BLT-sets of Q(4, 29)

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Summary

There are 9 BLT-sets.

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The BLT-Sets

3.1 Isomorphism Type 0

Stabilizer has order 1461600
Plane intersection type is 30
Plane invariant is

$$\begin{bmatrix} 30 \end{bmatrix}$$

$\rightarrow$	1_1
30_0	1

$\downarrow$	1_1
30_0	30

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0\}_1$

$\rightarrow$	1_1
30_0	1

$\downarrow$	1_1
30_0	30

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0\}_1$
Column cell 1:
Order of the group that is induced on the object is 24360
Number of ancestors on 5-sets is 76.
Number of orbits on 5-sets is 10.
With 1 orbits on the object
Orbit lengths: 30
The points by ranks:

i	Rank
0	0
1	1
2	144
3	145
4	146
5	151
6	167
7	148

i	Rank
8	170
9	147
10	149
11	154
12	158
13	163
14	157
15	150

i	Rank
16	152
17	153
18	155
19	156
20	159
21	160
22	161
23	162

i	Rank
24	164
25	165
26	166
27	168
28	169
29	171

The points:

$$P_0 = (0, 1, 0, 0, 0) P_1 = (0, 0, 1, 0, 0) P_2 = (0, 1, 14, 28, 14) P_3 = (0, 1, 18, 14, 7)$$
$$P_4 = (0, 1, 8, 19, 24) P_5 = (0, 1, 12, 18, 9) P_6 = (0, 1, 11, 6, 3) P_7 = (0, 1, 11, 23, 26)$$
$$P_8 = (0, 1, 18, 15, 22) P_9 = (0, 1, 19, 7, 18) P_{10} = (0, 1, 2, 24, 12) P_{11} = (0, 1, 26, 21, 25)$$
$$P_{12} = (0, 1, 27, 27, 28) P_{13} = (0, 1, 17, 13, 21) P_{14} = (0, 1, 27, 2, 1) P_{15} = (0, 1, 21, 4, 2)$$
$$P_{16} = (0, 1, 17, 16, 8) P_{17} = (0, 1, 10, 26, 13) P_{18} = (0, 1, 15, 12, 6) P_{19} = (0, 1, 3, 20, 10)$$
$$P_{20} = (0, 1, 3, 9, 19) P_{21} = (0, 1, 15, 17, 23) P_{22} = (0, 1, 26, 8, 4) P_{23} = (0, 1, 10, 3, 16)$$
$$P_{24} = (0, 1, 12, 11, 20) P_{25} = (0, 1, 21, 25, 27) P_{26} = (0, 1, 2, 5, 17) P_{27} = (0, 1, 19, 22, 11)$$
$$P_{28} = (0, 1, 8, 10, 5) P_{29} = (0, 1, 14, 1, 15)$$

Stabilizer of order 1461600 is generated by:

$$g_1 = \begin{bmatrix} 28 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

with 900 fixed points

$$g_2 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 27 & 0 & 0 & 0 \\ 0 & 0 & 14 & 0 & 0 \\ 0 & 0 & 0 & 28 & 0 \\ 0 & 0 & 0 & 0 & 28 \end{bmatrix}$$

with 4 fixed points

$$g_3 = \begin{bmatrix} 15 & 0 & 0 & 10 & 24 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 22 & 4 \\ 5 & 0 & 0 & 16 & 22 \end{bmatrix}$$

with 900 fixed points

$$g_4 = \begin{bmatrix} 15 & 0 & 0 & 19 & 5 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 8 & 11 \\ 5 & 0 & 0 & 15 & 8 \end{bmatrix}$$

with 30 fixed points

$$g_5 = \begin{bmatrix} 2 & 0 & 0 & 8 & 25 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 2 & 0 & 0 & 16 & 7 \\ 25 & 0 & 0 & 28 & 16 \end{bmatrix}$$

with 30 fixed points

$$g_6 = \begin{bmatrix} 3 & 0 & 0 & 25 & 2 \\ 0 & 28 & 0 & 0 & 0 \\ 0 & 18 & 28 & 23 & 26 \\ 28 & 26 & 0 & 2 & 14 \\ 2 & 23 & 0 & 27 & 2 \end{bmatrix}$$

with 2 fixed points

$$g_7 = \begin{bmatrix} 26 & 0 & 0 & 25 & 2 \\ 0 & 2 & 0 & 0 & 0 \\ 0 & 28 & 15 & 1 & 15 \\ 1 & 1 & 0 & 1 & 28 \\ 27 & 2 & 0 & 25 & 1 \end{bmatrix}$$

with 4 fixed points

$$g_8 = \begin{bmatrix} 12 & 0 & 0 & 5 & 12 \\ 0 & 27 & 22 & 1 & 15 \\ 0 & 4 & 0 & 0 & 0 \\ 6 & 27 & 0 & 9 & 25 \\ 17 & 25 & 0 & 13 & 9 \end{bmatrix}$$

with 2 fixed points

3.2 Isomorphism Type 1

Stabilizer has order 1800
Plane intersection type is $15^2\ 3^{3150}$
Plane invariant is

$$\begin{bmatrix} 15 & 0 \\ 0 & 15 \end{bmatrix}$$

$\rightarrow$	2_1
30_0	1

$\downarrow$	2_1
30_0	15

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0, 1\}_2$

$\rightarrow$	2_1
30_0	1

$\downarrow$	2_1
30_0	15

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0, 1\}_2$
Column cell 1:
Order of the group that is induced on the object is 1800
Number of ancestors on 5-sets is 300.
Number of orbits on 5-sets is 300.
With 1 orbits on the object
Orbit lengths: 30
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	9862	16	156	24	12400
1	1	9	17747	17	6869	25	165
2	144	10	4895	18	158	26	12784
3	145	11	149	19	13612	27	168
4	146	12	150	20	24952	28	5149
5	151	13	11976	21	4416	29	19721
6	167	14	12709	22	16180		
7	148	15	155	23	18076		

The points:

$$P_0 = (0, 1, 0, 0, 0) P_1 = (0, 0, 1, 0, 0) P_2 = (0, 1, 14, 28, 14) P_3 = (0, 1, 18, 14, 7)$$

$$P_4 = (0, 1, 8, 19, 24) P_5 = (0, 1, 12, 18, 9) P_6 = (0, 1, 11, 6, 3) P_7 = (0, 1, 11, 23, 26)$$

$$P_8 = (1, 25, 10, 22, 11) P_9 = (1, 11, 16, 1, 26) P_{10} = (1, 11, 16, 23, 15) P_{11} = (0, 1, 2, 24, 12)$$

$$P_{12} = (0, 1, 21, 4, 2) P_{13} = (1, 1, 12, 2, 8) P_{14} = (1, 10, 4, 1, 17) P_{15} = (0, 1, 15, 12, 6)$$

$$P_{16} = (0, 1, 3, 20, 10) P_{17} = (1, 27, 5, 7, 22) P_{18} = (0, 1, 27, 27, 28) P_{19} = (1, 17, 1, 27, 9)$$

$$P_{20} = (1, 17, 1, 18, 28) P_{21} = (1, 1, 12, 16, 1) P_{22} = (1, 16, 18, 16, 20) P_{23} = (1, 8, 9, 5, 26)$$

$$P_{24} = (1, 16, 18, 11, 8) P_{25} = (0, 1, 21, 25, 27) P_{26} = (1, 8, 9, 23, 17) P_{27} = (0, 1, 19, 22, 11)$$

$$P_{28} = (1, 10, 4, 5, 15) P_{29} = (1, 27, 5, 15, 18)$$

Stabilizer of order 1800 is generated by:

$$g_1 = \begin{bmatrix} 2 & 0 & 0 & 8 & 25 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 2 & 0 & 0 & 16 & 7 \\ 25 & 0 & 0 & 28 & 16 \end{bmatrix}$$

with 30 fixed points

$$g_2 = \begin{bmatrix} 14 & 0 & 0 & 10 & 24 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 8 & 11 \\ 5 & 0 & 0 & 15 & 8 \end{bmatrix}$$

with 842 fixed points

$$g_3 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 17 & 1 & 16 & 8 \\ 0 & 8 & 0 & 28 & 0 \\ 0 & 16 & 0 & 0 & 28 \end{bmatrix}$$

with 32 fixed points

$$g_4 = \begin{bmatrix} 12 & 0 & 0 & 24 & 17 \\ 0 & 1 & 14 & 28 & 14 \\ 0 & 21 & 1 & 4 & 2 \\ 23 & 2 & 14 & 7 & 24 \\ 12 & 4 & 28 & 9 & 7 \end{bmatrix}$$

with 32 fixed points

$$g_5 = \begin{bmatrix} 4 & 0 & 0 & 1 & 14 \\ 0 & 6 & 8 & 22 & 11 \\ 0 & 17 & 6 & 12 & 6 \\ 7 & 6 & 11 & 6 & 5 \\ 15 & 12 & 22 & 20 & 6 \end{bmatrix}$$

with 32 fixed points

$$g_6 = \begin{bmatrix} 0 & 4 & 5 & 7 & 18 \\ 23 & 20 & 8 & 21 & 10 \\ 21 & 21 & 20 & 13 & 23 \\ 25 & 22 & 7 & 16 & 22 \\ 21 & 15 & 27 & 8 & 3 \end{bmatrix}$$

with 0 fixed points

3.3 Isomorphism Type 2

Stabilizer has order 3
Plane intersection type is $5^9\ 4^{96}\ 3^{3586}$
Plane invariant is

$$\begin{bmatrix} 5 & 1 & 1 & 1 & 0 & 0 & 1 & 0 & 1 \\ 1 & 5 & 1 & 0 & 1 & 1 & 1 & 0 & 0 \\ 1 & 1 & 5 & 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 5 & 0 & 0 & 0 & 1 & 2 \\ 0 & 1 & 1 & 0 & 5 & 1 & 0 & 2 & 0 \\ 0 & 1 & 0 & 0 & 1 & 5 & 2 & 1 & 1 \\ 1 & 1 & 0 & 0 & 0 & 2 & 5 & 0 & 1 \\ 0 & 0 & 1 & 1 & 2 & 1 & 0 & 5 & 1 \\ 1 & 0 & 0 & 2 & 0 & 1 & 1 & 1 & 5 \end{bmatrix}$$

$\rightarrow$	3_1	3_6	3_5
3_0	2	1	0
3_7	1	1	1
3_3	0	1	1
3_{10}	0	0	2
6_2	1	0	0
6_8	0	1	0
3_9	0	0	1
3_4	0	0	0

$\downarrow$	3_1	3_6	3_5
3_0	2	1	0
3_7	1	1	1
3_3	0	1	1
3_{10}	0	0	2
6_2	2	0	0
6_8	0	2	0
3_9	0	0	1
3_4	0	0	0

$C_0 = \{11, 17, 28\}_3$
$C_1 = \{5, 7, 8\}_3$
$C_2 = \{9, 12, 16, 20, 23, 26\}_6$
$C_3 = \{3, 15, 25\}_3$
$C_4 = \{10, 14, 19\}_3$
$C_5 = \{0, 1, 2\}_3$

$C_6 = \{3, 4, 6\}_3$
$C_7 = \{0, 22, 29\}_3$
$C_8 = \{6, 7, 8, 13, 18, 27\}_6$
$C_9 = \{4, 21, 24\}_3$
$C_{10} = \{1, 2, 5\}_3$

$\rightarrow$	3_1	3_9	3_{10}	3_2	3_{13}	3_{12}	3_{11}	3_{15}	3_{17}	3_{16}	3_{42}	3_{19}	3_{18}	3_{20}	3_{14}	3_{24}	3_{23}	3_{22}	3_{26}	3_{25}	3_{27}	3_{21}	3_{29}	3_{31}	3_{30}
3_0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
3_5	2	1	0	0	0	0	2	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0
3_4	0	1	1	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	1
3_{40}	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	2	1
3_3	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	0	0	0
3_{39}	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0
3_7	1	0	0	0	0	1	0	1	1	1	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0
3_{41}	0	1	0	0	0	1	0	1	0	0	1	0	0	2	1	0	2	0	0	0	0	1	0	0	0
3_8	0	1	0	1	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	1	2	0	1	0	1
3_6	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1	0	0	1	1

$\downarrow$	3_1	3_9	3_{10}	3_2	3_{13}	3_{12}	3_{11}	3_{15}	3_{17}	3_{16}	3_{42}	3_{19}	3_{18}	3_{20}	3_{14}	3_{24}	3_{23}	3_{22}	3_{26}	3_{25}	3_{27}	3_{21}	3_{29}	3_{31}	3_{30}
3_0	1	1	1	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
3_5	2	1	0	0	0	0	2	1	1	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0
3_4	0	1	1	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	1
3_{40}	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	2	1
3_3	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	0	0	0
3_{39}	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	1	0	0	0
3_7	1	0	0	0	0	1	0	1	1	1	0	1	1	0	0	0	0	0	0	1	0	0	1	1	0
3_{41}	0	1	0	0	0	1	0	1	0	0	1	0	0	2	1	0	2	0	0	0	0	1	0	0	0
3_8	0	1	0	1	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	1	2	0	1	0	1
3_6	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1	0	0	1	1

$C_0 = \{0, 22, 29\}_3$
$C_1 = \{31, 40, 57\}_3$
$C_2 = \{53, 60, 93\}_3$
$C_3 = \{12, 16, 20\}_3$
$C_4 = \{3, 15, 25\}_3$
$C_5 = \{11, 17, 28\}_3$
$C_6 = \{10, 14, 19\}_3$
$C_7 = \{9, 23, 26\}_3$
$C_8 = \{8, 18, 27\}_3$
$C_9 = \{16, 42, 43\}_3$
$C_{10} = \{13, 44, 104\}_3$
$C_{11} = \{80, 83, 86\}_3$
$C_{12} = \{29, 69, 94\}_3$
$C_{13} = \{46, 95, 99\}_3$
$C_{14} = \{14, 18, 79\}_3$
$C_{15} = \{32, 47, 58\}_3$
$C_{16} = \{52, 82, 98\}_3$
$C_{17} = \{21, 41, 97\}_3$
$C_{18} = \{4, 12, 89\}_3$
$C_{19} = \{30, 49, 55\}_3$
$C_{20} = \{1, 15, 64\}_3$
$C_{21} = \{34, 54, 85\}_3$
$C_{22} = \{51, 87, 103\}_3$
$C_{23} = \{5, 59, 72\}_3$
$C_{24} = \{2, 20, 66\}_3$
$C_{25} = \{63, 91, 101\}_3$
$C_{26} = \{9, 68, 76\}_3$
$C_{27} = \{23, 36, 70\}_3$
$C_{28} = \{3, 50, 65\}_3$
$C_{29} = \{0, 6, 56\}_3$

$C_{30} = \{17, 33, 37\}_3$
$C_{31} = \{22, 35, 77\}_3$
$C_{32} = \{19, 26, 27\}_3$
$C_{33} = \{71, 75, 90\}_3$
$C_{34} = \{39, 61, 100\}_3$
$C_{35} = \{7, 8, 10, 28, 48, 67\}_6$
$C_{36} = \{38, 62, 84\}_3$
$C_{37} = \{11, 81, 102\}_3$
$C_{38} = \{25, 92, 96\}_3$
$C_{39} = \{4, 21, 24\}_3$
$C_{40} = \{1, 2, 5\}_3$
$C_{41} = \{6, 7, 13\}_3$
$C_{42} = \{45, 74, 78\}_3$
$C_{43} = \{24, 73, 88\}_3$
Column cell 1:
Column cell 2:
Column cell 9:
Column cell 10:
Column cell 11:
Column cell 12:
Column cell 13:
Column cell 14:
Column cell 15:
Column cell 16:
Column cell 17:
Column cell 18:
Column cell 19:
Column cell 20:
Column cell 21:
Column cell 22:
Column cell 23:
Column cell 24:
Column cell 25:
Column cell 26:
Column cell 27:
Column cell 28:
Column cell 29:
Column cell 30:
Column cell 31:
Column cell 32:
Column cell 33:
Column cell 34:
Column cell 35:
Column cell 36:
Column cell 37:
Column cell 38:
Column cell 42:
Column cell 43:
Order of the group that is induced on the object is 3
Number of ancestors on 5-sets is 47502.
Number of orbits on 5-sets is 47502.
With 10 orbits on the object
Orbit lengths: 3^{10}
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	18174	16	20349	24	11696
1	1	9	11348	17	826	25	579
2	144	10	4458	18	13948	26	10887
3	145	11	4424	19	12178	27	9754
4	148	12	21291	20	14705	28	5866
5	4507	13	7159	21	22630	29	15932
6	15827	14	21809	22	23252		
7	13628	15	10468	23	15750		

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,14,28,14)P_3 = (0,1,18,14,7)$$

$$P_4 = (0,1,11,23,26)P_5 = (1,12,23,13,1)P_6 = (1,2,22,5,20)P_7 = (1,28,12,27,9)$$

$$P_8 = (1,24,14,6,26)P_9 = (1,27,6,23,3)P_{10} = (1,13,10,14,1)P_{11} = (1,10,7,16,1)$$

$$P_{12} = (1,23,11,16,24)P_{13} = (1,3,20,14,6)P_{14} = (1,3,4,7,23)P_{15} = (1,20,18,28,13)$$

$$P_{16} = (1,20,21,18,4)P_{17} = (0,1,2,21,22)P_{18} = (1,2,1,16,27)P_{19} = (1,2,24,12,8)$$

$$P_{20} = (1,4,15,13,2)P_{21} = (1,16,10,6,7)P_{22} = (1,3,13,4,19)P_{23} = (1,16,8,24,20)$$

$$P_{24} = (1,5,12,25,8)P_{25} = (0,1,14,9,21)P_{26} = (1,18,16,9,13)P_{27} = (1,11,25,25,11)$$

$$P_{28} = (1,23,8,25,10)P_{29} = (1,15,7,15,20)$$

Stabilizer of order 3 is generated by:

$$g_1 = \begin{bmatrix} 8 & 12 & 1 & 25 & 26 \\ 17 & 22 & 18 & 10 & 4 \\ 0 & 14 & 22 & 15 & 22 \\ 22 & 6 & 10 & 15 & 14 \\ 24 & 20 & 22 & 11 & 21 \end{bmatrix}$$

with 0 fixed points

3.4 Isomorphism Type 3

Stabilizer has order 6
Plane intersection type is $5^6\ 4^{126}\ 3^{3496}$
Plane invariant is

$$\begin{bmatrix} 5 & 0 & 1 & 0 & 0 & 0 \\ 0 & 5 & 0 & 0 & 1 & 0 \\ 1 & 0 & 5 & 0 & 0 & 0 \\ 0 & 0 & 0 & 5 & 0 & 1 \\ 0 & 1 & 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 1 & 0 & 5 \end{bmatrix}$$

$\rightarrow$	6_1
3_0	2
24_2	1
3_3	0

$\downarrow$	6_1
3_0	1
24_2	4
3_3	0

$C_0 = \{3,6,7\}_3$
$C_1 = \{0,1,2,3,4,5\}_6$
$C_2 = \{0,1,2,4,5,8,9,10,11,12,13,14,16,17,18,19,21,22,23,24,26,27,28,29\}_{24}$

$C_3 = \{15, 20, 25\}_3$

$\rightarrow$	6_1	6_2	6_7	6_9	6_{24}	3_{10}	6_{11}	6_{25}	6_{13}	3_{12}	6_8	6_{15}	3_{16}	6_{14}	6_{19}	12_{18}	12_{27}	6_{20}	6_{28}	3_{17}	3_{26}	6_{21}	3_{22}
3_0	2	4	2	2	2	1	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6_3	1	0	2	1	1	0	0	0	0	0	3	2	1	1	1	2	2	1	1	0	0	0	0
6_5	1	0	0	0	0	1	1	1	1	0	1	1	0	2	2	2	2	0	0	1	1	1	0
6_6	1	1	1	2	0	0	1	0	0	0	0	0	0	1	0	4	2	1	0	1	0	1	1
6_{23}	1	1	0	0	2	0	1	2	1	1	0	0	0	0	0	0	2	1	2	0	1	1	1
3_4	0	0	0	0	0	1	0	0	2	1	0	2	2	0	2	0	0	2	2	0	0	2	0

$\downarrow$	6_1	6_2	6_7	6_9	6_{24}	3_{10}	6_{11}	6_{25}	6_{13}	3_{12}	6_8	6_{15}	3_{16}	6_{14}	6_{19}	12_{18}	12_{27}	6_{20}	6_{28}	3_{17}	3_{26}	6_{21}	3_{22}
3_0	1	2	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
6_3	1	0	2	1	1	0	0	0	0	0	3	2	2	1	1	1	1	1	1	0	0	0	0
6_5	1	0	0	0	0	2	1	1	1	0	1	1	0	2	2	1	1	0	0	2	2	1	0
6_6	1	1	1	2	0	0	1	0	0	0	0	0	0	1	0	2	1	1	0	2	0	1	2
6_{23}	1	1	0	0	2	0	1	2	1	2	0	0	0	0	0	0	1	1	2	0	2	1	2
3_4	0	0	0	0	0	1	0	0	1	1	0	1	2	0	1	0	0	1	1	0	0	1	0

$C_0 = \{3, 6, 7\}_3$
$C_1 = \{1, 4, 18, 71, 90, 131\}_6$
$C_2 = \{28, 64, 80, 82, 95, 103\}_6$
$C_3 = \{4, 22, 23, 24, 27, 29\}_6$
$C_4 = \{15, 20, 25\}_3$
$C_5 = \{2, 10, 11, 16, 19, 21\}_6$
$C_6 = \{0, 5, 8, 13, 17, 28\}_6$
$C_7 = \{109, 112, 115, 117, 126, 127\}_6$
$C_8 = \{3, 7, 11, 66, 84, 93\}_6$
$C_9 = \{52, 58, 107, 114, 120, 128\}_6$
$C_{10} = \{5, 13, 116\}_3$
$C_{11} = \{69, 72, 85, 97, 108, 113\}_6$
$C_{12} = \{59, 106, 121\}_3$
$C_{13} = \{6, 19, 24, 26, 27, 47\}_6$
$C_{14} = \{43, 53, 77, 88, 124, 129\}_6$
$C_{15} = \{8, 38, 48, 73, 91, 118\}_6$
$C_{16} = \{10, 16, 74\}_3$
$C_{17} = \{92, 98, 130\}_3$
$C_{18} = \{12, 14, 32, 34, 39, 42, 45, 49, 55, 65, 111, 119\}_{12}$
$C_{19} = \{46, 61, 70, 87, 89, 105\}_6$
$C_{20} = \{22, 41, 50, 60, 76, 94\}_6$
$C_{21} = \{0, 15, 40, 54, 57, 122\}_6$
$C_{22} = \{36, 102, 125\}_3$
$C_{23} = \{1, 9, 12, 14, 18, 26\}_6$
$C_{24} = \{17, 23, 25, 63, 79, 96\}_6$
$C_{25} = \{2, 31, 86, 99, 101, 110\}_6$
$C_{26} = \{37, 44, 56\}_3$
$C_{27} = \{21, 29, 30, 33, 35, 51, 62, 75, 78, 81, 83, 123\}_{12}$
$C_{28} = \{9, 20, 67, 68, 100, 104\}_6$
Column cell 1:
Column cell 2:
Column cell 7:
Column cell 8:
Column cell 9:
Column cell 10:
Column cell 11:
Column cell 12:
Column cell 13:
Column cell 14:
Column cell 15:
Column cell 16:
Column cell 17:

