1 BLT set 5 over GF(23)

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

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

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

$P_3 = (0, 1, 9, 22, 9)$

$P_4 = (0, 1, 8, 11, 16)$

$P_5 = (0, 1, 12, 13, 15)$

$P_6 = (0, 1, 8, 4, 21)$

$P_7 = (1, 20, 10, 2, 3)$

$P_8 = (1, 13, 2, 13, 5)$

$P_9 = (1, 3, 18, 14, 1)$

$P_{10} = (1, 2, 12, 4, 11)$

$P_{11} = (1, 4, 8, 3, 12)$

$P_{12} = (1, 11, 5, 20, 11)$

$P_{13} = (1, 14, 19, 18, 12)$

$P_{14} = (1, 20, 10, 12, 12)$

$P_{15} = (1, 16, 4, 8, 12)$

$P_{16} = (1, 10, 21, 12, 15)$

$P_{17} = (1, 7, 14, 21, 15)$

$P_{18} = (1, 21, 7, 7, 15)$

$P_{19} = (1, 3, 8, 15, 6)$

$P_{20} = (1, 2, 9, 5, 10)$

$P_{21} = (1, 22, 5, 7, 17)$

$P_{22} = (1, 19, 10, 6, 18)$

$P_{23} = (1, 9, 18, 12, 19)$

$P_{24} = (1, 5, 10, 16, 4)$

Stabilizer of order 6 is generated by:

$$g_1 = \begin{pmatrix} 19 & 0 & 6 & 14 & 17 \\ 3 & 10 & 15 & 14 & 10 \\ 0 & 20 & 10 & 7 & 1 \\ 20 & 1 & 10 & 3 & 9 \\ 7 & 7 & 14 & 20 & 3 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 6 & 0 & 18 & 13 & 15 \\ 9 & 5 & 17 & 17 & 20 \\ 0 & 15 & 5 & 4 & 10 \\ 19 & 10 & 20 & 3 & 20 \\ 18 & 4 & 17 & 15 & 3 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 6 and is generated by:

g_1 =(1, 12)(2, 5)(4, 22)(7, 15)(8, 16)(9, 17)(10, 20)(11, 23)(13, 21)(14, 19)(18, 24)

g_2 =(1, 18)(2, 4)(3, 20)(5, 8)(6, 13)(7, 19)(9, 14)(11, 24)(12, 23)(15, 17)(16, 22)

Kernel has order 1 and is generated by:

There are 5 orbits on the BLT set.

The orbit length are $[6^3, 3^2]$

The orbits are:

$O_0 = \{1, 11, 12, 18, 23, 24\}$ (length 6)

$O_1 = \{2, 4, 5, 8, 16, 22\}$ (length 6)

$O_2 = \{3, 10, 20\}$ (length 3)

$O_3 = \{6, 13, 21\}$ (length 3)

$O_4 = \{7, 9, 14, 15, 17, 19\}$ (length 6)

The actions induced on the orbits are:

Induced action on orbit $O_0 = \{1, 11, 12, 18, 23, 24\}$ (length 6)

The induced group has order 6 and is generated by:

g_1 =(1, 3)(2, 5)(4, 6)

g_2 =(1, 4)(2, 6)(3, 5)

Kernel has order 1 and is generated by:

Induced action on orbit $O_1 = \{2, 4, 5, 8, 16, 22\}$ (length 6)

The induced group has order 6 and is generated by:

g_1 =(1, 3)(2, 6)(4, 5)

g_2 =(1, 2)(3, 4)(5, 6)

Kernel has order 1 and is generated by:

Induced action on orbit $O_2 = \{3, 10, 20\}$ (length 3)

The induced group has order 6 and is generated by:

g_1 =(2, 3)

g_2 =(1, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_3 = \{6, 13, 21\}$ (length 3)

The induced group has order 6 and is generated by:

g_1 =(2, 3)

g_2 =(1, 2)

Kernel has order 1 and is generated by:

Induced action on orbit $O_4 = \{7, 9, 14, 15, 17, 19\}$ (length 6)

The induced group has order 6 and is generated by:

g_1 =(1, 4)(2, 5)(3, 6)

g_2 =(1, 6)(2, 3)(4, 5)

Kernel has order 1 and is generated by: