1 BLT set 4 over GF(19)

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

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

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

$P_3 = (0, 1, 9, 18, 9)$

$P_4 = (0, 1, 7, 9, 14)$

$P_5 = (0, 1, 1, 15, 5)$

$P_6 = (0, 1, 7, 3, 4)$

$P_7 = (1, 5, 16, 11, 3)$

$P_8 = (1, 18, 8, 12, 18)$

$P_9 = (1, 12, 18, 18, 8)$

$P_{10} = (1, 10, 8, 10, 9)$

$P_{11} = (1, 7, 11, 18, 2)$

$P_{12} = (1, 5, 16, 10, 9)$

$P_{13} = (1, 4, 4, 1, 2)$

$P_{14} = (1, 13, 15, 12, 9)$

$P_{15} = (1, 2, 8, 7, 3)$

$P_{16} = (1, 4, 5, 16, 7)$

$P_{17} = (1, 2, 10, 9, 4)$

$P_{18} = (1, 1, 1, 10, 15)$

$P_{19} = (1, 16, 6, 2, 18)$

$P_{20} = (1, 12, 18, 2, 15)$

Stabilizer of order 40 is generated by:

$$g_1 = \begin{pmatrix} 4 & 0 & 0 & 12 & 13 \\ 0 & 17 & 5 & 1 & 10 \\ 0 & 4 & 17 & 15 & 17 \\ 16 & 17 & 10 & 9 & 16 \\ 6 & 15 & 1 & 7 & 9 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 16 & 0 & 0 & 10 & 3 \\ 0 & 18 & 18 & 4 & 14 \\ 0 & 0 & 18 & 0 & 0 \\ 11 & 0 & 14 & 2 & 6 \\ 5 & 0 & 4 & 16 & 2 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 5 & 7 & 8 & 8 & 9 \\ 2 & 10 & 13 & 3 & 6 \\ 14 & 15 & 8 & 9 & 5 \\ 4 & 7 & 12 & 8 & 16 \\ 1 & 6 & 9 & 16 & 12 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 4 & 14 & 0 & 3 & 14 \\ 0 & 18 & 0 & 0 & 0 \\ 7 & 12 & 18 & 8 & 12 \\ 7 & 12 & 0 & 8 & 1 \\ 11 & 8 & 0 & 11 & 8 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 40 and is generated by:

g_1 =(1, 4)(2, 3)(5, 11)(6, 8)(7, 20)(9, 10)(12, 16)(13, 14)(15, 17)(18, 19)

g_2 =(1, 5)(3, 7)(4, 10)(6, 12)(8, 17)(9, 18)(11, 19)(13, 16)(14, 15)

g_3 =(1, 7, 9, 6, 13, 11, 2, 19, 16, 12, 18, 3, 5, 14, 8, 10, 20, 4, 17, 15)

g_4 =(2, 8)(3, 12)(4, 6)(5, 16)(7, 15)(9, 17)(10, 11)(13, 20)(14, 19)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [20]

The orbits are:

$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$ (length 20)