Rank-65605 over GF(32)

January 15, 2021

The equation

The equation of the surface is :

$$X_1^3 + X_0^2 X_3 + X_0 X_1 X_2 = 0$$

(0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112846779

General information

Number of lines	33
Number of points	1057
Number of singular points	33
Number of Eckardt points	0
Number of double points	32
Number of single points	1025
Number of points off lines	0
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33^{33}
Type of lines on points	2^{32}, 1^{1025}

Singular Points

The surface has 33 singular points:

0 : $P_2 = \mathbf{P}(0,0,1,0) = \mathbf{P}(0,0,1,0)$
1 : $P_3 = \mathbf{P}(0,0,0,1) = \mathbf{P}(0,0,0,1)$
2 : $P_{2082} = \mathbf{P}(0,0,1,1) = \mathbf{P}(0,0,1,1)$
3 : $P_{3105} = \mathbf{P}(0,0,\eta,1) = \mathbf{P}(0,0,2,1)$
4 : $P_{4129} = \mathbf{P}(0,0,\eta^{18},1) = \mathbf{P}(0,0,3,1)$
5 : $P_{5153} = \mathbf{P}(0,0,\eta^{2},1) = \mathbf{P}(0,0,4,1)$
6 : $P_{6177} = \mathbf{P}(0,0,\eta^{5},1) = \mathbf{P}(0,0,5,1)$
7 : $P_{7201} = \mathbf{P}(0,0,\eta^{19},1) = \mathbf{P}(0,0,6,1)$
8 : $P_{8225} = \mathbf{P}(0,0,\eta^{11},1) = \mathbf{P}(0,0,7,1)$
9 : $P_{9249} = \mathbf{P}(0,0,\eta^{3},1) = \mathbf{P}(0,0,8,1)$
10 : $P_{10273} = \mathbf{P}(0,0,\eta^{29},1) = \mathbf{P}(0,0,9,1)$
11 : $P_{11297} = \mathbf{P}(0,0,\eta^{6},1) = \mathbf{P}(0,0,10,1)$
12 : $P_{12321} = \mathbf{P}(0,0,\eta^{27},1) = \mathbf{P}(0,0,11,1)$
13 : $P_{13345} = \mathbf{P}(0,0,\eta^{20},1) = \mathbf{P}(0,0,12,1)$
14 : $P_{14369} = \mathbf{P}(0,0,\eta^{8},1) = \mathbf{P}(0,0,13,1)$
15 : $P_{15393} = \mathbf{P}(0,0,\eta^{12},1) = \mathbf{P}(0,0,14,1)$
16 : $P_{16417} = \mathbf{P}(0,0,\eta^{23},1) = \mathbf{P}(0,0,15,1)$
17 : $P_{17441} = \mathbf{P}(0,0,\eta^{4},1) = \mathbf{P}(0,0,16,1)$

$18: P_{18465} = \mathbf{P}(0,0,\eta^{10},1) = \mathbf{P}(0,0,17,1)$
$19: P_{19489} = \mathbf{P}(0,0,\eta^{30},1) = \mathbf{P}(0,0,18,1)$
$20: P_{20513} = \mathbf{P}(0,0,\eta^{17},1) = \mathbf{P}(0,0,19,1)$
$21: P_{21537} = \mathbf{P}(0,0,\eta^{7},1) = \mathbf{P}(0,0,20,1)$
$22: P_{22561} = \mathbf{P}(0,0,\eta^{22},1) = \mathbf{P}(0,0,21,1)$
$23: P_{23585} = \mathbf{P}(0,0,\eta^{28},1) = \mathbf{P}(0,0,22,1)$
$24: P_{24609} = \mathbf{P}(0,0,\eta^{26},1) = \mathbf{P}(0,0,23,1)$
$25: P_{25633} = \mathbf{P}(0,0,\eta^{21},1) = \mathbf{P}(0,0,24,1)$
$26: P_{26657} = \mathbf{P}(0,0,\eta^{25},1) = \mathbf{P}(0,0,25,1)$
$27: P_{27681} = \mathbf{P}(0,0,\eta^{9},1) = \mathbf{P}(0,0,26,1)$
$28: P_{28705} = \mathbf{P}(0,0,\eta^{16},1) = \mathbf{P}(0,0,27,1)$
$29: P_{29729} = \mathbf{P}(0,0,\eta^{13},1) = \mathbf{P}(0,0,28,1)$
$30: P_{30753} = \mathbf{P}(0,0,\eta^{14},1) = \mathbf{P}(0,0,29,1)$
$31: P_{31777} = \mathbf{P}(0,0,\eta^{24},1) = \mathbf{P}(0,0,30,1)$
$32: P_{32801} = \mathbf{P}(0,0,\eta^{15},1) = \mathbf{P}(0,0,31,1)$

