1 BLT set 3 over GF(29)

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

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

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

$P_3 = (0, 1, 14, 28, 14)$

$P_4 = (0, 1, 18, 14, 7)$

$P_5 = (0, 1, 11, 23, 26)$

$P_6 = (0, 1, 27, 8, 22)$

$P_7 = (0, 1, 26, 10, 9)$

$P_8 = (1, 7, 19, 13, 12)$

$P_9 = (1, 9, 2, 26, 16)$

$P_{10} = (1, 26, 16, 13, 17)$

$P_{11} = (1, 12, 7, 24, 17)$

$P_{12} = (1, 6, 8, 18, 15)$

$P_{13} = (1, 27, 24, 27, 20)$

$P_{14} = (1, 6, 8, 1, 9)$

$P_{15} = (1, 6, 26, 9, 18)$

$P_{16} = (1, 21, 5, 28, 19)$

$P_{17} = (1, 25, 21, 16, 7)$

$P_{18} = (1, 19, 23, 4, 21)$

$P_{19} = (1, 9, 15, 7, 22)$

$P_{20} = (1, 8, 9, 9, 8)$

$P_{21} = (1, 16, 21, 5, 8)$

$P_{22} = (1, 26, 9, 15, 23)$

$P_{23} = (1, 6, 18, 10, 21)$

$P_{24} = (1, 21, 24, 2, 23)$

$P_{25} = (1, 2, 1, 18, 24)$

$P_{26} = (1, 20, 21, 23, 17)$

$P_{27} = (1, 23, 3, 18, 9)$

$P_{28} = (1, 9, 8, 11, 25)$

$P_{29} = (1, 7, 18, 9, 2)$

$P_{30} = (1, 2, 28, 7, 25)$

Stabilizer of order 3 is generated by:

$$g_1 = \begin{pmatrix} 19 & 10 & 12 & 27 & 8 \\ 11 & 22 & 18 & 19 & 14 \\ 0 & 14 & 22 & 15 & 22 \\ 12 & 27 & 25 & 17 & 3 \\ 7 & 7 & 21 & 19 & 8 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 3 and is generated by:

g_1 =(1, 30, 27)(2, 3, 10)(4, 15, 6)(5, 21, 24)(7, 26, 12)(8, 13, 23)(9, 28, 25)(11, 22, 29)(14, 16, 20)(17, 19, 18)

Kernel has order 1 and is generated by:

There are 10 orbits on the BLT set.

The orbit length are $[3^{10}]$

The orbits are:

$O_0 = \{1, 27, 30\}$ (length 3)

$O_1 = \{2, 3, 10\}$ (length 3)

$O_2 = \{4, 6, 15\}$ (length 3)

$O_3 = \{5, 21, 24\}$ (length 3)

$O_4 = \{7, 12, 26\}$ (length 3)

$O_5 = \{8, 13, 23\}$ (length 3)

$O_6 = \{9, 25, 28\}$ (length 3)

$O_7 = \{11, 22, 29\}$ (length 3)

$O_8 = \{14, 16, 20\}$ (length 3)

$O_9 = \{17, 18, 19\}$ (length 3)

The actions induced on the orbits are:

Induced action on orbit $O_0 = \{1, 27, 30\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 3, 2)

Kernel has order 1 and is generated by:

Induced action on orbit $O_1 = \{2, 3, 10\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 2, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_2 = \{4, 6, 15\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 3, 2)

Kernel has order 1 and is generated by:

Induced action on orbit $O_3 = \{5, 21, 24\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 2, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_4 = \{7, 12, 26\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 3, 2)

Kernel has order 1 and is generated by:

Induced action on orbit $O_5 = \{8, 13, 23\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 2, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_6 = \{9, 25, 28\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 3, 2)

Kernel has order 1 and is generated by:

Induced action on orbit $O_7 = \{11, 22, 29\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 2, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_8 = \{14, 16, 20\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 2, 3)

Kernel has order 1 and is generated by:

Induced action on orbit $O_9 = \{17, 18, 19\}$ (length 3)

The induced group has order 3 and is generated by:

g_1 =(1, 3, 2)

Kernel has order 1 and is generated by: