

# 1 BLT set 1 over GF(37)

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

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

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

$$P_3 = (0, 1, 18, 36, 18)$$

$$P_4 = (0, 1, 23, 18, 9)$$

$$P_5 = (0, 1, 2, 12, 6)$$

$$P_6 = (0, 1, 15, 9, 23)$$

$$P_7 = (0, 1, 32, 11, 24)$$

$$P_8 = (0, 1, 19, 31, 34)$$

$$P_9 = (0, 1, 20, 16, 8)$$

$$P_{10} = (0, 1, 24, 10, 5)$$

$$P_{11} = (0, 1, 22, 17, 27)$$

$$P_{12} = (0, 1, 29, 33, 35)$$

$$P_{13} = (0, 1, 35, 35, 36)$$

$$P_{14} = (0, 1, 6, 5, 21)$$

$$P_{15} = (0, 1, 19, 6, 3)$$

$$P_{16} = (0, 1, 23, 19, 28)$$

$$P_{17} = (0, 1, 31, 7, 22)$$

$$P_{18} = (0, 1, 8, 24, 12)$$

$$P_{19} = (0, 1, 14, 3, 20)$$

$$P_{20} = (0, 1, 13, 14, 7)$$

$$P_{21} = (0, 1, 8, 13, 25)$$

$$P_{22} = (0, 1, 22, 20, 10)$$

$$P_{23} = (0, 1, 20, 21, 29)$$

$$P_{24} = (0, 1, 2, 25, 31)$$

$$P_{25} = (0, 1, 17, 15, 26)$$

$$P_{26} = (0, 1, 29, 4, 2)$$

$$P_{27} = (0, 1, 17, 22, 11)$$

$$P_{28} = (0, 1, 18, 1, 19)$$

$$P_{29} = (0, 1, 6, 32, 16)$$

$$P_{30} = (0, 1, 24, 27, 32)$$

$$P_{31} = (0, 1, 13, 23, 30)$$

$$P_{32} = (0, 1, 15, 28, 14)$$

$$P_{33} = (0, 1, 32, 26, 13)$$

$$P_{34} = (0, 1, 5, 29, 33)$$

$$P_{35} = (0, 1, 31, 30, 15)$$

$$P_{36} = (0, 1, 14, 34, 17)$$

$$P_{37} = (0, 1, 35, 2, 1)$$

$$P_{38} = (0, 1, 5, 8, 4)$$

Stabilizer of order 3846816 is generated by:

$$g_1 = \begin{pmatrix} 4 & 0 & 0 & 20 & 27 \\ 0 & 2 & 9 & 36 & 18 \\ 0 & 1 & 2 & 12 & 6 \\ 5 & 6 & 18 & 18 & 7 \\ 27 & 12 & 36 & 28 & 18 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 36 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 25 & 0 & 0 & 29 & 4 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 5 & 1 & 8 & 4 \\ 2 & 4 & 0 & 24 & 6 \\ 33 & 8 & 0 & 24 & 24 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 31 & 0 & 0 & 12 & 31 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 3 & 0 & 0 & 16 & 11 \\ 31 & 0 & 0 & 7 & 16 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 32 & 0 & 0 & 14 & 30 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 22 & 0 & 0 & 35 & 20 \\ 30 & 0 & 0 & 6 & 35 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 33 & 0 & 0 & 17 & 10 \\ 0 & 36 & 0 & 0 & 0 \\ 0 & 18 & 36 & 31 & 34 \\ 32 & 34 & 0 & 17 & 29 \\ 10 & 31 & 0 & 5 & 17 \end{pmatrix}$$

$$g_7 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 & 0 \\ 0 & 0 & 19 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 50616 and is generated by:

$$g_1 = (1, 4)(2, 5)(3, 6)(7, 10)(8, 9)(11, 14)(12, 13)(15, 18)(16, 17)(19, 22)(20, 21)(23, 26)(24, 25)(27, 30)(28, 29)(31, 34)(32, 33)(35, 38)(36, 37)$$

$$g_2 = \text{id}$$

$$g_3 = (2, 6)(3, 5)(7, 8)(9, 10)(11, 12)(13, 14)(15, 16)(17, 18)(19, 20)(21, 22)(23, 24)(25, 26)(27, 28)(29, 30)(31, 32)(33, 34)(35, 36)(37, 38)$$

$$g_4 = \text{id}$$

$g_5 = \text{id}$

$g_6 = (2, 5)(3, 4)(6, 28)(7, 9)(8, 26)(10, 20)(11, 33)(12, 19)(13, 17)(14, 37)(15, 24)(16, 27)(21, 38)(22, 35)(23, 32)(25, 31)(29, 36)(30, 34)$

$g_7 = (3, 4, 6, 31, 35, 25, 33, 21, 24, 8, 36, 11, 30, 29, 9, 38, 26, 37, 28, 16, 32, 20, 17, 27, 7, 18, 5, 15, 19, 22, 10, 14, 23, 34, 12, 13)$

Kernel has order 76 and is generated by:

$$b_1 = \begin{pmatrix} 13 & 0 & 0 & 22 & 26 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 13 & 0 & 0 & 31 & 22 \\ 11 & 0 & 0 & 14 & 31 \end{pmatrix}$$

$$b_2 = \begin{pmatrix} 15 & 0 & 0 & 35 & 1 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 18 & 0 & 0 & 8 & 15 \\ 1 & 0 & 0 & 23 & 8 \end{pmatrix}$$

$$b_3 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 36 & 0 & 0 & 0 \\ 0 & 0 & 36 & 0 & 0 \\ 0 & 0 & 0 & 36 & 0 \\ 0 & 0 & 0 & 0 & 36 \end{pmatrix}$$

The kernel has 1407 orbits on the quadric.

The orbit length are  $[38^{1369}, 1^{38}]$

Induced action on orbit  $O_2 = \{3, 76, 4073, 4146, 4219, 4292, 4365, 4438, 4511, 4584, 4657, 4730, 4803, 4876, 4949, 5022, 5095, 5168, 5241, 5314, 5387, 5460, 5533, 5606, 5679, 5752, 5825, 5898, 5971, 6044, 6117, 6190, 6263, 6336, 6409, 6482, 6555, 6628, 6701, 6774, 6847, 6920, 6993, 7066, 7139, 7212, 7285, 7358, 7431, 7504, 7577, 7650, 7723, 7796, 7869, 7942, 8015, 8088, 8161, 8234, 8307, 8380, 8453, 8526, 8599, 8672, 8745, 8818, 8891, 8964, 9037, 9110, 9183, 9256, 9329, 9402, 9475, 9548, 9621, 9694, 9767, 9840, 9913, 9986, 10059, 10132, 10205, 10278, 10351, 10424, 10497, 10570, 10643, 10716, 10789, 10862, 10935, 11008, 11081, 11154, 11227, 11300, 11373, 11446, 11519, 11592, 11665, 11738, 11811, 11884, 11957, 12030, 12103, 12176, 12249, 12322, 12395, 12468, 12541, 12614, 12687, 12760, 12833, 12906, 12979, 13052, 13125, 13198, 13271, 13344, 13417, 13490, 13563, 13636, 13709, 13782, 13855, 13928, 14001, 14074, 14147, 14220, 14293, 14366, 14439, 14512, 14585, 14658, 14731, 14804, 14877, 14950, 15023, 15096, 15169, 15242, 15315, 15388, 15461, 15534, 15607, 15680, 15753, 15826, 15899, 15972, 16045, 16118, 16191, 16264, 16337, 16410, 16483, 16556, 16629, 16702, 16775, 16848, 16921, 16994, 17067, 17140, 17213, 17286, 17359, 17432, 17505, 17578, 17651, 17724, 17797, 17870, 17943, 18016, 18089, 18162, 18235, 18308, 18381, 18454, 18527, 18600, 18673, 18746, 18819, 18892, 18965, 19038, 19111, 19184, 19257, 19330, 19403, 19476, 19549, 19622, 19695, 19768, 19841, 19914, 19987, 20060, 20133, 20206, 20279, 20352, 20425, 20498, 20571, 20644, 20717, 20790, 20863, 20936, 21009, 21082, 21155, 21228, 21301, 21374, 21447, 21520, 21593, 21666, 21739, 21812, 21885, 21958, 22031, 22104, 22177, 22250, 22323, 22396, 22469, 22542, 22615, 22688, 22761, 22834, 22907, 22980, 23053, 23126, 23199, 23272, 23345, 23418, 23491, 23564, 23637, 23710, 23783, 23856, 23929, 24002, 24075, 24148, 24221, 24294, 24367, 24440, 24513, 24586, 24659, 24732, 24805, 24878, 24951, 25024, 25097, 25170, 25243, 25316, 25389, 25462, 25535, 25608, 25681, 25754, 25827, 25900, 25973, 26046, 26119, 26192, 26265, 26338, 26411, 26484, 26557, 26630, 26703, 26776, 26849, 26922, 26995, 27068, 27141, 27214, 27287, 27360, 27433, 27506, 27579, 27652, 27725, 27798, 27871, 27944, 28017, 28090, 