Cheat Sheet PG$(3, 4)$

January 16, 2021

The projective space PG$(3, 4)$

$q = 4$
$p = 2$
$e = 2$
$n = 3$
Number of points = 85
Number of lines = 357
Number of lines on a point = 21
Number of points on a line = 5

The points of PG$(3, 4)$

PG$(3, 4)$ has 85 points:

$P_0 = (1, 0, 0, 0) = (1, 0, 0, 0)$
$P_1 = (0, 1, 0, 0) = (0, 1, 0, 0)$
$P_2 = (0, 0, 1, 0) = (0, 0, 1, 0)$
$P_3 = (0, 0, 0, 1) = (0, 0, 0, 1)$
$P_4 = (1, 1, 1, 1) = (1, 1, 1, 1)$
$P_5 = (1, 1, 0, 0) = (1, 1, 0, 0)$
$P_6 = (2, 1, 0, 0) = (\alpha, 1, 0, 0)$
$P_7 = (3, 1, 0, 0) = (\alpha^2, 1, 0, 0)$
$P_8 = (1, 0, 1, 0) = (1, 0, 1, 0)$
$P_9 = (2, 0, 1, 0) = (\alpha, 0, 1, 0)$
$P_{10} = (3, 0, 1, 0) = (\alpha^2, 0, 1, 0)$
$P_{11} = (0, 1, 1, 0) = (0, 1, 1, 0)$
$P_{12} = (1, 1, 1, 0) = (1, 1, 1, 0)$
$P_{13} = (2, 1, 1, 0) = (\alpha, 1, 1, 0)$
$P_{14} = (3, 1, 1, 0) = (\alpha^2, 1, 1, 0)$
$P_{15} = (0, 2, 1, 0) = (0, \alpha, 1, 0)$
$P_{16} = (1, 2, 1, 0) = (1, \alpha, 1, 0)$
$P_{17} = (2, 2, 1, 0) = (\alpha, \alpha, 1, 0)$
$P_{18} = (3, 2, 1, 0) = (\alpha^2, \alpha, 1, 0)$
$P_{19} = (0, 3, 1, 0) = (0, \alpha^2, 1, 0)$
$P_{20} = (1, 3, 1, 0) = (1, \alpha^2, 1, 0)$
$P_{21} = (2, 3, 1, 0) = (\alpha, \alpha^2, 1, 0)$
$P_{22} = (3, 3, 1, 0) = (\alpha^2, \alpha^2, 1, 0)$
$P_{23} = (1, 0, 0, 1) = (1, 0, 0, 1)$
$P_{24} = (2, 0, 0, 1) = (\alpha, 0, 0, 1)$
$P_{25} = (3, 0, 0, 1) = (\alpha^2, 0, 0, 1)$
$P_{26} = (0, 1, 0, 1) = (0, 1, 0, 1)$
$P_{27} = (1, 1, 0, 1) = (1, 1, 0, 1)$
$P_{28} = (2, 1, 0, 1) = (\alpha, 1, 0, 1)$
$P_{29} = (3, 1, 0, 1) = (\alpha^2, 1, 0, 1)$
$P_{30} = (0, 2, 0, 1) = (0, \alpha, 0, 1)$
$P_{31} = (1, 2, 0, 1) = (1, \alpha, 0, 1)$
$P_{32} = (2, 2, 0, 1) = (\alpha, \alpha, 0, 1)$
$P_{33} = (3, 2, 0, 1) = (\alpha^2, \alpha, 0, 1)$

$P_{34} = (0, 3, 0, 1) = (0, \alpha^2, 0, 1)$
$P_{35} = (1, 3, 0, 1) = (1, \alpha^2, 0, 1)$
$P_{36} = (2, 3, 0, 1) = (\alpha, \alpha^2, 0, 1)$
$P_{37} = (3, 3, 0, 1) = (\alpha^2, \alpha^2, 0, 1)$
$P_{38} = (0, 0, 1, 1) = (0, 0, 1, 1)$
$P_{39} = (1, 0, 1, 1) = (1, 0, 1, 1)$
$P_{40} = (2, 0, 1, 1) = (\alpha, 0, 1, 1)$
$P_{41} = (3, 0, 1, 1) = (\alpha^2, 0, 1, 1)$
$P_{42} = (0, 1, 1, 1) = (0, 1, 1, 1)$
$P_{43} = (2, 1, 1, 1) = (\alpha, 1, 1, 1)$
$P_{44} = (3, 1, 1, 1) = (\alpha^2, 1, 1, 1)$
$P_{45} = (0, 2, 1, 1) = (0, \alpha, 1, 1)$
$P_{46} = (1, 2, 1, 1) = (1, \alpha, 1, 1)$
$P_{47} = (2, 2, 1, 1) = (\alpha, \alpha, 1, 1)$
$P_{48} = (3, 2, 1, 1) = (\alpha^2, \alpha, 1, 1)$
$P_{49} = (0, 3, 1, 1) = (0, \alpha^2, 1, 1)$
$P_{50} = (1, 3, 1, 1) = (1, \alpha^2, 1, 1)$
$P_{51} = (2, 3, 1, 1) = (\alpha, \alpha^2, 1, 1)$
$P_{52} = (3, 3, 1, 1) = (\alpha^2, \alpha^2, 1, 1)$
$P_{53} = (0, 0, 2, 1) = (0, 0, \alpha, 1)$
$P_{54} = (1, 0, 2, 1) = (1, 0, \alpha, 1)$
$P_{55} = (2, 0, 2, 1) = (\alpha, 0, \alpha, 1)$
$P_{56} = (3, 0, 2, 1) = (\alpha^2, 0, \alpha, 1)$
$P_{57} = (0, 1, 2, 1) = (0, 1, \alpha, 1)$
$P_{58} = (1, 1, 2, 1) = (1, 1, \alpha, 1)$
$P_{59} = (2, 1, 2, 1) = (\alpha, 1, \alpha, 1)$
$P_{60} = (3, 1, 2, 1) = (\alpha^2, 1, \alpha, 1)$
$P_{61} = (0, 2, 2, 1) = (0, \alpha, \alpha, 1)$
$P_{62} = (1, 2, 2, 1) = (1, \alpha, \alpha, 1)$
$P_{63} = (2, 2, 2, 1) = (\alpha, \alpha, \alpha, 1)$
$P_{64} = (3, 2, 2, 1) = (\alpha^2, \alpha, \alpha, 1)$
$P_{65} = (0, 3, 2, 1) = (0, \alpha^2, \alpha, 1)$
$P_{66} = (1, 3, 2, 1) = (1, \alpha^2, \alpha, 1)$
$P_{67} = (2, 3, 2, 1) = (\alpha, \alpha^2, \alpha, 1)$
$P_{68} = (3, 3, 2, 1) = (\alpha^2, \alpha^2, \alpha, 1)$
$P_{69} = (0, 0, 3, 1) = (0, 0, \alpha^2, 1)$
$P_{70} = (1, 0, 3, 1) = (1, 0, \alpha^2, 1)$
$P_{71} = (2, 0, 3, 1) = (\alpha, 0, \alpha^2, 1)$
$P_{72} = (3, 0, 3, 1) = (\alpha^2, 0, \alpha^2, 1)$
$P_{73} = (0, 1, 3, 1) = (0, 1, \alpha^2, 1)$
$P_{74} = (1, 1, 3, 1) = (1, 1, \alpha^2, 1)$
$P_{75} = (2, 1, 3, 1) = (\alpha, 1, \alpha^2, 1)$
$P_{76} = (3, 1, 3, 1) = (\alpha^2, 1, \alpha^2, 1)$
$P_{77} = (0, 2, 3, 1) = (0, \alpha, \alpha^2, 1)$
$P_{78} = (1, 2, 3, 1) = (1, \alpha, \alpha^2, 1)$
$P_{79} = (2, 2, 3, 1) = (\alpha, \alpha, \alpha^2, 1)$
$P_{80} = (3, 2, 3, 1) = (\alpha^2, \alpha, \alpha^2, 1)$
$P_{81} = (0, 3, 3, 1) = (0, \alpha^2, \alpha^2, 1)$
$P_{82} = (1, 3, 3, 1) = (1, \alpha^2, \alpha^2, 1)$
$P_{83} = (2, 3, 3, 1) = (\alpha, \alpha^2, \alpha^2, 1)$
$P_{84} = (3, 3, 3, 1) = (\alpha^2, \alpha^2, \alpha^2, 1)$

Baer subgeometry:

$P_0 = (1, 0, 0, 0)$
$P_1 = (0, 1, 0, 0)$
$P_2 = (0, 0, 1, 0)$
$P_3 = (0, 0, 0, 1)$
$P_4 = (1, 1, 1, 1)$
$P_5 = (1, 1, 0, 0)$
$P_8 = (1, 0, 1, 0)$
$P_{11} = (0, 1, 1, 0)$
$P_{12} = (1, 1, 1, 0)$
$P_{23} = (1, 0, 0, 1)$
$P_{26} = (0, 1, 0, 1)$
$P_{27} = (1, 1, 0, 1)$
$P_{38} = (0, 0, 1, 1)$
$P_{39} = (1, 0, 1, 1)$
$P_{42} = (0, 1, 1, 1)$

There are 15 elements in the Baer subgeometry.
Normalized from the left:

$P_0 = (1, 0, 0, 0)$
$P_1 = (0, 1, 0, 0)$
$P_2 = (0, 0, 1, 0)$
$P_3 = (0, 0, 0, 1)$
$P_4 = (1, 1, 1, 1)$
$P_5 = (1, 1, 0, 0)$
$P_6 = (1, 3, 0, 0)$
$P_7 = (1, 2, 0, 0)$
$P_8 = (1, 0, 1, 0)$
$P_9 = (1, 0, 3, 0)$
$P_{10} = (1, 0, 2, 0)$
$P_{11} = (0, 1, 1, 0)$
$P_{12} = (1, 1, 1, 0)$
$P_{13} = (1, 3, 3, 0)$
$P_{14} = (1, 2, 2, 0)$
$P_{15} = (0, 1, 3, 0)$
$P_{16} = (1, 2, 1, 0)$
$P_{17} = (1, 1, 3, 0)$
$P_{18} = (1, 3, 2, 0)$
$P_{19} = (0, 1, 2, 0)$
$P_{20} = (1, 3, 1, 0)$
$P_{21} = (1, 2, 3, 0)$
$P_{22} = (1, 1, 2, 0)$
$P_{23} = (1, 0, 0, 1)$

$P_{24} = (1, 0, 0, 3)$
$P_{25} = (1, 0, 0, 2)$
$P_{26} = (0, 1, 0, 1)$
$P_{27} = (1, 1, 0, 1)$
$P_{28} = (1, 3, 0, 3)$
$P_{29} = (1, 2, 0, 2)$
$P_{30} = (0, 1, 0, 3)$
$P_{31} = (1, 2, 0, 1)$
$P_{32} = (1, 1, 0, 3)$
$P_{33} = (1, 3, 0, 2)$
$P_{34} = (0, 1, 0, 2)$
$P_{35} = (1, 3, 0, 1)$
$P_{36} = (1, 2, 0, 3)$
$P_{37} = (1, 1, 0, 2)$
$P_{38} = (0, 0, 1, 1)$
$P_{39} = (1, 0, 1, 1)$
$P_{40} = (1, 0, 3, 3)$
$P_{41} = (1, 0, 2, 2)$
$P_{42} = (0, 1, 1, 1)$
$P_{43} = (1, 3, 3, 3)$
$P_{44} = (1, 2, 2, 2)$
$P_{45} = (0, 1, 3, 3)$
$P_{46} = (1, 2, 1, 1)$
$P_{47} = (1, 1, 3, 3)$
$P_{48} = (1, 3, 2, 2)$
$P_{49} = (0, 1, 2, 2)$
$P_{50} = (1, 3, 1, 1)$
$P_{51} = (1, 2, 3, 3)$
$P_{52} = (1, 1, 2, 2)$
$P_{53} = (0, 0, 1, 3)$
$P_{54} = (1, 0, 2, 1)$
$P_{55} = (1, 0, 1, 3)$
$P_{56} = (1, 0, 3, 2)$
$P_{57} = (0, 1, 2, 1)$
$P_{58} = (1, 1, 2, 1)$
$P_{59} = (1, 3, 1, 3)$
$P_{60} = (1, 2, 3, 2)$
$P_{61} = (0, 1, 1, 3)$
$P_{62} = (1, 2, 2, 1)$
$P_{63} = (1, 1, 1, 3)$
$P_{64} = (1, 3, 3, 2)$
$P_{65} = (0, 1, 3, 2)$
$P_{66} = (1, 3, 2, 1)$
$P_{67} = (1, 2, 1, 3)$
$P_{68} = (1, 1, 3, 2)$
$P_{69} = (0, 0, 1, 2)$
$P_{70} = (1, 0, 3, 1)$
$P_{71} = (1, 0, 2, 3)$
$P_{72} = (1, 0, 1, 2)$
$P_{73} = (0, 1, 3, 1)$
$P_{74} = (1, 1, 3, 1)$
$P_{75} = (1, 3, 2, 3)$
$P_{76} = (1, 2, 1, 2)$
$P_{77} = (0, 1, 2, 3)$
$P_{78} = (1, 2, 3, 1)$
$P_{79} = (1, 1, 2, 3)$
$P_{80} = (1, 3, 1, 2)$
$P_{81} = (0, 1, 1, 2)$
$P_{82} = (1, 3, 3, 1)$
$P_{83} = (1, 2, 2, 3)$
$P_{84} = (1, 1, 1, 2)$