Column cell 18:
Column cell 19:
Column cell 20:
Column cell 21:
Column cell 22:
Column cell 24:
Column cell 25:
Column cell 26:
Column cell 27:
Column cell 28:
Order of the group that is induced on the object is 6
Number of ancestors on 5-sets is 23842.
Number of orbits on 5-sets is 23842.
With 6 orbits on the object
Orbit lengths: $3^2,\ 6^4$
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	14930	16	16651	24	10424
1	1	9	7909	17	6869	25	9881
2	144	10	17682	18	17255	26	18753
3	145	11	16983	19	14293	27	17990
4	148	12	6878	20	15806	28	5866
5	4507	13	5571	21	24196	29	11706
6	16999	14	25229	22	18081		
7	14430	15	23208	23	9698		

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,14,28,14)P_3 = (0,1,18,14,7)$$

$$P_4 = (0,1,11,23,26)P_5 = (1,12,23,13,1)P_6 = (1,27,28,4,21)P_7 = (1,17,25,10,27)$$

$$P_8 = (1,1,10,9,2)P_9 = (1,20,3,11,5)P_{10} = (1,7,8,18,21)P_{11} = (1,24,17,4,21)$$

$$P_{12} = (1,24,2,7,22)P_{13} = (1,15,23,4,15)P_{14} = (1,9,19,27,28)P_{15} = (1,23,18,27,19)$$

$$P_{16} = (1,11,20,13,12)P_{17} = (1,27,5,7,22)P_{18} = (1,19,22,27,21)P_{19} = (1,24,3,22,27)$$

$$P_{20} = (1,9,8,21,20)P_{21} = (1,17,1,7,14)P_{22} = (1,20,21,5,26)P_{23} = (1,26,25,12,11)$$

$$P_{24} = (1,26,6,8,13)P_{25} = (1,19,4,22,11)P_{26} = (1,24,21,21,16)P_{27} = (1,5,8,4,26)$$

$$P_{28} = (1,23,8,25,10)P_{29} = (1,25,14,25,8)$$

Stabilizer of order 6 is generated by:

$$g_1 = \begin{bmatrix} 20 & 24 & 22 & 23 & 24 \\ 11 & 20 & 21 & 15 & 20 \\ 6 & 27 & 16 & 17 & 10 \\ 7 & 18 & 11 & 4 & 18 \\ 25 & 20 & 27 & 21 & 26 \end{bmatrix}$$

with 0 fixed points

$$g_2 = \begin{bmatrix} 21 & 9 & 20 & 19 & 4 \\ 10 & 9 & 21 & 12 & 17 \\ 19 & 21 & 9 & 17 & 12 \\ 2 & 12 & 17 & 10 & 14 \\ 24 & 17 & 12 & 9 & 10 \end{bmatrix}$$

with 32 fixed points

3.5 Isomorphism Type 4

Stabilizer has order 48
Plane intersection type is $6^7\ 4^{120}\ 3^{3440}$
Plane invariant is

$$\begin{bmatrix} 6 & 0 & 0 & 0 & 0 & 2 & 2 \\ 0 & 6 & 2 & 0 & 0 & 2 & 0 \\ 0 & 2 & 6 & 0 & 0 & 2 & 0 \\ 0 & 0 & 0 & 6 & 2 & 2 & 0 \\ 0 & 0 & 0 & 2 & 6 & 2 & 0 \\ 2 & 2 & 2 & 2 & 2 & 6 & 2 \\ 2 & 0 & 0 & 0 & 0 & 2 & 6 \end{bmatrix}$$

$\rightarrow$	1_1	6_3
6_0	1	2
24_2	0	1

$\downarrow$	1_1	6_3
6_0	6	2
24_2	0	4

$C_0 = \{0, 2, 5, 6, 12, 19\}_6$
$C_1 = \{5\}_1$
$C_2 = \{1, 3, 4, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{24}$
$C_3 = \{0, 1, 2, 3, 4, 6\}_6$

$\rightarrow$	1_1	6_4	24_2	96_5
6_0	1	2	8	0
24_3	0	1	2	16

$\downarrow$	1_1	6_4	24_2	96_5
6_0	6	2	2	0
24_3	0	4	2	4

$C_0 = \{0, 2, 5, 6, 12, 19\}_6$
$C_1 = \{36\}_1$
$C_2 = \{15, 17, 23, 39, 44, 45, 47, 48, 49, 50, 52, 53, 57, 60, 64, 68, 72, 77, 79, 95, 116, 117, 124, 125\}_{24}$
$C_3 = \{1, 3, 4, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{24}$
$C_4 = \{37, 40, 54, 71, 96, 126\}_6$
$C_5 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 38, 41, 42, 43, 46, 51, 55, 56, 58, 59,$
Column cell 1:
Column cell 2:
Column cell 4:
Column cell 5:
Order of the group that is induced on the object is 48
Number of ancestors on 5-sets is 4340.
Number of orbits on 5-sets is 3116.
With 2 orbits on the object
Orbit lengths: 6, 24
The points by ranks:

i	Rank
0	0
1	1
2	144
3	145
4	149
5	5114
6	19917
7	8851

i	Rank
8	20352
9	22945
10	12862
11	15006
12	9649
13	20701
14	6822
15	17987

i	Rank
16	11281
17	15903
18	4496
19	12374
20	16567
21	11096
22	20982
23	19701

i	Rank
24	21782
25	8929
26	168
27	16473
28	4614
29	14620

The points:

$$P_0 = (0, 1, 0, 0, 0) P_1 = (0, 0, 1, 0, 0) P_2 = (0, 1, 14, 28, 14) P_3 = (0, 1, 18, 14, 7)$$

$$P_4 = (0,1,2,24,12) P_5 = (1,5,2,7,15) P_6 = (1,11,5,13,18) P_7 = (1,21,28,24,25)$$
$$P_8 = (1,4,18,18,4) P_9 = (1,28,3,21,7) P_{10} = (1,3,25,16,17) P_{11} = (1,15,24,8,2)$$
$$P_{12} = (1,24,27,28,11) P_{13} = (1,17,5,22,4) P_{14} = (1,23,2,15,22) P_{15} = (1,1,11,4,26)$$
$$P_{16} = (1,18,4,24,3) P_{17} = (1,2,23,2,20) P_{18} = (1,21,9,13,1) P_{19} = (1,18,24,22,8)$$
$$P_{20} = (1,21,20,6,12) P_{21} = (1,11,6,26,3) P_{22} = (1,12,25,8,24) P_{23} = (1,20,27,7,18)$$
$$P_{24} = (1,21,24,2,23) P_{25} = (1,10,4,3,25) P_{26} = (0,1,19,22,11) P_{27} = (1,8,5,28,12)$$
$$P_{28} = (1,13,26,9,1) P_{29} = (1,26,1,28,27)$$