The 33 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1024} = \mathbf{Pl}(0,0,1,0,0,0)_2$$

$$\ell_1 = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}_{1083424} = \mathbf{Pl}(0,1,0,0,0,0)_1$$

$$\ell_2 = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{35906} = \begin{bmatrix} 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \end{bmatrix}_{35906} = \mathbf{Pl}(0,1,1,1,1,1)_{70594}$$

$$\ell_3 = \begin{bmatrix} 1 & \eta^{30} & 0 & \eta^{28} \\ 0 & 0 & 1 & \eta^{30} \end{bmatrix}_{764196} = \begin{bmatrix} 1 & 18 & 0 & 22 \\ 0 & 0 & 1 & 18 \end{bmatrix}_{764196} = \mathbf{Pl}(0,9,2,18,1,1)_{70665}$$

$$\ell_4 = \begin{bmatrix} 1 & \eta^{13} & 0 & \eta^{8} \\ 0 & 0 & 1 & \eta^{13} \end{bmatrix}_{470360} = \begin{bmatrix} 1 & 28 & 0 & 13 \\ 0 & 0 & 1 & 28 \end{bmatrix}_{470360} = \mathbf{Pl}(0,23,3,28,1,1)_{70742}$$

$$\ell_5 = \begin{bmatrix} 1 & \eta^{29} & 0 & \eta^{25} \\ 0 & 0 & 1 & \eta^{29} \end{bmatrix}_{856146} = \begin{bmatrix} 1 & 9 & 0 & 25 \\ 0 & 0 & 1 & 9 \end{bmatrix}_{856146} = \mathbf{Pl}(0,11,4,9,1,1)_{70793}$$

$$\ell_6 = \begin{bmatrix} 1 & \eta^{26} & 0 & \eta^{16} \\ 0 & 0 & 1 & \eta^{26} \end{bmatrix}_{938606} = \begin{bmatrix} 1 & 23 & 0 & 27 \\ 0 & 0 & 1 & 23 \end{bmatrix}_{938606} = \mathbf{Pl}(0,24,5,23,1,1)_{70869}$$

$$\ell_7 = \begin{bmatrix} 1 & \eta^{12} & 0 & \eta^{5} \\ 0 & 0 & 1 & \eta^{12} \end{bmatrix}_{184956} = \begin{bmatrix} 1 & 14 & 0 & 5 \\ 0 & 0 & 1 & 14 \end{bmatrix}_{184956} = \mathbf{Pl}(0,30,6,14,1,1)_{70938}$$

$$\ell_8 = \begin{bmatrix} 1 & \eta^{20} & 0 & \eta^{29} \\ 0 & 0 & 1 & \eta^{20} \end{bmatrix}_{318136} = \begin{bmatrix} 1 & 12 & 0 & 9 \\ 0 & 0 & 1 & 12 \end{bmatrix}_{318136} = \mathbf{Pl}(0,26,7,12,1,1)_{70997}$$

$$\ell_9 = \begin{bmatrix} 1 & \eta^{28} & 0 & \eta^{22} \\ 0 & 0 & 1 & \eta^{28} \end{bmatrix}_{734604} = \begin{bmatrix} 1 & 22 & 0 & 21 \\ 0 & 0 & 1 & 22 \end{bmatrix}_{734604} = \mathbf{Pl}(0,25,8,22,1,1)_{71059}$$

