Rank-4 over GF(4)

January 15, 2021

The equation

The equation of the surface is :

$$X_0^2 X_1 = 0$$

(0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0)
The point rank of the equation over GF(4) is 4

General information

Number of lines	41
Number of points	37
Number of singular points	21
Number of Eckardt points	0
Number of double points	0
Number of single points	0
Number of points off lines	0
Number of Hesse planes	0
Number of axes	0
Type of points on lines	5^{41}
Type of lines on points	9^5, 5^{32}

Singular Points

The surface has 21 singular points:

0 : $P_1 = \mathbf{P}(0,1,0,0) = \mathbf{P}(0,1,0,0)$
1 : $P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$
2 : $P_3 = \mathbf{P}(0,0,0,1) = \mathbf{P}(0,0,0,1)$
3 : $P_{11} = \mathbf{P}(0,1,1,0) = \mathbf{P}(0,1,1,0)$
4 : $P_{15} = \mathbf{P}(0,\omega,1,0) = \mathbf{P}(0,2,1,0)$
5 : $P_{19} = \mathbf{P}(0,\omega^2,1,0) = \mathbf{P}(0,3,1,0)$
6 : $P_{26} = \mathbf{P}(0,1,0,1) = \mathbf{P}(0,1,0,1)$
7 : $P_{30} = \mathbf{P}(0,\omega,0,1) = \mathbf{P}(0,2,0,1)$
8 : $P_{34} = \mathbf{P}(0,\omega^2,0,1) = \mathbf{P}(0,3,0,1)$
9 : $P_{38} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$
10 : $P_{42} = \mathbf{P}(0,1,1,1) = \mathbf{P}(0,1,1,1)$
11 : $P_{45} = \mathbf{P}(0,\omega,1,1) = \mathbf{P}(0,2,1,1)$
12 : $P_{49} = \mathbf{P}(0,\omega^2,1,1) = \mathbf{P}(0,3,1,1)$
13 : $P_{53} = \mathbf{P}(0,0,\omega,1) = \mathbf{P}(0,0,2,1)$
14 : $P_{57} = \mathbf{P}(0,1,\omega,1) = \mathbf{P}(0,1,2,1)$
15 : $P_{61} = \mathbf{P}(0,\omega,\omega,1) = \mathbf{P}(0,2,2,1)$
16 : $P_{65} = \mathbf{P}(0,\omega^2,\omega,1) = \mathbf{P}(0,3,2,1)$
17 : $P_{69} = \mathbf{P}(0,0,\omega^2,1) = \mathbf{P}(0,0,3,1)$

$18:\ P_{73} = \mathbf{P}(0,1,\omega^2,1) = \mathbf{P}(0,1,3,1)$ $\qquad$ $20:\ P_{81} = \mathbf{P}(0,\omega^2,\omega^2,1) = \mathbf{P}(0,3,3,1)$

$19:\ P_{77} = \mathbf{P}(0,\omega,\omega^2,1) = \mathbf{P}(0,2,3,1)$

The 41 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{16} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{16} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_1 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{336} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{336} = \mathbf{Pl}(0,0,0,0,0,1)_{101}$$

$$\ell_2 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{20} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{20} = \mathbf{Pl}(0,0,0,0,1,0)_{25}$$

$$\ell_3 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{17} = \mathbf{Pl}(0,0,1,0,1,0)_{32}$$

$$\ell_4 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{19} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{19} = \mathbf{Pl}(0,0,2,0,1,0)_{39}$$

$$\ell_5 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{18} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{18} = \mathbf{Pl}(0,0,3,0,1,0)_{46}$$

$$\ell_6 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{340} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{340} = \mathbf{Pl}(0,0,0,1,0,0)_9$$

$$\ell_7 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{337} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{337} = \mathbf{Pl}(0,0,0,1,0,1)_{129}$$

$$\ell_8 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \omega^2 \end{bmatrix}_{339} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 3 \end{bmatrix}_{339} = \mathbf{Pl}(0,0,0,3,0,1)_{143}$$

$$\ell_9 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{338} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{338} = \mathbf{Pl}(0,0,0,2,0,1)_{136}$$

