+!+6+y, +]ay>, B+z+w+m, ~+qu+b, Cs@++t, +#~++=+Z, +ux++M+z, 9t>+k, A+!v+f, +G+vx@, +%++3+4, +1+U++7, +A#++D+u, +J+r+>+h, +6+r-+R, +N+U+++D|, +8z+~+h, +o+>+D++H, +N!++A+p, +k#+/++#.

**253-165** 1234, DEFG, HIJK, LMNO, PQRS, TUVW, XYza, bcde, fghi, jklm, rstu, vwxy, \$%&, ()\*-, /:;<, =>?@, [\]~, \_`'{ }, +3+4+5+6, +7+8+9+A, 1+B+C+D, +F8+G+A, +H9F+D, 5+I+J+K, +8+L+M+N, +O+8+PF, 1+QD+K, +T+L+U, +W+X+Y+D, +Z+B+G+a, +bQX+c, +dPe+e, +f+g+hh, Hzdg, +j+kc+l, +mRc+n, +b+r+i+e, +fMTd, +u+ve+w, +m+gZ+i, +xNWe, KQ+k+q, H+jU+e, LX+h+n, JXef, +g+sb+c, +yo+z+, +#+\$+, +&'+(+, +--+/-/+, jp+; <, +#>+?, +y+@+[+, +\*+]~+, m+'z+, o++2+3+, j+~+[, +4+''+2+, +#+@+]:, +&+6+7%, +8+2+z+9?, lo}++A, m++B+@+, =n+~+C, +\*\*+D+<+, +?+E+~+, v++J++K, "+L@+M, +N++0, x(+P+M, t++Q+R+S, )++T<+U, +V(+J+R, w++X++Y, t)@+K, s++N+z+a, +d%;+M, y)+e+I, +k+l+m+n, +o+p'+q, +r~++s+q, +k+k+|+5, +u+]v{, +u+o++"1, +%%+w+\_3, +f+k+u, +7H++&r, 1=w+k, +o+xu+, +F+b+&+, 4I+4r, +Kx++u, +7+bs+k, +j+r+r, +W+8+''/+, +d+\*++%, +OIy+f, 1++:)r, 4+q+y+%, +\*++:++4+, +f+y+V, +7+dmv, 3+m+d+f, +x\*x+r, Ik'+'+k, +8L+B\*, Op%+w, S+D(+>, +p++"], 6+g++D&, +T+?+\$++o, +j+-!~, +H+u(+t, +Q+po+z, +X+''@, +H+B%+z, 8n-], 5+p+, No+&@, +[\$++N+\, +IZ+X+p, +BY+z+T, a+|+P+1, +[a+j+j], +P+s++^+p, +r+z++L+, 9V+|+L, +B+v+\$+, +k+~+X+\, +Y+~+Q+, 9]+F+, +W+z+!, CZ+E+|, +I+r++6+e, +R+7++;, +G+9+>+y, G+~?/, e>=+, +Cb++9+W, Ed:++y, +M+;=+s, D+q+}+], +~+<{, D++1+3>, +J+[<+, +i+9/|, +R++2+1+s, E+i++7=, +1+1+;\_, b+5?++3, +q+[-Z+yy, +N+1+?++4, +A+c+U}, +w+\|+a+5, +e+?++6+1, +c++A+I+6, +A+e+;+3, +n+\_-+c+2, h!++U+n, +1%++S+4, +D++7++C+4, +8+w+!++6, +U+e+a+n, +B++C+Y], +D++D+<+M+3.

**257-169** 1234, 5678, DEFG, HIJK, LMNO, PQRS, TUVW, XYza, bcde, fghi, jklm, nopq, rstu, vwxy, z!"#, \$%&, ()\*-, /:;<, =>?@, +3+4+5+6, 1+B+C+D, +F8+G+A, +H9F+D, 5+I+J+K, +8+L+M+N, +O+8+PF, 1+QD+K, +T+H+R+S, +F+T+L+U, +W+X+Y+D, +bQX+c, +dPe+e, +f+g+hh, Hzdg, ST+if, +j+kc+l, +mRc+n, +b+r+i+e, +fMTd, IP+s+t, +u+ve+w, Iach, JXef, +g+sb+c, +yo+z!, +#+\$+, +&'+(+, +--+/-/+, +#+@+]:, +&+6+7%, +8+2+z+9?, lo}++A, m++B+@+, +n+~+C, +\*\*+D+<+, +?+E+~+, uz+F/, v++J++K, "+L@+M, +N++0, x(+P+M, t++Q+R+S, )++T<+U, +V(+J+R, u++T+W+M, w++X++Y, t)@+K, s++N+z+a, +d%;+M, u\$++J+0, +k+l+m+n, +o+p'+q,

++r^++s++q, ++k++t|+5, ++f++w++p++m, ++x++l++y+1, ++f++z++!+6, ++u++o++"1, ++%++w\_+3, 3+fk++u, +7H++&+r, 1+=w++k, 2+d++'++#, +0+xu++, 4I++4r, +\*\*Kx++u, +7+bs++k, +-jr++r, +W++8++'++/, +F+d++\*\*%, +O!y++f, +\*\*+o++&+', +0++; jw, +Fku++<, +7+4++d++=, 4++&y++%, +\*\*\*+:+4++(, +++f+y++V, +7+dmv, +FHw++/, 3+m++d++f, +x++x++r, Ik++'+k, +ZP'\, , +8L++B\*, Op%++w, S++D(+>, +p++?"], 6+g++D&, +T++?\$\$++o, +j+-!, +H+u(++, +Q+po++z, +H++B%++z, 5+p+'', ++[+\$++N++\, , +IZ++X++p, a|++P++l, ++[a++J++], +P+s++^++p, +r+z++L++\_, 9V+|++L, +B+v+\$++', +k+~++X++\, , 9+]++F++], ++[W+z++!, +L+k+|++{, +I+r++6++e, +R++7++}, G++~+/?+, e>=++", +Cb++9++W, Ed:+y, +M++;=+s, +J+i++5++g, D+q+}++}, +~^~^<{, Gc;+g, D+++1++3>, +J+[<+", i++9/|, E+i++7=, +++1+;\_, b++5?++3, +q+[++Z++y, +N+1?++4, +A+c++U}, +e?++6+1, +c+A++I+6, +Sg++Y+5, +A+e++:3, +N++C++a}, h!++U++n, +1%++S+4, +D+++7++C+4, +++8+w!++6, +U+e++a+n, +++B++C++Y}, +++D<++M+3.