28163, 28236, 28309, 28382, 28455, 28528, 28601, 28674, 28747, 28820, 28893, 28966, 29039, 29112, 29185, 29258, 29331, 29404, 29477, 29550, 29623, 29696, 29769, 29842, 29915, 29988, 30061, 30134, 30207, 30280, 30353, 30426, 30499, 30572, 30645, 30718, 30791, 30864, 30937, 31010, 31083, 31156, 31229, 31302, 31375, 31448, 31521, 31594, 31667, 31740, 31813, 31886, 31959, 32032, 32105, 32178, 32251, 32324, 32397, 32470, 32543, 32616, 32689, 32762, 32835, 32908, 32981, 33054, 33127, 33200, 33273, 33346, 33419, 33492, 33565, 33638, 33711, 33784, 33857, 33930, 34003, 34076, 34149, 34222, 34295, 34368, 34441, 34514, 34587, 34660, 34733, 34806, 34879, 34952, 35025, 35098, 35171, 35244, 35317, 35390, 35463, 35536, 35609, 35682, 35755, 35828, 35901, 35974, 36047, 36120, 36193, 36266, 36339, 36412, 36485, 36558, 36631, 36704, 36777, 36850, 36923, 36996, 37069, 37142, 37215, 37288, 37361, 37434, 37507, 37580, 37653, 37726, 37799, 37872, 37945, 38018, 38091, 38164, 38237, 38310, 38383, 38456, 38529, 38602, 38675, 38748, 38821, 38894, 38967, 39040, 39113, 39186, 39259, 39332, 39405, 39478, 39551, 39624, 39697, 39770, 39843, 39916, 39989, 40062, 40135, 40208, 40281, 40354, 40427, 40500, 40573, 40646, 40719, 40792, 40865, 40938, 41011, 41084, 41157, 41230, 41303, 41376, 41449, 41522, 41595, 41668, 41741, 41814, 41887, 41960, 42033, 42106, 42179, 42252, 42325, 42398, 42471, 42544, 42617, 42690, 42763, 42836, 42909, 42982, 43055, 43128, 43201, 43274, 43347, 43420, 43493, 43566, 43639, 43712, 43785, 43858, 43931, 44004, 44077, 44150, 44223, 44296, 44369, 44442, 44515, 44588, 44661, 44734, 44807, 44880, 44953, 45026, 45099, 45172, 45245, 45318, 45391, 45464, 45537, 45610, 45683, 45756, 45829, 45902, 45975, 46048, 46121, 46194, 46267, 46340, 46413, 46486, 46559, 46632, 46705, 46778, 46851, 46924, 46997, 47070, 47143, 47216, 47289, 47362, 47435, 47508, 47581, 47654, 47727, 47800, 47873, 47946, 48019, 48092, 48165, 48238, 48311, 48384, 48457, 48530, 48603, 48676, 48749, 48822, 48895, 48968, 49041, 49114, 49187, 49260, 49333, 49406, 49479, 49552, 49625, 49698, 49771, 49844, 49917, 49990, 50063, 50136, 50209, 50282, 50355, 50428, 50501, 50574, 50647, 50720, 50793, 50866, 50939, 51012, 51085, 51158, 51231, 51304, 51377, 51450, 51523, 51596, 51669, 51742, 51815, 51888, 51961, 52034, 52107, 52180, 52253, 52326, 52399, 52472, 52545, 52618, 52691, 52764, 52837, 52910, 52983, 53056, 53129, 53202, 53275, 53348, 53421, 53494, 53567, 53640, 53713, 53786, 53859, 53932, 54005, 54078, 54151, 54224, 54297, 54370, 54443, 54516, 54589, 54662, 54735, 54808, 54881, 54954, 55027, 55100, 55173, 55246, 55319, 55392, 55465, 55538, 55611, 55684, 55757, 55830, 55903, 55976, 56049, 56122, 56195, 56268, 56341, 56414, 56487, 56560, 56633, 56706, 56779, 56852, 56925, 57000, 57075, 57150, 57225, 57300, 57375, 57450, 57525, 57600, 57675, 57750, 57825, 57900, 57975, 58050, 58125, 58200, 58275, 58350, 58425, 58500, 58575, 58650, 58725, 58800, 58875, 58950, 59025, 59100, 59175, 59250, 59325, 59400, 59475, 59550, 59625, 59700, 