$$\ell_{10} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{356} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{356} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_{11} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{100} = \begin{bmatrix} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{100} = \mathbf{Pl}(0,1,1,0,0,0)_6$$

$$\ell_{12} = \begin{bmatrix} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{268} = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{268} = \mathbf{Pl}(0,3,1,0,0,0)_8$$

$$\ell_{13} = \begin{bmatrix} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & 0 \end{bmatrix}_{184} = \begin{bmatrix} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{184} = \mathbf{Pl}(0,2,1,0,0,0)_7$$

$$\ell_{14} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{341} = \begin{bmatrix} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{341} = \mathbf{Pl}(0,1,0,0,0,1)_{105}$$

$$\ell_{15} = \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{351} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{351} = \mathbf{Pl}(0,3,0,0,0,1)_{107}$$

$$\ell_{16} = \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & 0 \end{bmatrix}_{346} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{346} = \mathbf{Pl}(0,2,0,0,0,1)_{106}$$

$$\ell_{17} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{104} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{104} = \mathbf{Pl}(0,1,0,0,1,0)_{29}$$

$$\ell_{18} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{101} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{101} = \mathbf{Pl}(0,1,1,0,1,0)_{36}$$

$$\ell_{19} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{271} = \left[\begin{array}{cccc} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 3 \end{array}\right]_{271} = \mathbf{Pl}(0,1,2,0,1,0)_{43}$$

$$\ell_{20} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & \omega \end{array}\right]_{186} = \left[\begin{array}{cccc} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 2 \end{array}\right]_{186} = \mathbf{Pl}(0,1,3,0,1,0)_{50}$$

$$\ell_{21} = \left[\begin{array}{cccc} 1 & 0 & \omega^2 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{272} = \left[\begin{array}{cccc} 1 & 0 & 3 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{272} = \mathbf{Pl}(0,3,0,0,1,0)_{31}$$

$$\ell_{22} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & \omega \end{array}\right]_{102} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 2 \end{array}\right]_{102} = \mathbf{Pl}(0,3,3,0,1,0)_{52}$$

$$\ell_{23} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & 1 \end{array}\right]_{269} = \left[\begin{array}{cccc} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 1 \end{array}\right]_{269} = \mathbf{Pl}(0,3,1,0,1,0)_{38}$$

$$\ell_{24} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{187} = \left[\begin{array}{cccc} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 3 \end{array}\right]_{187} = \mathbf{Pl}(0,3,2,0,1,0)_{45}$$

$$\ell_{25} = \left[\begin{array}{cccc} 1 & 0 & \omega & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{188} = \left[\begin{array}{cccc} 1 & 0 & 2 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{188} = \mathbf{Pl}(0,2,0,0,1,0)_{30}$$

$$\ell_{26} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{103} = \left[\begin{array}{cccc} 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 3 \end{array}\right]_{103} = \mathbf{Pl}(0,2,2,0,1,0)_{44}$$

$$\ell_{27} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega \end{array}\right]_{270} = \left[\begin{array}{cccc} 1 & 0 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{array}\right]_{270} = \mathbf{Pl}(0,2,3,0,1,0)_{51}$$

$$\ell_{28} = \left[\begin{array}{cccc} 1 & 0 & 0 & \omega \\ 0 & 0 & 1 & 1 \end{array}\right]_{185} = \left[\begin{array}{cccc} 1 & 0 & 0 & 2 \\ 0 & 0 & 1 & 1 \end{array}\right]_{185} = \mathbf{Pl}(0,2,1,0,1,0)_{37}$$

$$\ell_{29} = \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{345} = \left[\begin{array}{cccc} 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{345} = \mathbf{Pl}(0,1,0,1,0,0)_{13}$$

$$\ell_{30} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{342} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{array}\right]_{342} = \mathbf{Pl}(0,1,0,1,0,1)_{133}$$

$$\ell_{31} = \left[\begin{array}{cccc} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{354} = \left[\begin{array}{cccc} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 3 \end{array}\right]_{354} = \mathbf{Pl}(0,3,0,3,0,1)_{149}$$

$$\ell_{32} = \left[\begin{array}{cccc} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & \omega \end{array}\right]_{348} = \left[\begin{array}{cccc} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 2 \end{array}\right]_{348} = \mathbf{Pl}(0,2,0,2,0,1)_{141}$$