**257-169** 1234, 5678, 9ABC, HIJK, LMNO, PQRS, TUWV, XYZa, bcde, fghi, jklm, rstu, vwx, z!"#, \$%&', ()\*-,:;<, =>?@, [\]~, '\_{|, \_3+7+6, +8+9C+A, }+B+C+D, +E+F+G|, +H+I+5+J, +K+LG+D, +M'9+N, 17C|, +M+0~+J, +PM+Q+R, I+S+T+U, +VL+W+X, +Y+Z+a+b, +c+c+d+e+f, +gN+h+i, +j+S+e+k, +V+1R+m, +n+T+a+o, K+p+q+r, +Y+s+t+u, +w+P+W+f, +x+y+T+W, +P+w+v+w, J+s+z+o, +l+Q+a+i, L+d++i+r, +SQ+u"+, +YR+!+U, HOP+A, +jL+\$+o, K+w+t+i, N+T++%+m, +Y+Y'+(, Ufx+), Wxk+\*, Wiw+-, '+/Zu", :+o++\*(, +hnt, +j<v", U+u=+u>, +<iор, +/e+'x, +?+@+[+\, +]-<+, +)~+~+1+2, ;'+3+4+4, +5+/++6++7, \*++8>+9, \$+~>+A, %++B++8++C, +?++1+6++D, +'++G++2+~, +\_+@++8++3, &+'++L++7, '+5+=~, \$:+M+|, &+@?++R, +~<+{++C, +W++X++Y++Z, +a[a++b++c, +d++e++f++c, +i++j[+k, +d++n++o++p, +W++q+r++c, +s+s+a+t++u, +x++U++y++c, +!++"++m++#, }+;+?++i, +H+&+H++d, +8IV++i, +8+n+&], +%V+j++&, +?+/&+(, +Wv++H+s, ++)T\_+--x, +H+YV\$, +K+g&+i, I+<'+\*, +B+yh++e, 3MY++q, +L+Zb++1, 1e)-++, +INc++F, ++/d@++j, ++:++/Y-, '+S++q, +9X++;+a, 10Z++<, 1++/++F++a, +IY++5++@, 2d++e, +se++;+q, +CQk~, +F+Q++'++r, 8R++[., +\+t+1l++G, So+[++n, +]j;+~, +\+Tk++J, +5+d++n, +0+p=++g, +\+Q++8++~, 6S+<, 7+to++U, 8k++L++n, +Fn; [R, Rp+J++g, +5+''++J+++, +\+]p++L, +d++[+8[ Pq++G++r, +\]+hs++Z, +G++~+3++m, G+ztt++Q, +Ww++2++t, +vr+{++1, A+v++Q++Z, Br=+y, +}++3++2++f, +G+Wt++4, +hv++3++k, 9+e++2++o, +}+ay>, B+zv++m, ~+qu++b, Cs@++t, +ux++M++z, 9t>+k, A+!v++f, +G+vx@, +%++3?++4, +1+U"++7, +8+o+-+#, +A#++D++u, +9+b++A++A, +B+)++C++C, +J+r++>+h, +6+r+-+R, +N+U++D+|, +E+X!++F, +A+f++A++G, +8z++~h, +1>+C++G, +N!++A++p, +J+f"++I, +k#++\#.

**283-188** 1234, 5678, 9ABC, DEFG, HIJK, LMNO, PQRS, TUWV, XYZG, abKF, cdef, gfsJ, hijW, klmn, opqn, rsje, tuvd, wxyZ, z!01, "#!V, \$%&', ('#N, )\*-S, /:C, <=8, ?@[\, ]\_~, {\|\-, }~&7, +1+2zB, +3+4+5y, +6+7+8v, +9+A+Bm, +8+2~1, +C+D%D%, +EqjM, +BpJE, +F+G+HY, +I+J+K+L, +M+N+L+A, +0+P+N+5, +Q+R+Ss, +T+UR6, +V+W+XY, +Y+Z+a+9, +b+c+d+a, +e+f+gx, +h+i+jb, +k+l-d, +mmVK, +qfZV, +n+o+p+q, +r+s}, +t+uWh, +v+w+xp, +y+z+Xk, +!+"+#c, +\$+%"#+g, +&'+ur, +(+)PU, +\*\*-+I, +:++;+<+, +>+j+Mu, +?+@+Kw, +[+Hxk, +\+]~+i, +\_+'+G', +{+}+w, +~+1+2+2k, +3+z+o', +4+5+S;, +6+Zjg, +7+8+yG, +9++A+44, +B++C+q, +D+E+W+J, +F+G+)+1, +H++I+J)o, +I+R|h, +J+/+ad, +K+@?7, +->\_B, +L++M+A', +N++0++P', \aZO, +Q+t+G:, +R+p+FJ, +S++6+>Q, +T++U+p+V, +V++W+X>, +Y+>+?7, +Z+mDp, +P+o+Hh, +a++C+UN, +b++5nY, +a+~+aq, +c+gif, +B!bY, +d++e+"v, +f++g++J3, +h++i+CP, +j++g++MT, +k++l++L>, +m++G+Y+E, +n+o+p+S, +q++r[+=, +s+x+1M, +b++X#+8, +t++Z+K~, +u+H\_s, +v++a+l=, +w+p+g<, +x++y+D>, +z++!++[ +, +#++\$++S", +%+]P3, +&+3U, +s+R, +(+)+9S, +?+&fn, +R+Q+Xy, +\*\*+-+dC, +/+1+1;4, +:++c+4~, +W+m+18, +W+3+!+3, +V+\$+6, +<+B2, +<+F+k+j, +e@/, +9+4aW, +H+'+wL, +p++L+E+, +G+C+5, +>+eb, +M+v+2Y, +:++H+a, +v+a0, +Vt1b, +1+1+g+1, +?++@+Kr, +u+Q?i, +rQ, +D:k, +v+-+G5, +X+c+H3, +r++a+9, +8#+d@, +)zpX, +U{&u, +E+q+G", +}++/a, +e+>~f, +2uiD, +~+r+C<, +b[9, +`+>+6, +{}+U+u+k, +}++~\*1, +1++~+";, +2++a+w%, +3++4+4K\, , +o++D+2L, +|+N|v, +p++N#, +4++[\*E, +/++T+T=, +@+i{, +@+r+r+B?, +g+E:T, +K]fF, +\++"++Yi, +ib9, +(++)bE1, +1!o1, +~+6w, +p@5, +4++T#7, +5++0++&m, +6++7+ky, +7++\+h~, +8+7#X, +b+Azf, +9++P\*e, +A+|+3t, +B++b%K, +CuC8, +D<-r.

## F. 4-dim 148-265

The master set is given in the repository.

**49-28** 4132, 2gNf, fhYL, LFKJ, JBm1, 1DPe, ecDV, VTU8, 8567, 7QRs, SZab, bCk4,, 5\*9AB\*, 5\*C\*D\*E, F\*GHI, MN\*OP\*, W6\*XY\*, Z\*9GN\*, Z\*EL\*V\*, c\*C\*J\*N\*, h\*D\*Gi, 3\*a+J\*i, 3\*EHO, jd\*K\*0, 4\*AL\*P\*, 1\*f\*Hk\*, na\*IP\*, nEg\*m\*.

**49-29** 3142, 2McC, CDE5, 5FHG, GZaX, XWYP, PQSR, Rn6K, KILJ, J1T8, 8fNh, hBd3,, 5\*6\*78\*, 5\*9AB\*, I\*M\*N\*0, P\*T\*UV, Z\*D\*N\*U, b9J\*c\*, b7d\*U, 2\*8+eS\*, f\*AgQ\*, f\*F\*iY\*, 3\*6\*0V, 3\*D+J\*Q\*, j9eV, jE\*K\*h\*, 4\*9N\*R\*, 4\*H\*kW\*, 1\*A0m.

**52-29** 4231, 1675, 5hUK, KIJL, LaeZ, ZXYW, WNRA, A9B3, 8CED, Dmnk, kfVl, LG04,, 8\*FG\*H, I\*MN\*0, PQR\*S, PTU\*V\*, a\*C\*bc, a\*G\*dU\*, 2\*f\*J\*c, 2\*HgZ\*, 3\*FL\*V\*, 6\*+eij, k+HK\*j, 7\*D\*L\*+, 7\*HbT, pfiq, ph+go\*, 4\*C\*K\*q, 4\*+e\*m\*T.