Stabilizer of order 48 is generated by:

$$g_1 = \begin{bmatrix} 14 & 0 & 0 & 10 & 24 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 8 & 11 \\ 5 & 0 & 0 & 15 & 8 \end{bmatrix}$$

with 842 fixed points

$$g_2 = \begin{bmatrix} 28 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 21 & 1 & 4 & 2 \\ 0 & 2 & 0 & 28 & 0 \\ 0 & 4 & 0 & 0 & 28 \end{bmatrix}$$

with 32 fixed points

$$g_3 = \begin{bmatrix} 17 & 7 & 0 & 12 & 5 \\ 0 & 12 & 0 & 0 & 0 \\ 18 & 1 & 17 & 2 & 18 \\ 17 & 13 & 0 & 21 & 18 \\ 6 & 21 & 0 & 19 & 21 \end{bmatrix}$$

with 2 fixed points

$$g_4 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 23 & 3 & 6 & 3 \\ 0 & 26 & 23 & 15 & 22 \\ 0 & 22 & 3 & 7 & 3 \\ 0 & 15 & 6 & 12 & 7 \end{bmatrix}$$

with 842 fixed points

$$g_5 = \begin{bmatrix} 11 & 17 & 11 & 8 & 16 \\ 21 & 28 & 18 & 12 & 1 \\ 21 & 14 & 16 & 2 & 1 \\ 10 & 5 & 17 & 25 & 10 \\ 8 & 13 & 9 & 10 & 8 \end{bmatrix}$$

with 0 fixed points

3.6 Isomorphism Type 5

Stabilizer has order 8
Plane intersection type is $5^4\ 4^{98}\ 3^{3628}$
Plane invariant is

$$\begin{bmatrix} 5 & 0 & 0 & 0 \\ 0 & 5 & 0 & 0 \\ 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 5 \end{bmatrix}$$

$\rightarrow$	4_1
20_0	1
10_2	0

$\downarrow$	4_1
20_0	5
10_2	0

$C_0 = \{0, 2, 4, 5, 6, 7, 9, 10, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 26, 29\}_{20}$
$C_1 = \{0, 1, 2, 3\}_4$
$C_2 = \{1, 3, 8, 11, 12, 16, 24, 25, 27, 28\}_{10}$

$\rightarrow$	4_1	4_2	2_7	16_6	16_9	16_{10}	8_8	4_{12}	4_{17}	8_{11}	8_{14}	4_{13}	4_{18}	4_{15}
4_0	1	2	1	4	4	4	0	0	0	0	0	0	0	0
8_5	1	1	0	4	2	0	2	1	1	1	1	0	0	0
8_4	1	0	0	0	2	2	2	0	0	2	1	1	1	0
2_3	0	0	2	0	0	0	0	4	0	0	0	4	0	4
8_{16}	0	0	0	2	2	4	0	0	1	1	2	0	1	1

$\downarrow$	4_1	4_2	2_7	16_6	16_9	16_{10}	8_8	4_{12}	4_{17}	8_{11}	8_{14}	4_{13}	4_{18}	4_{15}
4_0	1	2	2	1	1	1	0	0	0	0	0	0	0	0
8_5	2	2	0	2	1	0	2	2	2	1	1	0	0	0
8_4	2	0	0	0	1	1	2	0	0	2	1	2	2	0
2_3	0	0	2	0	0	0	0	2	0	0	0	2	0	2
8_{16}	0	0	0	1	1	2	0	0	2	1	2	0	2	2

$C_0 = \{7, 14, 21, 29\}_4$
$C_1 = \{10, 35, 67, 75\}_4$
$C_2 = \{16, 24, 40, 81\}_4$
$C_3 = \{1, 3\}_2$
$C_4 = \{4, 5, 6, 13, 18, 20, 22, 26\}_8$
$C_5 = \{0, 2, 9, 10, 15, 17, 19, 23\}_8$
$C_6 = \{1, 7, 9, 17, 23, 29, 37, 41, 49, 55, 56, 69, 72, 73, 77, 92\}_{16}$
$C_7 = \{3, 71\}_2$
$C_8 = \{6, 15, 39, 46, 52, 63, 78, 85\}_8$
$C_9 = \{8, 25, 30, 33, 38, 42, 45, 47, 48, 54, 61, 64, 66, 76, 83, 87\}_{16}$
$C_{10} = \{0, 4, 11, 19, 26, 27, 34, 50, 53, 60, 68, 79, 84, 86, 89, 90\}_{16}$
$C_{11} = \{2, 31, 32, 51, 58, 59, 80, 93\}_8$
$C_{12} = \{21, 44, 88, 100\}_4$
$C_{13} = \{20, 36, 57, 101\}_4$
$C_{14} = \{22, 28, 65, 70, 74, 94, 96, 98\}_8$
$C_{15} = \{5, 43, 82, 95\}_4$
$C_{16} = \{8, 11, 12, 16, 24, 25, 27, 28\}_8$
$C_{17} = \{12, 13, 14, 97\}_4$
$C_{18} = \{18, 62, 91, 99\}_4$
Column cell 1:
Column cell 2:
Column cell 6:
Column cell 7:
Column cell 8:
Column cell 9:
Column cell 10:
Column cell 11:
Column cell 12:
Column cell 13:
Column cell 14:
Column cell 15:
Column cell 17:
Column cell 18:
Order of the group that is induced on the object is 8
Number of ancestors on 5-sets is 17885.
Number of orbits on 5-sets is 17885.
With 5 orbits on the object
Orbit lengths: 2, 4, 8^3
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	6096	16	10870	24	8394
1	1	9	17529	17	16672	25	18413
2	144	10	20189	18	317	26	14002
3	145	11	19537	19	8610	27	8365
4	178	12	6878	20	18200	28	6357
5	4929	13	9118	21	23815	29	11229
6	23511	14	25210	22	20927		
7	11152	15	22004	23	7327		

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,14,28,14)P_3 = (0,1,18,14,7)$$
$$P_4 = (0,1,14,4,11)P_5 = (1,20,19,21,15)P_6 = (1,14,20,2,19)P_7 = (1,21,6,6,3)$$
$$P_8 = (1,16,12,1,10)P_9 = (1,24,19,10,21)P_{10} = (1,5,19,5,4)P_{11} = (1,13,21,17,18)$$
$$P_{12} = (1,24,2,7,22)P_{13} = (1,9,2,12,25)P_{14} = (1,8,25,27,28)P_{15} = (1,22,18,13,23)$$
$$P_{16} = (1,23,10,9,13)P_{17} = (1,17,13,25,12)P_{18} = (0,1,15,24,3)P_{19} = (1,7,8,6,5)$$
$$P_{20} = (1,15,7,16,26)P_{21} = (1,7,17,8,14)P_{22} = (1,6,11,25,24)P_{23} = (1,12,20,13,6)$$
$$P_{24} = (1,13,26,25,5)P_{25} = (1,16,27,9,26)P_{26} = (1,23,14,2,27)P_{27} = (1,5,21,2,5)$$
$$P_{28} = (1,6,19,3,10)P_{29} = (1,22,19,15,3)$$

Stabilizer of order 8 is generated by:

$$g_1 = \begin{bmatrix} 28 & 0 & 0 & 0 & 0 \\ 0 & 1 & 14 & 28 & 14 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 14 & 28 & 0 \\ 0 & 0 & 28 & 0 & 28 \end{bmatrix}$$

with 32 fixed points

$$g_2 = \begin{bmatrix} 5 & 0 & 1 & 22 & 20 \\ 15 & 12 & 24 & 5 & 25 \\ 0 & 0 & 17 & 0 & 0 \\ 10 & 0 & 2 & 26 & 14 \\ 11 & 0 & 17 & 21 & 26 \end{bmatrix}$$

with 2 fixed points

$$g_3 = \begin{bmatrix} 11 & 0 & 23 & 23 & 20 \\ 26 & 7 & 19 & 12 & 22 \\ 0 & 2 & 7 & 28 & 14 \\ 10 & 14 & 22 & 16 & 18 \\ 26 & 28 & 12 & 2 & 16 \end{bmatrix}$$

with 30 fixed points

3.7 Isomorphism Type 6

Stabilizer has order 720
Plane intersection type is $6^{20}\ 4^{270}\ 3^{2580}$
Plane invariant is too big (20 planes)