$$\ell_{33} = \left[\begin{array}{cccc} 0 & 1 & \omega^2 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{355} = \left[\begin{array}{cccc} 0 & 1 & 3 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{355} = \mathbf{Pl}(0,3,0,1,0,0)_{15}$$

$$\ell_{34} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & \omega \end{array}\right]_{343} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 2 \end{array}\right]_{343} = \mathbf{Pl}(0,1,0,2,0,1)_{140}$$

$$\ell_{35} = \left[\begin{array}{cccc} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & 1 \end{array}\right]_{352} = \left[\begin{array}{cccc} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 1 \end{array}\right]_{352} = \mathbf{Pl}(0,3,0,1,0,1)_{135}$$

$$\ell_{36} = \left[\begin{array}{cccc} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{349} = \left[\begin{array}{cccc} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 3 \end{array}\right]_{349} = \mathbf{Pl}(0,2,0,3,0,1)_{148}$$

$$\ell_{37} = \left[\begin{array}{cccc} 0 & 1 & \omega & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{350} = \left[\begin{array}{cccc} 0 & 1 & 2 & 0 \\ 0 & 0 & 0 & 1 \end{array}\right]_{350} = \mathbf{Pl}(0,2,0,1,0,0)_{14}$$

$$\ell_{38} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & \omega^2 \end{array}\right]_{344} = \left[\begin{array}{cccc} 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 3 \end{array}\right]_{344} = \mathbf{Pl}(0,1,0,3,0,1)_{147}$$

$$\ell_{39} = \begin{bmatrix} 0 & 1 & 0 & \omega^2 \\ 0 & 0 & 1 & \omega \end{bmatrix}_{353} = \begin{bmatrix} 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 2 \end{bmatrix}_{353} = \mathbf{Pl}(0,3,0,2,0,1)_{142}$$

$$\ell_{40} = \begin{bmatrix} 0 & 1 & 0 & \omega \\ 0 & 0 & 1 & 1 \end{bmatrix}_{347} = \begin{bmatrix} 0 & 1 & 0 & 2 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{347} = \mathbf{Pl}(0,2,0,1,0,1)_{134}$$

Rank of lines: (16, 336, 20, 17, 19, 18, 340, 337, 339, 338, 356, 100, 268, 184, 341, 351, 346, 104, 101, 271, 186, 272, 102, 269, 187, 188, 103, 270, 185, 345, 342, 354, 348, 355, 343, 352, 349, 350, 344, 353, 347)
Rank of points on Klein quadric: (2, 101, 25, 32, 39, 46, 9, 129, 143, 136, 1, 6, 8, 7, 105, 107, 106, 29, 36, 43, 50, 31, 52, 38, 45, 30, 44, 51, 37, 13, 133, 149, 141, 15, 140, 135, 148, 14, 147, 142, 134)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 0 Double points:
The double points on the surface are:

Single Points

The surface has 0 single points:
The single points on the surface are:

The single points on the surface are:

Points on surface but on no line

The surface has 0 points not on any line:
The points on the surface but not on lines are:

Line Intersection Graph

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
0	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
2	1	0	0	1	1	1	1	0	0	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0
3	1	0	1	0	1	1	0	1	0	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	0	0	1
4	1	0	1	1	0	1	0	0	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0
5	1	0	1	1	1	0	0	0	0	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	0	1
6	0	1	1	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	0	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	0	1	0	0	1	0	1	1	0	1	1	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	0	1	0	0	0	1	1	1	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	1	1	0	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
16	1	1	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
17	1	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0
18	1	0	1	1	1	0	0	0	0	1	0	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	0	0	1
19	1	0	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0
20	1	0	1	1	1	0	0	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	0	1
21	1	0	1	1	1	1	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0
22	1	0	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	0	1	0	1	0	0	0	0	1
23	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	0	0	0	0	1	0	0	0	1
24	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0
25	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0	0	0	1	0	0	0	1	0	0	0
26	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	0	0	1	0	1	0
27	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	1
28	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	0	1	0	0	0	1
29	0	1	1	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1
30	0	1	0	1	0	0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1
31	0	1	0	0	1	0	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1
32	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1
33	0	1	1	0	0	0	0	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	0	1	1	1	1	1	1
34	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	1	1	1	1	0	1	1	1	1	1	1
35	0	1	0	1	0	0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1
36	0	1	0	0	1	0	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1
37	0	1	1	0	0	0	1	1	1	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	0	1	1	1
38	0	1	0	0	1	0	1	1	1	1	0	0	1	0	0	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
39	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
40	0	1	0	1	0	0	1	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}
in point	P_2	P_0	P_0	P_0	P_0	P_2	P_2	P_2	P_2	P_2	P_2	P_2	P_8	P_8	P_8	P_8	P_9	P_9	P_9	P_9	P_{10}	P_{10}