**53-32** qorp, pKML, LGPX, X34S, SQRT, T0kD, DCWZ, Zyga, aIJd, dchb, bAH, BN17, 75e6, 612q,, lmnrs\*, i+jk\*n, e\*fg\*h\*, X\*d\*k\*q\*, UVW\*c\*, N\*0\*P\*r\*, H+j\*W\*f, EFG\*e\*, 9H\*Y\*j, 8M\*+e+k\*, 4\*Fjp\*, 3\*Ea\*n, 6\*L\*R\*n, 2\*k+S\*i\*, 7\*VX\*m, B\*EQ\*q\*, 2\*D\*Fm, I\*S\*+e\*r\*.

**43-32** rpqs, sLMK, K5Ej, j7Jc, c4Cm, mAGk, kWU, U6In, n1FQ, QPDp, ROSX, XYei, ighf, fDbr, , m\*n\*os\*, j\*k+lr\*, b\*c\*d\*ee\*, Zalo, S\*T+j\*n\*, NO\*c\*h\*, I\*J\*M\*Y\*, G\*HL\*T, F\*ac\*q\*, E\*F\*Hg\*, BC\*Tp\*, 9A\*S\*g\*, 8S\*W\*q\*, 7\*G\*Q\*Z, 7\*V\*g\*s\*, C\*I\*g\*1, 230\*r\*, 8E\*Y\*m\*.

**55-33** 4132, 2CZT, Tk9M, Mjfp, pBKU, UqlN, Nt6h, hgbH, HGIF, FPQR, RsAV, Vr70, OonY, YSXW, WEc4,, 56\*7\*8, 59\*A\*B\*, 5C\*DE\*, F\*JK\*L, F\*M\*N\*0\*, S\*T\*U\*V\*, ab\*c\*T\*, adI\*e, 3\*Dg\*f\*, g\*dZ\*W\*, ij\*Q\*X\*, iB\*0\*e, k\*1\*R\*e, mn\*P\*T\*, r\*9\*Q\*h\*, r\*1\*jW\*, s\*n\*K\*h\*, t\*j\*L\*V\*.

**55-34** 3241, 1576, 69pn, nmKC, COak, kHf1, ltgs, sJeq, qcrB, BNWh, hGji, i8bo, oITQ, QRS3,, 2\*8\*9\*A, 2\*B\*C\*D, 2\*EFG\*, 2\*H\*I+j, 3\*K\*LM, 3\*N\*0\*P, 4\*T\*UV, 4\*W\*XY, 4\*Za\*b\*, 5\*Fc\*a\*, 5\*de\*f\*, 5\*g\*S\*V, m\*EPb\*, m\*Ac\*X, 6\*B\*Mb\*, 6\*G\*0\*X, q\*9\*PY, 7\*Elr\*, t\*8\*0\*r\*, t\*dR\*U.

**56-33** ghqi, iMYN, NF1G, GCHp, pVmW, WbsS, SUnt, TDaQ, QOPR, RKLe, edfc, cAjB, B9Zt, tJoI, IXkg,, rs\*t+u, n\*o\*p\*q\*, j\*k+1\*m\*, Z\*a+b\*f\*, X\*Y\*p\*u, U\*i\*m\*t\*, T\*h+1\*u, H+j\*L\*h\*, Ed\*k\*n\*, 789\*X\*, 56L\*m\*, 6EP\*u, 4V\*g\*r, 3B\*0\*V\*, 2M\*T\*V\*, 2P+j\*q\*, 5F\*q\*s\*, 1F\*U\*X\*.

**56-34** 4132, 2Dgc, cWbh, HGIF, FJLK, Kdsr, rZpa, A59B, BteN, NMPO, OQST, T8li, ihnm, mCq4,, 5\*678\*, 5\*C\*D\*E, Q\*6J\*R, Q\*EUv, W\*9\*Xr, W\*YZ\*a, 2\*d\*e\*R, 2\*A\*f0\*, 2\*h\*I\*V, i\*d+jp\*, i\*A\*j\*k, 3\*B\*K\*1\*, 3\*EH\*n\*, o9\*L\*p\*, 4\*7jp\*, 4\*YJ\*N\*, r\*8\*XN\*, t\*S\*L\*p\*, t\*ug\*q\*.

**60-35** 2341, 19A8, 8pqQ, QEsR, rDPV, Vkno, ovCS, Sxyd, d6Wa, aZbB, Befc, c5YG, GutR, RgLJ, JHI2,, 1\*5\*6\*7, 2\*B\*C\*D\*, 2\*E\*FG\*, 3\*KL\*M, 3\*NOP\*, 4\*Q\*E\*S\*, 4\*TUV\*, 4\*W\*XY\*, hH\*Mi, jI\*KT, k\*B\*NQ\*, k\*Flm, r\*d\*t\*m, 9\*E\*o\*i, 9\*d\*NT, v\*G\*Nw, x\*E\*OU, x\*D\*q\*w, A\*B\*t\*U, A\*FP\*S\*.

**61-36** 3241, 1576, 6UOV, VxR9, 9Itw, wFrZ, ZYab, bghf, fJei, inol, ljdk, kCup, pcq8, 8HQK, KLM3,, 1\*8\*9\*A, 1\*BC\*D, 1\*EF\*G, 2\*H\*I\*J\*, 4\*N0\*P, 4\*Q\*R\*S, 5\*T\*K\*N, 7\*WXP, Y\*c\*d\*e\*, j>J\*a\*m, Bo\*r\*Q\*, BI\*L\*s, Ek\*t\*Q\*, EJ\*M\*q\*, C>J\*vR\*, F\*H\*Xu\*, 9\*o\*M\*u\*, Gx\*K\*y, Ak\*L\*z, DH\*V\*z, Dc\*t\*y.

**61-37** 3241, 1576, 6VeH, H8WZ, ZpEQ, QAcJ, JuUa, aqR9, 9ITt, tCLo, onk1, lGmi, ifhg, gBrP, PNO3,, 1\*8\*9\*A\*, 1\*B\*C\*D, 2\*E\*FG\*, 2\*H\*I\*J\*, 2\*KL\*M, 3\*Q\*R\*S, 3\*T\*U\*V\*, 3\*W\*XY, 4\*Z\*a\*b, 4\*c\*de\*, f\*jT\*k\*, p\*q\*V\*r\*, 5\*sT\*Z\*, 9\*E\*Ye\*, A\*FV\*b, vvYb, vn\*h\*x, 7\*I\*Sb, DMN\*c\*, yKO\*z, yg\*o\*c\*, yjm\*x.

**115-78** 1234, 1567, 189A, 1BCD, EFGH, EIJK, ELMN, EOPQ, ERST, UVWX, UYZa, bcde, bfg, bijk, blmn, opqr, ostu, vwtk, vxqy, vMz!, vK"m, #\$Y!, %L&, %J(!, 2)\*j, 20-1, /:u, /R<1, =>r, =G@j, =[u, ]>k, ]QWm, \_`k, \_H{|, \_|<!, 3:@|, ~:+i, ~P+2n, 4SXn, +3FY+4, +3+5+6+7, 5>(+4, 5GZ+7, 5[&+8, 5Q+9h, +AF&+B, +A+5(+C, 7+5a+D, 7:z+E, 7Pte, +F>+6+G, +F[Y+E, +H'Z+G, +HH(+E, +H)+9e, 8N~h, B+I<+4, B+JX+8, BJ{+K, +LM@+K, Cw+2+B, Cx+-C, +MpX+B, +MI;+N, +MN{d, 9+0V+C, 9L\+N, 9J?f, +P+IW+G, +P+0+2+D, +P+J-E, +PL\*g, AxX+D, AM;e, DsV+E, DI@g, D\$@e.