The lines of $\mathrm{PG}(3,4)$

$\mathrm{PG}(3,4)$ has 357 1-subspaces:

$$L_0 = \begin{bmatrix} 1000 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,0,0)$$
$$L_1 = \begin{bmatrix} 1000 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,0,0)$$
$$L_2 = \begin{bmatrix} 1000 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,0,0)$$
$$L_3 = \begin{bmatrix} 1000 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,0,0)$$
$$L_4 = \begin{bmatrix} 1000 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,1,0)$$
$$L_5 = \begin{bmatrix} 1000 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,1,0)$$
$$L_6 = \begin{bmatrix} 1000 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,1,0)$$
$$L_7 = \begin{bmatrix} 1000 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,1,0)$$
$$L_8 = \begin{bmatrix} 1000 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,2,0)$$
$$L_9 = \begin{bmatrix} 1000 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,2,0)$$
$$L_{10} = \begin{bmatrix} 1000 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,2,0)$$
$$L_{11} = \begin{bmatrix} 1000 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,2,0)$$
$$L_{12} = \begin{bmatrix} 1000 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,3,0)$$
$$L_{13} = \begin{bmatrix} 1000 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,3,0)$$
$$L_{14} = \begin{bmatrix} 1000 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,3,0)$$
$$L_{15} = \begin{bmatrix} 1000 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,3,0)$$
$$L_{16} = \begin{bmatrix} 1000 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,0,0)$$
$$L_{17} = \begin{bmatrix} 1000 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,1,0)$$
$$L_{18} = \begin{bmatrix} 1000 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,2,0)$$
$$L_{19} = \begin{bmatrix} 1000 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,3,0)$$

$$L_{20} = \begin{bmatrix} 1000 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,0,1,0)$$
$$L_{21} = \begin{bmatrix} 1010 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,0,1)$$
$$L_{22} = \begin{bmatrix} 1010 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,0,1)$$
$$L_{23} = \begin{bmatrix} 1010 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,0,1)$$
$$L_{24} = \begin{bmatrix} 1010 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,0,1)$$
$$L_{25} = \begin{bmatrix} 1010 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,1,0,0,1,1)$$
$$L_{26} = \begin{bmatrix} 1010 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,1,1,0,1,1)$$
$$L_{27} = \begin{bmatrix} 1010 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,1,2,0,1,1)$$
$$L_{28} = \begin{bmatrix} 1010 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,1,3,0,1,1)$$
$$L_{29} = \begin{bmatrix} 1010 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,2,0,0,2,1)$$
$$L_{30} = \begin{bmatrix} 1010 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,2,1,0,2,1)$$
$$L_{31} = \begin{bmatrix} 1010 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,2,2,0,2,1)$$
$$L_{32} = \begin{bmatrix} 1010 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,2,3,0,2,1)$$
$$L_{33} = \begin{bmatrix} 1010 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,3,0,0,3,1)$$
$$L_{34} = \begin{bmatrix} 1010 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,3,1,0,3,1)$$
$$L_{35} = \begin{bmatrix} 1010 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,3,2,0,3,1)$$
$$L_{36} = \begin{bmatrix} 1010 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,3,3,0,3,1)$$
$$L_{37} = \begin{bmatrix} 1100 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,0,1)$$
$$L_{38} = \begin{bmatrix} 1100 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,0,1,1,1,1)$$
$$L_{39} = \begin{bmatrix} 1100 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,0,1,2,2,1)$$
$$L_{40} = \begin{bmatrix} 1100 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,0,1,3,3,1)$$

$$L_{41} = \begin{bmatrix} 1100 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,1,1,0)$$
$$L_{42} = \begin{bmatrix} 1020 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,0,2)$$
$$L_{43} = \begin{bmatrix} 1020 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,0,2)$$
$$L_{44} = \begin{bmatrix} 1020 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,0,2)$$
$$L_{45} = \begin{bmatrix} 1020 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,0,2)$$
$$L_{46} = \begin{bmatrix} 1020 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,2,0,0,1,2)$$
$$L_{47} = \begin{bmatrix} 1020 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,2,1,0,1,2)$$
$$L_{48} = \begin{bmatrix} 1020 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,2,2,0,1,2)$$
$$L_{49} = \begin{bmatrix} 1020 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,2,3,0,1,2)$$
$$L_{50} = \begin{bmatrix} 1020 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,3,0,0,2,2)$$
$$L_{51} = \begin{bmatrix} 1020 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,3,1,0,2,2)$$
$$L_{52} = \begin{bmatrix} 1020 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,3,2,0,2,2)$$
$$L_{53} = \begin{bmatrix} 1020 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,3,3,0,2,2)$$
$$L_{54} = \begin{bmatrix} 1020 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,1,0,0,3,2)$$
$$L_{55} = \begin{bmatrix} 1020 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,1,1,0,3,2)$$
$$L_{56} = \begin{bmatrix} 1020 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,1,2,0,3,2)$$
$$L_{57} = \begin{bmatrix} 1020 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,1,3,0,3,2)$$
$$L_{58} = \begin{bmatrix} 1200 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,0,2)$$
$$L_{59} = \begin{bmatrix} 1200 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,0,1,2,1,2)$$
$$L_{60} = \begin{bmatrix} 1200 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,0,1,3,2,2)$$
$$L_{61} = \begin{bmatrix} 1200 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,0,1,1,3,2)$$

$$L_{62} = \begin{bmatrix} 1200 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,2,1,0)$$
$$L_{63} = \begin{bmatrix} 1030 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,0,3)$$
$$L_{64} = \begin{bmatrix} 1030 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,0,1,0,0,3)$$
$$L_{65} = \begin{bmatrix} 1030 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,0,2,0,0,3)$$
$$L_{66} = \begin{bmatrix} 1030 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,0,3,0,0,3)$$
$$L_{67} = \begin{bmatrix} 1030 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,3,0,0,1,3)$$
$$L_{68} = \begin{bmatrix} 1030 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,3,1,0,1,3)$$
$$L_{69} = \begin{bmatrix} 1030 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,3,2,0,1,3)$$
$$L_{70} = \begin{bmatrix} 1030 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,3,3,0,1,3)$$
$$L_{71} = \begin{bmatrix} 1030 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,1,0,0,2,3)$$
$$L_{72} = \begin{bmatrix} 1030 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,1,1,0,2,3)$$
$$L_{73} = \begin{bmatrix} 1030 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,1,2,0,2,3)$$
$$L_{74} = \begin{bmatrix} 1030 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,1,3,0,2,3)$$
$$L_{75} = \begin{bmatrix} 1030 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,2,0,0,3,3)$$
$$L_{76} = \begin{bmatrix} 1030 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,2,1,0,3,3)$$
$$L_{77} = \begin{bmatrix} 1030 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,2,2,0,3,3)$$
$$L_{78} = \begin{bmatrix} 1030 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,2,3,0,3,3)$$
$$L_{79} = \begin{bmatrix} 1300 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,0,3)$$
$$L_{80} = \begin{bmatrix} 1300 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,0,1,3,1,3)$$
$$L_{81} = \begin{bmatrix} 1300 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,0,1,1,2,3)$$
$$L_{82} = \begin{bmatrix} 1300 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,0,1,2,3,3)$$

$$L_{83} = \begin{bmatrix} 1300 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,3,1,0)$$
$$L_{84} = \begin{bmatrix} 1001 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,0,0)$$
$$L_{85} = \begin{bmatrix} 1001 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,0,0)$$
$$L_{86} = \begin{bmatrix} 1001 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,0,0)$$
$$L_{87} = \begin{bmatrix} 1001 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,0,0)$$
$$L_{88} = \begin{bmatrix} 1001 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,1,0)$$
$$L_{89} = \begin{bmatrix} 1001 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,1,0)$$
$$L_{90} = \begin{bmatrix} 1001 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,1,0)$$
$$L_{91} = \begin{bmatrix} 1001 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,1,0)$$
$$L_{92} = \begin{bmatrix} 1001 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,2,0)$$
$$L_{93} = \begin{bmatrix} 1001 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,2,0)$$
$$L_{94} = \begin{bmatrix} 1001 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,2,0)$$
$$L_{95} = \begin{bmatrix} 1001 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,2,0)$$
$$L_{96} = \begin{bmatrix} 1001 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,3,0)$$
$$L_{97} = \begin{bmatrix} 1001 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,3,0)$$
$$L_{98} = \begin{bmatrix} 1001 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,3,0)$$
$$L_{99} = \begin{bmatrix} 1001 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,3,0)$$
$$L_{100} = \begin{bmatrix} 1001 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,0,0)$$
$$L_{101} = \begin{bmatrix} 1001 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,1,0)$$
$$L_{102} = \begin{bmatrix} 1001 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,2,0)$$
$$L_{103} = \begin{bmatrix} 1001 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,3,0)$$

$$L_{104} = \begin{bmatrix} 1010 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,0,1,0)$$
$$L_{105} = \begin{bmatrix} 1011 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,0,1)$$
$$L_{106} = \begin{bmatrix} 1011 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,0,1)$$
$$L_{107} = \begin{bmatrix} 1011 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,0,1)$$
$$L_{108} = \begin{bmatrix} 1011 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,0,1)$$
$$L_{109} = \begin{bmatrix} 1011 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,1,0,1,1,1)$$
$$L_{110} = \begin{bmatrix} 1011 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,0,1,1,1,1)$$
$$L_{111} = \begin{bmatrix} 1011 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,3,2,1,1,1)$$
$$L_{112} = \begin{bmatrix} 1011 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,2,3,1,1,1)$$
$$L_{113} = \begin{bmatrix} 1011 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,2,0,1,2,1)$$
$$L_{114} = \begin{bmatrix} 1011 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,3,1,1,2,1)$$
$$L_{115} = \begin{bmatrix} 1011 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,0,2,1,2,1)$$
$$L_{116} = \begin{bmatrix} 1011 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,1,3,1,2,1)$$
$$L_{117} = \begin{bmatrix} 1011 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,3,0,1,3,1)$$
$$L_{118} = \begin{bmatrix} 1011 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,2,1,1,3,1)$$
$$L_{119} = \begin{bmatrix} 1011 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,1,2,1,3,1)$$
$$L_{120} = \begin{bmatrix} 1011 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,0,3,1,3,1)$$
$$L_{121} = \begin{bmatrix} 1101 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,0,1)$$
$$L_{122} = \begin{bmatrix} 1101 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,1,1,1,1,1)$$
$$L_{123} = \begin{bmatrix} 1101 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,1,1,2,2,1)$$
$$L_{124} = \begin{bmatrix} 1101 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,1,1,3,3,1)$$

$$L_{125} = \begin{bmatrix} 1110 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,1,1,0)$$
$$L_{126} = \begin{bmatrix} 1021 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,0,2)$$
$$L_{127} = \begin{bmatrix} 1021 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,0,2)$$
$$L_{128} = \begin{bmatrix} 1021 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,0,2)$$
$$L_{129} = \begin{bmatrix} 1021 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,0,2)$$
$$L_{130} = \begin{bmatrix} 1021 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,2,0,1,1,2)$$
$$L_{131} = \begin{bmatrix} 1021 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,3,1,1,1,2)$$
$$L_{132} = \begin{bmatrix} 1021 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,0,2,1,1,2)$$
$$L_{133} = \begin{bmatrix} 1021 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,1,3,1,1,2)$$
$$L_{134} = \begin{bmatrix} 1021 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,3,0,1,2,2)$$
$$L_{135} = \begin{bmatrix} 1021 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,2,1,1,2,2)$$
$$L_{136} = \begin{bmatrix} 1021 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,1,2,1,2,2)$$
$$L_{137} = \begin{bmatrix} 1021 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,0,3,1,2,2)$$
$$L_{138} = \begin{bmatrix} 1021 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,1,0,1,3,2)$$
$$L_{139} = \begin{bmatrix} 1021 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,0,1,1,3,2)$$
$$L_{140} = \begin{bmatrix} 1021 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,3,2,1,3,2)$$
$$L_{141} = \begin{bmatrix} 1021 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,2,3,1,3,2)$$
$$L_{142} = \begin{bmatrix} 1201 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,0,2)$$
$$L_{143} = \begin{bmatrix} 1201 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,1,1,2,1,2)$$
$$L_{144} = \begin{bmatrix} 1201 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,1,1,3,2,2)$$
$$L_{145} = \begin{bmatrix} 1201 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,1,1,1,3,2)$$

$$L_{146} = \begin{bmatrix} 1210 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,2,1,0)$$
$$L_{147} = \begin{bmatrix} 1031 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,1,0,3)$$
$$L_{148} = \begin{bmatrix} 1031 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,1,1,1,0,3)$$
$$L_{149} = \begin{bmatrix} 1031 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,2,2,1,0,3)$$
$$L_{150} = \begin{bmatrix} 1031 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,3,3,1,0,3)$$
$$L_{151} = \begin{bmatrix} 1031 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,3,0,1,1,3)$$
$$L_{152} = \begin{bmatrix} 1031 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,2,1,1,1,3)$$
$$L_{153} = \begin{bmatrix} 1031 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,1,2,1,1,3)$$
$$L_{154} = \begin{bmatrix} 1031 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,0,3,1,1,3)$$
$$L_{155} = \begin{bmatrix} 1031 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,1,0,1,2,3)$$
$$L_{156} = \begin{bmatrix} 1031 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,0,1,1,2,3)$$
$$L_{157} = \begin{bmatrix} 1031 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,3,2,1,2,3)$$
$$L_{158} = \begin{bmatrix} 1031 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,2,3,1,2,3)$$
$$L_{159} = \begin{bmatrix} 1031 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,2,0,1,3,3)$$
$$L_{160} = \begin{bmatrix} 1031 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,3,1,1,3,3)$$
$$L_{161} = \begin{bmatrix} 1031 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,0,2,1,3,3)$$
$$L_{162} = \begin{bmatrix} 1031 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,1,3,1,3,3)$$
$$L_{163} = \begin{bmatrix} 1301 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,1,1,0,0,3)$$
$$L_{164} = \begin{bmatrix} 1301 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,1,1,3,1,3)$$
$$L_{165} = \begin{bmatrix} 1301 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,1,1,1,2,3)$$
$$L_{166} = \begin{bmatrix} 1301 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,1,1,2,3,3)$$

$$L_{167} = \begin{bmatrix} 1310 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,3,1,0)$$
$$L_{168} = \begin{bmatrix} 1002 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,0,0)$$
$$L_{169} = \begin{bmatrix} 1002 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,0,0)$$
$$L_{170} = \begin{bmatrix} 1002 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,0,0)$$
$$L_{171} = \begin{bmatrix} 1002 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,0,0)$$
$$L_{172} = \begin{bmatrix} 1002 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,1,0)$$
$$L_{173} = \begin{bmatrix} 1002 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,1,0)$$
$$L_{174} = \begin{bmatrix} 1002 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,1,0)$$
$$L_{175} = \begin{bmatrix} 1002 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,1,0)$$
$$L_{176} = \begin{bmatrix} 1002 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,2,0)$$
$$L_{177} = \begin{bmatrix} 1002 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,2,0)$$
$$L_{178} = \begin{bmatrix} 1002 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,2,0)$$
$$L_{179} = \begin{bmatrix} 1002 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,2,0)$$
$$L_{180} = \begin{bmatrix} 1002 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,3,0)$$
$$L_{181} = \begin{bmatrix} 1002 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,3,0)$$
$$L_{182} = \begin{bmatrix} 1002 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,3,0)$$
$$L_{183} = \begin{bmatrix} 1002 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,3,0)$$
$$L_{184} = \begin{bmatrix} 1002 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,0,0)$$
$$L_{185} = \begin{bmatrix} 1002 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,1,0)$$
$$L_{186} = \begin{bmatrix} 1002 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,2,0)$$
$$L_{187} = \begin{bmatrix} 1002 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,3,0)$$