Line 1 intersects

Line	ℓ_0	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_{37}
in point	P_2	P_1	P_1	P_1	P_1	P_2	P_2	P_2	P_2	P_2	P_2	P_2	P_{11}	P_{11}	P_{11}	P_{11}	P_{15}	P_{15}	P_{15}	P_{15}	P_{19}

Line 2 intersects

Line	ℓ_0	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}
in point	P_0	P_0	P_0	P_0	P_3	P_3	P_{23}	P_{24}	P_{25}	P_3	P_{23}	P_{24}	P_{25}	P_3	P_{23}	P_{24}	P_{25}	P_3	P_{23}	P_{24}	P_{25}

Line 3 intersects

Line	ℓ_0	ℓ_2	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_0	P_0	P_0	P_0	P_{38}	P_{38}	P_{39}	P_{40}	P_{41}	P_{39}	P_{38}	P_{41}	P_{40}	P_{40}	P_{41}	P_{38}	P_{39}	P_{41}	P_{40}	P_{39}

Line 4 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_0	P_0	P_0	P_0	P_{53}	P_{53}	P_{54}	P_{55}	P_{56}	P_{55}	P_{56}	P_{53}	P_{54}	P_{56}	P_{55}	P_{54}	P_{53}	P_{54}	P_{53}	P_{56}

Line 5 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_0	P_0	P_0	P_0	P_{69}	P_{69}	P_{70}	P_{71}	P_{72}	P_{72}	P_{71}	P_{70}	P_{69}	P_{70}	P_{69}	P_{72}	P_{71}	P_{71}	P_{72}	P_{69}

Line 6 intersects

Line	ℓ_1	ℓ_2	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{25}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_{37}
in point	P_1	P_3	P_1	P_1	P_1	P_3	P_{26}	P_{30}	P_{34}	P_3	P_3	P_3	P_3	P_{26}	P_{30}	P_{34}	P_3	P_{26}	P_{30}	P_{34}	P_3

Line 7 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{23}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_1	P_{38}	P_1	P_1	P_1	P_{38}	P_{42}	P_{45}	P_{49}	P_{38}	P_{38}	P_{38}	P_{42}	P_{38}	P_{49}	P_{45}	P_{45}	P_{49}	P_{38}	P_{42}

Line 8 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{19}	ℓ_{24}	ℓ_{26}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_1	P_{53}	P_1	P_1	P_1	P_{53}	P_{57}	P_{61}	P_{65}	P_{53}	P_{53}	P_{53}	P_{61}	P_{65}	P_{53}	P_{57}	P_{65}	P_{61}	P_{57}	P_{53}

Line 9 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{20}	ℓ_{22}	ℓ_{27}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_1	P_{69}	P_1	P_1	P_1	P_{69}	P_{73}	P_{77}	P_{81}	P_{69}	P_{69}	P_{69}	P_{81}	P_{77}	P_{73}	P_{69}	P_{73}	P_{69}	P_{81}	P_{77}

Line 10 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}
in point	P_2	P_2	P_3	P_{38}	P_{53}	P_{69}	P_3	P_{38}	P_{53}	P_{69}	P_2	P_2	P_2	P_2	P_2	P_2	P_3	P_{38}	P_{53}	P_{69}	P_3

Line 11 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_{10}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_2
in point	P_2	P_2	P_{23}	P_{39}	P_{54}	P_{70}	P_2	P_2	P_2	P_2	P_2	P_2	P_{39}	P_{23}	P_{70}	P_{54}	P_{70}	P_{23}	P_{54}	P_{39}	P_5