**130-80** 1234, 1567, 89AB, 8CDE, 8FGH, 8IJK, 8LMN, 8OPQ, RSTU, RVWX, YZab, Ycde, Yfgh, Yijk, 2lmc, 2noi, pqrg, 3sth, 3uvu, xyzd, x!Wj, "l#\$, "Gvk, %q&e, %'mf, %()k, 4\*r\$, 4y-f, 4F/:, 4:Xk, 4!<=, >?@g, >ISi, >P[\, >N]\, , 5A\_g, 5L'i, {B|}, {0~i, {M+1\, , 60]w, +29+3h, +2I+4w, +2NTj, +5LUw, +5Q+1j, +6L[: , +6J]k, +7+8\$\_, +7OT:, +7K':, 7I:1:, +9?+A+B, +9Ev+C, +DBX+C, +E+8v+F, +EDV+G, +E0tb, +HI&b, +IA+G, +IQr+J, +KC+A+L, +MD)+N, +09/+L, +OE<+P, +OP+Q+R, +ON-Z, +S+S+T, +S;@a, +Us~+T, +Uu+V+W, +U(+Xa, +YqS+G, +ZF+3b, +Z!+\_J, +alU+F, +bl+[L, +b+c+dZ, +e\*+1+L, +ey~+P.

**131-90** 1234, 1567, 189A, 1BCD, 1EFG, 1HIJ, 2KLM, 2NOP, 2QRS, 3TUV, 3WXY, 3Zab, 4cde, 4fgh, 4ijk, 4lmn, 4opq, rKsf, tuvl, t0wx, yz!", yM#g, yu\$%, &K", &()% , &P\*m, -/wm, :#j, :L!h, :<s, :>n, :?0'h, ?0)n, [\]n, [Pv^, 5\_bk, 5'Tl, 8R{x, 8|V}, ~+1+2%, ~RT+3, ~|Xm, 9'Y%, 6+4+5", 6+6+7i, 6QV%, 6+8W+3, 7+1U+9, 7RYn, 7|+A~, +B+C+5h, +B\_+7=, BS!+D, E+4+Eo, E+F)+G, +H+Ivo, +H+J+G, F+I\$+K, F+J+Lp, F+1+M, FRs+N, +0+C+E+P, +U'+'+M, +OS+Qd, C+4]+K, C+6v+P, +R+8!e, D+S)q, D+1+Q+T, DR'e, G+C]q, G\_v+U, GS+V+W, +X+Y+Z, +XPb+D, H<Y+G, H>a+Z, +bu+7c, +b0a+Z, IMXp, IO+c+N, +dKY+K, +d\Z+N, +e<{p, +e/ad, +f<T+U, +f/f+c+W, J(a+T.

**146-97** 1234, 1567, 189A, 1BCD, 1EFG, 1HIJ, 1KLM, 2NOP, 2QRS, 2TUV, 3WXY, 3Zab, 3cde, 3fgh, 3ijk, 4lmn, 4opq, 4rst, 8ucv, 80wx, 8yz!, BP"#, 9\$%&, 9P'(, CN)\*, C-c&, C/w(, C:<, 6S=<, D%?<, DS@o, A/[?, A]=], A:Zo, ^\_k#, ^~{p, ^~VY|, E~+1#, E+2+3p, E+4+5l, +6+7jx, +6+8h#, +6+9+A|, F+7f&, F+8+B(, FU+C+D, F+9{<, +E\_g(, +E+F+5q, +G+2+H+D, +G+4X<, +I+Jk+K, +IT[], +L+Mg+N, +L+0+3], G'+A+P, +Q+Ras, +Q+F%1, +Q'+'+S, +QVe+T, +U+J; s, +U~b+V, +W+8+X+V, +W+0[1, +Y+7@+Z, +YU%+a, +b+F)+c, +b'c+a, +d~+=e, +d+2[+a, +f}a+g, +f~@r, +h+7b+i, +h+8zr, +hU)n, +h+9c+j, +k+l+=g, +k+R+X+i, +m:k+T, HuW+n, Hyil, KQ+ol, I+p+Bm, L\+1+c, LRi+a, +q0+H+Z, +qyh+c, +q+r+o+a, +qSjm, Mu{+g, +s\$+5+i, +sPWr, +sQg+t, +s+u+1n, J-+A+i, JRhn.

**147-96** 1234, 1567, 189A, 1BCD, 1EFG, 2HIJ, 2KLM, 2NOP, 2QRS, 3TUV, 3WXY, 3Zab, 3cde, 3fgh, 3ijk, 4lmn, 4opq, 4rst, uvwx, yzc!, yL#, y\$%1, &P'b, (M)\*, (-/:, (;Z<, =>c?, =v%<, =@am, [\$b:, [\]m, ^z)\_, ^Le', ^0/n, {}`', {P%~, +1N]+2, +1vbn, +1@+3~, +4+5Xx, +4+6+7', 5H+8!, 5+9g#, +A+Bh+C, 6+D+E+F, 6+Bj\*, +G+H+8?, +GQY:, +IHH+F, +I+J+Km, +LHj\_, +L+9+E', +L+Mf+N, +0+B+8+N, +0+PU+2, +U+QYn, 7Ji+N, 7+6W~, 8+Hw+R, 8J/t, 8Q+S+T, +U+9a+R, +U+M+Vt, +UR"+W, +X+P+Y+T, +X+Qd+W, +XS+Z+a, +b+D+/c, +b+Pe+d, +bS)+e, +f+5c+g, 9+9+3r, 9R+Y+g, +hHws, +h+MZ+i, +h+j)+k, +h+J+S+1, A+Q)+m, ASC+l, +nQd+k, +n+5+Z+m, +oKTo, +ovj+W, B+pYt, E;+q+w, EPh+a, F>+rr, +szV+c, +s+p+Kp, +s\$h+d, +s0i+g, +s\+q+e, +t+uUs, +t|Yq, +tM+r+i, D+vW+i.

## G. 6-dim 236-1216

The master set is given in the repository.

**34-16** XTUVWY, YDEIRF, F34AN9, 9587J6, 67J2CX,, QR\*SW\*X\*Y\*, KLMN\*OP, GHI\*J\*OP, J\*MN\*PSV\*, BC\*F\*U\*X\*Y\*, A\*J\*SV\*X\*Y\*, C\*E\*I\*J\*OY\*, 2\*4\*8\*F\*HM, 1D\*LQX\*Y\*, 1BK\*T\*X\*Y\*, 3\*5\*E\*GJ\*O.

**35-16** LYMNTO, OTCDSI, ISGJKH, H67VWQ, QW1P5, 54BUYL,, U\*V\*W\*XY\*Z, P\*Q\*R\*S\*T\*Z, EFN\*O\*S\*Y\*, D\*J\*K\*R\*S\*X, 89AB\*M\*Y\*, 7\*EFG\*S\*U\*, 239AFY\*, 6\*C\*N\*P\*V\*W\*, 1\*34\*EU\*Y\*, 28U\*W\*Y\*Z.

**36-18** RSTQu, UFGHZP, P13KL2, 2L5CEX, X70WYB, B9ASTR,, VW\*X\*Y\*Z\*a\*, MNO\*P\*T\*U\*, IJK\*L\*S\*a\*, C\*DE\*H\*L\*Y\*, 7\*8A\*B\*S\*T\*, 69\*E\*Q\*X\*Y\*, 8B\*DH\*K\*Y\*, 3\*45\*JU\*Z\*, 4DG\*IU\*Z\*, 6C\*0\*VX\*Y\*, 8A\*NVX\*Y\*, 1\*F\*K\*L\*MP\*.