59775, 59850, 59925, 60000, 60075, 60150, 60225, 60300, 60375, 60450, 60525, 60600, 60675, 60750, 60825, 60900, 60975, 61050, 61125, 61200, 61275, 61350, 61425, 61500, 61575, 61650, 61725, 61800, 61875, 61950, 62025, 62100, 62175, 62250, 62325, 62400, 62475, 62550, 62625, 62700, 62775, 62850, 62925, 63000, 63075, 63150, 63225, 63300, 63375, 63450, 63525, 63600, 63675, 63750, 63825, 63900, 63975, 64050, 64125, 64200, 64275, 64350, 64425, 64500, 64575, 64650, 64725, 64800, 64875, 64950, 65025, 65100, 65175, 65250, 65325, 65400, 65475, 65550, 65625, 65700, 65775, 65850, 65925, 66000, 66075, 66150, 66225, 66300, 66375, 66450, 66525, 66600, 66675, 66750, 66825, 66900, 66975, 67050, 67125, 67200, 67275, 67350, 67425, 67500, 67575, 67650, 67725, 67800, 67875, 67950, 68025, 68100, 68175, 68250, 68325, 68400, 68475, 68550, 68625, 68700, 68775, 68850, 68925, 69000, 69075, 69150, 69225, 69300, 69375, 69450, 69525, 69600, 69675, 69750, 69825, 69900, 69975, 70050, 70125, 70200, 70275, 70350, 70425, 70500, 70575, 70650, 70725, 70800, 70875, 70950, 71025, 71100, 71175, 71250, 71325, 71400, 71475, 71550, 71625, 71700, 71775, 71850, 71925, 72000, 72075, 72150, 72225, 72300, 72375, 72450, 72525, 72600, 72675, 72750, 72825, 72900, 72975, 73050, 73125, 73200, 73275, 73350, 73425, 73500, 73575, 73650, 73725, 73800, 73875, 73950, 74025, 74100, 74175, 74250, 74325, 74400, 74475, 74550, 74625, 74700, 74775, 74850, 74925, 75000, 75075, 75150, 75225, 75300, 75375, 75450, 75525, 75600, 75675, 75750, 75825, 75900, 75975, 76050, 76125, 76200, 76275, 76350, 76425, 76500, 76575, 76650, 76725, 76800, 76875, 76950, 77025, 77100, 77175, 77250, 77325, 77400, 77475, 77550, 77625, 77700, 77775, 77850, 77925, 78000, 78075, 78150, 78225, 78300, 78375, 78450, 78525, 78600, 78675, 78750, 78825, 78900, 78975, 79050, 79125, 79200, 79275, 79350, 79425, 79500, 79575, 79650, 79725, 79800, 79875, 79950, 80025, 80100, 80175, 80250, 80325, 80400, 80475, 80550, 80625, 80700, 80775, 80850, 80925, 81000, 81075, 81150, 81225, 81300, 81375, 81450, 81525, 81600, 81675, 81750, 81825, 81900, 81975, 82050, 82125, 82200, 82275, 82350, 82425, 82500, 82575, 82650, 82725, 82800, 82875, 82950, 83025, 83100, 83175, 83250, 83325, 83400, 83475, 83550, 83625, 83700, 83775, 83850, 83925, 84000, 84075, 84150, 84225, 84300, 84375, 84450, 84525, 84600, 84675, 84750, 84825, 84900, 84975, 85050, 85125, 85200, 85275, 85350, 85425, 85500, 85575, 85650, 85725, 85800, 85875, 85950, 86025, 86100, 86175, 86250, 86325, 86400, 86475, 86550, 86625, 86700, 86775, 86850, 86925, 87000, 87075, 87150, 87225, 87300, 87375, 87450, 87525, 87600, 87675, 87750, 87825, 87900, 87975, 88050, 88125, 88200, 88275, 88350, 88425, 88500, 88575, 88650, 88725, 88800, 88875, 88950, 89025, 89100, 89175, 89250, 89325, 89400, 89475, 89550, 89625, 89700, 89775, 89850, 89925, 90000, 90075, 90150, 90225, 90300, 90375, 90450, 90525, 90600, 90675, 90750, 90825, 90900, 90975, 91050, 91125, 91200, 91275, 91350, 91425, 91500, 91575, 91650, 91725, 91800, 91875, 91950, 92025, 92100, 