

1 BLT set 1 over GF(17)

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

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

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

$$P_3 = (0, 1, 11, 16, 11)$$

$$P_4 = (0, 1, 7, 8, 14)$$

$$P_5 = (0, 1, 5, 11, 15)$$

$$P_6 = (0, 1, 3, 5, 13)$$

$$P_7 = (0, 1, 10, 2, 12)$$

$$P_8 = (0, 1, 12, 7, 8)$$

$$P_9 = (0, 1, 12, 10, 9)$$

$$P_{10} = (0, 1, 7, 9, 3)$$

$$P_{11} = (0, 1, 6, 4, 7)$$

$$P_{12} = (0, 1, 11, 1, 6)$$

$$P_{13} = (0, 1, 14, 14, 16)$$

$$P_{14} = (0, 1, 5, 6, 2)$$

$$P_{15} = (0, 1, 3, 12, 4)$$

$$P_{16} = (0, 1, 6, 13, 10)$$

$$P_{17} = (0, 1, 10, 15, 5)$$

$$P_{18} = (0, 1, 14, 3, 1)$$

Stabilizer of order 176256 is generated by:

$$g_1 = \begin{pmatrix} 7 & 0 & 0 & 5 & 4 \\ 0 & 16 & 0 & 0 & 0 \\ 0 & 0 & 16 & 0 & 0 \\ 2 & 0 & 0 & 13 & 1 \\ 11 & 0 & 0 & 9 & 13 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 16 & 0 & 0 & 0 \\ 0 & 0 & 16 & 0 & 0 \\ 0 & 0 & 0 & 16 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 16 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 7 & 1 & 9 & 3 \\ 0 & 3 & 0 & 16 & 0 \\ 0 & 9 & 0 & 0 & 16 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 7 & 0 & 0 & 5 & 4 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 2 & 0 & 0 & 14 & 7 \\ 11 & 0 & 0 & 12 & 14 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 12 & 0 & 0 & 15 & 12 \\ 0 & 16 & 6 & 1 & 6 \\ 0 & 0 & 16 & 0 & 0 \\ 6 & 0 & 6 & 3 & 5 \\ 16 & 0 & 1 & 11 & 3 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 9 & 0 & 0 & 6 & 15 \\ 0 & 0 & 14 & 0 & 0 \\ 0 & 11 & 0 & 0 & 0 \\ 16 & 0 & 0 & 13 & 13 \\ 3 & 0 & 0 & 15 & 13 \end{pmatrix}$$

$$g_7 = \begin{pmatrix} 5 & 0 & 0 & 15 & 12 \\ 0 & 2 & 0 & 0 & 0 \\ 0 & 11 & 9 & 3 & 1 \\ 6 & 2 & 0 & 14 & 12 \\ 16 & 6 & 0 & 6 & 14 \end{pmatrix}$$

$$g_8 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 4 & 0 & 0 & 0 \\ 0 & 0 & 13 & 0 & 0 \\ 0 & 0 & 0 & 16 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}$$

$$g_9 = \begin{pmatrix} 16 & 0 & 0 & 0 & 0 \\ 0 & 15 & 0 & 0 & 0 \\ 0 & 0 & 8 & 0 & 0 \\ 0 & 0 & 0 & 16 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}$$

$$g_{10} = \begin{pmatrix} 16 & 0 & 0 & 0 & 0 \\ 0 & 12 & 0 & 0 & 0 \\ 0 & 0 & 10 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 4896 and is generated by:

$$g_1 = \text{id}$$

$$g_2 = \text{id}$$

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

$$g_4 = \text{id}$$

$$g_5 = (1, 3)(5, 6)(7, 13)(8, 10)(9, 14)(11, 15)(12, 17)(16, 18)$$

$$g_6 = (1, 2)(3, 4)(5, 8)(6, 15)(7, 16)(9, 14)(10, 12)(11, 17)$$

$$g_7 = (2, 4, 10, 13, 15, 9, 17, 3)(5, 16, 6, 12, 11, 18, 14, 7)$$

$$g_8 = (3, 16, 12, 11)(4, 17, 10, 7)(5, 9, 14, 8)(6, 18, 15, 13)$$

$$g_9 = (3, 4, 11, 7, 12, 10, 16, 17)(5, 13, 8, 15, 14, 18, 9, 6)$$

$$g_{10} = (3, 8, 7, 18, 16, 5, 4, 15, 12, 9, 17, 13, 11, 14, 10, 6)$$

Kernel has order 36 and is generated by:

$$b_1 = \begin{pmatrix} 12 & 0 & 0 & 2 & 5 \\ 0 & 16 & 0 & 0 & 0 \\ 0 & 0 & 16 & 0 & 0 \\ 6 & 0 & 0 & 14 & 12 \\ 16 & 0 & 0 & 6 & 14 \end{pmatrix}$$

$$b_2 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$$b_3 = \begin{pmatrix} 16 & 0 & 0 & 0 & 0 \\ 0 & 16 & 0 & 0 & 0 \\ 0 & 0 & 16 & 0 & 0 \\ 0 & 0 & 0 & 16 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}$$

$$b_4 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 16 & 0 & 0 & 0 \\ 0 & 0 & 16 & 0 & 0 \\ 0 & 0 & 0 & 16 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}$$

The kernel has 307 orbits on the quadric.