$$L_{188} = \begin{bmatrix} 1020 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,2,0,0,1,0)$$
$$L_{189} = \begin{bmatrix} 1012 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,0,1)$$
$$L_{190} = \begin{bmatrix} 1012 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,0,1)$$
$$L_{191} = \begin{bmatrix} 1012 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,0,1)$$
$$L_{192} = \begin{bmatrix} 1012 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,0,1)$$
$$L_{193} = \begin{bmatrix} 1012 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,1,0,2,1,1)$$
$$L_{194} = \begin{bmatrix} 1012 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,3,1,2,1,1)$$
$$L_{195} = \begin{bmatrix} 1012 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,2,2,2,1,1)$$
$$L_{196} = \begin{bmatrix} 1012 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,0,3,2,1,1)$$
$$L_{197} = \begin{bmatrix} 1012 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,2,0,2,2,1)$$
$$L_{198} = \begin{bmatrix} 1012 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,0,1,2,2,1)$$
$$L_{199} = \begin{bmatrix} 1012 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,1,2,2,2,1)$$
$$L_{200} = \begin{bmatrix} 1012 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,3,3,2,2,1)$$
$$L_{201} = \begin{bmatrix} 1012 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,3,0,2,3,1)$$
$$L_{202} = \begin{bmatrix} 1012 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,1,1,2,3,1)$$
$$L_{203} = \begin{bmatrix} 1012 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,0,2,2,3,1)$$
$$L_{204} = \begin{bmatrix} 1012 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,2,3,2,3,1)$$
$$L_{205} = \begin{bmatrix} 1102 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,0,1)$$
$$L_{206} = \begin{bmatrix} 1102 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,2,1,1,1,1)$$
$$L_{207} = \begin{bmatrix} 1102 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,2,1,2,2,1)$$
$$L_{208} = \begin{bmatrix} 1102 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,2,1,3,3,1)$$

$$L_{209} = \begin{bmatrix} 1120 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,2,0,1,1,0)$$
$$L_{210} = \begin{bmatrix} 1022 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,0,2)$$
$$L_{211} = \begin{bmatrix} 1022 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,0,2)$$
$$L_{212} = \begin{bmatrix} 1022 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,0,2)$$
$$L_{213} = \begin{bmatrix} 1022 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,0,2)$$
$$L_{214} = \begin{bmatrix} 1022 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,2,0,2,1,2)$$
$$L_{215} = \begin{bmatrix} 1022 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,0,1,2,1,2)$$
$$L_{216} = \begin{bmatrix} 1022 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,1,2,2,1,2)$$
$$L_{217} = \begin{bmatrix} 1022 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,3,3,2,1,2)$$
$$L_{218} = \begin{bmatrix} 1022 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,3,0,2,2,2)$$
$$L_{219} = \begin{bmatrix} 1022 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,1,1,2,2,2)$$
$$L_{220} = \begin{bmatrix} 1022 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,0,2,2,2,2)$$
$$L_{221} = \begin{bmatrix} 1022 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,2,3,2,2,2)$$
$$L_{222} = \begin{bmatrix} 1022 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,1,0,2,3,2)$$
$$L_{223} = \begin{bmatrix} 1022 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,3,1,2,3,2)$$
$$L_{224} = \begin{bmatrix} 1022 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,2,2,2,3,2)$$
$$L_{225} = \begin{bmatrix} 1022 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,0,3,2,3,2)$$
$$L_{226} = \begin{bmatrix} 1202 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,0,2)$$
$$L_{227} = \begin{bmatrix} 1202 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,2,1,2,1,2)$$
$$L_{228} = \begin{bmatrix} 1202 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,2,1,3,2,2)$$
$$L_{229} = \begin{bmatrix} 1202 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,2,1,1,3,2)$$

$$L_{230} = \begin{bmatrix} 1220 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,2,0,2,1,0)$$
$$L_{231} = \begin{bmatrix} 1032 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,2,0,3)$$
$$L_{232} = \begin{bmatrix} 1032 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,2,1,2,0,3)$$
$$L_{233} = \begin{bmatrix} 1032 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,3,2,2,0,3)$$
$$L_{234} = \begin{bmatrix} 1032 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,1,3,2,0,3)$$
$$L_{235} = \begin{bmatrix} 1032 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,3,0,2,1,3)$$
$$L_{236} = \begin{bmatrix} 1032 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,1,1,2,1,3)$$
$$L_{237} = \begin{bmatrix} 1032 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,0,2,2,1,3)$$
$$L_{238} = \begin{bmatrix} 1032 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,2,3,2,1,3)$$
$$L_{239} = \begin{bmatrix} 1032 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,1,0,2,2,3)$$
$$L_{240} = \begin{bmatrix} 1032 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,3,1,2,2,3)$$
$$L_{241} = \begin{bmatrix} 1032 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,2,2,2,2,3)$$
$$L_{242} = \begin{bmatrix} 1032 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,0,3,2,2,3)$$
$$L_{243} = \begin{bmatrix} 1032 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,2,0,2,3,3)$$
$$L_{244} = \begin{bmatrix} 1032 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,0,1,2,3,3)$$
$$L_{245} = \begin{bmatrix} 1032 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,1,2,2,3,3)$$
$$L_{246} = \begin{bmatrix} 1032 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,3,3,2,3,3)$$
$$L_{247} = \begin{bmatrix} 1302 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,2,1,0,0,3)$$
$$L_{248} = \begin{bmatrix} 1302 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,2,1,3,1,3)$$
$$L_{249} = \begin{bmatrix} 1302 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,2,1,1,2,3)$$
$$L_{250} = \begin{bmatrix} 1302 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,2,1,2,3,3)$$

$$L_{251} = \begin{bmatrix} 1320 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,2,0,3,1,0)$$
$$L_{252} = \begin{bmatrix} 1003 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,0,0)$$
$$L_{253} = \begin{bmatrix} 1003 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,0,0)$$
$$L_{254} = \begin{bmatrix} 1003 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,0,0)$$
$$L_{255} = \begin{bmatrix} 1003 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,0,0)$$
$$L_{256} = \begin{bmatrix} 1003 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,1,0)$$
$$L_{257} = \begin{bmatrix} 1003 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,1,0)$$
$$L_{258} = \begin{bmatrix} 1003 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,1,0)$$
$$L_{259} = \begin{bmatrix} 1003 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,1,0)$$
$$L_{260} = \begin{bmatrix} 1003 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,2,0)$$
$$L_{261} = \begin{bmatrix} 1003 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,2,0)$$
$$L_{262} = \begin{bmatrix} 1003 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,2,0)$$
$$L_{263} = \begin{bmatrix} 1003 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,2,0)$$
$$L_{264} = \begin{bmatrix} 1003 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,3,0)$$
$$L_{265} = \begin{bmatrix} 1003 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,3,0)$$
$$L_{266} = \begin{bmatrix} 1003 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,3,0)$$
$$L_{267} = \begin{bmatrix} 1003 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,3,0)$$
$$L_{268} = \begin{bmatrix} 1003 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,0,0)$$
$$L_{269} = \begin{bmatrix} 1003 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,1,0)$$
$$L_{270} = \begin{bmatrix} 1003 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,2,0)$$
$$L_{271} = \begin{bmatrix} 1003 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,3,0)$$

$$L_{272} = \begin{bmatrix} 1030 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,3,0,0,1,0)$$
$$L_{273} = \begin{bmatrix} 1013 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,0,1)$$
$$L_{274} = \begin{bmatrix} 1013 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,0,1)$$
$$L_{275} = \begin{bmatrix} 1013 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,0,1)$$
$$L_{276} = \begin{bmatrix} 1013 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,0,1)$$
$$L_{277} = \begin{bmatrix} 1013 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,1,0,3,1,1)$$
$$L_{278} = \begin{bmatrix} 1013 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,2,1,3,1,1)$$
$$L_{279} = \begin{bmatrix} 1013 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,0,2,3,1,1)$$
$$L_{280} = \begin{bmatrix} 1013 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,3,3,3,1,1)$$
$$L_{281} = \begin{bmatrix} 1013 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,2,0,3,2,1)$$
$$L_{282} = \begin{bmatrix} 1013 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,1,1,3,2,1)$$
$$L_{283} = \begin{bmatrix} 1013 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,3,2,3,2,1)$$
$$L_{284} = \begin{bmatrix} 1013 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,0,3,3,2,1)$$
$$L_{285} = \begin{bmatrix} 1013 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,3,0,3,3,1)$$
$$L_{286} = \begin{bmatrix} 1013 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,0,1,3,3,1)$$
$$L_{287} = \begin{bmatrix} 1013 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,2,2,3,3,1)$$
$$L_{288} = \begin{bmatrix} 1013 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,1,3,3,3,1)$$
$$L_{289} = \begin{bmatrix} 1103 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,0,1)$$
$$L_{290} = \begin{bmatrix} 1103 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,3,1,1,1,1)$$
$$L_{291} = \begin{bmatrix} 1103 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,3,1,2,2,1)$$
$$L_{292} = \begin{bmatrix} 1103 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,3,1,3,3,1)$$

$$L_{293} = \begin{bmatrix} 1130 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,3,0,1,1,0)$$
$$L_{294} = \begin{bmatrix} 1023 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,0,2)$$
$$L_{295} = \begin{bmatrix} 1023 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,0,2)$$
$$L_{296} = \begin{bmatrix} 1023 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,0,2)$$
$$L_{297} = \begin{bmatrix} 1023 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,0,2)$$
$$L_{298} = \begin{bmatrix} 1023 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,2,0,3,1,2)$$
$$L_{299} = \begin{bmatrix} 1023 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,1,1,3,1,2)$$
$$L_{300} = \begin{bmatrix} 1023 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,3,2,3,1,2)$$
$$L_{301} = \begin{bmatrix} 1023 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,0,3,3,1,2)$$
$$L_{302} = \begin{bmatrix} 1023 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,3,0,3,2,2)$$
$$L_{303} = \begin{bmatrix} 1023 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,0,1,3,2,2)$$
$$L_{304} = \begin{bmatrix} 1023 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,2,2,3,2,2)$$
$$L_{305} = \begin{bmatrix} 1023 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,1,3,3,2,2)$$
$$L_{306} = \begin{bmatrix} 1023 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,1,0,3,3,2)$$
$$L_{307} = \begin{bmatrix} 1023 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,2,1,3,3,2)$$
$$L_{308} = \begin{bmatrix} 1023 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,0,2,3,3,2)$$
$$L_{309} = \begin{bmatrix} 1023 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,3,3,3,3,2)$$
$$L_{310} = \begin{bmatrix} 1203 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,0,2)$$
$$L_{311} = \begin{bmatrix} 1203 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,3,1,2,1,2)$$
$$L_{312} = \begin{bmatrix} 1203 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,3,1,3,2,2)$$
$$L_{313} = \begin{bmatrix} 1203 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,3,1,1,3,2)$$

$$L_{314} = \begin{bmatrix} 1230 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,3,0,2,1,0)$$
$$L_{315} = \begin{bmatrix} 1033 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,3,0,3)$$
$$L_{316} = \begin{bmatrix} 1033 \\ 0110 \end{bmatrix} = \mathbf{Pl}(1,3,1,3,0,3)$$
$$L_{317} = \begin{bmatrix} 1033 \\ 0120 \end{bmatrix} = \mathbf{Pl}(1,1,2,3,0,3)$$
$$L_{318} = \begin{bmatrix} 1033 \\ 0130 \end{bmatrix} = \mathbf{Pl}(1,2,3,3,0,3)$$
$$L_{319} = \begin{bmatrix} 1033 \\ 0101 \end{bmatrix} = \mathbf{Pl}(1,3,0,3,1,3)$$
$$L_{320} = \begin{bmatrix} 1033 \\ 0111 \end{bmatrix} = \mathbf{Pl}(1,0,1,3,1,3)$$
$$L_{321} = \begin{bmatrix} 1033 \\ 0121 \end{bmatrix} = \mathbf{Pl}(1,2,2,3,1,3)$$
$$L_{322} = \begin{bmatrix} 1033 \\ 0131 \end{bmatrix} = \mathbf{Pl}(1,1,3,3,1,3)$$
$$L_{323} = \begin{bmatrix} 1033 \\ 0102 \end{bmatrix} = \mathbf{Pl}(1,1,0,3,2,3)$$
$$L_{324} = \begin{bmatrix} 1033 \\ 0112 \end{bmatrix} = \mathbf{Pl}(1,2,1,3,2,3)$$
$$L_{325} = \begin{bmatrix} 1033 \\ 0122 \end{bmatrix} = \mathbf{Pl}(1,0,2,3,2,3)$$
$$L_{326} = \begin{bmatrix} 1033 \\ 0132 \end{bmatrix} = \mathbf{Pl}(1,3,3,3,2,3)$$
$$L_{327} = \begin{bmatrix} 1033 \\ 0103 \end{bmatrix} = \mathbf{Pl}(1,2,0,3,3,3)$$
$$L_{328} = \begin{bmatrix} 1033 \\ 0113 \end{bmatrix} = \mathbf{Pl}(1,1,1,3,3,3)$$
$$L_{329} = \begin{bmatrix} 1033 \\ 0123 \end{bmatrix} = \mathbf{Pl}(1,3,2,3,3,3)$$
$$L_{330} = \begin{bmatrix} 1033 \\ 0133 \end{bmatrix} = \mathbf{Pl}(1,0,3,3,3,3)$$
$$L_{331} = \begin{bmatrix} 1303 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,3,1,0,0,3)$$
$$L_{332} = \begin{bmatrix} 1303 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,3,1,3,1,3)$$
$$L_{333} = \begin{bmatrix} 1303 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,3,1,1,2,3)$$
$$L_{334} = \begin{bmatrix} 1303 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,3,1,2,3,3)$$

$$L_{335} = \begin{bmatrix} 1330 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,3,0,3,1,0)$$
$$L_{336} = \begin{bmatrix} 0100 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,0,0,0,1)$$
$$L_{337} = \begin{bmatrix} 0100 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,0,0,1,0,1)$$
$$L_{338} = \begin{bmatrix} 0100 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,0,0,2,0,1)$$
$$L_{339} = \begin{bmatrix} 0100 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,0,0,3,0,1)$$
$$L_{340} = \begin{bmatrix} 0100 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,1,0,0)$$
$$L_{341} = \begin{bmatrix} 0101 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,1,0,0,0,1)$$
$$L_{342} = \begin{bmatrix} 0101 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,1,0,1,0,1)$$
$$L_{343} = \begin{bmatrix} 0101 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,1,0,2,0,1)$$
$$L_{344} = \begin{bmatrix} 0101 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,1,0,3,0,1)$$
$$L_{345} = \begin{bmatrix} 0110 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,1,0,0)$$
$$L_{346} = \begin{bmatrix} 0102 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,2,0,0,0,1)$$
$$L_{347} = \begin{bmatrix} 0102 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,2,0,1,0,1)$$
$$L_{348} = \begin{bmatrix} 0102 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,2,0,2,0,1)$$
$$L_{349} = \begin{bmatrix} 0102 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,2,0,3,0,1)$$
$$L_{350} = \begin{bmatrix} 0120 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,2,0,1,0,0)$$
$$L_{351} = \begin{bmatrix} 0103 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,3,0,0,0,1)$$
$$L_{352} = \begin{bmatrix} 0103 \\ 0011 \end{bmatrix} = \mathbf{Pl}(0,3,0,1,0,1)$$
$$L_{353} = \begin{bmatrix} 0103 \\ 0012 \end{bmatrix} = \mathbf{Pl}(0,3,0,2,0,1)$$
$$L_{354} = \begin{bmatrix} 0103 \\ 0013 \end{bmatrix} = \mathbf{Pl}(0,3,0,3,0,1)$$
$$L_{355} = \begin{bmatrix} 0130 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,3,0,1,0,0)$$