$$\ell_{10} = \begin{bmatrix} 1 & \eta^{2} & 0 & \eta^{6} \\ 0 & 0 & 1 & \eta^{2} \end{bmatrix}_{343496} = \begin{bmatrix} 1 & 4 & 0 & 10 \\ 0 & 0 & 1 & 4 \end{bmatrix}_{343496} = \mathbf{Pl}(0,16,9,4,1,1)_{71113}$$

$$\ell_{11} = \begin{bmatrix} 1 & \eta^{25} & 0 & \eta^{13} \\ 0 & 0 & 1 & \eta^{25} \end{bmatrix}_{974546} = \begin{bmatrix} 1 & 25 & 0 & 28 \\ 0 & 0 & 1 & 25 \end{bmatrix}_{974546} = \mathbf{Pl}(0,6,10,25,1,1)_{71166}$$

$$\ell_{12} = \begin{bmatrix} 1 & \eta^{4} & 0 & \eta^{12} \\ 0 & 0 & 1 & \eta^{4} \end{bmatrix}_{491488} = \begin{bmatrix} 1 & 16 & 0 & 14 \\ 0 & 0 & 1 & 16 \end{bmatrix}_{491488} = \mathbf{Pl}(0,13,11,16,1,1)_{71236}$$

$$\ell_{13} = \begin{bmatrix} 1 & \eta^{11} & 0 & \eta^{2} \\ 0 & 0 & 1 & \eta^{11} \end{bmatrix}_{143726} = \begin{bmatrix} 1 & 7 & 0 & 4 \\ 0 & 0 & 1 & 7 \end{bmatrix}_{143726} = \mathbf{Pl}(0,21,12,7,1,1)_{71307}$$

$$\ell_{14} = \begin{bmatrix} 1 & \eta^{23} & 0 & \eta^{7} \\ 0 & 0 & 1 & \eta^{23} \end{bmatrix}_{693374} = \begin{bmatrix} 1 & 15 & 0 & 20 \\ 0 & 0 & 1 & 15 \end{bmatrix}_{693374} = \mathbf{Pl}(0,31,13,15,1,1)_{71380}$$

$$\ell_{15} = \begin{bmatrix} 1 & \eta^{19} & 0 & \eta^{26} \\ 0 & 0 & 1 & \eta^{19} \end{bmatrix}_{785324} = \begin{bmatrix} 1 & 6 & 0 & 23 \\ 0 & 0 & 1 & 6 \end{bmatrix}_{785324} = \mathbf{Pl}(0,20,14,6,1,1)_{71432}$$

$$\ell_{16} = \left[\begin{array}{cccc} 1 & \eta^{8} & 0 & \eta^{24} \\ 0 & 0 & 1 & \eta^{8} \end{array}\right]_{1029498} = \left[\begin{array}{cccc} 1 & 13 & 0 & 30 \\ 0 & 0 & 1 & 13 \end{array}\right]_{1029498} = \mathbf{Pl}(0,27,15,13,1,1)_{71502}$$

$$\ell_{17} = \left[\begin{array}{cccc} 1 & \eta^{27} & 0 & \eta^{19} \\ 0 & 0 & 1 & \eta^{27} \end{array}\right]_{215606} = \left[\begin{array}{cccc} 1 & 11 & 0 & 6 \\ 0 & 0 & 1 & 11 \end{array}\right]_{215606} = \mathbf{Pl}(0,15,16,11,1,1)_{71553}$$

$$\ell_{18} = \left[\begin{array}{cccc} 1 & \eta^{21} & 0 & \eta \\ 0 & 0 & 1 & \eta^{21} \end{array}\right]_{94064} = \left[\begin{array}{cccc} 1 & 24 & 0 & 2 \\ 0 & 0 & 1 & 24 \end{array}\right]_{94064} = \mathbf{Pl}(0,7,17,24,1,1)_{71608}$$

$$\ell_{19} = \left[\begin{array}{cccc} 1 & \eta & 0 & \eta^{3} \\ 0 & 0 & 1 & \eta \end{array}\right]_{273732} = \left[\begin{array}{cccc} 1 & 2 & 0 & 8 \\ 0 & 0 & 1 & 2 \end{array}\right]_{273732} = \mathbf{Pl}(0,4,18,2,1,1)_{71668}$$