$\rightarrow$	20_1
30_0	4

$\downarrow$	20_1
30_0	6

$C_0 = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29\}_{30}$
$C_1 = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19\}_{20}$

$\rightarrow$	20_1	270_2
30_0	4	36

$\downarrow$	20_1	270_2
30_0	6	4

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0, 1, 29, 33, 78, 97, 101, 114, 115, 117, 118, 137, 141, 171, 236, 237, 248, 259, 265, 289\}_{20}$
$C_2 = \{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31, 32, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 4$
Column cell 1:
Column cell 2:
Order of the group that is induced on the object is 720
Number of ancestors on 5-sets is 314.
Number of orbits on 5-sets is 288.
With 1 orbits on the object
Orbit lengths: 30
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	15238	16	155	24	14175
1	1	9	11386	17	16144	25	11392
2	144	10	25066	18	14236	26	11974
3	146	11	17731	19	19414	27	6662
4	150	12	11976	20	14499	28	4614
5	6648	13	18658	21	14507	29	10117
6	18199	14	12389	22	22517		
7	15198	15	17747	23	12400		

The points:

$$P_0 = (0, 1, 0, 0, 0) P_1 = (0, 0, 1, 0, 0) P_2 = (0, 1, 14, 28, 14) P_3 = (0, 1, 8, 19, 24)$$
$$P_4 = (0, 1, 21, 4, 2) P_5 = (1, 12, 13, 10, 22) P_6 = (1, 26, 23, 16, 26) P_7 = (1, 13, 26, 19, 2)$$
$$P_8 = (1, 5, 10, 18, 2) P_9 = (1, 9, 2, 13, 3) P_{10} = (1, 5, 10, 22, 28) P_{11} = (1, 8, 22, 1, 26)$$
$$P_{12} = (1, 1, 12, 2, 8) P_{13} = (1, 27, 25, 23, 16) P_{14} = (1, 9, 3, 11, 8) P_{15} = (1, 11, 16, 1, 26)$$
$$P_{16} = (0, 1, 15, 12, 6) P_{17} = (1, 19, 9, 3, 20) P_{18} = (1, 21, 13, 21, 27) P_{19} = (1, 27, 25, 14, 18)$$
$$P_{20} = (1, 14, 16, 11, 27) P_{21} = (1, 8, 28, 11, 27) P_{22} = (1, 22, 15, 19, 7) P_{23} = (1, 16, 18, 11, 8)$$
$$P_{24} = (1, 11, 22, 20, 27) P_{25} = (1, 1, 18, 13, 3) P_{26} = (1, 6, 2, 2, 8) P_{27} = (1, 21, 24, 10, 22)$$
$$P_{28} = (1, 13, 26, 9, 1) P_{29} = (1, 17, 5, 8, 11)$$

Stabilizer of order 720 is generated by:

$$g_1 = \begin{bmatrix} 14 & 0 & 0 & 19 & 5 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 22 & 4 \\ 5 & 0 & 0 & 16 & 22 \end{bmatrix}$$

with 30 fixed points

$$g_2 = \begin{bmatrix} 27 & 0 & 0 & 21 & 4 \\ 0 & 28 & 0 & 0 & 0 \\ 0 & 0 & 28 & 0 & 0 \\ 2 & 0 & 0 & 15 & 21 \\ 25 & 0 & 0 & 26 & 15 \end{bmatrix}$$

with 842 fixed points

$$g_3 = \begin{bmatrix} 6 & 17 & 0 & 4 & 13 \\ 0 & 28 & 0 & 0 & 0 \\ 25 & 14 & 28 & 7 & 8 \\ 11 & 21 & 0 & 3 & 8 \\ 17 & 10 & 0 & 18 & 21 \end{bmatrix}$$

with 4 fixed points

$$g_4 = \begin{bmatrix} 2 & 0 & 0 & 8 & 25 \\ 0 & 24 & 18 & 21 & 25 \\ 0 & 19 & 22 & 18 & 9 \\ 27 & 27 & 18 & 5 & 18 \\ 4 & 25 & 7 & 14 & 5 \end{bmatrix}$$

with 2 fixed points

$$g_5 = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 2 & 0 & 0 \\ 0 & 15 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

with 842 fixed points

3.8 Isomorphism Type 7

Stabilizer has order 60
Plane intersection type is $5^6\ 4^{75}\ 3^{3700}$
Plane invariant is

$$\begin{bmatrix} 5 & 0 & 0 & 0 & 0 & 0 \\ 0 & 5 & 0 & 0 & 0 & 0 \\ 0 & 0 & 5 & 0 & 0 & 0 \\ 0 & 0 & 0 & 5 & 0 & 0 \\ 0 & 0 & 0 & 0 & 5 & 0 \\ 0 & 0 & 0 & 0 & 0 & 5 \end{bmatrix}$$

$\rightarrow$	6_1
30_0	1

$\downarrow$	6_1
30_0	5

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{0, 1, 2, 3, 4, 5\}_6$

$\rightarrow$	6_1	75_2
30_0	1	10

$\downarrow$	6_1	75_2
30_0	5	4

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}_{30}$
$C_1 = \{1, 17, 20, 31, 38, 77\}_6$
$C_2 = \{0, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47$
Column cell 1:
Column cell 2:
Order of the group that is induced on the object is 60
Number of ancestors on 5-sets is 12332.
Number of orbits on 5-sets is 2421.
With 1 orbits on the object
Orbit lengths: 30
The points by ranks:

i	Rank
0	0
1	1
2	144
3	146
4	180
5	6123
6	12480
7	19594

i	Rank
8	20459
9	12663
10	15902
11	13448
12	21958
13	5684
14	10931
15	17196

i	Rank
16	23244
17	7060
18	17653
19	5809
20	20441
21	24555
22	24196
23	11169

i	Rank
24	8267
25	24003
26	6169
27	19515
28	18109
29	7425

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,14,28,14)P_3 = (0,1,8,19,24)$$

$$P_4 = (0,1,21,16,15)P_5 = (1,14,20,27,10)P_6 = (1,22,12,10,17)P_7 = (1,5,26,4,18)$$

$$P_8 = (1,27,20,17,4)P_9 = (1,11,22,13,17)P_{10} = (1,14,24,2,20)P_{11} = (1,26,6,18,9)$$

$$P_{12} = (1,25,10,8,23)P_{13} = (1,17,7,17,10)P_{14} = (1,16,11,28,3)P_{15} = (1,10,1,5,21)$$

$$P_{16} = (1,10,1,4,19)P_{17} = (1,26,1,8,22)P_{18} = (1,28,3,7,21)P_{19} = (1,22,3,2,10)$$

$$P_{20} = (1,7,19,10,4)P_{21} = (1,19,23,3,28)P_{22} = (1,17,1,7,14)P_{23} = (1,17,4,6,3)$$

$$P_{24} = (1,2,22,20,5)P_{25} = (1,11,22,22,14)P_{26} = (1,10,5,21,10)P_{27} = (1,3,23,9,18)$$

$$P_{28} = (1,9,21,15,26)P_{29} = (1,24,15,22,6)$$

Stabilizer of order 60 is generated by:

$$g_1 = \begin{bmatrix} 15 & 9 & 0 & 8 & 1 \\ 0 & 28 & 0 & 0 & 0 \\ 19 & 10 & 28 & 17 & 22 \\ 15 & 22 & 0 & 22 & 28 \\ 4 & 17 & 0 & 23 & 22 \end{bmatrix}$$

with 32 fixed points

$$g_2 = \begin{bmatrix} 2 & 0 & 0 & 8 & 25 \\ 0 & 0 & 24 & 0 & 0 \\ 0 & 23 & 0 & 0 & 0 \\ 27 & 0 & 0 & 14 & 8 \\ 4 & 0 & 0 & 3 & 14 \end{bmatrix}$$

with 30 fixed points

$$g_3 = \begin{bmatrix} 22 & 11 & 0 & 1 & 10 \\ 0 & 16 & 17 & 24 & 8 \\ 20 & 19 & 16 & 11 & 23 \\ 5 & 23 & 8 & 16 & 25 \\ 15 & 11 & 24 & 22 & 16 \end{bmatrix}$$

with 32 fixed points

3.9 Isomorphism Type 8

Stabilizer has order 24360
Plane intersection type is 3^{4060}
Plane invariant is too big (4060 planes)