$L_{356} = \begin{bmatrix} 0010 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,0,0,0)$

Lines sorted by Pluecker coordinates

$0 = \mathbf{Pl}(1,0,0,0,0,0) = L_0 = \begin{bmatrix} 1000 \\ 0100 \end{bmatrix}$

$1 = \mathbf{Pl}(0,1,0,0,0,0) = L_{356} = \begin{bmatrix} 0010 \\ 0001 \end{bmatrix}$

$2 = \mathbf{Pl}(0,0,1,0,0,0) = L_{16} = \begin{bmatrix} 1000 \\ 0010 \end{bmatrix}$

$3 = \mathbf{Pl}(0,0,0,1,0,0) = L_{340} = \begin{bmatrix} 0100 \\ 0001 \end{bmatrix}$

$4 = \mathbf{Pl}(0,0,0,0,1,0) = L_{20} = \begin{bmatrix} 1000 \\ 0001 \end{bmatrix}$

$5 = \mathbf{Pl}(0,0,0,0,0,1) = L_{336} = \begin{bmatrix} 0100 \\ 0010 \end{bmatrix}$

$6 = \mathbf{Pl}(1,0,1,0,0,0) = L_1 = \begin{bmatrix} 1000 \\ 0110 \end{bmatrix}$

$7 = \mathbf{Pl}(2,0,1,0,0,0) = L_3 = \begin{bmatrix} 1000 \\ 0130 \end{bmatrix}$

$8 = \mathbf{Pl}(3,0,1,0,0,0) = L_2 = \begin{bmatrix} 1000 \\ 0120 \end{bmatrix}$

$9 = \mathbf{Pl}(0,1,1,0,0,0) = L_{100} = \begin{bmatrix} 1001 \\ 0010 \end{bmatrix}$

$10 = \mathbf{Pl}(0,2,1,0,0,0) = L_{184} = \begin{bmatrix} 1002 \\ 0010 \end{bmatrix}$

$11 = \mathbf{Pl}(0,3,1,0,0,0) = L_{268} = \begin{bmatrix} 1003 \\ 0010 \end{bmatrix}$

$12 = \mathbf{Pl}(1,0,0,1,0,0) = L_{84} = \begin{bmatrix} 1001 \\ 0100 \end{bmatrix}$

$13 = \mathbf{Pl}(2,0,0,1,0,0) = L_{252} = \begin{bmatrix} 1003 \\ 0100 \end{bmatrix}$

$14 = \mathbf{Pl}(3,0,0,1,0,0) = L_{168} = \begin{bmatrix} 1002 \\ 0100 \end{bmatrix}$

$15 = \mathbf{Pl}(0,1,0,1,0,0) = L_{345} = \begin{bmatrix} 0110 \\ 0001 \end{bmatrix}$

$16 = \mathbf{Pl}(0,2,0,1,0,0) = L_{350} = \begin{bmatrix} 0120 \\ 0001 \end{bmatrix}$

$17 = \mathbf{Pl}(0,3,0,1,0,0) = L_{355} = \begin{bmatrix} 0130 \\ 0001 \end{bmatrix}$

$18 = \mathbf{Pl}(1,1,1,1,0,0) = L_{85} = \begin{bmatrix} 1001 \\ 0110 \end{bmatrix}$

$19 = \mathbf{Pl}(3,2,1,1,0,0) = L_{170} = \begin{bmatrix} 1002 \\ 0120 \end{bmatrix}$

$$20 = \mathbf{Pl}(2,3,1,1,0,0) = L_{255} = \begin{bmatrix} 1003 \\ 0130 \end{bmatrix}$$
$$21 = \mathbf{Pl}(2,1,2,1,0,0) = L_{253} = \begin{bmatrix} 1003 \\ 0110 \end{bmatrix}$$
$$22 = \mathbf{Pl}(1,2,2,1,0,0) = L_{86} = \begin{bmatrix} 1001 \\ 0120 \end{bmatrix}$$
$$23 = \mathbf{Pl}(3,3,2,1,0,0) = L_{171} = \begin{bmatrix} 1002 \\ 0130 \end{bmatrix}$$
$$24 = \mathbf{Pl}(3,1,3,1,0,0) = L_{169} = \begin{bmatrix} 1002 \\ 0110 \end{bmatrix}$$
$$25 = \mathbf{Pl}(2,2,3,1,0,0) = L_{254} = \begin{bmatrix} 1003 \\ 0120 \end{bmatrix}$$
$$26 = \mathbf{Pl}(1,3,3,1,0,0) = L_{87} = \begin{bmatrix} 1001 \\ 0130 \end{bmatrix}$$
$$27 = \mathbf{Pl}(1,0,0,0,1,0) = L_{4} = \begin{bmatrix} 1000 \\ 0101 \end{bmatrix}$$
$$28 = \mathbf{Pl}(2,0,0,0,1,0) = L_{12} = \begin{bmatrix} 1000 \\ 0103 \end{bmatrix}$$
$$29 = \mathbf{Pl}(3,0,0,0,1,0) = L_{8} = \begin{bmatrix} 1000 \\ 0102 \end{bmatrix}$$
$$30 = \mathbf{Pl}(0,1,0,0,1,0) = L_{104} = \begin{bmatrix} 1010 \\ 0001 \end{bmatrix}$$
$$31 = \mathbf{Pl}(0,2,0,0,1,0) = L_{188} = \begin{bmatrix} 1020 \\ 0001 \end{bmatrix}$$
$$32 = \mathbf{Pl}(0,3,0,0,1,0) = L_{272} = \begin{bmatrix} 1030 \\ 0001 \end{bmatrix}$$
$$33 = \mathbf{Pl}(0,0,1,0,1,0) = L_{17} = \begin{bmatrix} 1000 \\ 0011 \end{bmatrix}$$
$$34 = \mathbf{Pl}(1,0,1,0,1,0) = L_{5} = \begin{bmatrix} 1000 \\ 0111 \end{bmatrix}$$
$$35 = \mathbf{Pl}(2,0,1,0,1,0) = L_{15} = \begin{bmatrix} 1000 \\ 0133 \end{bmatrix}$$
$$36 = \mathbf{Pl}(3,0,1,0,1,0) = L_{10} = \begin{bmatrix} 1000 \\ 0122 \end{bmatrix}$$
$$37 = \mathbf{Pl}(0,1,1,0,1,0) = L_{101} = \begin{bmatrix} 1001 \\ 0011 \end{bmatrix}$$
$$38 = \mathbf{Pl}(0,2,1,0,1,0) = L_{185} = \begin{bmatrix} 1002 \\ 0011 \end{bmatrix}$$
$$39 = \mathbf{Pl}(0,3,1,0,1,0) = L_{269} = \begin{bmatrix} 1003 \\ 0011 \end{bmatrix}$$
$$40 = \mathbf{Pl}(0,0,2,0,1,0) = L_{19} = \begin{bmatrix} 1000 \\ 0013 \end{bmatrix}$$

$$41 = \mathbf{Pl}(1,0,2,0,1,0) = L_6 = \begin{bmatrix} 1000 \\ 0121 \end{bmatrix}$$

$$42 = \mathbf{Pl}(2,0,2,0,1,0) = L_{13} = \begin{bmatrix} 1000 \\ 0113 \end{bmatrix}$$

$$43 = \mathbf{Pl}(3,0,2,0,1,0) = L_{11} = \begin{bmatrix} 1000 \\ 0132 \end{bmatrix}$$

$$44 = \mathbf{Pl}(0,1,2,0,1,0) = L_{271} = \begin{bmatrix} 1003 \\ 0013 \end{bmatrix}$$

$$45 = \mathbf{Pl}(0,2,2,0,1,0) = L_{103} = \begin{bmatrix} 1001 \\ 0013 \end{bmatrix}$$

$$46 = \mathbf{Pl}(0,3,2,0,1,0) = L_{187} = \begin{bmatrix} 1002 \\ 0013 \end{bmatrix}$$

$$47 = \mathbf{Pl}(0,0,3,0,1,0) = L_{18} = \begin{bmatrix} 1000 \\ 0012 \end{bmatrix}$$

$$48 = \mathbf{Pl}(1,0,3,0,1,0) = L_7 = \begin{bmatrix} 1000 \\ 0131 \end{bmatrix}$$

$$49 = \mathbf{Pl}(2,0,3,0,1,0) = L_{14} = \begin{bmatrix} 1000 \\ 0123 \end{bmatrix}$$

$$50 = \mathbf{Pl}(3,0,3,0,1,0) = L_9 = \begin{bmatrix} 1000 \\ 0112 \end{bmatrix}$$

$$51 = \mathbf{Pl}(0,1,3,0,1,0) = L_{186} = \begin{bmatrix} 1002 \\ 0012 \end{bmatrix}$$

$$52 = \mathbf{Pl}(0,2,3,0,1,0) = L_{270} = \begin{bmatrix} 1003 \\ 0012 \end{bmatrix}$$

$$53 = \mathbf{Pl}(0,3,3,0,1,0) = L_{102} = \begin{bmatrix} 1001 \\ 0012 \end{bmatrix}$$

$$54 = \mathbf{Pl}(0,0,0,1,1,0) = L_{41} = \begin{bmatrix} 1100 \\ 0001 \end{bmatrix}$$

$$55 = \mathbf{Pl}(1,0,0,1,1,0) = L_{88} = \begin{bmatrix} 1001 \\ 0101 \end{bmatrix}$$

$$56 = \mathbf{Pl}(2,0,0,1,1,0) = L_{264} = \begin{bmatrix} 1003 \\ 0103 \end{bmatrix}$$

$$57 = \mathbf{Pl}(3,0,0,1,1,0) = L_{176} = \begin{bmatrix} 1002 \\ 0102 \end{bmatrix}$$

$$58 = \mathbf{Pl}(0,1,0,1,1,0) = L_{125} = \begin{bmatrix} 1110 \\ 0001 \end{bmatrix}$$

$$59 = \mathbf{Pl}(0,2,0,1,1,0) = L_{209} = \begin{bmatrix} 1120 \\ 0001 \end{bmatrix}$$

$$60 = \mathbf{Pl}(0,3,0,1,1,0) = L_{293} = \begin{bmatrix} 1130 \\ 0001 \end{bmatrix}$$

$$61 = \mathbf{Pl}(1,1,1,1,1,0) = L_{89} = \begin{bmatrix} 1001 \\ 0111 \end{bmatrix}$$

$$62 = \mathbf{Pl}(3,2,1,1,1,0) = L_{178} = \begin{bmatrix} 1002 \\ 0122 \end{bmatrix}$$

$$63 = \mathbf{Pl}(2,3,1,1,1,0) = L_{267} = \begin{bmatrix} 1003 \\ 0133 \end{bmatrix}$$

$$64 = \mathbf{Pl}(2,1,2,1,1,0) = L_{265} = \begin{bmatrix} 1003 \\ 0113 \end{bmatrix}$$

$$65 = \mathbf{Pl}(1,2,2,1,1,0) = L_{90} = \begin{bmatrix} 1001 \\ 0121 \end{bmatrix}$$

$$66 = \mathbf{Pl}(3,3,2,1,1,0) = L_{179} = \begin{bmatrix} 1002 \\ 0132 \end{bmatrix}$$

$$67 = \mathbf{Pl}(3,1,3,1,1,0) = L_{177} = \begin{bmatrix} 1002 \\ 0112 \end{bmatrix}$$

$$68 = \mathbf{Pl}(2,2,3,1,1,0) = L_{266} = \begin{bmatrix} 1003 \\ 0123 \end{bmatrix}$$

$$69 = \mathbf{Pl}(1,3,3,1,1,0) = L_{91} = \begin{bmatrix} 1001 \\ 0131 \end{bmatrix}$$

$$70 = \mathbf{Pl}(0,0,0,2,1,0) = L_{62} = \begin{bmatrix} 1200 \\ 0001 \end{bmatrix}$$

$$71 = \mathbf{Pl}(1,0,0,2,1,0) = L_{172} = \begin{bmatrix} 1002 \\ 0101 \end{bmatrix}$$

$$72 = \mathbf{Pl}(2,0,0,2,1,0) = L_{96} = \begin{bmatrix} 1001 \\ 0103 \end{bmatrix}$$

$$73 = \mathbf{Pl}(3,0,0,2,1,0) = L_{260} = \begin{bmatrix} 1003 \\ 0102 \end{bmatrix}$$

$$74 = \mathbf{Pl}(0,1,0,2,1,0) = L_{146} = \begin{bmatrix} 1210 \\ 0001 \end{bmatrix}$$

$$75 = \mathbf{Pl}(0,2,0,2,1,0) = L_{230} = \begin{bmatrix} 1220 \\ 0001 \end{bmatrix}$$

$$76 = \mathbf{Pl}(0,3,0,2,1,0) = L_{314} = \begin{bmatrix} 1230 \\ 0001 \end{bmatrix}$$

$$77 = \mathbf{Pl}(2,1,1,2,1,0) = L_{99} = \begin{bmatrix} 1001 \\ 0133 \end{bmatrix}$$

$$78 = \mathbf{Pl}(1,2,1,2,1,0) = L_{173} = \begin{bmatrix} 1002 \\ 0111 \end{bmatrix}$$

$$79 = \mathbf{Pl}(3,3,1,2,1,0) = L_{262} = \begin{bmatrix} 1003 \\ 0122 \end{bmatrix}$$

$$80 = \mathbf{Pl}(3,1,2,2,1,0) = L_{263} = \begin{bmatrix} 1003 \\ 0132 \end{bmatrix}$$

$$81 = \mathbf{Pl}(2,2,2,2,1,0) = L_{97} = \begin{bmatrix} 1001 \\ 0113 \end{bmatrix}$$

$$82 = \mathbf{Pl}(1,3,2,2,1,0) = L_{174} = \begin{bmatrix} 1002 \\ 0121 \end{bmatrix}$$

$$83 = \mathbf{Pl}(1,1,3,2,1,0) = L_{175} = \begin{bmatrix} 1002 \\ 0131 \end{bmatrix}$$

$$84 = \mathbf{Pl}(3,2,3,2,1,0) = L_{261} = \begin{bmatrix} 1003 \\ 0112 \end{bmatrix}$$

$$85 = \mathbf{Pl}(2,3,3,2,1,0) = L_{98} = \begin{bmatrix} 1001 \\ 0123 \end{bmatrix}$$

$$86 = \mathbf{Pl}(0,0,0,3,1,0) = L_{83} = \begin{bmatrix} 1300 \\ 0001 \end{bmatrix}$$

$$87 = \mathbf{Pl}(1,0,0,3,1,0) = L_{256} = \begin{bmatrix} 1003 \\ 0101 \end{bmatrix}$$