**37-16** aWXYzb, bMNOPV, VQTUSR, RSDIJH, H89ABC, C567Ka,, I\*J\*K\*La\*b\*, FGH\*L0\*P\*, D\*ET\*U\*Z\*b\*, EFGJ\*N\*Y\*, 347\*B\*H\*I\*, 246\*B\*H\*X\*, 13A\*B\*H\*L, 129\*K\*W\*a\*, K\*M\*Q\*W\*X\*b\*, 5\*8\*J\*Y\*Z\*a\*.

**37-17** WxbyZa, a56BUa, ABU789, 934CLF, FEGRHT, TDNXBW,, U\*V\*Y\*Z\*a\*b\*, PQR\*ST\*V, MN\*OST\*V, IJKL\*T\*b\*, C\*D\*G\*H\*OT\*, 24\*6\*U\*Y\*Z\*, E\*JKQT\*U\*, 123\*IKL\*, 158\*+IJL\*, 7\*IMPT\*V, 7\*c+F\*L\*T\*V.

**37-18** aYZbXW, WXFGL, L1JVKH, HVCRSA, A13MNT, T2PQU4, 45780a,, Q\*R\*S\*T\*U\*V\*, P\*V\*Y\*Z\*a\*b\*, M\*N\*O\*X\*a\*b\*, G\*J\*K\*0\*V\*b\*, DE\*F\*U\*W\*X\*, BC\*I\*W\*X\*Z\*, 8\*9A\*T\*W\*b\*, 67\*9A\*S\*T\*, BDP\*Q\*V\*Y\*, 2\*3\*5\*A\*N\*T\*, 1\*6A\*N\*R\*T\*.

**37-19** YabWXZ, ZHIJLK, KLABVP, P48MNQ, QDEFGC, C7RTUS, SU6abY,, R\*5\*T\*U\*V\*b\*, M\*N\*OP\*Q\*a\*, B\*F\*G\*Q\*V\*b\*, 9E\*OP\*Q\*Y\*, 7\*8\*F\*G\*N\*Q\*, 6\*9E\*OX\*Y\*, A\*I\*J\*T\*U\*b\*, 5G\*H\*V\*W\*b\*, 234\*N\*P\*Q\*, 136\*9D\*X\*, 126\*S\*U\*V\*, 5F\*R\*U\*V\*b\*.

**39-17** UtDwxV, VRcJN1, IJNMBh, HLQPS1, 1S26BA, A4589E, EDFaZG, CZKYdU,, Y\*Z\*a\*b\*c+d\*, OP\*Q\*R\*S\*X\*, K\*L\*M\*N\*S\*W\*, B\*CF\*G\*Y\*a\*, 6\*78\*9\*A\*C, 2\*35\*7A\*d\*, 1\*4\*D\*G\*N\*a\*, 1\*G\*0T\*a\*d\*, 3N\*S\*a\*b\*c\*.

**39-18** SWTXVU, UV6CR7, 7R34Qd, d12BZP, PZEacJ, JMNLOK, KLOib5, 58DYWS,, Y\*Z\*a\*b\*c+d\*, P\*Q\*R\*W\*X\*d\*, GHI\*N\*O\*c\*, D\*E\*FM\*0\*c\*, 9AB\*C\*U\*V\*, 8\*FO\*T\*V\*c\*, 2\*3\*4\*R\*a\*d\*, 6\*A0\*Y\*b\*d\*, 1\*9S\*U\*V\*X\*, GHQ\*R\*U\*W\*.

**44-18** MNCPOQ, OPQ9iL, LiVghW, WHIJBk, KbEFGa, aUBCDa, ABCD52, 236YZ4, 4YZ1X,, defg\*h\*i\*, X\*Y\*Z\*a\*b\*c\*, RSTU\*V\*W\*, 8D\*I\*J\*V\*b\*, B\*CF\*G\*L\*f, 7E\*H\*U\*b\*, 5\*6\*9\*N\*Y\*Z\*, 1\*3\*deg\*h\*, 78A\*U\*b\*d\*.

**44-19** XYacbz, Z123g6, 6g78VU, UVRSTW, WEFKLG, GBCJhD, D4AIiN, NiOPQM, M5YacX,, defg\*h\*i\*, HI\*J\*K\*L\*W\*, 9A\*F\*L\*Q\*W\*, 5\*8\*0\*P\*S\*T\*, 3\*7\*N\*Q\*ef, 4\*HL\*a\*b\*c\*, 9E\*W\*Y\*Z\*c\*, 1\*2\*L\*R\*b\*g\*, L\*W\*X\*c\*dh\*, B\*C\*M\*0\*P\*d\*.

**48-18** bcdedg, g8YzhA, A7BCTH, HIJKUL, LFGWQP, PQOVNM, MNRSE6, 6E459b,, h\*ijklm, XY\*Z\*af\*g\*, R\*S\*T\*U\*V\*W\*, W\*ae\*g\*lm, B\*C\*DE\*jk, 9\*A\*c\*d\*g\*i, 7\*A\*G\*0\*W\*g\*, 4\*5\*6\*8\*DX, 6\*DF\*I\*J\*K\*, 123H\*Q\*W\*.

**48-19** XYagmZ, Z29ckj, jBMNOL, PIKTeJ, J5DEd6, 637bVU, UVQR1W, W14YaX,, hij\*k\*l\*m\*, b\*c\*d\*e\*f\*g\*, ST\*U\*V\*W\*1\*, CD\*E\*FGH, B\*FGHK\*k\*, 7\*89\*Aj\*k\*, 3\*4\*Aj\*k\*m\*, 6\*R\*a\*b\*c\*g\*, 1\*2\*8Q\*a\*1\*, 5\*C1\*Sc\*g\*.

**51-19** bajdec, cdeYZX, X78RSL, LGJKIH, HI6QhV, VTUWio, o123nD, D9ACpF, FpEfgb,, klmn\*o\*p\*, f\*g\*h\*i\*j\*p\*, R\*S\*V\*W\*h\*o\*, MNOPQ\*W\*, BC\*D\*Z\*a\*p\*, 8\*A\*D\*E\*Y\*p\*, 7\*9\*BL\*T\*U\*, 56\*D\*J\*K\*i\*, 47\*G\*OPi\*, 45MNh\*p\*.

**54-20** ecdfmq, gMNOPs, s5BCrR, RQVWXU, UVWXST, T6D897, 7894Ak, k1231F, FEGHLK, KLIJle,, nopqr\*s\*, hi\*jk\*l\*m\*, YZabf\*g\*, A\*B\*C\*D\*br\*, G\*H\*J\*d\*m\*q, I\*e\*f\*jm\*r\*, 4\*5\*9\*Q\*hi\*, 2\*3\*eg\*ghq, 1\*E\*bc\*r\*s\*, 1\*6\*9\*F\*S\*e\*.