$\rightarrow$	4060_1
30_0	406

$\downarrow$	4060_1
30_0	3

$C_0 = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29\}_{30}$
$C_1 = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,$

i	Rank	i	Rank	i	Rank	i	Rank
0	0	8	15836	16	11912	24	23495
1	1	9	18930	17	14652	25	15730
2	144	10	10622	18	10559	26	10112
3	323	11	23279	19	21104	27	6842
4	4844	12	17315	20	11096	28	22647
5	21747	13	7530	21	21537	29	9422
6	17447	14	11345	22	11854		
7	20787	15	22969	23	7161		

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,14,28,14)P_3 = (0,1,11,12,16)$$
$$P_4 = (1,8,7,1,1)P_5 = (1,15,20,26,23)P_6 = (1,11,28,6,21)P_7 = (1,24,11,24,24)$$
$$P_8 = (1,21,9,5,20)P_9 = (1,24,14,17,16)P_{10} = (1,10,25,3,13)P_{11} = (1,1,11,7,19)$$
$$P_{12} = (1,25,11,20,21)P_{13} = (1,26,24,7,6)P_{14} = (1,5,15,23,3)P_{15} = (1,17,5,25,7)$$
$$P_{16} = (1,3,13,24,8)P_{17} = (1,19,6,14,27)P_{18} = (1,14,28,1,13)P_{19} = (1,6,12,3,24)$$
$$P_{20} = (1,11,6,26,3)P_{21} = (1,6,15,20,23)P_{22} = (1,27,25,17,8)P_{23} = (1,7,21,14,6)$$
$$P_{24} = (1,11,28,28,19)P_{25} = (1,6,26,11,20)P_{26} = (1,27,1,8,11)P_{27} = (1,10,25,11,22)$$
$$P_{28} = (1,10,16,6,7)P_{29} = (1,22,8,5,11)$$

Stabilizer of order 24360 is generated by:

$$g_1 = \begin{bmatrix} 9 & 0 & 0 & 23 & 23 \\ 0 & 23 & 0 & 0 & 0 \\ 0 & 0 & 24 & 0 & 0 \\ 8 & 0 & 0 & 23 & 1 \\ 12 & 0 & 0 & 16 & 20 \end{bmatrix}$$

with 4 fixed points

$$g_2 = \begin{bmatrix} 10 & 0 & 0 & 17 & 1 \\ 0 & 5 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 16 & 0 & 0 & 27 & 12 \\ 27 & 0 & 0 & 18 & 3 \end{bmatrix}$$

with 4 fixed points

$$g_3 = \begin{bmatrix} 11 & 2 & 0 & 1 & 25 \\ 0 & 28 & 0 & 0 & 0 \\ 1 & 14 & 28 & 1 & 13 \\ 27 & 13 & 0 & 24 & 24 \\ 15 & 1 & 0 & 16 & 24 \end{bmatrix}$$

with 32 fixed points

$$g_4 = \begin{bmatrix} 28 & 0 & 0 & 0 & 0 \\ 0 & 0 & 3 & 0 & 0 \\ 0 & 10 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 22 \\ 0 & 0 & 0 & 4 & 0 \end{bmatrix}$$

with 30 fixed points

$$g_5 = \begin{bmatrix} 28 & 0 & 0 & 0 & 0 \\ 0 & 13 & 27 & 11 & 5 \\ 0 & 3 & 13 & 26 & 13 \\ 0 & 13 & 5 & 16 & 5 \\ 0 & 26 & 11 & 22 & 16 \end{bmatrix}$$