Line 12 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_{10}	ℓ_{11}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_2
in point	P_2	P_2	P_{24}	P_{40}	P_{55}	P_{71}	P_2	P_2	P_2	P_2	P_2	P_2	P_{55}	P_{71}	P_{24}	P_{40}	P_{40}	P_{55}	P_{24}	P_{71}	P

Line 13 intersects

Line	ℓ_0	ℓ_1	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_2
in point	P_2	P_2	P_{25}	P_{41}	P_{56}	P_{72}	P_2	P_2	P_2	P_2	P_2	P_2	P_{72}	P_{56}	P_{41}	P_{25}	P_{56}	P_{41}	P_{72}	P_{25}	P

Line 14 intersects

Line	ℓ_0	ℓ_1	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{15}	ℓ_{16}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_3
in point	P_2	P_2	P_{26}	P_{42}	P_{57}	P_{73}	P_2	P_2	P_2	P_2	P_2	P_2	P_{42}	P_{26}	P_{73}	P_{57}	P_{73}	P_{26}	P_{57}	P_{42}	P

Line 15 intersects

Line	ℓ_0	ℓ_1	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{16}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_{3}
in point	P_2	P_2	P_{30}	P_{45}	P_{61}	P_{77}	P_2	P_2	P_2	P_2	P_2	P_2	P_{61}	P_{77}	P_{30}	P_{45}	P_{45}	P_{61}	P_{30}	P_{77}	P

Line 16 intersects

Line	ℓ_0	ℓ_1	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_{3}
in point	P_2	P_2	P_{34}	P_{49}	P_{65}	P_{81}	P_2	P_2	P_2	P_2	P_2	P_2	P_{81}	P_{65}	P_{49}	P_{34}	P_{65}	P_{49}	P_{81}	P_{34}	P

Line 17 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}
in point	P_8	P_3	P_{39}	P_{55}	P_{72}	P_3	P_3	P_{39}	P_{55}	P_{72}	P_8	P_8	P_8	P_3	P_{55}	P_{72}	P_{39}	P_3	P_{72}	P_{39}	P_{5}

Line 18 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_8	P_{23}	P_{38}	P_{56}	P_{71}	P_{38}	P_{38}	P_{23}	P_{71}	P_{56}	P_8	P_8	P_8	P_{56}	P_{23}	P_{38}	P_{71}	P_{71}	P_{23}	P_{56}

Line 19 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_8	P_{24}	P_{41}	P_{53}	P_{70}	P_{53}	P_{53}	P_{70}	P_{24}	P_{41}	P_8	P_8	P_8	P_{70}	P_{41}	P_{24}	P_{53}	P_{41}	P_{53}	P_{24}

Line 20 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_8	P_{25}	P_{40}	P_{54}	P_{69}	P_{69}	P_{69}	P_{54}	P_{40}	P_{25}	P_8	P_8	P_8	P_{40}	P_{69}	P_{54}	P_{25}	P_{54}	P_{40}	P_{69}

Line 21 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}	ℓ_{28}
in point	P_9	P_3	P_{40}	P_{56}	P_{70}	P_3	P_3	P_{70}	P_{40}	P_{56}	P_3	P_{56}	P_{70}	P_{40}	P_9	P_9	P_9	P_3	P_{40}	P_{56}	P_{7}

Line 22 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_9	P_{23}	P_{41}	P_{55}	P_{69}	P_{69}	P_{69}	P_{23}	P_{55}	P_{41}	P_{55}	P_{23}	P_{41}	P_{69}	P_9	P_9	P_9	P_{41}	P_{23}	P_{69}

Line 23 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{24}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_9	P_{24}	P_{38}	P_{54}	P_{72}	P_{38}	P_{38}	P_{54}	P_{24}	P_{72}	P_{72}	P_{38}	P_{24}	P_{54}	P_9	P_9	P_9	P_{54}	P_{72}	P_{24}

Line 24 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{25}	ℓ_{26}	ℓ_{27}
in point	P_9	P_{25}	P_{39}	P_{53}	P_{71}	P_{53}	P_{53}	P_{39}	P_{71}	P_{25}	P_{39}	P_{71}	P_{53}	P_{25}	P_9	P_9	P_9	P_{71}	P_{53}	P_{39}