$$88 = \mathbf{Pl}(2,0,0,3,1,0) = L_{180} = \begin{bmatrix} 1002 \\ 0103 \end{bmatrix}$$

$$89 = \mathbf{Pl}(3,0,0,3,1,0) = L_{92} = \begin{bmatrix} 1001 \\ 0102 \end{bmatrix}$$

$$90 = \mathbf{Pl}(0,1,0,3,1,0) = L_{167} = \begin{bmatrix} 1310 \\ 0001 \end{bmatrix}$$

$$91 = \mathbf{Pl}(0,2,0,3,1,0) = L_{251} = \begin{bmatrix} 1320 \\ 0001 \end{bmatrix}$$

$$92 = \mathbf{Pl}(0,3,0,3,1,0) = L_{335} = \begin{bmatrix} 1330 \\ 0001 \end{bmatrix}$$

$$93 = \mathbf{Pl}(3,1,1,3,1,0) = L_{94} = \begin{bmatrix} 1001 \\ 0122 \end{bmatrix}$$

$$94 = \mathbf{Pl}(2,2,1,3,1,0) = L_{183} = \begin{bmatrix} 1002 \\ 0133 \end{bmatrix}$$

$$95 = \mathbf{Pl}(1,3,1,3,1,0) = L_{257} = \begin{bmatrix} 1003 \\ 0111 \end{bmatrix}$$

$$96 = \mathbf{Pl}(1,1,2,3,1,0) = L_{258} = \begin{bmatrix} 1003 \\ 0121 \end{bmatrix}$$

$$97 = \mathbf{Pl}(3,2,2,3,1,0) = L_{95} = \begin{bmatrix} 1001 \\ 0132 \end{bmatrix}$$

$$98 = \mathbf{Pl}(2,3,2,3,1,0) = L_{181} = \begin{bmatrix} 1002 \\ 0113 \end{bmatrix}$$

$$99 = \mathbf{Pl}(2,1,3,3,1,0) = L_{182} = \begin{bmatrix} 1002 \\ 0123 \end{bmatrix}$$

$$100 = \mathbf{Pl}(1,2,3,3,1,0) = L_{259} = \begin{bmatrix} 1003 \\ 0131 \end{bmatrix}$$

$$101 = \mathbf{Pl}(3,3,3,3,1,0) = L_{93} = \begin{bmatrix} 1001 \\ 0112 \end{bmatrix}$$

$$102 = \mathbf{Pl}(1,0,0,0,0,1) = L_{21} = \begin{bmatrix} 1010 \\ 0100 \end{bmatrix}$$

$$103 = \mathbf{Pl}(2,0,0,0,0,1) = L_{63} = \begin{bmatrix} 1030 \\ 0100 \end{bmatrix}$$

$$104 = \mathbf{Pl}(3,0,0,0,0,1) = L_{42} = \begin{bmatrix} 1020 \\ 0100 \end{bmatrix}$$

$$105 = \mathbf{Pl}(0,1,0,0,0,1) = L_{341} = \begin{bmatrix} 0101 \\ 0010 \end{bmatrix}$$

$$106 = \mathbf{Pl}(0,2,0,0,0,1) = L_{346} = \begin{bmatrix} 0102 \\ 0010 \end{bmatrix}$$

$$107 = \mathbf{Pl}(0,3,0,0,0,1) = L_{351} = \begin{bmatrix} 0103 \\ 0010 \end{bmatrix}$$

$$108 = \mathbf{Pl}(0,0,1,0,0,1) = L_{37} = \begin{bmatrix} 1100 \\ 0010 \end{bmatrix}$$

$$109 = \mathbf{Pl}(1,0,1,0,0,1) = L_{22} = \begin{bmatrix} 1010 \\ 0110 \end{bmatrix}$$

$$110 = \mathbf{Pl}(2,0,1,0,0,1) = L_{66} = \begin{bmatrix} 1030 \\ 0130 \end{bmatrix}$$

$$111 = \mathbf{Pl}(3,0,1,0,0,1) = L_{44} = \begin{bmatrix} 1020 \\ 0120 \end{bmatrix}$$

$$112 = \mathbf{Pl}(0,1,1,0,0,1) = L_{121} = \begin{bmatrix} 1101 \\ 0010 \end{bmatrix}$$

$$113 = \mathbf{Pl}(0,2,1,0,0,1) = L_{205} = \begin{bmatrix} 1102 \\ 0010 \end{bmatrix}$$

$$114 = \mathbf{Pl}(0,3,1,0,0,1) = L_{289} = \begin{bmatrix} 1103 \\ 0010 \end{bmatrix}$$

$$115 = \mathbf{Pl}(0,0,2,0,0,1) = L_{79} = \begin{bmatrix} 1300 \\ 0010 \end{bmatrix}$$

$$116 = \mathbf{Pl}(1,0,2,0,0,1) = L_{23} = \begin{bmatrix} 1010 \\ 0120 \end{bmatrix}$$

$$117 = \mathbf{Pl}(2,0,2,0,0,1) = L_{64} = \begin{bmatrix} 1030 \\ 0110 \end{bmatrix}$$

$$118 = \mathbf{Pl}(3,0,2,0,0,1) = L_{45} = \begin{bmatrix} 1020 \\ 0130 \end{bmatrix}$$

$$119 = \mathbf{Pl}(0,1,2,0,0,1) = L_{331} = \begin{bmatrix} 1303 \\ 0010 \end{bmatrix}$$

$$120 = \mathbf{Pl}(0,2,2,0,0,1) = L_{163} = \begin{bmatrix} 1301 \\ 0010 \end{bmatrix}$$

$$121 = \mathbf{Pl}(0,3,2,0,0,1) = L_{247} = \begin{bmatrix} 1302 \\ 0010 \end{bmatrix}$$

$$122 = \mathbf{Pl}(0,0,3,0,0,1) = L_{58} = \begin{bmatrix} 1200 \\ 0010 \end{bmatrix}$$

$$123 = \mathbf{Pl}(1,0,3,0,0,1) = L_{24} = \begin{bmatrix} 1010 \\ 0130 \end{bmatrix}$$

$$124 = \mathbf{Pl}(2,0,3,0,0,1) = L_{65} = \begin{bmatrix} 1030 \\ 0120 \end{bmatrix}$$

$$125 = \mathbf{Pl}(3,0,3,0,0,1) = L_{43} = \begin{bmatrix} 1020 \\ 0110 \end{bmatrix}$$

$$126 = \mathbf{Pl}(0,1,3,0,0,1) = L_{226} = \begin{bmatrix} 1202 \\ 0010 \end{bmatrix}$$

$$127 = \mathbf{Pl}(0,2,3,0,0,1) = L_{310} = \begin{bmatrix} 1203 \\ 0010 \end{bmatrix}$$

$$128 = \mathbf{Pl}(0,3,3,0,0,1) = L_{142} = \begin{bmatrix} 1201 \\ 0010 \end{bmatrix}$$

$$129 = \mathbf{Pl}(0,0,0,1,0,1) = L_{337} = \begin{bmatrix} 0100 \\ 0011 \end{bmatrix}$$

$$130 = \mathbf{Pl}(1,0,0,1,0,1) = L_{105} = \begin{bmatrix} 1011 \\ 0100 \end{bmatrix}$$

$$131 = \mathbf{Pl}(2,0,0,1,0,1) = L_{315} = \begin{bmatrix} 1033 \\ 0100 \end{bmatrix}$$

$$132 = \mathbf{Pl}(3,0,0,1,0,1) = L_{210} = \begin{bmatrix} 1022 \\ 0100 \end{bmatrix}$$

$$133 = \mathbf{Pl}(0,1,0,1,0,1) = L_{342} = \begin{bmatrix} 0101 \\ 0011 \end{bmatrix}$$

$$134 = \mathbf{Pl}(0,2,0,1,0,1) = L_{347} = \begin{bmatrix} 0102 \\ 0011 \end{bmatrix}$$

$$135 = \mathbf{Pl}(0,3,0,1,0,1) = L_{352} = \begin{bmatrix} 0103 \\ 0011 \end{bmatrix}$$

$$136 = \mathbf{Pl}(1,1,1,1,0,1) = L_{106} = \begin{bmatrix} 1011 \\ 0110 \end{bmatrix}$$

$$137 = \mathbf{Pl}(3,2,1,1,0,1) = L_{212} = \begin{bmatrix} 1022 \\ 0120 \end{bmatrix}$$

$$138 = \mathbf{Pl}(2,3,1,1,0,1) = L_{318} = \begin{bmatrix} 1033 \\ 0130 \end{bmatrix}$$

$$139 = \mathbf{Pl}(2,1,2,1,0,1) = L_{316} = \begin{bmatrix} 1033 \\ 0110 \end{bmatrix}$$

$$140 = \mathbf{Pl}(1,2,2,1,0,1) = L_{107} = \begin{bmatrix} 1011 \\ 0120 \end{bmatrix}$$

$$141 = \mathbf{Pl}(3,3,2,1,0,1) = L_{213} = \begin{bmatrix} 1022 \\ 0130 \end{bmatrix}$$

$$142 = \mathbf{Pl}(3,1,3,1,0,1) = L_{211} = \begin{bmatrix} 1022 \\ 0110 \end{bmatrix}$$

$$143 = \mathbf{Pl}(2,2,3,1,0,1) = L_{317} = \begin{bmatrix} 1033 \\ 0120 \end{bmatrix}$$

$$144 = \mathbf{Pl}(1,3,3,1,0,1) = L_{108} = \begin{bmatrix} 1011 \\ 0130 \end{bmatrix}$$

$$145 = \mathbf{Pl}(0,0,0,2,0,1) = L_{338} = \begin{bmatrix} 0100 \\ 0012 \end{bmatrix}$$

$$146 = \mathbf{Pl}(1,0,0,2,0,1) = L_{189} = \begin{bmatrix} 1012 \\ 0100 \end{bmatrix}$$

$$147 = \mathbf{Pl}(2,0,0,2,0,1) = L_{147} = \begin{bmatrix} 1031 \\ 0100 \end{bmatrix}$$

$$148 = \mathbf{Pl}(3,0,0,2,0,1) = L_{294} = \begin{bmatrix} 1023 \\ 0100 \end{bmatrix}$$

$$149 = \mathbf{Pl}(0,1,0,2,0,1) = L_{343} = \begin{bmatrix} 0101 \\ 0012 \end{bmatrix}$$

$$150 = \mathbf{Pl}(0,2,0,2,0,1) = L_{348} = \begin{bmatrix} 0102 \\ 0012 \end{bmatrix}$$

$$151 = \mathbf{Pl}(0,3,0,2,0,1) = L_{353} = \begin{bmatrix} 0103 \\ 0012 \end{bmatrix}$$

$$152 = \mathbf{Pl}(2,1,1,2,0,1) = L_{150} = \begin{bmatrix} 1031 \\ 0130 \end{bmatrix}$$

$$153 = \mathbf{Pl}(1,2,1,2,0,1) = L_{190} = \begin{bmatrix} 1012 \\ 0110 \end{bmatrix}$$

$$154 = \mathbf{Pl}(3,3,1,2,0,1) = L_{296} = \begin{bmatrix} 1023 \\ 0120 \end{bmatrix}$$

$$155 = \mathbf{Pl}(3,1,2,2,0,1) = L_{297} = \begin{bmatrix} 1023 \\ 0130 \end{bmatrix}$$

$$156 = \mathbf{Pl}(2,2,2,2,0,1) = L_{148} = \begin{bmatrix} 1031 \\ 0110 \end{bmatrix}$$

$$157 = \mathbf{Pl}(1,3,2,2,0,1) = L_{191} = \begin{bmatrix} 1012 \\ 0120 \end{bmatrix}$$

$$158 = \mathbf{Pl}(1,1,3,2,0,1) = L_{192} = \begin{bmatrix} 1012 \\ 0130 \end{bmatrix}$$

$$159 = \mathbf{Pl}(3,2,3,2,0,1) = L_{295} = \begin{bmatrix} 1023 \\ 0110 \end{bmatrix}$$

$$160 = \mathbf{Pl}(2,3,3,2,0,1) = L_{149} = \begin{bmatrix} 1031 \\ 0120 \end{bmatrix}$$

$$161 = \mathbf{Pl}(0,0,0,3,0,1) = L_{339} = \begin{bmatrix} 0100 \\ 0013 \end{bmatrix}$$

$$162 = \mathbf{Pl}(1,0,0,3,0,1) = L_{273} = \begin{bmatrix} 1013 \\ 0100 \end{bmatrix}$$

$$163 = \mathbf{Pl}(2,0,0,3,0,1) = L_{231} = \begin{bmatrix} 1032 \\ 0100 \end{bmatrix}$$

$$164 = \mathbf{Pl}(3,0,0,3,0,1) = L_{126} = \begin{bmatrix} 1021 \\ 0100 \end{bmatrix}$$

$$165 = \mathbf{Pl}(0,1,0,3,0,1) = L_{344} = \begin{bmatrix} 0101 \\ 0013 \end{bmatrix}$$

$$166 = \mathbf{Pl}(0,2,0,3,0,1) = L_{349} = \begin{bmatrix} 0102 \\ 0013 \end{bmatrix}$$

$$167 = \mathbf{Pl}(0,3,0,3,0,1) = L_{354} = \begin{bmatrix} 0103 \\ 0013 \end{bmatrix}$$

$$168 = \mathbf{Pl}(3,1,1,3,0,1) = L_{128} = \begin{bmatrix} 1021 \\ 0120 \end{bmatrix}$$

$$169 = \mathbf{Pl}(2,2,1,3,0,1) = L_{234} = \begin{bmatrix} 1032 \\ 0130 \end{bmatrix}$$

$$170 = \mathbf{Pl}(1,3,1,3,0,1) = L_{274} = \begin{bmatrix} 1013 \\ 0110 \end{bmatrix}$$

$$171 = \mathbf{Pl}(1,1,2,3,0,1) = L_{275} = \begin{bmatrix} 1013 \\ 0120 \end{bmatrix}$$

$$172 = \mathbf{Pl}(3,2,2,3,0,1) = L_{129} = \begin{bmatrix} 1021 \\ 0130 \end{bmatrix}$$

$$173 = \mathbf{Pl}(2,3,2,3,0,1) = L_{232} = \begin{bmatrix} 1032 \\ 0110 \end{bmatrix}$$

$$174 = \mathbf{Pl}(2,1,3,3,0,1) = L_{233} = \begin{bmatrix} 1032 \\ 0120 \end{bmatrix}$$

$$175 = \mathbf{Pl}(1,2,3,3,0,1) = L_{276} = \begin{bmatrix} 1013 \\ 0130 \end{bmatrix}$$

$$176 = \mathbf{Pl}(3,3,3,3,0,1) = L_{127} = \begin{bmatrix} 1021 \\ 0110 \end{bmatrix}$$

$$177 = \mathbf{Pl}(1,1,0,0,1,1) = L_{25} = \begin{bmatrix} 1010 \\ 0101 \end{bmatrix}$$