with 32 fixed points

Chapter 4

The BLT-Sets in Numeric Form

0, 1, 144, 145, 146, 151, 167, 148, 170, 147, 149, 154, 158, 163, 157, 150, 152, 153, 155, 156, 159, 160, 161, 162, 164, 165, 166, 168, 169, 171
0, 1, 144, 145, 146, 151, 167, 148, 9862, 17747, 4895, 149, 150, 11976, 12709, 155, 156, 6869, 158, 13612, 24952, 4416, 16180, 18076, 12400, 165, 12784, 168, 5149, 19721
0, 1, 144, 145, 148, 4507, 15827, 13628, 18174, 11348, 4458, 4424, 21291, 7159, 21809, 10468, 20349, 826, 13948, 12178, 14705, 22630, 23252, 15750, 11696, 579, 10887, 9754, 5866, 15932
0, 1, 144, 145, 148, 4507, 16999, 14430, 14930, 7909, 17682, 16983, 6878, 5571, 25229, 23208, 16651, 6869, 17255, 14293, 15806, 24196, 18081, 9698, 10424, 9881, 18753, 17990, 5866, 11706
0, 1, 144, 145, 149, 5114, 19917, 8851, 20352, 22945, 12862, 15006, 9649, 20701, 6822, 17987, 11281, 15903, 4496, 12374, 16567, 11096, 20982, 19701, 21782, 8929, 168, 16473, 4614, 14620
0, 1, 144, 145, 178, 4929, 23511, 11152, 6096, 17529, 20189, 19537, 6878, 9118, 25210, 22004, 10870, 16672, 317, 8610, 18200, 23815, 20927, 7327, 8394, 18413, 14002, 8365, 6357, 11229
0, 1, 144, 146, 150, 6648, 18199, 15198, 15238, 11386, 25066, 17731, 11976, 18658, 12389, 17747, 155, 16144, 14236, 19414, 14499, 14507, 22517, 12400, 14175, 11392, 11974, 6662, 4614, 10117
0, 1, 144, 146, 180, 6123, 12480, 19594, 20459, 12663, 15902, 13448, 21958, 5684, 10931, 17196, 23244, 7060, 17653, 5809, 20441, 24555, 24196, 11169, 8267, 24003, 6169, 19515, 18109, 7425
0, 1, 144, 323, 4844, 21747, 17447, 20787, 15836, 18930, 10622, 23279, 17315, 7530, 11345, 22969, 11912, 14652, 10559, 21104, 11096, 21537, 11854, 7161, 23495, 15730, 10112, 6842, 22647, 9422

```
INT BLT_29_size = 30;
INT BLT_29_nb_reps = 9;
INT BLT_29_reps[] = {
0, 1, 144, 145, 146, 151, 167, 148, 170, 147, 149, 154, 158, 163, 157, 150, 152, 153, 155, 156, 159, 160, 161, 162
0, 1, 144, 145, 146, 151, 167, 148, 9862, 17747, 4895, 149, 150, 11976, 12709, 155, 156, 6869, 158, 13612, 24952, 
0, 1, 144, 145, 148, 4507, 15827, 13628, 18174, 11348, 4458, 4424, 21291, 7159, 21809, 10468, 20349, 826, 13948, 1
0, 1, 144, 145, 148, 4507, 16999, 14430, 14930, 7909, 17682, 16983, 6878, 5571, 25229, 23208, 16651, 6869, 17255, 
0, 1, 144, 145, 149, 5114, 19917, 8851, 20352, 22945, 12862, 15006, 9649, 20701, 6822, 17987, 11281, 15903, 4496, 
0, 1, 144, 145, 178, 4929, 23511, 11152, 6096, 17529, 20189, 19537, 6878, 9118, 25210, 22004, 10870, 16672, 317, 8
0, 1, 144, 146, 150, 6648, 18199, 15198, 15238, 11386, 25066, 17731, 11976, 18658, 12389, 17747, 155, 16144, 14236
0, 1, 144, 146, 180, 6123, 12480, 19594, 20459, 12663, 15902, 13448, 21958, 5684, 10931, 17196, 23244, 7060, 17653
0, 1, 144, 323, 4844, 21747, 17447, 20787, 15836, 18930, 10622, 23279, 17315, 7530, 11345, 22969, 11912, 14652, 10
};
const BYTE *BLT_29_stab_order[] = {
"1461600",
"1800",
"3",
"6",
"48",
"8",
"720",
"60",
"24360",
};
```

```
INT BLT_29_stab_gens[] = {
28,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  1,
 1,  0,  0,  0,  0,  0, 27,  0,  0,  0,  0,  0, 14,  0,  0,  0,  0,  0, 28,  0,  0,  0,  0,  0, 28,
15,  0,  0, 10, 24,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0, 12,  0,  0, 22,  4,  5,  0,  0, 16, 22,
15,  0,  0, 19,  5,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0, 12,  0,  0,  8, 11,  5,  0,  0, 15,  8,
 2,  0,  0,  8, 25,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0,  2,  0,  0, 16,  7, 25,  0,  0, 28, 16,
 3,  0,  0, 25,  2,  0, 28,  0,  0,  0,  0, 18, 28, 23, 26, 28, 26,  0,  2, 14,  2, 23,  0, 27,  2,
26,  0,  0, 25,  2,  0,  2,  0,  0,  0,  0, 28, 15,  1, 15,  1,  1,  0,  1, 28, 27,  2,  0, 25,  1,
12,  0,  0,  5, 12,  0, 27, 22,  1, 15,  0,  4,  0,  0,  0,  6, 27,  0,  9, 25, 17, 25,  0, 13,  9,
 2,  0,  0,  8, 25,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0,  2,  0,  0, 16,  7, 25,  0,  0, 28, 16,
14,  0,  0, 10, 24,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0, 12,  0,  0,  8, 11,  5,  0,  0, 15,  8,
 1,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0, 17,  1, 16,  8,  0,  8,  0, 28,  0,  0, 16,  0,  0, 28,
12,  0,  0, 24, 17,  0,  1, 14, 28, 14,  0, 21,  1,  4,  2, 23,  2, 14,  7, 24, 12,  4, 28,  9,  7,
 4,  0,  0,  1, 14,  0,  6,  8, 22, 11,  0, 17,  6, 12,  6,  7,  6, 11,  6,  5, 15, 12, 22, 20,  6,
 0,  4,  5,  7, 18, 23, 20,  8, 21, 10, 21, 21, 20, 13, 23, 25, 22,  7, 16, 22, 21, 15, 27,  8,  3,
 8, 12,  1, 25, 26, 17, 22, 18, 10,  4,  0, 14, 22, 15, 22, 22,  6, 10, 15, 14, 24, 20, 22, 11, 21,
20, 24, 22, 23, 24, 11, 20, 21, 15, 20,  6, 27, 16, 17, 10,  7, 18, 11,  4, 18, 25, 20, 27, 21, 26,
21,  9, 20, 19,  4, 10,  9, 21, 12, 17, 19, 21,  9, 17, 12,  2, 12, 17, 10, 14, 24, 17, 12,  9, 10,
14,  0,  0, 10, 24,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0, 12,  0,  0,  8, 11,  5,  0,  0, 15,  8,
28,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0, 21,  1,  4,  2,  0,  2,  0, 28,  0,  0,  4,  0,  0, 28,
17,  7,  0, 12,  5,  0, 12,  0,  0,  0, 18,  1, 17,  2, 18, 17, 13,  0, 21, 18,  6, 21,  0, 19, 21,
 1,  0,  0,  0,  0,  0, 23,  3,  6,  3,  0, 26, 23, 15, 22,  0, 22,  3,  7,  3,  0, 15,  6, 12,  7,
11, 17, 11,  8, 16, 21, 28, 18, 12,  1, 21, 14, 16,  2,  1, 10,  5, 17, 25, 10,  8, 13,  9, 10,  8,
28,  0,  0,  0,  0,  0,  1, 14, 28, 14,  0,  0,  1,  0,  0,  0,  0, 14, 28,  0,  0,  0, 28,  0, 28,
 5,  0,  1, 22, 20, 15, 12, 24,  5, 25,  0,  0, 17,  0,  0, 10,  0,  2, 26, 14, 11,  0, 17, 21, 26,
11,  0, 23, 23, 20, 26,  7, 19, 12, 22,  0,  2,  7, 28, 14, 10, 14, 22, 16, 18, 26, 28, 12,  2, 16,
14,  0,  0, 19,  5,  0,  1,  0,  0,  0,  0,  0,  1,  0,  0, 12,  0,  0, 22,  4,  5,  0,  0, 16, 22,
27,  0,  0, 21,  4,  0, 28,  0,  0,  0,  0,  0, 28,  0,  0,  2,  0,  0, 15, 21, 25,  0,  0, 26, 15,
 6, 17,  0,  4, 13,  0, 28,  0,  0,  0, 25, 14, 28,  7,  8, 11, 21,  0,  3,  8, 17, 10,  0, 18, 21,
 2,  0,  0,  8, 25,  0, 24, 18, 21, 25,  0, 19, 22, 18,  9, 27, 27, 18,  5, 18,  4, 25,  7, 14,  5,
 1,  0,  0,  0,  0,  0,  0,  2,  0,  0,  0, 15,  0,  0,  0,  0,  0,  0,  1,  0,  0,  0,  0,  0,  1,
15,  9,  0,  8,  1,  0, 28,  0,  0,  0, 19, 10, 28, 17, 22, 15, 22,  0, 22, 28,  4, 17,  0, 23, 22,
 2,  0,  0,  8, 25,  0,  0, 24,  0,  0,  0, 23,  0,  0,  0, 27,  0,  0, 14,  8,  4,  0,  0,  3, 14,
22, 11,  0,  1, 10,  0, 16, 17, 24,  8, 20, 19, 16, 11, 23,  5, 23,  8, 16, 25, 15, 11, 24, 22, 16,
 9,  0,  0, 23, 23,  0, 23,  0,  0,  0,  0,  0, 24,  0,  0,  8,  0,  0, 23,  1, 12,  0,  0, 16, 20,
10,  0,  0, 17,  1,  0,  5,  0,  0,  0,  0,  0,  6,  0,  0, 16,  0,  0, 27, 12, 27,  0,  0, 18,  3,
11,  2,  0,  1, 25,  0, 28,  0,  0,  0,  1, 14, 28,  1, 13, 27, 13,  0, 24, 24, 15,  1,  0, 16, 24,
28,  0,  0,  0,  0,  0,  0,  3,  0,  0,  0, 10,  0,  0,  0,  0,  0,  0,  0, 22,  0,  0,  0,  4,  0,
28,  0,  0,  0,  0,  0, 13, 27, 11,  5,  0,  3, 13, 26, 13,  0, 13,  5, 16,  5,  0, 26, 11, 22, 16,
};
INT BLT_29_stab_gens_fst[] = { 0, 8, 14, 15, 17, 22, 25, 30, 33};
INT BLT_29_stab_gens_len[] = { 8, 6, 1, 2, 5, 3, 5, 3, 5};
INT BLT_29_make_element_size = 0;
```