57-21 lmnovp,pUVZat,tJKLYq,q12349,95678u,uMNPSc,cbdejk,k0QTgr,rBDsml,,q\*r\*s\*t\*u\*v\*,fg\*hij\*k\*,WXY\*Z\*a\*u\*,RS\*T\*hik\*,P\*Q\*d\*e\*k\*s\*,HKI\*L\*V\*o\*,EFGWXo\*,CD\*HIJ\*n\*,9\*AB\*CS\*U\*,AEFGo\*t\*,M\*N\*Rn\*t\*u\*,0\*b\*fk\*n\*v\*.  
 59-22 wstuvx,xUVWXD,D9AkCB,BC5IJn,nmoqrp,pqregf,f8KQaZ,ZaYbdc,CNSTON,NOLPiw,,hi\*jk\*lx\*,U\*v\*w\*X\*g\*o\*,P\*Q\*RS\*T\*d\*,K\*L\*b\*f\*f1w\*,EFGHI\*j\*,678\*L\*Rj,5\*b\*d\*m\*q\*r\*,67L\*M\*Y\*h,9\*A\*K\*e\*r\*v\*,Y\*b\*c\*k\*q\*x\*,1234k\*w\*,5\*Hln\*y\*w\*.  
 60-23 tuvwyx,xyKMTL,LCDFSR,RSPQsr,rsopqn,n34AEN,NOcdeb,bcdefg,gWYZaX,XaGHIi,ihklmj,jklmVU,UJuvwt,,T\*V\*Y\*Z\*a\*f\*,E\*F\*M\*T\*U\*q\*,A\*BI\*j\*0\*h\*,BD\*K\*Q\*o\*p\*,6789J\*V\*,H\*K\*T\*U\*V\*a\*,5C\*H\*P\*T\*U\*,3\*4\*C\*G\*P\*W\*,12BD\*F\*V\*,3\*4\*5A\*N\*a\*.  
 61-23 klmnpo,opghij,jMOPVN,N45Krq,q3RSvA,A678y9,912uzW,WxYZaX,XYZasf,ftcdeb,bcdeUH,HFGLlk,,u\*v\*wx\*y\*z\*,q\*r\*s\*t\*y\*z\*,QR\*S\*TU\*V\*,K\*L\*0\*P\*V\*n\*,IJV\*h\*i\*m\*,BCDETz\*,A\*H\*V\*wy\*z\*,3\*CDEr\*z\*,A\*F\*G\*M\*g\*w,4\*5\*9\*IJu\*,1\*2\*9\*BQz\*.

## H. 8-dim 120-2024

The master set is given in the repository.

37-11 789A56CB,BCDEFIHG,GHWXYVRP,PROQ3487,,,123\*4\*5\*6\*7\*8\*,JKLMNI\*A\*C\*,STUV\*Q\*R\*MN,ZaY\*ULF\*28\*,ZaX\*TKE\*17\*,bJD\*I\*9\*A\*B\*C\*,BW\*SO\*R\*I\*A\*B\*.  
 38-11 IMHKLGJ,Jax9A35Z,Z5YPBC4T,TUQRE7VS,SVcbWOMI,,,123\*4\*5\*67\*8\*,9\*A\*B\*C\*DE\*FG\*,NO\*P\*Q\*R\*M\*F8\*,W\*X\*U\*V\*K\*L\*D6,b\*a\*Y\*V\*O\*I\*25\*,c\*NO\*H\*I\*M\*18\*.  
 39-11 26134578,80PJDFGC,CDFG9ABE,EcdbUQHZ,ZaXYTM62,,,H\*IJ\*KF\*G\*7\*8\*,LM\*NKE\*G\*5\*6\*,Q\*RS\*T\*P\*N4\*6\*,U\*VWX\*Y\*I3\*8\*,b\*WS9\*A\*B\*E\*1\*,c\*d\*a\*VRO\*LF\*.  
 40-11 FGHIDEKJ,JKLMPQON,NOdeX26Z,Z6YTU4ba,abcRS38W,W8VBC7GF,,12\*3\*4\*56\*7\*8\*,9AB\*C\*D\*E\*F\*G\*,R\*S\*T\*U\*P\*Q\*H\*I\*,X\*Y\*9AF\*56\*,d\*e\*c\*V\*L\*M\*18\*.  
 41-11 27135684,48WXYUMV,VZQNcdPb,bcdPJKCB,BC9DEFGA,AefaSI72,,,HI\*J\*K\*LM\*F\*G\*,N\*OP\*E\*5\*6\*7\*8\*,Q\*RS\*TU\*OP\*D\*,Z\*a\*X\*Y\*TL3\*7\*,\*f\*f\*W\*RH9\*1\*8\*.  
 42-11 9ADEFGCB,BCdYU25a,a5bZV4LK,KLIJMNOH,HcPQfg6e,efg6T1A9,,,1\*2\*34\*5\*6\*78,P\*Q\*RSO\*F\*G\*8,T\*U\*V\*WXN\*E\*7\*,Y\*Z\*WXSM\*D\*6\*,c\*d\*b\*RI\*j\*35\*.  
 43-11 23451876,67YWXRLZ,ZghJdefc,cdefABC9,9ABCEDFD,DabK3452,,,HIJ\*K\*L\*MNG\*,OPQR\*SNF\*8\*,TUVW\*X\*SME\*,h\*f\*Y\*VPQI1\*,g\*f\*a\*b\*TUOH.  
 49-13 12346785,56789ABC,CTVWXLMU,UgeDijkh,hijkabcZ,ZabcYdGS,SNOPQR21,,,D\*EFG\*HI4\*8\*,JKL\*M\*HI3\*7\*,e\*fd\*X\*R\*EFB\*,g\*fV\*W\*P\*Q\*JK,lmnI9\*A\*7\*8\*,lmnY\*T\*N\*0\*I\*.  
 52-13 DE9ABCFF,FGRSTUQP,PQ12IJKH,HIJKLMN,NOjklhim,mopgde8n,nq56WXYY,VWXYzaED,,,1\*2\*345\*6\*78\*,bcd\*e\*T\*U\*B\*C\*,fg\*h\*i\*Z\*a9\*A\*,q\*o\*p\*l\*fbc7,j\*k\*R\*S\*L\*M\*34\*.  
 52-16 56123487,789ABCDE,EFGJKLIH,HiPfg0ih,hijkobRn,nobReaSX,XSTUVW65,,,MNO\*PQR\*S\*L\*,YZa\*b\*X\*R\*J\*K\*,cde\*b\*PQI\*D\*,f\*g\*h\*i\*j\*k\*V\*W\*,lm0\*H\*B\*C\*5\*6\*,p\*o\*e\*a\*b\*I\*D\*E\*,lmf\*g\*j\*k\*9\*A\*,qmYZU\*F\*G\*A\*,qlcdT\*MNA\*.  
 100-48 12345678,9ABCDEF8,GHIJKLMF,NOPQRSM7,TUVWXYZ6,abcdefKL,ghijkfZS,lmnopqSE,rstuvkeZ,wxyeXYLF,z!vqcdS6,"#!ujR6,%&'(eYQ,) \*ikQJ45,-!/yvkWD,:<WD37,>tbdeQL2,?yebeWZC,@[\]<pqK,^>\*qiQJE,\_\$ujZC68,'{}\*xdLB,~}];=\$zI,+1<(opVZ5,+2+3)(nQM2,\sHMKCF7,+4+5#rhRA,+5)mnokUS,+6sniaKM7,+3\=slqdT,^\fUYKF7,+7'"mgOBE,+1\*{OBE1,{}\^uvE,}^>wvqP,+8\_:\_;<wo3,+5|;sna17,+7rsvVZOM,\_:&moM38,'{}?WZBC,=<qhiZSA,+9+4] =AC4,+6xYP4678,+A+4:=#\$i7,+6[]oYI48,|(!xsdrB,+7+4+5\$nL26,+7;<=hbWZ.

110-54 12345678,9ABCDEF8,HIJKLM8,OPQRSNFG,TUVWXYZN,ZabYSEG7,cdefbxsm,ghijefD6,klmnijf6,opqrstgh,uvwxfW57,yz!xtVWL,"#\$%&'nC,()\*-dMBF,:cUXAC4,<ndfXRS,=>WQKLN8,?@[!xjfb,\]^'xN67, @\_\*[rsAB3,'{};<nRL,}~{|[bPM,+1+2\_-\*:z-wz,+3+4+1+2zwmW,|\*-qt1MF,+5+6+7+8+jG9G8,+9+7+8+jG48,+A+5+6^)zQ7,+B+C+A[iYQB,+40['xsxB, +Dzprkmij,+E+D'^<vn92,~ythVWXY,?pqmIF15,+E+8+2~vhVW,+AwnjXOKN,+F+E|c0AF3,+2}zpmiWQ,+F}|niaOA,+G+F+9>y!18,[>y!r9C8,+H+6+3?=qm1,+7]('psmJ,+I+H+6}yX09,+A|oqstln,+J~]^\$'D6,+D\$zoprt9,]=-'xVON,+I+HxJOK34,+K+4[<ywxs,\pqthWXK,+K+D+4(#\$eM,+I'/"y!WL,|>seabL5.