The orbit length are $[18^{289}, 1^{18}]$

Induced action on orbit $O_2 = \{3, 36, 853, 886, 919, 952, 985, 1018, 1051, 1084, 1117, 1150, 1183, 1216, 1249, 1282, 1315, 1348, 1381, 1414, 1447, 1480, 1513, 1546, 1579, 1612, 1645, 1678, 1711, 1744, 1777, 1810, 1843, 1876, 1909, 1942, 1975, 2008, 2041, 2074, 2107, 2140, 2173, 2206, 2239, 2272, 2305, 2338, 2371, 2404, 2437, 2470, 2503, 2536, 2569, 2602, 2635, 2668, 2701, 2734, 2767, 2800, 2833, 2866, 2899, 2932, 2965, 2998, 3031, 3064, 3097, 3130, 3163, 3196, 3229, 3262, 3295, 3328, 3361, 3394, 3427, 3460, 3493, 3526, 3559, 3592, 3625, 3658, 3691, 3724, 3757, 3790, 3823, 3856, 3889, 3922, 3955, 3988, 4021, 4054, 4087, 4120, 4153, 4186, 4219, 4252, 4285, 4318, 4351, 4384, 4417, 4450, 4483, 4516, 4549, 4582, 4615, 4648, 4681, 4714, 4747, 4780, 4813, 4846, 4879, 4912, 4945, 4978, 5011, 5044, 5077, 5110, 5143, 5176, 5209, 5242, 5275, 5308, 5341, 5374, 5407, 5440, 5473, 5506, 5539, 5572, 5605, 5638, 5671, 5704, 5737, 5770, 5803, 5836, 5869, 5902, 5935, 5968, 6001, 6034, 6067, 6100, 6133, 6166, 6199, 6232, 6265, 6298, 6331, 6364, 6397, 6430, 6463, 6496, 6529, 6562, 6595, 6628, 6661, 6694, 6727, 6760, 6793, 6826, 6859, 6892, 6925, 6958, 6991, 7024, 7057, 7090, 7123, 7156, 7189, 7222, 7255, 7288, 7321, 7354, 7387, 7420, 7453, 7486, 7519, 7552, 7585, 7618, 7651, 7684, 7717, 7750, 7783, 7816, 7849, 7882, 7915, 7948, 7981, 8014, 8047, 8080, 8113, 8146, 8179, 8212, 8245, 8278, 8311, 8344, 8377, 8410, 8443, 8476, 8509, 8542, 8575, 8608, 8641, 8674, 8707, 8740, 8773, 8806, 8839, 8872, 8905, 8938, 8971, 9004, 9037, 9070, 9103, 9136, 9169, 9202, 9235, 9268, 9301, 9334, 9367, 9400, 9433, 9466, 9499, 9532, 9565, 9598, 9631, 9664, 9697, 9730, 9763, 9796, 9829, 9862, 9895, 9928, 9961, 9994, 10027, 10060, 10093, 10126, 10159, 10192, 10225, 10258, 10291, 10324, 10357, 10390, 10423, 10456, 10489, 10522, 10555, 10588, 10621, 10654, 10687, 10720, 10753, 10786, 10819, 10852, 10885, 10918, 10951, 10984, 11017, 11050, 11083, 11116, 11149, 11182, 11215, 11248, 11281, 11314, 11347, 11380, 11413, 11446, 11479, 11512, 11545, 11578, 11611, 11644, 11677, 11710, 11743, 11776, 11809, 11842, 11875, 11908, 11941, 11974, 12007, 12040, 12073, 12106, 12139, 12172, 12205, 12238, 12271, 12304, 12337, 12370, 12403, 12436, 12469, 12502, 12535, 12568, 12601, 12634, 12667, 12700, 12733, 12766, 12799, 12832, 12865, 12898, 12931, 12964, 12997, 13030, 13063, 13096, 13129, 13162, 13195, 13228, 13261, 13294, 13327, 13360, 13393, 13426, 13459, 13492, 13525, 13558, 13591, 13624, 13657, 13690, 13723, 13756, 13789, 13822, 13855, 13888, 13921, 13954, 13987, 14020, 14053, 14086, 14119, 14152, 14185, 14218, 14251, 14284, 14317, 14350, 14383, 14416, 14449, 14482, 14515, 14548, 14581, 14614, 14647, 14680, 14713, 14746, 14779, 14812, 14845, 14878, 14911, 14944, 14977, 15010, 15043, 15076, 15109, 15142, 15175, 15208, 15241, 15274, 15307, 15340, 15373, 15406, 15439, 15472, 15505, 15538, 15571, 15604, 15637, 15670, 15703, 15736, 15769, 15802, 15835, 15868, 15901, 15934, 15967, 16000, 16033, 16066, 16099, 16132, 16165, 16198, 16231, 16264, 16297, 16330, 