$$\ell_{20} = \left[\begin{array}{cccc} 1 & \eta^{14} & 0 & \eta^{11} \\ 0 & 0 & 1 & \eta^{14} \end{array}\right]_{268474} = \left[\begin{array}{cccc} 1 & 29 & 0 & 7 \\ 0 & 0 & 1 & 29 \end{array}\right]_{268474} = \mathbf{Pl}(0,22,19,29,1,1)_{71749}$$

$$\ell_{21} = \left[\begin{array}{cccc} 1 & \eta^{24} & 0 & \eta^{10} \\ 0 & 0 & 1 & \eta^{24} \end{array}\right]_{607772} = \left[\begin{array}{cccc} 1 & 30 & 0 & 17 \\ 0 & 0 & 1 & 30 \end{array}\right]_{607772} = \mathbf{Pl}(0,19,20,30,1,1)_{71809}$$

$$\ell_{22} = \left[\begin{array}{cccc} 1 & \eta^{9} & 0 & \eta^{27} \\ 0 & 0 & 1 & \eta^{9} \end{array}\right]_{400596} = \left[\begin{array}{cccc} 1 & 26 & 0 & 11 \\ 0 & 0 & 1 & 26 \end{array}\right]_{400596} = \mathbf{Pl}(0,3,21,26,1,1)_{71856}$$

$$\ell_{23} = \left[\begin{array}{cccc} 1 & \eta^{3} & 0 & \eta^{9} \\ 0 & 0 & 1 & \eta^{3} \end{array}\right]_{888912} = \left[\begin{array}{cccc} 1 & 8 & 0 & 26 \\ 0 & 0 & 1 & 8 \end{array}\right]_{888912} = \mathbf{Pl}(0,10,22,8,1,1)_{71926}$$

$$\ell_{24} = \left[\begin{array}{cccc} 1 & \eta^{5} & 0 & \eta^{15} \\ 0 & 0 & 1 & \eta^{5} \end{array}\right]_{1054858} = \left[\begin{array}{cccc} 1 & 5 & 0 & 31 \\ 0 & 0 & 1 & 5 \end{array}\right]_{1054858} = \mathbf{Pl}(0,17,23,5,1,1)_{71996}$$

$$\ell_{25} = \left[\begin{array}{cccc} 1 & \eta^{10} & 0 & \eta^{30} \\ 0 & 0 & 1 & \eta^{10} \end{array}\right]_{627842} = \left[\begin{array}{cccc} 1 & 17 & 0 & 18 \\ 0 & 0 & 1 & 17 \end{array}\right]_{627842} = \mathbf{Pl}(0,12,24,17,1,1)_{72054}$$

$$\ell_{26} = \left[\begin{array}{cccc} 1 & \eta^{6} & 0 & \eta^{18} \\ 0 & 0 & 1 & \eta^{6} \end{array}\right]_{113076} = \left[\begin{array}{cccc} 1 & 10 & 0 & 3 \\ 0 & 0 & 1 & 10 \end{array}\right]_{113076} = \mathbf{Pl}(0,14,25,10,1,1)_{72119}$$

$$\ell_{27} = \left[\begin{array}{cccc} 1 & \eta^{22} & 0 & \eta^{4} \\ 0 & 0 & 1 & \eta^{22} \end{array}\right]_{564426} = \left[\begin{array}{cccc} 1 & 21 & 0 & 16 \\ 0 & 0 & 1 & 21 \end{array}\right]_{564426} = \mathbf{Pl}(0,28,26,21,1,1)_{72196}$$

$$\ell_{28} = \left[\begin{array}{cccc} 1 & \eta^{15} & 0 & \eta^{14} \\ 0 & 0 & 1 & \eta^{15} \end{array}\right]_{1014718} = \left[\begin{array}{cccc} 1 & 31 & 0 & 29 \\ 0 & 0 & 1 & 31 \end{array}\right]_{1014718} = \mathbf{Pl}(0,18,27,31,1,1)_{72249}$$