120-58 12345678,9ABCDEF8,GHIJKLMF,NOPQRSTE,UVWXYZT, ZabcQRD, defghijk,lmncJKL, opqr4567,stuvwYCF,xyznjkKB,!riXIAF,%"#yzWPT,&'(yzORD,)\*-/:ghP,;=>wqhH,?=>"z038, @[\]GHJK,^\_vbUV38,`{[<(whH,|(OQLRDE,}\*-\*:/xu2,~>yvqrVO,+1?:hXMF7,+2+3+4<>va3,+5+6+7+4?:yg,+8+9+A/\ufG,|;twWYC,+B+C+D+3{'V9,+E[('wmjG,+F'-/xn26,+7:yrgZP,+G+H+I+J+4!pI,+K+J+DxkVM7,+L@?XRS6,+A+30>\*sph,+M+6)gkaGL,+5+2~'/vJAC,+C{\_

## I. 16-dim 80-265

The master set is given in the repository.

72-12 123456789ABCDEF8,HIJKLMNOPQRSTEGF,UVWXYZZabcdefghST,ijklmnopfghOPQRT,qrstuvwxyzdeMNPQR,wxz!uvpcenRABCD,"#!stvpZabcdeNQ,%&'(yzrlmYhP89CD,)\*-#vXbcdKL567G,\*-(qjkWhIJP347G,)%&"wxUVBHT12CD, tuopHJLMNQQRST7F.  
 72-13 123456789ABCDEF8,HIJKLMNOPQRSTUVW,XYZabcdefgVWDEFG,hijklnnegfUW9ABC,opqrstuvwxyzST78FG,wxz!tuvmnRT56BC,"#\$%rsabNOPQ34FG,&'(!qvjk1XYZfgMW,)\*-(\$%!qulZgKLPQ,)\*-%z!quiJLPQ2C,-("yhlZgIKPQ1B,)-%'x!pqlZfHLQT,)\*-(&!oquvlZgKP.  
 73-13 123456789ABCDEF8,HIJKLMNOPQRSTUVW,XYZabcdefghijkl,nopqrshijkZklmTUWW,tuvwrsNOPQRSVWFG,xyzwqscbcdefglmDE,!#zfgKLMQRSSUWCE,"%#vegiJLMOPRSBG,&()yupsHQV789A,\*%"xtoZadjkm56EG,-/()\$!Yacgik349A,-/\*&'nbmJMPS129A,XabcdeijlmJLOS.  
 74-19 123456789ABCDEF8,HIJKLMNOPQRSDEFG,TUVWXYZaPQRS9ABC,bcdefghijkZaNORS,lmnopghijkZaNOQS,qrstuvwxyz678ABC,tupdVXYaMQQR78BC,vwxyz!udjkVYMR8C,"z!snocfUXYZPSBC,%\$%&y!rtmoTY58AB,tulmnopXYaQ78BC,'(%&x!lmnoiULS,y!rmoxTUXYZPS5ABC,xyz!lmnoUXYZPSBC,)\*-/wscehkJK34FG,/"qspUVXYZMPQSBC,:(-\$&vbcdefgkaoR,:)\*#x!mnHI12FG,y!rmoghijkTZNS5A.

**77-14** 123456789ABCDEFG, HIJKLMNOPQRSTUVWXYZ, XYZabcdefghijklm, nopqrstuvwxyzklmTUVW, vxxyz!"#9ABCDEFG, %\$&'#rstuhirSFG, ()&'#pqtfugPQEG, \*-/:de1mNOVW5678, ;<=/%)'oqus3478, <=-bcgiLMQS1278, ;(\$'yznqstaiMRCD, wxyzZekmKOUWABCD, xz!"Yek1KNTW9BDG, xy!"XegkKLPW9ADG.

**80-23** 123456789ABCDEFG, HIJKLMNOPQRSTUVWXYZ, XYzaNOPQRSTUVWXYZWFG, bcdeHIJKLMNOPQRSTUVWXYZ, fghijaMPQUWBcDE, klmnojLMOQTW789A, pqrsojbcdeZaSTVW, tuvwtfghi3456BCDE, xyz!vwrshiJK56DE, "#\$%&'()z!ndeYAG, \*-/:(()qsmceIK29, ;:ps1YIJNPSV12AF, <=>/xylnojbcLM8A, ;\*-:(()qs1KNPSV12, ?-&)jZLNOPQSTUVW, =>\$%xyz!lnojLM8A, >%y!XYZaOPRSUWF, @?=-#\$&()xzNQTV, ?\*/"#)tuhibe56BC, >:\$x!klnXY189AFG, <-/-'(())qsbcdelK, \$"%z!deXYZaRUF, @?-\*-&()bcdelSTVW.

## J. 32-dim 160-661

The master set is given in the repository.

**135-21** 123456789ABCDEFGHJKLMNOPQRSTUVWXYZ, XYZabcdefghijklmnopqrstuvwxyzklmTUVW, xyz!"#\$%&'()\*-/:;<=>?@[\]^vwPQVW, \_{'|}~+1+2+3+4]~mnopqrstuvwxyzJJKLMNPQVUVW, +5+6+'()\*-/:;<=>?@[\^ABCDEFGHIMNQPQ, +7+8+9+A+B+1+2+3+4efghijk1lpqrstuvwxyz6789GHIST, +C+D+E+F+G+H+A+B~+4?@[\k123456789BCFHKLORSTUVW, +I+J+K+L+M+N+O+P+Q+E+F+G+H+8+9+B+5+6cdjl1589BCFIST, +R+S+T+U+V+W+X+Y+0+P+Q+H+8+9+A}bdiklw13457CILUW, +Z+a+N+H+9+A+B{'|}~+1+2+3+4-:;<=>^bikow67JW, +K+L+M+G+8\_ablw123456789BCFHKLORSTUVW, +J+M+7+8+A+1+2+3+4Zaiklnorstu34689GILNPQS, +Z+a+I+L+M+N+E+F+H+9+B{'|}~+1+2+3+4-:;<=>^jo689J, +V+W+X+Y+7+8+9+B;<=>XYcdfghijlpqrstuvwxyz79GH, +J+M+7+9+B,+1+2+3+4]~mrstuv34679HIJLNQPV, +Z+a+M+C+D+7+8+9+A\_{'|}~+1+2+3+4]~rstu4HIJLNQPV, +Z+a+'|}~+1+2+3+4-:;<=>?@[\ADEGMNPQ, +b+M+Q+Bxyz!#"\$/Ybdehijk1lmv3HRSUVW, +c+d+K+L+M+P+Q+D+G+H+8+9+B{'|}~+3+4-:=>blw4789UW, +R+S+T+U+V+W+X+Y+1+2+3+4+4-:;<=>Zafgnopqrstuvwxyz, +e+f+g+h+i+j+b+J+K+N+F+G+B+6ZeghijknqtuvBFHKST.