Line 25 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{26}	ℓ_{27}
in point	P_{10}	P_3	P_{41}	P_{54}	P_{71}	P_3	P_3	P_{54}	P_{71}	P_{41}	P_3	P_{71}	P_{41}	P_{54}	P_3	P_{41}	P_{54}	P_{71}	P_{10}	P_{10}

Line 26 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_8	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{27}
in point	P_{10}	P_{23}	P_{40}	P_{53}	P_{72}	P_{53}	P_{53}	P_{23}	P_{40}	P_{72}	P_{72}	P_{23}	P_{53}	P_{40}	P_{40}	P_{23}	P_{72}	P_{53}	P_{10}	P_{1}

Line 27 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}
in point	P_{10}	P_{24}	P_{39}	P_{56}	P_{69}	P_{69}	P_{69}	P_{39}	P_{24}	P_{56}	P_{39}	P_{56}	P_{24}	P_{69}	P_{56}	P_{69}	P_{24}	P_{39}	P_{10}	P_{1}

Line 28 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_7	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{17}	ℓ_{18}	ℓ_{19}	ℓ_{20}	ℓ_{21}	ℓ_{22}	ℓ_{23}	ℓ_{24}	ℓ_{25}	ℓ_{26}
in point	P_{10}	P_{25}	P_{38}	P_{55}	P_{70}	P_{38}	P_{38}	P_{70}	P_{55}	P_{25}	P_{55}	P_{38}	P_{70}	P_{25}	P_{70}	P_{55}	P_{38}	P_{25}	P_{10}	P_{10}

Line 29 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{25}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_3
in point	P_{11}	P_3	P_3	P_{42}	P_{61}	P_{81}	P_3	P_{42}	P_{61}	P_{81}	P_3	P_3	P_3	P_{11}	P_{11}	P_{11}	P_3	P_{61}	P_{81}	P_{42}	P

Line 30 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{23}	ℓ_{28}	ℓ_{29}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_{11}	P_{38}	P_{26}	P_{38}	P_{65}	P_{77}	P_{38}	P_{26}	P_{77}	P_{65}	P_{38}	P_{38}	P_{38}	P_{11}	P_{11}	P_{11}	P_{65}	P_{26}	P_{38}	P_7

Line 31 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{19}	ℓ_{24}	ℓ_{26}	ℓ_{29}	ℓ_{30}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_{11}	P_{53}	P_{30}	P_{49}	P_{53}	P_{73}	P_{53}	P_{73}	P_{30}	P_{49}	P_{53}	P_{53}	P_{53}	P_{11}	P_{11}	P_{11}	P_{73}	P_{49}	P_{30}	P_5

Line 32 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{20}	ℓ_{22}	ℓ_{27}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_{36}
in point	P_{11}	P_{69}	P_{34}	P_{45}	P_{57}	P_{69}	P_{69}	P_{57}	P_{45}	P_{34}	P_{69}	P_{69}	P_{69}	P_{11}	P_{11}	P_{11}	P_{45}	P_{69}	P_{57}	P_3

Line 33 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{25}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{34}	ℓ_{35}	ℓ_{36}	ℓ_3
in point	P_{15}	P_3	P_3	P_{45}	P_{65}	P_{73}	P_3	P_{73}	P_{45}	P_{65}	P_3	P_3	P_3	P_3	P_{65}	P_{73}	P_{45}	P_{15}	P_{15}	P_{15}	P

Line 34 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{20}	ℓ_{22}	ℓ_{27}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{35}	ℓ_{36}
in point	P_{15}	P_{69}	P_{26}	P_{49}	P_{61}	P_{69}	P_{69}	P_{26}	P_{61}	P_{49}	P_{69}	P_{69}	P_{69}	P_{61}	P_{26}	P_{49}	P_{69}	P_{15}	P_{15}	P_1

Line 35 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{23}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{36}
in point	P_{15}	P_{38}	P_{30}	P_{38}	P_{57}	P_{81}	P_{38}	P_{57}	P_{30}	P_{81}	P_{38}	P_{38}	P_{38}	P_{81}	P_{38}	P_{30}	P_{57}	P_{15}	P_{15}	P_1