16363, 16396, 16429, 16462, 16495, 16528, 16561, 16594, 16627, 16660, 16693, 16726, 16759, 16792, 16825, 16858, 16891, 16924, 16957, 16990, 17023, 17056, 17089, 17122, 17155, 17188, 17221, 17254, 17287, 17320, 17353, 17386, 17419, 17452, 17485, 17518, 17551, 17584, 17617, 17650, 17683, 17716, 17749, 17782, 17815, 17848, 17881, 17914, 17947, 17980, 18013, 18046, 18079, 18112, 18145, 18178, 18211, 18244, 18277, 18310, 18343, 18376, 18409, 18442, 18475, 18508, 18541, 18574, 18607, 18640, 18673, 18706, 18739, 18772, 18805, 18838, 18871, 18904, 18937, 18970, 19003, 19036, 19069, 19102, 19135, 19168, 19201, 19234, 19267, 19300, 19333, 19366, 19399, 19432, 19465, 19498, 19531, 19564, 19597, 19630, 19663, 19696, 19729, 19762, 19795, 19828, 19861, 19894, 19927, 19960, 19993, 20026, 20059, 20092, 20125, 20158, 20191, 20224, 20257, 20290, 20323, 20356, 20389, 20422, 20455, 20488, 20521, 20554, 20587, 20620, 20653, 20686, 20719, 20752, 20785, 20818, 20851, 20884, 20917, 20950, 20983, 21016, 21049, 21082, 21115, 21148, 21181, 21214, 21247, 21280, 21313, 21346, 21379, 21412, 21445, 21478, 21511, 21544, 21577, 21610, 21643, 21676, 21709, 21742, 21775, 21808, 21841, 21874, 21907, 21940, 21973, 22006, 22039, 22072, 22105, 22138, 22171, 22204, 22237, 22270, 22303, 22336, 22369, 22402, 22435, 22468, 22501, 22534, 22567, 22600, 22633, 22666, 22699, 22732, 22765, 22798, 22831, 22864, 22897, 22930, 22963, 22996, 23029, 23062, 23095, 23128, 23161, 23194, 23227, 23260, 23293, 23326, 23359, 23392, 23425, 23458, 23491, 23524, 23557, 23590, 23623, 23656, 23689, 23722, 23755, 23788, 23821, 23854, 23887, 23920, 23953, 23986, 24019, 24052, 24085, 24118, 24151, 24184, 24217, 24250, 24283, 24316, 24349, 24382, 24415, 24448, 24481, 24514, 24547, 24580, 24613, 24646, 24679, 24712, 24745, 24778, 24811, 24844, 24877, 24910, 24943, 24976, 25009, 25042, 25075, 25108, 25141, 25174, 25207, 25240, 25273, 25306, 25339, 25372, 25405, 25438, 25471, 25504, 25537, 25570, 25603, 25636, 25669, 25702, 25735, 25768, 25801, 25834, 25867, 25900, 25933, 25966, 26000, 26033, 26066, 26099, 26132, 26165, 26198, 26231, 26264, 26297, 26330, 26363, 26396, 26429, 26462, 26495, 26528, 26561, 26594, 26627, 26660, 26693, 26726, 26759, 26792, 26825, 26858, 26891, 26924, 26957, 26990, 27023, 27056, 27089, 27122, 27155, 27188, 27221, 27254, 27287, 27320, 27353, 27386, 27419, 27452, 27485, 27518, 27551, 27584, 27617, 27650, 27683, 27716, 27749, 27782, 27815, 27848, 27881, 27914, 27947, 27980, 28013, 28046, 28079, 28112, 28145, 28178, 28211, 28244, 28277, 28310, 28343, 28376, 28409, 28442, 28475, 28508, 28541, 28574, 28607, 28640, 28673, 28706, 28739, 28772, 28805, 28838, 28871, 28904, 28937, 28970, 29003, 29036, 29069, 29102, 29135, 29168, 29201, 29234, 29267, 29300, 29333, 29366, 29399, 29432, 29465, 29498, 29531, 29564, 29597, 29630, 29663, 29696, 29729, 29762, 29795, 29828, 29861, 29894, 29927, 29960, 29993, 30026, 30059, 30092, 30125, 30158, 30191, 30224, 30257, 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62560, 62600, 62640, 62680, 62720, 62760, 62800, 62840, 62880, 62920, 62960, 63000,$