92175, 92250, 92325, 92400, 92475, 92550, 92625, 92700, 92775, 92850, 92925, 93000, 93075, 93150, 93225, 93300, 93375, 93450, 93525, 93600, 93675, 93750, 93825, 93900, 93975, 94050, 94125, 94200, 94275, 94350, 94425, 94500, 94575, 94650, 94725, 94800, 94875, 94950, 95025, 95100, 95175, 95250, 95325, 95400, 95475, 95550, 95625, 95700, 95775, 95850, 95925, 96000, 96075, 96150, 96225, 96300, 96375, 96450, 96525, 96600, 96675, 96750, 96825, 96900, 96975, 97050, 97125, 97200, 97275, 97350, 97425, 97500, 97575, 97650, 97725, 97800, 97875, 97950, 98025, 98100, 98175, 98250, 98325, 98400, 98475, 98550, 98625, 98700, 98775, 98850, 98925, 99000, 99075, 99150, 99225, 99300, 99375, 99450, 99525, 99600, 99675, 99750, 99825, 99900, 99975, 100050, 100125, 100200, 100275, 100350, 100425, 100500, 100575, 100650, 100725, 100800, 100875, 100950, 101025, 101100, 101175, 101250, 101325, 101400, 101475, 101550, 101625, 101700, 101775, 101850, 101925, 102000, 102075, 102150, 102225, 102300, 102375, 102450, 102525, 102600, 102675, 102750, 102825, 102900, 102975, 103050, 103125, 103200, 103275, 103350, 103425, 103500, 103575, 103650, 103725, 103800, 103875, 103950, 104025, 104100, 104175, 104250, 104325, 104400, 104475, 104550, 104625, 104700, 104775, 104850, 104925, 105000, 105075, 105150, 105225, 105300, 105375, 105450, 105525, 105600, 105675, 105750, 105825, 105900, 105975, 106050, 106125, 106200, 106275, 106350, 106425, 106500, 106575, 106650, 106725, 106800, 106875, 106950, 107025, 107100, 107175, 107250, 107325, 107400, 107475, 107550, 107625, 107700, 107775, 107850, 107925, 108000, 108075, 108150, 108225, 108300, 108375, 108450, 108525, 108600, 108675, 108750, 108825, 108900, 108975, 109050, 109125, 109200, 109275, 109350, 109425, 109500, 109575, 109650, 109725, 109800, 109875, 109950, 110025, 110100, 110175, 110250, 110325, 110400, 110475, 110550, 110625, 110700, 110775, 110850, 110925, 111000, 111075, 111150, 111225, 111300, 111375, 111450, 111525, 111600, 111675, 111750, 111825, 111900, 111975, 112050, 112125, 112200, 112275, 112350, 112425, 112500, 112575, 112650, 112725, 112800, 112875, 112950, 113025, 113100, 113175, 113250, 113325, 113400, 113475, 113550, 113625, 113700, 113775, 113850, 113925, 114000, 114075, 114150, 114225, 114300, 114375, 114450, 114525, 114600, 114675, 114750, 114825, 114900, 114975, 115050, 115125, 115200, 115275, 115350, 115425, 115500, 115575, 115650, 115725, 115800, 115875, 115950, 116025, 116100, 116175, 116250, 116325, 116400, 116475, 116550, 116625, 116700, 116775, 116850, 116925, 117000, 117075, 117150, 117225, 117300, 117375, 117450, 117525, 117600, 117675, 117750, 117825, 117900, 117975, 118050, 118125, 118200, 118275, 118350, 118425, 118500, 118575, 118650, 118725, 118800, 118875, 118950, 119025, 119100, 119175, 119250, 119325, 119400, 119475, 119550, 119625, 119700, 119775, 119850, 119925, 120000, 120075, 120150, 120225, 120300, 120375, 120450, 120525, 120600, 120675, 120750, 120825, 120900, 120975, 121050, 121125, 121200, 121275, 121350, 12$