$$178 = \mathbf{Pl}(3,2,0,0,1,1) = L_{50} = \begin{bmatrix} 1020 \\ 0102 \end{bmatrix}$$

$$179 = \mathbf{Pl}(2,3,0,0,1,1) = L_{75} = \begin{bmatrix} 1030 \\ 0103 \end{bmatrix}$$

$$180 = \mathbf{Pl}(1,1,1,0,1,1) = L_{26} = \begin{bmatrix} 1010 \\ 0111 \end{bmatrix}$$

$$181 = \mathbf{Pl}(3,2,1,0,1,1) = L_{52} = \begin{bmatrix} 1020 \\ 0122 \end{bmatrix}$$

$$182 = \mathbf{Pl}(2,3,1,0,1,1) = L_{78} = \begin{bmatrix} 1030 \\ 0133 \end{bmatrix}$$

$$183 = \mathbf{Pl}(1,1,2,0,1,1) = L_{27} = \begin{bmatrix} 1010 \\ 0121 \end{bmatrix}$$

$$184 = \mathbf{Pl}(3,2,2,0,1,1) = L_{53} = \begin{bmatrix} 1020 \\ 0132 \end{bmatrix}$$

$$185 = \mathbf{Pl}(2,3,2,0,1,1) = L_{76} = \begin{bmatrix} 1030 \\ 0113 \end{bmatrix}$$

$$186 = \mathbf{Pl}(1,1,3,0,1,1) = L_{28} = \begin{bmatrix} 1010 \\ 0131 \end{bmatrix}$$

$$187 = \mathbf{Pl}(3,2,3,0,1,1) = L_{51} = \begin{bmatrix} 1020 \\ 0112 \end{bmatrix}$$

$$188 = \mathbf{Pl}(2,3,3,0,1,1) = L_{77} = \begin{bmatrix} 1030 \\ 0123 \end{bmatrix}$$
$$189 = \mathbf{Pl}(1,1,0,1,1,1) = L_{109} = \begin{bmatrix} 1011 \\ 0101 \end{bmatrix}$$
$$190 = \mathbf{Pl}(3,2,0,1,1,1) = L_{218} = \begin{bmatrix} 1022 \\ 0102 \end{bmatrix}$$
$$191 = \mathbf{Pl}(2,3,0,1,1,1) = L_{327} = \begin{bmatrix} 1033 \\ 0103 \end{bmatrix}$$
$$192 = \mathbf{Pl}(0,0,1,1,1,1) = L_{38} = \begin{bmatrix} 1100 \\ 0011 \end{bmatrix}$$
$$193 = \mathbf{Pl}(1,0,1,1,1,1) = L_{110} = \begin{bmatrix} 1011 \\ 0111 \end{bmatrix}$$
$$194 = \mathbf{Pl}(2,0,1,1,1,1) = L_{330} = \begin{bmatrix} 1033 \\ 0133 \end{bmatrix}$$
$$195 = \mathbf{Pl}(3,0,1,1,1,1) = L_{220} = \begin{bmatrix} 1022 \\ 0122 \end{bmatrix}$$
$$196 = \mathbf{Pl}(0,1,1,1,1,1) = L_{122} = \begin{bmatrix} 1101 \\ 0011 \end{bmatrix}$$
$$197 = \mathbf{Pl}(0,2,1,1,1,1) = L_{206} = \begin{bmatrix} 1102 \\ 0011 \end{bmatrix}$$
$$198 = \mathbf{Pl}(0,3,1,1,1,1) = L_{290} = \begin{bmatrix} 1103 \\ 0011 \end{bmatrix}$$
$$199 = \mathbf{Pl}(3,1,2,1,1,1) = L_{221} = \begin{bmatrix} 1022 \\ 0132 \end{bmatrix}$$
$$200 = \mathbf{Pl}(2,2,2,1,1,1) = L_{328} = \begin{bmatrix} 1033 \\ 0113 \end{bmatrix}$$
$$201 = \mathbf{Pl}(1,3,2,1,1,1) = L_{111} = \begin{bmatrix} 1011 \\ 0121 \end{bmatrix}$$
$$202 = \mathbf{Pl}(2,1,3,1,1,1) = L_{329} = \begin{bmatrix} 1033 \\ 0123 \end{bmatrix}$$
$$203 = \mathbf{Pl}(1,2,3,1,1,1) = L_{112} = \begin{bmatrix} 1011 \\ 0131 \end{bmatrix}$$
$$204 = \mathbf{Pl}(3,3,3,1,1,1) = L_{219} = \begin{bmatrix} 1022 \\ 0112 \end{bmatrix}$$
$$205 = \mathbf{Pl}(1,1,0,2,1,1) = L_{193} = \begin{bmatrix} 1012 \\ 0101 \end{bmatrix}$$
$$206 = \mathbf{Pl}(3,2,0,2,1,1) = L_{302} = \begin{bmatrix} 1023 \\ 0102 \end{bmatrix}$$
$$207 = \mathbf{Pl}(2,3,0,2,1,1) = L_{159} = \begin{bmatrix} 1031 \\ 0103 \end{bmatrix}$$
$$208 = \mathbf{Pl}(3,1,1,2,1,1) = L_{304} = \begin{bmatrix} 1023 \\ 0122 \end{bmatrix}$$

$$209 = \mathbf{Pl}(2,2,1,2,1,1) = L_{162} = \begin{bmatrix} 1031 \\ 0133 \end{bmatrix}$$

$$210 = \mathbf{Pl}(1,3,1,2,1,1) = L_{194} = \begin{bmatrix} 1012 \\ 0111 \end{bmatrix}$$

$$211 = \mathbf{Pl}(2,1,2,2,1,1) = L_{160} = \begin{bmatrix} 1031 \\ 0113 \end{bmatrix}$$

$$212 = \mathbf{Pl}(1,2,2,2,1,1) = L_{195} = \begin{bmatrix} 1012 \\ 0121 \end{bmatrix}$$

$$213 = \mathbf{Pl}(3,3,2,2,1,1) = L_{305} = \begin{bmatrix} 1023 \\ 0132 \end{bmatrix}$$

$$214 = \mathbf{Pl}(0,0,3,2,1,1) = L_{60} = \begin{bmatrix} 1200 \\ 0012 \end{bmatrix}$$

$$215 = \mathbf{Pl}(1,0,3,2,1,1) = L_{196} = \begin{bmatrix} 1012 \\ 0131 \end{bmatrix}$$

$$216 = \mathbf{Pl}(2,0,3,2,1,1) = L_{161} = \begin{bmatrix} 1031 \\ 0123 \end{bmatrix}$$

$$217 = \mathbf{Pl}(3,0,3,2,1,1) = L_{303} = \begin{bmatrix} 1023 \\ 0112 \end{bmatrix}$$

$$218 = \mathbf{Pl}(0,1,3,2,1,1) = L_{228} = \begin{bmatrix} 1202 \\ 0012 \end{bmatrix}$$

$$219 = \mathbf{Pl}(0,2,3,2,1,1) = L_{312} = \begin{bmatrix} 1203 \\ 0012 \end{bmatrix}$$

$$220 = \mathbf{Pl}(0,3,3,2,1,1) = L_{144} = \begin{bmatrix} 1201 \\ 0012 \end{bmatrix}$$

$$221 = \mathbf{Pl}(1,1,0,3,1,1) = L_{277} = \begin{bmatrix} 1013 \\ 0101 \end{bmatrix}$$

$$222 = \mathbf{Pl}(3,2,0,3,1,1) = L_{134} = \begin{bmatrix} 1021 \\ 0102 \end{bmatrix}$$

$$223 = \mathbf{Pl}(2,3,0,3,1,1) = L_{243} = \begin{bmatrix} 1032 \\ 0103 \end{bmatrix}$$

$$224 = \mathbf{Pl}(2,1,1,3,1,1) = L_{246} = \begin{bmatrix} 1032 \\ 0133 \end{bmatrix}$$

$$225 = \mathbf{Pl}(1,2,1,3,1,1) = L_{278} = \begin{bmatrix} 1013 \\ 0111 \end{bmatrix}$$

$$226 = \mathbf{Pl}(3,3,1,3,1,1) = L_{136} = \begin{bmatrix} 1021 \\ 0122 \end{bmatrix}$$

$$227 = \mathbf{Pl}(0,0,2,3,1,1) = L_{82} = \begin{bmatrix} 1300 \\ 0013 \end{bmatrix}$$

$$228 = \mathbf{Pl}(1,0,2,3,1,1) = L_{279} = \begin{bmatrix} 1013 \\ 0121 \end{bmatrix}$$

$$229 = \mathbf{Pl}(2,0,2,3,1,1) = L_{244} = \begin{bmatrix} 1032 \\ 0113 \end{bmatrix}$$

$$230 = \mathbf{Pl}(3,0,2,3,1,1) = L_{137} = \begin{bmatrix} 1021 \\ 0132 \end{bmatrix}$$

$$231 = \mathbf{Pl}(0,1,2,3,1,1) = L_{334} = \begin{bmatrix} 1303 \\ 0013 \end{bmatrix}$$

$$232 = \mathbf{Pl}(0,2,2,3,1,1) = L_{166} = \begin{bmatrix} 1301 \\ 0013 \end{bmatrix}$$

$$233 = \mathbf{Pl}(0,3,2,3,1,1) = L_{250} = \begin{bmatrix} 1302 \\ 0013 \end{bmatrix}$$

$$234 = \mathbf{Pl}(3,1,3,3,1,1) = L_{135} = \begin{bmatrix} 1021 \\ 0112 \end{bmatrix}$$

$$235 = \mathbf{Pl}(2,2,3,3,1,1) = L_{245} = \begin{bmatrix} 1032 \\ 0123 \end{bmatrix}$$

$$236 = \mathbf{Pl}(1,3,3,3,1,1) = L_{280} = \begin{bmatrix} 1013 \\ 0131 \end{bmatrix}$$

$$237 = \mathbf{Pl}(2,1,0,0,2,1) = L_{67} = \begin{bmatrix} 1030 \\ 0101 \end{bmatrix}$$

$$238 = \mathbf{Pl}(1,2,0,0,2,1) = L_{29} = \begin{bmatrix} 1010 \\ 0102 \end{bmatrix}$$

$$239 = \mathbf{Pl}(3,3,0,0,2,1) = L_{54} = \begin{bmatrix} 1020 \\ 0103 \end{bmatrix}$$

$$240 = \mathbf{Pl}(2,1,1,0,2,1) = L_{70} = \begin{bmatrix} 1030 \\ 0131 \end{bmatrix}$$

$$241 = \mathbf{Pl}(1,2,1,0,2,1) = L_{30} = \begin{bmatrix} 1010 \\ 0112 \end{bmatrix}$$

$$242 = \mathbf{Pl}(3,3,1,0,2,1) = L_{56} = \begin{bmatrix} 1020 \\ 0123 \end{bmatrix}$$

$$243 = \mathbf{Pl}(2,1,2,0,2,1) = L_{68} = \begin{bmatrix} 1030 \\ 0111 \end{bmatrix}$$

$$244 = \mathbf{Pl}(1,2,2,0,2,1) = L_{31} = \begin{bmatrix} 1010 \\ 0122 \end{bmatrix}$$

$$245 = \mathbf{Pl}(3,3,2,0,2,1) = L_{57} = \begin{bmatrix} 1020 \\ 0133 \end{bmatrix}$$

$$246 = \mathbf{Pl}(2,1,3,0,2,1) = L_{69} = \begin{bmatrix} 1030 \\ 0121 \end{bmatrix}$$

$$247 = \mathbf{Pl}(1,2,3,0,2,1) = L_{32} = \begin{bmatrix} 1010 \\ 0132 \end{bmatrix}$$

$$248 = \mathbf{Pl}(3,3,3,0,2,1) = L_{55} = \begin{bmatrix} 1020 \\ 0113 \end{bmatrix}$$

$$249 = \mathbf{Pl}(2,1,0,1,2,1) = L_{319} = \begin{bmatrix} 1033 \\ 0101 \end{bmatrix}$$

$$250 = \mathbf{Pl}(1,2,0,1,2,1) = L_{113} = \begin{bmatrix} 1011 \\ 0102 \end{bmatrix}$$

$$251 = \mathbf{Pl}(3,3,0,1,2,1) = L_{222} = \begin{bmatrix} 1022 \\ 0103 \end{bmatrix}$$

$$252 = \mathbf{Pl}(3,1,1,1,2,1) = L_{224} = \begin{bmatrix} 1022 \\ 0123 \end{bmatrix}$$

$$253 = \mathbf{Pl}(2,2,1,1,2,1) = L_{322} = \begin{bmatrix} 1033 \\ 0131 \end{bmatrix}$$

$$254 = \mathbf{Pl}(1,3,1,1,2,1) = L_{114} = \begin{bmatrix} 1011 \\ 0112 \end{bmatrix}$$

$$255 = \mathbf{Pl}(0,0,2,1,2,1) = L_{80} = \begin{bmatrix} 1300 \\ 0011 \end{bmatrix}$$

$$256 = \mathbf{Pl}(1,0,2,1,2,1) = L_{115} = \begin{bmatrix} 1011 \\ 0122 \end{bmatrix}$$

$$257 = \mathbf{Pl}(2,0,2,1,2,1) = L_{320} = \begin{bmatrix} 1033 \\ 0111 \end{bmatrix}$$

$$258 = \mathbf{Pl}(3,0,2,1,2,1) = L_{225} = \begin{bmatrix} 1022 \\ 0133 \end{bmatrix}$$

$$259 = \mathbf{Pl}(0,1,2,1,2,1) = L_{332} = \begin{bmatrix} 1303 \\ 0011 \end{bmatrix}$$

$$260 = \mathbf{Pl}(0,2,2,1,2,1) = L_{164} = \begin{bmatrix} 1301 \\ 0011 \end{bmatrix}$$

$$261 = \mathbf{Pl}(0,3,2,1,2,1) = L_{248} = \begin{bmatrix} 1302 \\ 0011 \end{bmatrix}$$

$$262 = \mathbf{Pl}(1,1,3,1,2,1) = L_{116} = \begin{bmatrix} 1011 \\ 0132 \end{bmatrix}$$

$$263 = \mathbf{Pl}(3,2,3,1,2,1) = L_{223} = \begin{bmatrix} 1022 \\ 0113 \end{bmatrix}$$

$$264 = \mathbf{Pl}(2,3,3,1,2,1) = L_{321} = \begin{bmatrix} 1033 \\ 0121 \end{bmatrix}$$

$$265 = \mathbf{Pl}(2,1,0,2,2,1) = L_{151} = \begin{bmatrix} 1031 \\ 0101 \end{bmatrix}$$

$$266 = \mathbf{Pl}(1,2,0,2,2,1) = L_{197} = \begin{bmatrix} 1012 \\ 0102 \end{bmatrix}$$

$$267 = \mathbf{Pl}(3,3,0,2,2,1) = L_{306} = \begin{bmatrix} 1023 \\ 0103 \end{bmatrix}$$