Line 36 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{19}	ℓ_{24}	ℓ_{26}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}
in point	P_{15}	P_{53}	P_{34}	P_{42}	P_{53}	P_{77}	P_{53}	P_{42}	P_{77}	P_{34}	P_{53}	P_{53}	P_{53}	P_{42}	P_{77}	P_{53}	P_{34}	P_{15}	P_{15}	P_1

Line 37 intersects

Line	ℓ_1	ℓ_2	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{17}	ℓ_{21}	ℓ_{25}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}	ℓ_3
in point	P_{19}	P_3	P_3	P_{49}	P_{57}	P_{77}	P_3	P_{57}	P_{77}	P_{49}	P_3	P_3	P_3	P_3	P_{77}	P_{49}	P_{57}	P_3	P_{49}	P_{57}	P

Line 38 intersects

Line	ℓ_1	ℓ_4	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{19}	ℓ_{24}	ℓ_{26}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}
in point	P_{19}	P_{53}	P_{26}	P_{45}	P_{53}	P_{81}	P_{53}	P_{26}	P_{45}	P_{81}	P_{53}	P_{53}	P_{53}	P_{81}	P_{26}	P_{53}	P_{45}	P_{45}	P_{26}	P_8

Line 39 intersects

Line	ℓ_1	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{20}	ℓ_{22}	ℓ_{27}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}
in point	P_{19}	P_{69}	P_{30}	P_{42}	P_{65}	P_{69}	P_{69}	P_{42}	P_{30}	P_{65}	P_{69}	P_{69}	P_{69}	P_{42}	P_{65}	P_{30}	P_{69}	P_{65}	P_{69}	P_3

Line 40 intersects

Line	ℓ_1	ℓ_3	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{14}	ℓ_{15}	ℓ_{16}	ℓ_{18}	ℓ_{23}	ℓ_{28}	ℓ_{29}	ℓ_{30}	ℓ_{31}	ℓ_{32}	ℓ_{33}	ℓ_{34}	ℓ_{35}
in point	P_{19}	P_{38}	P_{34}	P_{38}	P_{61}	P_{73}	P_{38}	P_{73}	P_{61}	P_{34}	P_{38}	P_{38}	P_{38}	P_{61}	P_{38}	P_{73}	P_{34}	P_{73}	P_{61}	P_3

The surface has 37 points:
The points on the surface are:

$0: P_0 = (1,0,0,0)$
$1: P_1 = (0,1,0,0)$
$2: P_2 = (0,0,1,0)$
$3: P_3 = (0,0,0,1)$
$4: P_8 = (1,0,1,0)$
$5: P_9 = (2,0,1,0)$
$6: P_{10} = (3,0,1,0)$
$7: P_{11} = (0,1,1,0)$
$8: P_{15} = (0,2,1,0)$
$9: P_{19} = (0,3,1,0)$
$10: P_{23} = (1,0,0,1)$
$11: P_{24} = (2,0,0,1)$
$12: P_{25} = (3,0,0,1)$
$13: P_{26} = (0,1,0,1)$
$14: P_{30} = (0,2,0,1)$
$15: P_{34} = (0,3,0,1)$
$16: P_{38} = (0,0,1,1)$
$17: P_{39} = (1,0,1,1)$
$18: P_{40} = (2,0,1,1)$
$19: P_{41} = (3,0,1,1)$
$20: P_{42} = (0,1,1,1)$
$21: P_{45} = (0,2,1,1)$
$22: P_{49} = (0,3,1,1)$
$23: P_{53} = (0,0,2,1)$
$24: P_{54} = (1,0,2,1)$
$25: P_{55} = (2,0,2,1)$
$26: P_{56} = (3,0,2,1)$
$27: P_{57} = (0,1,2,1)$
$28: P_{61} = (0,2,2,1)$
$29: P_{65} = (0,3,2,1)$
$30: P_{69} = (0,0,3,1)$
$31: P_{70} = (1,0,3,1)$
$32: P_{71} = (2,0,3,1)$
$33: P_{72} = (3,0,3,1)$
$34: P_{73} = (0,1,3,1)$
$35: P_{77} = (0,2,3,1)$
$36: P_{81} = (0,3,3,1)$