BLT-sets of Q(4, 7)

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There are 2 BLT-sets.

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The BLT-Sets

3.1 Isomorphism Type 0

Stabilizer has order 5376
Plane intersection type is 8
Plane invariant is

$$\begin{bmatrix} 8 \end{bmatrix}$$

$\rightarrow$	1_1
8_0	1

$\downarrow$	1_1
8_0	8

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7\}_8$
$C_1 = \{0\}_1$

$\rightarrow$	1_1
8_0	1

$\downarrow$	1_1
8_0	8

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7\}_8$
$C_1 = \{0\}_1$
Column cell 1:
Order of the group that is induced on the object is 336
Number of ancestors on 5-sets is 1.
Number of orbits on 5-sets is 1.
With 1 orbits on the object
Orbit lengths: 8
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	2	40	4	42	6	44
1	1	3	41	5	43	7	45

The points:

$$P_0 = (0,1,0,0,0)P_1 = (0,0,1,0,0)P_2 = (0,1,2,6,2)P_3 = (0,1,4,3,1)$$
$$P_4 = (0,1,1,2,3)P_5 = (0,1,1,5,4)P_6 = (0,1,4,4,6)P_7 = (0,1,2,1,5)$$

Stabilizer of order 5376 is generated by:

$$g_1 = \begin{bmatrix} 10000 \\ 06000 \\ 00600 \\ 00060 \\ 00006 \end{bmatrix}$$

with 64 fixed points

$$g_2 = \begin{bmatrix} 60000 \\ 02000 \\ 00400 \\ 00010 \\ 00001 \end{bmatrix}$$

with 4 fixed points

$$g_3 = \begin{bmatrix} 10000 \\ 05000 \\ 00300 \\ 00010 \\ 00001 \end{bmatrix}$$

with 10 fixed points

$$g_4 = \begin{bmatrix} 20041 \\ 06000 \\ 00600 \\ 30043 \\ 50064 \end{bmatrix}$$

with 8 fixed points

$$g_5 = \begin{bmatrix} 00024 \\ 01000 \\ 01123 \\ 53031 \\ 62023 \end{bmatrix}$$

with 2 fixed points

$$g_6 = \begin{bmatrix} 50041 \\ 01000 \\ 04131 \\ 41043 \\ 23064 \end{bmatrix}$$

with 8 fixed points

$$g_7 = \begin{bmatrix} 20036 \\ 00100 \\ 01000 \\ 30034 \\ 50013 \end{bmatrix}$$

with 8 fixed points

$$g_8 = \begin{bmatrix} 60000 \\ 01123 \\ 01000 \\ 03002 \\ 02040 \end{bmatrix}$$

with 4 fixed points

$$g_9 = \begin{bmatrix} 00053 \\ 01262 \\ 02162 \\ 22223 \\ 16662 \end{bmatrix}$$

with 0 fixed points

3.2 Isomorphism Type 1

Stabilizer has order 384
Plane intersection type is $4^6\ 3^{32}$
Plane invariant is

$$\begin{bmatrix} 4 & 2 & 2 & 2 & 2 & 0 \\ 2 & 4 & 2 & 2 & 0 & 2 \\ 2 & 2 & 4 & 0 & 2 & 2 \\ 2 & 2 & 0 & 4 & 2 & 2 \\ 2 & 0 & 2 & 2 & 4 & 2 \\ 0 & 2 & 2 & 2 & 2 & 4 \end{bmatrix}$$

$\rightarrow$	6_1
8_0	3

$\downarrow$	6_1
8_0	4

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7\}_8$
$C_1 = \{0, 1, 2, 3, 4, 5\}_6$

$\rightarrow$	6_1
8_0	3

$\downarrow$	6_1
8_0	4

$C_0 = \{0, 1, 2, 3, 4, 5, 6, 7\}_8$
$C_1 = \{0, 1, 2, 3, 4, 5\}_6$
Column cell 1:
Order of the group that is induced on the object is 384
Number of ancestors on 5-sets is 2.
Number of orbits on 5-sets is 2.
With 1 orbits on the object
Orbit lengths: 8
The points by ranks:

i	Rank	i	Rank	i	Rank	i	Rank
0	0	2	40	4	225	6	241
1	1	3	41	5	270	7	340

The points:

$$P_0 = (0, 1, 0, 0, 0)P_1 = (0, 0, 1, 0, 0)P_2 = (0, 1, 2, 6, 2)P_3 = (0, 1, 4, 3, 1)$$
$$P_4 = (1, 6, 6, 5, 1)P_5 = (1, 5, 5, 4, 4)P_6 = (1, 2, 2, 2, 1)P_7 = (1, 1, 1, 4, 3)$$

Stabilizer of order 384 is generated by:

$$g_1 = \begin{bmatrix} 20036 \\ 01000 \\ 00100 \\ 30034 \\ 50013 \end{bmatrix}$$

with 50 fixed points

$$g_2 = \begin{bmatrix} 00024 \\ 01000 \\ 00100 \\ 50046 \\ 60054 \end{bmatrix}$$

with 8 fixed points

$$g_3 = \begin{bmatrix} 60000 \\ 06000 \\ 05615 \\ 05005 \\ 01030 \end{bmatrix}$$

with 50 fixed points

$$g_4 = \begin{bmatrix} 35032 \\ 01000 \\ 61126 \\ 16061 \\ 52046 \end{bmatrix}$$

with 50 fixed points

$$g_5 = \begin{bmatrix} 60000 \\ 05615 \\ 06000 \\ 05005 \\ 01030 \end{bmatrix}$$

with 8 fixed points

Chapter 4

The BLT-Sets in Numeric Form

0, 1, 40, 41, 42, 43, 44, 45
0, 1, 40, 41, 225, 270, 241, 340

```
INT BLT_7_size = 8;
INT BLT_7_nb_reps = 2;
INT BLT_7_reps[] = {
0, 1, 40, 41, 42, 43, 44, 45,
0, 1, 40, 41, 225, 270, 241, 340,
};
const BYTE *BLT_7_stab_order[] = {
"5376",
"384",
};
INT BLT_7_stab_gens[] = {
1, 0, 0, 0, 0, 0, 6, 0, 0, 0, 0, 0, 6, 0, 0, 0, 0, 0, 6, 0, 0, 0, 0, 0, 6,
6, 0, 0, 0, 0, 0, 2, 0, 0, 0, 0, 0, 4, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1,
1, 0, 0, 0, 0, 0, 5, 0, 0, 0, 0, 0, 3, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1,
2, 0, 0, 4, 1, 0, 6, 0, 0, 0, 0, 0, 6, 0, 0, 3, 0, 0, 4, 3, 5, 0, 0, 6, 4,
0, 0, 0, 2, 4, 0, 1, 0, 0, 0, 0, 1, 1, 2, 3, 5, 3, 0, 3, 1, 6, 2, 0, 2, 3,
5, 0, 0, 4, 1, 0, 1, 0, 0, 0, 0, 4, 1, 3, 1, 4, 1, 0, 4, 3, 2, 3, 0, 6, 4,
2, 0, 0, 3, 6, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 3, 0, 0, 3, 4, 5, 0, 0, 1, 3,
6, 0, 0, 0, 0, 0, 1, 1, 2, 3, 0, 1, 0, 0, 0, 0, 3, 0, 0, 2, 0, 2, 0, 4, 0,
0, 0, 0, 5, 3, 0, 1, 2, 6, 2, 0, 2, 1, 6, 2, 2, 2, 2, 2, 3, 1, 6, 6, 6, 2,
2, 0, 0, 3, 6, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 3, 0, 0, 3, 4, 5, 0, 0, 1, 3,
0, 0, 0, 2, 4, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 5, 0, 0, 4, 6, 6, 0, 0, 5, 4,
6, 0, 0, 0, 0, 0, 6, 0, 0, 0, 0, 5, 6, 1, 5, 0, 5, 0, 0, 5, 0, 1, 0, 3, 0,
3, 5, 0, 3, 2, 0, 1, 0, 0, 0, 6, 1, 1, 2, 6, 1, 6, 0, 6, 1, 5, 2, 0, 4, 6,
6, 0, 0, 0, 0, 0, 5, 6, 1, 5, 0, 6, 0, 0, 0, 0, 5, 0, 0, 5, 0, 1, 0, 3, 0,
};
INT BLT_7_stab_gens_fst[] = { 0, 9};
INT BLT_7_stab_gens_len[] = { 9, 5};
INT BLT_7_make_element_size = 0;
```