$$\ell_{29} = \left[\begin{array}{cccc} 1 & \eta^{18} & 0 & \eta^{23} \\ 0 & 0 & 1 & \eta^{18} \end{array}\right]_{511558} = \left[\begin{array}{cccc} 1 & 3 & 0 & 15 \\ 0 & 0 & 1 & 3 \end{array}\right]_{511558} = \mathbf{Pl}(0,5,28,3,1,1)_{72299}$$

$$\ell_{30} = \left[\begin{array}{cccc} 1 & \eta^{17} & 0 & \eta^{20} \\ 0 & 0 & 1 & \eta^{17} \end{array}\right]_{427014} = \left[\begin{array}{cccc} 1 & 19 & 0 & 12 \\ 0 & 0 & 1 & 19 \end{array}\right]_{427014} = \mathbf{Pl}(0,8,29,19,1,1)_{72365}$$

$$\ell_{31} = \left[\begin{array}{cccc} 1 & \eta^{7} & 0 & \eta^{21} \\ 0 & 0 & 1 & \eta^{7} \end{array}\right]_{833960} = \left[\begin{array}{cccc} 1 & 20 & 0 & 24 \\ 0 & 0 & 1 & 20 \end{array}\right]_{833960} = \mathbf{Pl}(0,29,30,20,1,1)_{72449}$$

$$\ell_{32} = \left[\begin{array}{cccc} 1 & \eta^{16} & 0 & \eta^{17} \\ 0 & 0 & 1 & \eta^{16} \end{array}\right]_{672246} = \left[\begin{array}{cccc} 1 & 27 & 0 & 19 \\ 0 & 0 & 1 & 27 \end{array}\right]_{672246} = \mathbf{Pl}(0,2,31,27,1,1)_{72485}$$

Rank of lines: (1024, 1083424, 35906, 764196, 470360, 856146, 938606, 184956, 318136, 734604, 343496, 974546, 491488, 143726, 693374, 785324, 1029498, 215606, 94064, 273732, 268474, 607772, 400596, 888912, 1054858, 627842, 113076, 564426, 1014718, 511558, 427014, 833960, 672246)
Rank of points on Klein quadric: (2, 1, 70594, 70665, 70742, 70793, 70869, 70938, 70997, 71059, 71113, 71166, 71236, 71307, 71380, 71432, 71502, 71553, 71608, 71668, 71749, 71809, 71856, 71926, 71996, 72054, 72119, 72196, 72249, 72299, 72365, 72449, 72485)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 32 Double points:
The double points on the surface are:

$P_{2} = (0,0,1,0) = \ell_0 \cap \ell_1$
$P_{2082} = (0,0,1,1) = \ell_1 \cap \ell_2$
$P_{3105} = (0,0,2,1) = \ell_1 \cap \ell_3$
$P_{4129} = (0,0,3,1) = \ell_1 \cap \ell_4$
$P_{5153} = (0,0,4,1) = \ell_1 \cap \ell_5$
$P_{6177} = (0,0,5,1) = \ell_1 \cap \ell_6$
$P_{7201} = (0,0,6,1) = \ell_1 \cap \ell_7$
$P_{8225} = (0,0,7,1) = \ell_1 \cap \ell_8$
$P_{9249} = (0,0,8,1) = \ell_1 \cap \ell_9$
$P_{10273} = (0,0,9,1) = \ell_1 \cap \ell_{10}$
$P_{11297} = (0,0,10,1) = \ell_1 \cap \ell_{11}$
$P_{12321} = (0,0,11,1) = \ell_1 \cap \ell_{12}$
$P_{13345} = (0,0,12,1) = \ell_1 \cap \ell_{13}$
$P_{14369} = (0,0,13,1) = \ell_1 \cap \ell_{14}$
$P_{15393} = (0,0,14,1) = \ell_1 \cap \ell_{15}$
$P_{16417} = (0,0,15,1) = \ell_1 \cap \ell_{16}$
$P_{17441} = (0,0,16,1) = \ell_1 \cap \ell_{17}$
$P_{18465} = (0,0,17,1) = \ell_1 \cap \ell_{18}$
$P_{19489} = (0,0,18,1) = \ell_1 \cap \ell_{19}$
$P_{20513} = (0,0,19,1) = \ell_1 \cap \ell_{20}$
$P_{21537} = (0,0,20,1) = \ell_1 \cap \ell_{21}$
$P_{22561} = (0,0,21,1) = \ell_1 \cap \ell_{22}$
$P_{23585} = (0,0,22,1) = \ell_1 \cap \ell_{23}$
$P_{24609} = (0,0,23,1) = \ell_1 \cap \ell_{24}$
$P_{25633} = (0,0,24,1) = \ell_1 \cap \ell_{25}$
$P_{26657} = (0,0,25,1) = \ell_1 \cap \ell_{26}$
$P_{27681} = (0,0,26,1) = \ell_1 \cap \ell_{27}$
$P_{28705} = (0,0,27,1) = \ell_1 \cap \ell_{28}$
$P_{29729} = (0,0,28,1) = \ell_1 \cap \ell_{29}$
$P_{30753} = (0,0,29,1) = \ell_1 \cap \ell_{30}$
$P_{31777} = (0,0,30,1) = \ell_1 \cap \ell_{31}$
$P_{32801} = (0,0,31,1) = \ell_1 \cap \ell_{32}$

Single Points

The surface has 1025 single points:
Too many to print.

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

Neighbor sets in the line intersection graph:
Line 0 intersects

Line	ℓ_1
in point	P_2

Line 1 intersects

Line	ℓ_0	ℓ_2	ℓ_3	ℓ_4	ℓ_5	ℓ_6	ℓ_7	ℓ_8	ℓ_9	ℓ_{10}	ℓ_{11}	ℓ_{12}	ℓ_{13}	ℓ_{14}	ℓ_{15}
in point	P_2	P_{2082}	P_{3105}	P_{4129}	P_{5153}	P_{6177}	P_{7201}	P_{8225}	P_{9249}	P_{10273}	P_{11297}	P_{12321}	P_{13345}	P_{14369}	P_{153}

Line 2 intersects

Line	ℓ_1
in point	P_{2082}

Line 3 intersects

Line	ℓ_1
in point	P_{3105}

Line 4 intersects

Line	ℓ_1
in point	P_{4129}

Line 5 intersects

Line	ℓ_1
in point	P_{5153}

Line 6 intersects

Line	ℓ_1
in point	P_{6177}

Line 7 intersects

Line	ℓ_1
in point	P_{7201}

Line 8 intersects

Line	ℓ_1
in point	P_{8225}

Line 9 intersects

Line	ℓ_1
in point	P_{9249}

Line 10 intersects

Line	ℓ_1
in point	P_{10273}

Line 11 intersects

Line	ℓ_1
in point	P_{11297}

Line 12 intersects

Line	ℓ_1
in point	P_{12321}

Line 13 intersects

Line	ℓ_1
in point	P_{13345}

Line 14 intersects

Line	ℓ_1
in point	P_{14369}

Line 15 intersects

Line	ℓ_1
in point	P_{15393}

Line 16 intersects

Line	ℓ_1
in point	P_{16417}

Line 17 intersects

Line	ℓ_1
in point	P_{17441}

Line 18 intersects

Line	ℓ_1
in point	P_{18465}

Line 19 intersects

Line	ℓ_1
in point	P_{19489}

Line 20 intersects

Line	ℓ_1
in point	P_{20513}

Line 21 intersects

Line	ℓ_1
in point	P_{21537}

Line 22 intersects

Line	ℓ_1
in point	P_{22561}

Line 23 intersects

Line	ℓ_1
in point	P_{23585}

Line 24 intersects

Line	ℓ_1
in point	P_{24609}

Line 25 intersects

Line	ℓ_1
in point	P_{25633}

Line 26 intersects

Line	ℓ_1
in point	P_{26657}

Line 27 intersects

Line	ℓ_1
in point	P_{27681}

Line 28 intersects

Line	ℓ_1
in point	P_{28705}

Line 29 intersects

Line	ℓ_1
in point	P_{29729}

Line 30 intersects

Line	ℓ_1
in point	P_{30753}

Line 31 intersects

Line	ℓ_1
in point	P_{31777}

Line 32 intersects

Line	ℓ_1
in point	P_{32801}

The surface has 1057 points:
Too many to print.