$$268 = \mathbf{Pl}(0,0,1,2,2,1) = L_{39} = \begin{bmatrix} 1100 \\ 0012 \end{bmatrix}$$

$$269 = \mathbf{Pl}(1,0,1,2,2,1) = L_{198} = \begin{bmatrix} 1012 \\ 0112 \end{bmatrix}$$

$$270 = \mathbf{Pl}(2,0,1,2,2,1) = L_{154} = \begin{bmatrix} 1031 \\ 0131 \end{bmatrix}$$

$$271 = \mathbf{Pl}(3,0,1,2,2,1) = L_{308} = \begin{bmatrix} 1023 \\ 0123 \end{bmatrix}$$

$$272 = \mathbf{Pl}(0,1,1,2,2,1) = L_{123} = \begin{bmatrix} 1101 \\ 0012 \end{bmatrix}$$

$$273 = \mathbf{Pl}(0,2,1,2,2,1) = L_{207} = \begin{bmatrix} 1102 \\ 0012 \end{bmatrix}$$

$$274 = \mathbf{Pl}(0,3,1,2,2,1) = L_{291} = \begin{bmatrix} 1103 \\ 0012 \end{bmatrix}$$

$$275 = \mathbf{Pl}(1,1,2,2,2,1) = L_{199} = \begin{bmatrix} 1012 \\ 0122 \end{bmatrix}$$

$$276 = \mathbf{Pl}(3,2,2,2,2,1) = L_{309} = \begin{bmatrix} 1023 \\ 0133 \end{bmatrix}$$

$$277 = \mathbf{Pl}(2,3,2,2,2,1) = L_{152} = \begin{bmatrix} 1031 \\ 0111 \end{bmatrix}$$

$$278 = \mathbf{Pl}(3,1,3,2,2,1) = L_{307} = \begin{bmatrix} 1023 \\ 0113 \end{bmatrix}$$

$$279 = \mathbf{Pl}(2,2,3,2,2,1) = L_{153} = \begin{bmatrix} 1031 \\ 0121 \end{bmatrix}$$

$$280 = \mathbf{Pl}(1,3,3,2,2,1) = L_{200} = \begin{bmatrix} 1012 \\ 0132 \end{bmatrix}$$

$$281 = \mathbf{Pl}(2,1,0,3,2,1) = L_{235} = \begin{bmatrix} 1032 \\ 0101 \end{bmatrix}$$

$$282 = \mathbf{Pl}(1,2,0,3,2,1) = L_{281} = \begin{bmatrix} 1013 \\ 0102 \end{bmatrix}$$

$$283 = \mathbf{Pl}(3,3,0,3,2,1) = L_{138} = \begin{bmatrix} 1021 \\ 0103 \end{bmatrix}$$

$$284 = \mathbf{Pl}(1,1,1,3,2,1) = L_{282} = \begin{bmatrix} 1013 \\ 0112 \end{bmatrix}$$

$$285 = \mathbf{Pl}(3,2,1,3,2,1) = L_{140} = \begin{bmatrix} 1021 \\ 0123 \end{bmatrix}$$

$$286 = \mathbf{Pl}(2,3,1,3,2,1) = L_{238} = \begin{bmatrix} 1032 \\ 0131 \end{bmatrix}$$

$$287 = \mathbf{Pl}(3,1,2,3,2,1) = L_{141} = \begin{bmatrix} 1021 \\ 0133 \end{bmatrix}$$

$$288 = \mathbf{Pl}(2,2,2,3,2,1) = L_{236} = \begin{bmatrix} 1032 \\ 0111 \end{bmatrix}$$

$$289 = \mathbf{Pl}(1,3,2,3,2,1) = L_{283} = \begin{bmatrix} 1013 \\ 0122 \end{bmatrix}$$

$$290 = \mathbf{Pl}(0,0,3,3,2,1) = L_{61} = \begin{bmatrix} 1200 \\ 0013 \end{bmatrix}$$

$$291 = \mathbf{Pl}(1,0,3,3,2,1) = L_{284} = \begin{bmatrix} 1013 \\ 0132 \end{bmatrix}$$

$$292 = \mathbf{Pl}(2,0,3,3,2,1) = L_{237} = \begin{bmatrix} 1032 \\ 0121 \end{bmatrix}$$

$$293 = \mathbf{Pl}(3,0,3,3,2,1) = L_{139} = \begin{bmatrix} 1021 \\ 0113 \end{bmatrix}$$

$$294 = \mathbf{Pl}(0,1,3,3,2,1) = L_{229} = \begin{bmatrix} 1202 \\ 0013 \end{bmatrix}$$

$$295 = \mathbf{Pl}(0,2,3,3,2,1) = L_{313} = \begin{bmatrix} 1203 \\ 0013 \end{bmatrix}$$

$$296 = \mathbf{Pl}(0,3,3,3,2,1) = L_{145} = \begin{bmatrix} 1201 \\ 0013 \end{bmatrix}$$

$$297 = \mathbf{Pl}(3,1,0,0,3,1) = L_{46} = \begin{bmatrix} 1020 \\ 0101 \end{bmatrix}$$

$$298 = \mathbf{Pl}(2,2,0,0,3,1) = L_{71} = \begin{bmatrix} 1030 \\ 0102 \end{bmatrix}$$

$$299 = \mathbf{Pl}(1,3,0,0,3,1) = L_{33} = \begin{bmatrix} 1010 \\ 0103 \end{bmatrix}$$

$$300 = \mathbf{Pl}(3,1,1,0,3,1) = L_{48} = \begin{bmatrix} 1020 \\ 0121 \end{bmatrix}$$

$$301 = \mathbf{Pl}(2,2,1,0,3,1) = L_{74} = \begin{bmatrix} 1030 \\ 0132 \end{bmatrix}$$

$$302 = \mathbf{Pl}(1,3,1,0,3,1) = L_{34} = \begin{bmatrix} 1010 \\ 0113 \end{bmatrix}$$

$$303 = \mathbf{Pl}(3,1,2,0,3,1) = L_{49} = \begin{bmatrix} 1020 \\ 0131 \end{bmatrix}$$

$$304 = \mathbf{Pl}(2,2,2,0,3,1) = L_{72} = \begin{bmatrix} 1030 \\ 0112 \end{bmatrix}$$

$$305 = \mathbf{Pl}(1,3,2,0,3,1) = L_{35} = \begin{bmatrix} 1010 \\ 0123 \end{bmatrix}$$

$$306 = \mathbf{Pl}(3,1,3,0,3,1) = L_{47} = \begin{bmatrix} 1020 \\ 0111 \end{bmatrix}$$

$$307 = \mathbf{Pl}(2,2,3,0,3,1) = L_{73} = \begin{bmatrix} 1030 \\ 0122 \end{bmatrix}$$

$$308 = \mathbf{Pl}(1,3,3,0,3,1) = L_{36} = \begin{bmatrix} 1010 \\ 0133 \end{bmatrix}$$

$$309 = \mathbf{Pl}(3,1,0,1,3,1) = L_{214} = \begin{bmatrix} 1022 \\ 0101 \end{bmatrix}$$

$$310 = \mathbf{Pl}(2,2,0,1,3,1) = L_{323} = \begin{bmatrix} 1033 \\ 0102 \end{bmatrix}$$

$$311 = \mathbf{Pl}(1,3,0,1,3,1) = L_{117} = \begin{bmatrix} 1011 \\ 0103 \end{bmatrix}$$

$$312 = \mathbf{Pl}(2,1,1,1,3,1) = L_{326} = \begin{bmatrix} 1033 \\ 0132 \end{bmatrix}$$

$$313 = \mathbf{Pl}(1,2,1,1,3,1) = L_{118} = \begin{bmatrix} 1011 \\ 0113 \end{bmatrix}$$

$$314 = \mathbf{Pl}(3,3,1,1,3,1) = L_{216} = \begin{bmatrix} 1022 \\ 0121 \end{bmatrix}$$
$$315 = \mathbf{Pl}(1,1,2,1,3,1) = L_{119} = \begin{bmatrix} 1011 \\ 0123 \end{bmatrix}$$
$$316 = \mathbf{Pl}(3,2,2,1,3,1) = L_{217} = \begin{bmatrix} 1022 \\ 0131 \end{bmatrix}$$
$$317 = \mathbf{Pl}(2,3,2,1,3,1) = L_{324} = \begin{bmatrix} 1033 \\ 0112 \end{bmatrix}$$
$$318 = \mathbf{Pl}(0,0,3,1,3,1) = L_{59} = \begin{bmatrix} 1200 \\ 0011 \end{bmatrix}$$
$$319 = \mathbf{Pl}(1,0,3,1,3,1) = L_{120} = \begin{bmatrix} 1011 \\ 0133 \end{bmatrix}$$
$$320 = \mathbf{Pl}(2,0,3,1,3,1) = L_{325} = \begin{bmatrix} 1033 \\ 0122 \end{bmatrix}$$
$$321 = \mathbf{Pl}(3,0,3,1,3,1) = L_{215} = \begin{bmatrix} 1022 \\ 0111 \end{bmatrix}$$
$$322 = \mathbf{Pl}(0,1,3,1,3,1) = L_{227} = \begin{bmatrix} 1202 \\ 0011 \end{bmatrix}$$
$$323 = \mathbf{Pl}(0,2,3,1,3,1) = L_{311} = \begin{bmatrix} 1203 \\ 0011 \end{bmatrix}$$
$$324 = \mathbf{Pl}(0,3,3,1,3,1) = L_{143} = \begin{bmatrix} 1201 \\ 0011 \end{bmatrix}$$
$$325 = \mathbf{Pl}(3,1,0,2,3,1) = L_{298} = \begin{bmatrix} 1023 \\ 0101 \end{bmatrix}$$
$$326 = \mathbf{Pl}(2,2,0,2,3,1) = L_{155} = \begin{bmatrix} 1031 \\ 0102 \end{bmatrix}$$
$$327 = \mathbf{Pl}(1,3,0,2,3,1) = L_{201} = \begin{bmatrix} 1012 \\ 0103 \end{bmatrix}$$
$$328 = \mathbf{Pl}(1,1,1,2,3,1) = L_{202} = \begin{bmatrix} 1012 \\ 0113 \end{bmatrix}$$
$$329 = \mathbf{Pl}(3,2,1,2,3,1) = L_{300} = \begin{bmatrix} 1023 \\ 0121 \end{bmatrix}$$
$$330 = \mathbf{Pl}(2,3,1,2,3,1) = L_{158} = \begin{bmatrix} 1031 \\ 0132 \end{bmatrix}$$
$$331 = \mathbf{Pl}(0,0,2,2,3,1) = L_{81} = \begin{bmatrix} 1300 \\ 0012 \end{bmatrix}$$
$$332 = \mathbf{Pl}(1,0,2,2,3,1) = L_{203} = \begin{bmatrix} 1012 \\ 0123 \end{bmatrix}$$
$$333 = \mathbf{Pl}(2,0,2,2,3,1) = L_{156} = \begin{bmatrix} 1031 \\ 0112 \end{bmatrix}$$
$$334 = \mathbf{Pl}(3,0,2,2,3,1) = L_{301} = \begin{bmatrix} 1023 \\ 0131 \end{bmatrix}$$

$$335 = \mathbf{Pl}(0,1,2,2,3,1) = L_{333} = \begin{bmatrix} 1303 \\ 0012 \end{bmatrix}$$

$$336 = \mathbf{Pl}(0,2,2,2,3,1) = L_{165} = \begin{bmatrix} 1301 \\ 0012 \end{bmatrix}$$

$$337 = \mathbf{Pl}(0,3,2,2,3,1) = L_{249} = \begin{bmatrix} 1302 \\ 0012 \end{bmatrix}$$

$$338 = \mathbf{Pl}(2,1,3,2,3,1) = L_{157} = \begin{bmatrix} 1031 \\ 0122 \end{bmatrix}$$

$$339 = \mathbf{Pl}(1,2,3,2,3,1) = L_{204} = \begin{bmatrix} 1012 \\ 0133 \end{bmatrix}$$

$$340 = \mathbf{Pl}(3,3,3,2,3,1) = L_{299} = \begin{bmatrix} 1023 \\ 0111 \end{bmatrix}$$

$$341 = \mathbf{Pl}(3,1,0,3,3,1) = L_{130} = \begin{bmatrix} 1021 \\ 0101 \end{bmatrix}$$

$$342 = \mathbf{Pl}(2,2,0,3,3,1) = L_{239} = \begin{bmatrix} 1032 \\ 0102 \end{bmatrix}$$

$$343 = \mathbf{Pl}(1,3,0,3,3,1) = L_{285} = \begin{bmatrix} 1013 \\ 0103 \end{bmatrix}$$

$$344 = \mathbf{Pl}(0,0,1,3,3,1) = L_{40} = \begin{bmatrix} 1100 \\ 0013 \end{bmatrix}$$

$$345 = \mathbf{Pl}(1,0,1,3,3,1) = L_{286} = \begin{bmatrix} 1013 \\ 0113 \end{bmatrix}$$

$$346 = \mathbf{Pl}(2,0,1,3,3,1) = L_{242} = \begin{bmatrix} 1032 \\ 0132 \end{bmatrix}$$

$$347 = \mathbf{Pl}(3,0,1,3,3,1) = L_{132} = \begin{bmatrix} 1021 \\ 0121 \end{bmatrix}$$

$$348 = \mathbf{Pl}(0,1,1,3,3,1) = L_{124} = \begin{bmatrix} 1101 \\ 0013 \end{bmatrix}$$

$$349 = \mathbf{Pl}(0,2,1,3,3,1) = L_{208} = \begin{bmatrix} 1102 \\ 0013 \end{bmatrix}$$

$$350 = \mathbf{Pl}(0,3,1,3,3,1) = L_{292} = \begin{bmatrix} 1103 \\ 0013 \end{bmatrix}$$

$$351 = \mathbf{Pl}(2,1,2,3,3,1) = L_{240} = \begin{bmatrix} 1032 \\ 0112 \end{bmatrix}$$

$$352 = \mathbf{Pl}(1,2,2,3,3,1) = L_{287} = \begin{bmatrix} 1013 \\ 0123 \end{bmatrix}$$

$$353 = \mathbf{Pl}(3,3,2,3,3,1) = L_{133} = \begin{bmatrix} 1021 \\ 0131 \end{bmatrix}$$

$$354 = \mathbf{Pl}(1,1,3,3,3,1) = L_{288} = \begin{bmatrix} 1013 \\ 0133 \end{bmatrix}$$

$$355 = \mathbf{Pl}(3,2,3,3,3,1) = L_{131} = \begin{bmatrix} 1021 \\ 0111 \end{bmatrix}$$

$356 = \mathbf{Pl}(2,3,3,3,3,1) = L_{241} = \begin{bmatrix} 1032 \\ 0122 \end{bmatrix}$

PG$(3,4)$ has the following low weight Pluecker lines:

$L_0 = \begin{bmatrix} 1000 \\ 0100 \end{bmatrix} = \mathbf{Pl}(1,0,0,0,0,0)$

$L_{16} = \begin{bmatrix} 1000 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,1,0,0,0)$

$L_{20} = \begin{bmatrix} 1000 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,0,1,0)$

$L_{336} = \begin{bmatrix} 0100 \\ 0010 \end{bmatrix} = \mathbf{Pl}(0,0,0,0,0,1)$

$L_{340} = \begin{bmatrix} 0100 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,0,0,1,0,0)$

$L_{356} = \begin{bmatrix} 0010 \\ 0001 \end{bmatrix} = \mathbf{Pl}(0,1,0,0,0,0)$

The planes of $\mathrm{PG}(3,4)$

$\mathrm{PG}(3,4)$ has 85 2-subspaces:

$$L_0 = \begin{bmatrix} 1000 \\ 0100 \\ 0010 \end{bmatrix}$$

$$L_1 = \begin{bmatrix} 1000 \\ 0100 \\ 0011 \end{bmatrix}$$

$$L_2 = \begin{bmatrix} 1000 \\ 0100 \\ 0012 \end{bmatrix}$$

$$L_3 = \begin{bmatrix} 1000 \\ 0100 \\ 0013 \end{bmatrix}$$

$$L_4 = \begin{bmatrix} 1000 \\ 0100 \\ 0001 \end{bmatrix}$$

$$L_5 = \begin{bmatrix} 1000 \\ 0101 \\ 0010 \end{bmatrix}$$

$$L_6 = \begin{bmatrix} 1000 \\ 0101 \\ 0011 \end{bmatrix}$$

$$L_7 = \begin{bmatrix} 1000 \\ 0101 \\ 0012 \end{bmatrix}$$

$$L_8 = \begin{bmatrix} 1000 \\ 0101 \\ 0013 \end{bmatrix}$$

$$L_9 = \begin{bmatrix} 1000 \\ 0110 \\ 0001 \end{bmatrix}$$

$$L_{10} = \begin{bmatrix} 1000 \\ 0102 \\ 0010 \end{bmatrix}$$

$$L_{11} = \begin{bmatrix} 1000 \\ 0102 \\ 0011 \end{bmatrix}$$

$$L_{12} = \begin{bmatrix} 1000 \\ 0102 \\ 0012 \end{bmatrix}$$

$$L_{13} = \begin{bmatrix} 1000 \\ 0102 \\ 0013 \end{bmatrix}$$
$$L_{14} = \begin{bmatrix} 1000 \\ 0120 \\ 0001 \end{bmatrix}$$
$$L_{15} = \begin{bmatrix} 1000 \\ 0103 \\ 0010 \end{bmatrix}$$
$$L_{16} = \begin{bmatrix} 1000 \\ 0103 \\ 0011 \end{bmatrix}$$
$$L_{17} = \begin{bmatrix} 1000 \\ 0103 \\ 0012 \end{bmatrix}$$
$$L_{18} = \begin{bmatrix} 1000 \\ 0103 \\ 0013 \end{bmatrix}$$
$$L_{19} = \begin{bmatrix} 1000 \\ 0130 \\ 0001 \end{bmatrix}$$
$$L_{20} = \begin{bmatrix} 1000 \\ 0010 \\ 0001 \end{bmatrix}$$
$$L_{21} = \begin{bmatrix} 1001 \\ 0100 \\ 0010 \end{bmatrix}$$
$$L_{22} = \begin{bmatrix} 1001 \\ 0100 \\ 0011 \end{bmatrix}$$
$$L_{23} = \begin{bmatrix} 1001 \\ 0100 \\ 0012 \end{bmatrix}$$
$$L_{24} = \begin{bmatrix} 1001 \\ 0100 \\ 0013 \end{bmatrix}$$
$$L_{25} = \begin{bmatrix} 1010 \\ 0100 \\ 0001 \end{bmatrix}$$
$$L_{26} = \begin{bmatrix} 1001 \\ 0101 \\ 0010 \end{bmatrix}$$

$$L_{27} = \begin{bmatrix} 1001 \\ 0101 \\ 0011 \end{bmatrix}$$
$$L_{28} = \begin{bmatrix} 1001 \\ 0101 \\ 0012 \end{bmatrix}$$
$$L_{29} = \begin{bmatrix} 1001 \\ 0101 \\ 0013 \end{bmatrix}$$
$$L_{30} = \begin{bmatrix} 1010 \\ 0110 \\ 0001 \end{bmatrix}$$
$$L_{31} = \begin{bmatrix} 1001 \\ 0102 \\ 0010 \end{bmatrix}$$
$$L_{32} = \begin{bmatrix} 1001 \\ 0102 \\ 0011 \end{bmatrix}$$
$$L_{33} = \begin{bmatrix} 1001 \\ 0102 \\ 0012 \end{bmatrix}$$
$$L_{34} = \begin{bmatrix} 1001 \\ 0102 \\ 0013 \end{bmatrix}$$
$$L_{35} = \begin{bmatrix} 1010 \\ 0120 \\ 0001 \end{bmatrix}$$
$$L_{36} = \begin{bmatrix} 1001 \\ 0103 \\ 0010 \end{bmatrix}$$
$$L_{37} = \begin{bmatrix} 1001 \\ 0103 \\ 0011 \end{bmatrix}$$
$$L_{38} = \begin{bmatrix} 1001 \\ 0103 \\ 0012 \end{bmatrix}$$
$$L_{39} = \begin{bmatrix} 1001 \\ 0103 \\ 0013 \end{bmatrix}$$
$$L_{40} = \begin{bmatrix} 1010 \\ 0130 \\ 0001 \end{bmatrix}$$

$$L_{41} = \begin{bmatrix} 1100 \\ 0010 \\ 0001 \end{bmatrix}$$
$$L_{42} = \begin{bmatrix} 1002 \\ 0100 \\ 0010 \end{bmatrix}$$
$$L_{43} = \begin{bmatrix} 1002 \\ 0100 \\ 0011 \end{bmatrix}$$
$$L_{44} = \begin{bmatrix} 1002 \\ 0100 \\ 0012 \end{bmatrix}$$
$$L_{45} = \begin{bmatrix} 1002 \\ 0100 \\ 0013 \end{bmatrix}$$
$$L_{46} = \begin{bmatrix} 1020 \\ 0100 \\ 0001 \end{bmatrix}$$
$$L_{47} = \begin{bmatrix} 1002 \\ 0101 \\ 0010 \end{bmatrix}$$
$$L_{48} = \begin{bmatrix} 1002 \\ 0101 \\ 0011 \end{bmatrix}$$
$$L_{49} = \begin{bmatrix} 1002 \\ 0101 \\ 0012 \end{bmatrix}$$
$$L_{50} = \begin{bmatrix} 1002 \\ 0101 \\ 0013 \end{bmatrix}$$
$$L_{51} = \begin{bmatrix} 1020 \\ 0110 \\ 0001 \end{bmatrix}$$
$$L_{52} = \begin{bmatrix} 1002 \\ 0102 \\ 0010 \end{bmatrix}$$
$$L_{53} = \begin{bmatrix} 1002 \\ 0102 \\ 0011 \end{bmatrix}$$
$$L_{54} = \begin{bmatrix} 1002 \\ 0102 \\ 0012 \end{bmatrix}$$

$$L_{55} = \begin{bmatrix} 1002 \\ 0102 \\ 0013 \end{bmatrix}$$
$$L_{56} = \begin{bmatrix} 1020 \\ 0120 \\ 0001 \end{bmatrix}$$
$$L_{57} = \begin{bmatrix} 1002 \\ 0103 \\ 0010 \end{bmatrix}$$
$$L_{58} = \begin{bmatrix} 1002 \\ 0103 \\ 0011 \end{bmatrix}$$
$$L_{59} = \begin{bmatrix} 1002 \\ 0103 \\ 0012 \end{bmatrix}$$
$$L_{60} = \begin{bmatrix} 1002 \\ 0103 \\ 0013 \end{bmatrix}$$
$$L_{61} = \begin{bmatrix} 1020 \\ 0130 \\ 0001 \end{bmatrix}$$
$$L_{62} = \begin{bmatrix} 1200 \\ 0010 \\ 0001 \end{bmatrix}$$
$$L_{63} = \begin{bmatrix} 1003 \\ 0100 \\ 0010 \end{bmatrix}$$
$$L_{64} = \begin{bmatrix} 1003 \\ 0100 \\ 0011 \end{bmatrix}$$
$$L_{65} = \begin{bmatrix} 1003 \\ 0100 \\ 0012 \end{bmatrix}$$
$$L_{66} = \begin{bmatrix} 1003 \\ 0100 \\ 0013 \end{bmatrix}$$
$$L_{67} = \begin{bmatrix} 1030 \\ 0100 \\ 0001 \end{bmatrix}$$
$$L_{68} = \begin{bmatrix} 1003 \\ 0101 \\ 0010 \end{bmatrix}$$

$$L_{69} = \begin{bmatrix} 1003 \\ 0101 \\ 0011 \end{bmatrix}$$
$$L_{70} = \begin{bmatrix} 1003 \\ 0101 \\ 0012 \end{bmatrix}$$
$$L_{71} = \begin{bmatrix} 1003 \\ 0101 \\ 0013 \end{bmatrix}$$
$$L_{72} = \begin{bmatrix} 1030 \\ 0110 \\ 0001 \end{bmatrix}$$
$$L_{73} = \begin{bmatrix} 1003 \\ 0102 \\ 0010 \end{bmatrix}$$
$$L_{74} = \begin{bmatrix} 1003 \\ 0102 \\ 0011 \end{bmatrix}$$
$$L_{75} = \begin{bmatrix} 1003 \\ 0102 \\ 0012 \end{bmatrix}$$
$$L_{76} = \begin{bmatrix} 1003 \\ 0102 \\ 0013 \end{bmatrix}$$
$$L_{77} = \begin{bmatrix} 1030 \\ 0120 \\ 0001 \end{bmatrix}$$
$$L_{78} = \begin{bmatrix} 1003 \\ 0103 \\ 0010 \end{bmatrix}$$
$$L_{79} = \begin{bmatrix} 1003 \\ 0103 \\ 0011 \end{bmatrix}$$
$$L_{80} = \begin{bmatrix} 1003 \\ 0103 \\ 0012 \end{bmatrix}$$
$$L_{81} = \begin{bmatrix} 1003 \\ 0103 \\ 0013 \end{bmatrix}$$
$$L_{82} = \begin{bmatrix} 1030 \\ 0130 \\ 0001 \end{bmatrix}$$

$$L_{83} = \begin{bmatrix} 1300 \\ 0010 \\ 0001 \end{bmatrix}$$
$$L_{84} = \begin{bmatrix} 0100 \\ 0010 \\ 0001 \end{bmatrix}$$

The polynomial rings associated with $\mathrm{PG}(3,4)$

h	monomial	vector
0	X_0	$(1,0,0,0)$
1	X_1	$(0,1,0,0)$
2	X_2	$(0,0,1,0)$
3	X_3	$(0,0,0,1)$

h	monomial	vector
0	X_0^2	$(2,0,0,0)$
1	X_1^2	$(0,2,0,0)$
2	X_2^2	$(0,0,2,0)$
3	X_3^2	$(0,0,0,2)$
4	X_0X_1	$(1,1,0,0)$
5	X_0X_2	$(1,0,1,0)$
6	X_0X_3	$(1,0,0,1)$
7	X_1X_2	$(0,1,1,0)$
8	X_1X_3	$(0,1,0,1)$
9	X_2X_3	$(0,0,1,1)$

h	monomial	vector
0	X_0^3	$(3,0,0,0)$
1	X_1^3	$(0,3,0,0)$
2	X_2^3	$(0,0,3,0)$
3	X_3^3	$(0,0,0,3)$
4	$X_0^2X_1$	$(2,1,0,0)$
5	$X_0^2X_2$	$(2,0,1,0)$
6	$X_0^2X_3$	$(2,0,0,1)$
7	$X_0X_1^2$	$(1,2,0,0)$
8	$X_1^2X_2$	$(0,2,1,0)$
9	$X_1^2X_3$	$(0,2,0,1)$
10	$X_0X_2^2$	$(1,0,2,0)$
11	$X_1X_2^2$	$(0,1,2,0)$
12	$X_2^2X_3$	$(0,0,2,1)$
13	$X_0X_3^2$	$(1,0,0,2)$
14	$X_1X_3^2$	$(0,1,0,2)$
15	$X_2X_3^2$	$(0,0,1,2)$
16	$X_0X_1X_2$	$(1,1,1,0)$
17	$X_0X_1X_3$	$(1,1,0,1)$
18	$X_0X_2X_3$	$(1,0,1,1)$
19	$X_1X_2X_3$	$(0,1,1,1)$

h	monomial	vector
0	X_0^4	$(4,0,0,0)$
1	X_1^4	$(0,4,0,0)$
2	X_2^4	$(0,0,4,0)$
3	X_3^4	$(0,0,0,4)$
4	$X_0^3X_1$	$(3,1,0,0)$
5	$X_0^3X_2$	$(3,0,1,0)$
6	$X_0^3X_3$	$(3,0,0,1)$
7	$X_0X_1^3$	$(1,3,0,0)$
8	$X_1^3X_2$	$(0,3,1,0)$
9	$X_1^3X_3$	$(0,3,0,1)$
10	$X_0X_2^3$	$(1,0,3,0)$
11	$X_1X_2^3$	$(0,1,3,0)$
12	$X_2^3X_3$	$(0,0,3,1)$
13	$X_0X_3^3$	$(1,0,0,3)$
14	$X_1X_3^3$	$(0,1,0,3)$
15	$X_2X_3^3$	$(0,0,1,3)$
16	$X_0^2X_1^2$	$(2,2,0,0)$
17	$X_0^2X_2^2$	$(2,0,2,0)$
18	$X_0^2X_3^2$	$(2,0,0,2)$
19	$X_1^2X_2^2$	$(0,2,2,0)$
20	$X_1^2X_3^2$	$(0,2,0,2)$
21	$X_2^2X_3^2$	$(0,0,2,2)$
22	$X_0^2X_1X_2$	$(2,1,1,0)$
23	$X_0^2X_1X_3$	$(2,1,0,1)$
24	$X_0^2X_2X_3$	$(2,0,1,1)$

h	monomial	vector
25	$X_0X_1^2X_2$	$(1,2,1,0)$
26	$X_0X_1^2X_3$	$(1,2,0,1)$
27	$X_1^2X_2X_3$	$(0,2,1,1)$
28	$X_0X_1X_2^2$	$(1,1,2,0)$
29	$X_0X_2^2X_3$	$(1,0,2,1)$
30	$X_1X_2^2X_3$	$(0,1,2,1)$
31	$X_0X_1X_3^2$	$(1,1,0,2)$
32	$X_0X_2X_3^2$	$(1,0,1,2)$
33	$X_1X_2X_3^2$	$(0,1,1,2)$
34	$X_0X_1X_2X_3$	$(1,1,1,1)$