1 BLT set 3 over GF(9)

Points on the quadric $x_0^2 + x_1x_2 + x_3x_4$:

$P_1 = (0, 1, 0, 0, 0)$

$P_2 = (0, 0, 1, 0, 0)$

$P_3 = (0, 1, 7, 2, 7)$

$P_4 = (0, 1, 3, 7, 4)$

$P_5 = (0, 1, 5, 4, 3)$

$P_6 = (1, 1, 3, 8, 1)$

$P_7 = (1, 4, 7, 5, 1)$

$P_8 = (1, 1, 3, 3, 6)$

$P_9 = (1, 4, 7, 3, 8)$

$P_{10} = (1, 7, 2, 7, 4)$

Stabilizer of order 400 is generated by:

$$g_1 = \begin{pmatrix} 6 & 0 & 0 & 3 & 2 \\ 0 & 8 & 6 & 1 & 5 \\ 0 & 6 & 8 & 1 & 5 \\ 2 & 5 & 5 & 8 & 7 \\ 3 & 1 & 1 & 6 & 8 \end{pmatrix}, 0$$

$$g_2 = \begin{pmatrix} 7 & 0 & 0 & 4 & 6 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 6 & 0 & 0 & 4 & 2 \\ 4 & 0 & 0 & 8 & 4 \end{pmatrix}, 0$$

$$g_3 = \begin{pmatrix} 3 & 0 & 0 & 8 & 5 \\ 0 & 1 & 3 & 2 & 3 \\ 0 & 5 & 0 & 0 & 0 \\ 1 & 3 & 0 & 2 & 1 \\ 6 & 4 & 0 & 2 & 4 \end{pmatrix}, 1$$

$$g_4 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 5 & 1 & 7 & 1 \\ 0 & 3 & 0 & 6 & 0 \\ 0 & 4 & 0 & 0 & 7 \end{pmatrix}, 1$$

$$g_5 = \begin{pmatrix} 2 & 0 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 & 0 \\ 0 & 0 & 2 & 0 & 0 \\ 0 & 0 & 0 & 0 & 7 \\ 0 & 0 & 0 & 6 & 0 \end{pmatrix}, 0$$

$$g_6 = \begin{pmatrix} 0 & 1 & 3 & 7 & 1 \\ 6 & 6 & 1 & 5 & 6 \\ 8 & 2 & 5 & 7 & 8 \\ 2 & 2 & 6 & 4 & 2 \\ 6 & 4 & 2 & 0 & 8 \end{pmatrix}, 1$$

Induced action on the BLT-set:

The induced group has order 400 and is generated by:

g_1 =(1, 5)(2, 4)(6, 7, 10, 9, 8)

g_2 =(6, 10, 8, 7, 9)

g_3 =(1, 3, 4, 2)(7, 10, 8, 9)

g_4 =(2, 3, 5, 4)(6, 7, 8, 9)

g_5 =(6, 8)(7, 9)

g_6 =(1, 6, 2, 7)(3, 10, 5, 8)(4, 9)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [10]

The orbits are:

$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ (length 10)