**144-11** 123456789ABCDEFGHJKLMNOPQRSTUVWXYZ, 1XYZa5bcdef9AgBChiGjklmnopqrstuvwxyz, 1#N\$B%&'4()seA\*-, /!1XY5b:; c#df<A=>C?h&klmn@\$[\]^\_, \_; 'f:{|d}|~+1+2!+3+4k+5+6+7+8?h&~+9+A+B>]+C+D+E, \_4(5+9+F+B+G+H+I8gB+JC+K%+LF+3i+Mn+N+5Ns+0+8V+2+D, Zj+P+Qxz+R+SPQ+T+U"+Vaq+wOE+X+Y+ZI+aKM\*+b+c+d2+e, +f+Z+Q+V+g+h+H+I~+K+7+h+dE)+3+i+j+MJK+kL+1+5|OQR+mT+2+D, jZ+Pw@'yz+RrD\|F+n+o+W7+N+6+X~4)o+p+0\*+q]-+r+s, /!+f+n6c<=+b+C+c+hE+Uh&+okl+aK+k+A[OQS+mU]W~, +E+r+s+4Z+p+F+g+G+{T+q+S+J+L+e+3+1+ij+j+Yv'+1+5zt\*+2+Du.

**144-13** 123456789ABCDEFGHJKLMNOPQRSTUVWXYZ, XYZabcdefghijklmnopqrstuvwxyzPQRSTUVW, vxxyz!"#\$%&'()\*-/:;<rstuHIJKLMNO, =>?@[\]^\_{'|}~+1+2+/:;<nopqDEFGLMNO, +3+4+5+6+7+8+9+A+B+C+D+E]~+1+2()-\*~jk1m9ABCTUVW, +F+G+H+I+J+K+L+M+N+O+P+Q+R+S+T+U\_{'|}~+5678LMNO, +V+W+X+Y+Z+a+b+c+n+0+P+Q+R+S+T+U+B+C+D+Efghi1234TUWV, +d+e+f+g+h+i+j+k+Z+a+b+c+j+K+L+M+R+S+T+U+9+A]~+2"-#-dequ, +l+1+m+n+o+h+i+j+k+X+Y+b+c+H+I+L+M+P+Q+T+U+7+8+9+A\~+1+2!#\*-, +p+q+l+m+n+o+j+k+X+Y+b+c+H+I+L+M+P+Q+T+U+9+A[~+1z#\*bcpt, +r+s+q+n+o+f+g+i+5+6+8+9+A?@[\^~+1+2xy#)\*Zacpqu, +p+q+l+m+d+e+j+k+V+W+X+Y+b+c+F+G+H+I+L+M+P+Q+R+S+T+U>wXYpt, +r+s+q+l+m+n+o+i+b+c+L+M+P+Q+3+4+8+9+A=[\^~+1+2v#)\*cp.

**146-14** 123456789ABCDEFGHJKLMNOPQRSTUVWXYZ, XYZabcdefghijklmnopqrstuvwxyzPQRSTUVW, vxxyz!"#\$%&'()\*-/:;<=>?@HIJKLMNO, [\]^\_{'|}~+1+2+3+4+5+6+7+8+9+A;<=>?@DEFGNO, +B+C+D+E+F+G+H+I+J+K+5+6+7+8+9+A\*-:/rstu9ABCTUVW, +L+M+N+O+P+Q+R+S+T+U+V+I+J+K+2+3+4+8+9+A()/:jklmnopq, +W+X+Y+Z+T+U+V+H+K]~+1+3+4+6+7+9+A&')-:@hipq8GMO, +a+b+c+d+e+P+Q+R+S+F+G+I+J{[+2+5+8#\$%(\*/fgno7FKL, +f+g+h+i+j+k+l+m+e+Z+R+S+V+F+G+H+J+K|+1+2+3+4+5+6+7+8+A%'/:, +d+S+G+\]^\_{'|}~+1+2+4+5+7+8+A\$")-:<=>?EGJL, +n+o+p+q+r+s+j+k+l+m+b+c+X+Y+L+M+N+O\_{'z!}>?bcdenopq, +t+u+p+q+r+s+h+i+1+m+B+C+D+E]~xy>XYZa34567TUWV, +t+u+n+o+f+g+l+m+a+e+W+Z+J+K[\~+2+4+5+7vw\$@12FGJKMN, +e+Z+R+V+F+H+J+K[{\~+1+2+4+5+7+8+A%"\$(\*/;@DFJLNO.

**160-29** 123456789ABCDEFGHJKLMNOPQRSTUVWXYZ, XYZabcdefghijklmnopqrstuvwxyzPQRSTUVW, xyz!"#\$%&'()\*klmnopqrstuvwxyzOPQUVW, -/:;<=>?@[\]^\_{'|}~+1+2+3+4+5#%&'()\*, +6+7+8+9+A+B+C+D+E+F+G+3+4+5!"()\*ghijtuvwxyzMNQW, +H+I+J+K+F+G+2+5yz%&'()\*efijlmnopqrstuvwxyz, +L+M+N+O+P+Q+J+K+F+G+1+2+3+4+5%&'()\*defhijpqrs, +R+S+T+U+V+W+X+Y+Z+a+b+c+H+I+G)!\$&\*'cfilmnovKL, +d+e+f+g+h+i+j+k+0+P+Q+I+F\_{'|}%'()bejknogHIJT, +l+1+m+k+W+X+Y+Z+a+b+c+D+E+2+5yz!"bcmuvwCDEFIJLS, +j+V+c+L+M+N+O+P+Q+C~]~+1+3+4!"#\$XYZacdghpqrs, +n+o+p+m+h+i+j+U+a+b+K+8+9+A+B+D+E+2+5yz&ahiuBEFORT, +o+p+h+i+V+c+M+N+P+Q+H+I+8+9+A+B}+1+2+4yz!"#Zcpqrs, +q+l+k+c+K+7+A+B+D+E]{[+3+4+5z!"\*cfhtuvwxyzDFJNQ, +r+s+n+m+j+S+T+Y+Z+H+I+6+7~~+1+3y\$'YalmBKLNMNQRT, +t+s+m+g+Z+J+6+7+8+9+A+B+C+E+F~+3+4+5"#agjtwAHKMNQ, +u+v+t+s+d+e+f+R-/;:<=>?@[\]^\_{'|}~+3+5\$&Ya, +w+x+l+j+k+L+0+J+K+C+F+GXdefghij56789CDGIJMN, +y+z+!+#+\$+u+v+n+e+f+i+U+Z+b+6+9+A+B+D=>?@[\`34EL, +%+&+'#+\$+x+X+6+9+B+G:;[+2+5!cfhsuw23489FN0, +L+N+Q+K:;:>?@[\^\_}]~+2+5#\$&'YZacdiaoqrtvw, +"+r+R+Y+c+H+K+6+7+D+G~+3+4z!\*ZcfhilmtuvFMNQ, +&+'+y+z+!+\$+w+x+v+f+g+l+M+N+O+P+C=x()egrs14789HV, +(+%+&+'y+z+!+"#+w+x+r+n+l+g+k+T+U+W+X+Zxbk689GHQSW, +(+%+!+q+o+p+1+i+j+k+S+V+I;/;=]\_{'{\$bnop89CJRST, +u+s+p+d+f+8+9+A+C+F-/;:<=>?@[\]^\_{'|}gjov, +(+%+&+'!+w+o+l+i+j+V+I;/;=<@[\]^\_{'{\$boppr289CJR, +j+a+c+I+J+C+E+F-/;:<?[\^~+1+3+4y"XYZacegjmu, +)~t+s+R+T+Y+Z+H+6+7+E+G~+1+3+4+5"#\$YflmtwKLMNQU.