The induced group has order 76 and is generated by:

$$g_1 = (1, 11)(2, 31)(3, 15)(4, 5)(6, 10)(7, 19)(8, 34)(9, 27)(12, 16)(13, 32)(14, 25)(17, 18)(20, 28)(21, 30)(22, 35)(23, 33)(24, 37)(26, 36)(29, 38)$$

$$g_2 = (1, 18, 17, 11, 33, 37, 21, 34, 5, 28, 19, 26, 32, 35, 3, 27, 10, 29, 25, 2, 16, 12, 31, 14, 38, 6, 9, 15, 22, 13, 36, 7, 20, 4, 8, 30, 24, 23)$$

$$g_3 = (3, 38)(4, 37)(5, 36)(6, 35)(7, 34)(8, 33)(9, 32)(10, 31)(11, 30)(12, 29)(13, 28)(14, 27)(15, 26)(16, 25)(17, 24)(18, 23)(19, 22)(20, 21)$$

group order is small, so we list all elements  $a_1 = \text{id}$

$$a_2 = (3, 38)(4, 37)(5, 36)(6, 35)(7, 34)(8, 33)(9, 32)(10, 31)(11, 30)(12, 29)(13, 28)(14, 27)(15, 26)(16, 25)(17, 24)(18, 23)(19, 22)(20, 21)$$

$$a_3 = (1, 11)(2, 31)(3, 15)(4, 5)(6, 10)(7, 19)(8, 34)(9, 27)(12, 16)(13, 32)(14, 25)(17, 18)(20, 28)(21, 30)(22, 35)(23, 33)(24, 37)(26, 36)(29, 38)$$

$$a_4 = (1, 11, 21, 28, 32, 27, 25, 12, 38, 15, 36, 4, 24, 18, 33, 34, 19, 35, 10, 2, 31, 6, 22, 7, 8, 23, 17, 37, 5, 26, 3, 29, 16, 14, 9, 13, 20, 30)$$

$$a_5 = (1, 18, 17, 11, 33, 37, 21, 34, 5, 28, 19, 26, 32, 35, 3, 27, 10, 29, 25, 2, 16, 12, 31, 14, 38, 6, 9, 15, 22, 13, 36, 7, 20, 4, 8, 30, 24, 23)$$

$$a_6 = (1, 18)(2, 16)(3, 6)(4, 21)(5, 7)(8, 37)(9, 35)(10, 14)(11, 24)(12, 25)(13, 19)(15, 32)(17, 23)(20, 34)(22, 26)(27, 38)(28, 36)(29, 31)(30, 33)$$

$$a_7 = (1, 33)(2, 14)(3, 22)(4, 28)(5, 8)(6, 29)(7, 26)(9, 10)(11, 18)(13, 35)(15, 27)(16, 31)(19, 20)(21, 24)(23, 37)(25, 38)(30, 34)(32, 36)$$

$$a_8 = (1, 33, 5, 32, 10, 16, 38, 22, 20, 24, 17, 21, 19, 3, 25, 31, 9, 36, 8)(2, 14, 15, 7, 30, 18, 37, 28, 35, 29, 12, 6, 13, 4, 23, 11, 34, 26, 27)$$

$$a_9 = (1, 17)(2, 12)(3, 9)(4, 34)(5, 20)(6, 27)(7, 28)(8, 21)(10, 38)(11, 23)(13, 26)(14, 29)(15, 35)(19, 36)(22, 32)(24, 33)(25, 31)(30, 37)$$

$$a_{10} = (1, 17, 33, 21, 5, 19, 32, 3, 10, 25, 16, 31, 38, 9, 22, 36, 20, 8, 24)(2, 12, 14, 6, 15, 13, 7, 4, 30, 23, 18, 11, 37, 34, 28, 26, 35, 27, 29)$$

$$a_{11} = (1, 23, 24, 30, 8, 4, 20, 7, 36, 13, 22, 15, 9, 6, 38, 14, 31, 12, 16, 2, 25, 29, 10, 27, 3, 35, 32, 26, 19, 28, 5, 34, 21, 37, 33, 11, 17, 18)$$

$$a_{12} = (1, 23)(2, 25)(3, 14)(4, 33)(5, 13)(6, 32)(7, 21)(8, 11)(9, 26)(10, 12)(15, 19)(16, 29)(17,$$

$30)(18, 24)(20, 37)(22, 28)(27, 31)(34, 36)(35, 38)$   
 $a_{13} = (1, 37)(2, 38)(3, 13)(4, 19)(5, 30)(6, 25)(7, 32)(8, 28)(9, 29)(10, 15)(11, 17)(12, 31)(14,$   
 $16)(18, 33)(20, 26)(21, 23)(22, 27)(24, 34)(35, 36)$   
 $a_{14} = (1, 37, 19, 27, 16, 6, 36, 30, 17, 34, 32, 29, 31, 15, 20, 23, 33, 28, 3, 2, 38, 13, 8, 18, 21,$   
 $26, 10, 12, 9, 7, 24, 11, 5, 35, 25, 14, 22, 4)$   
 $a_{15} = (1, 24, 8, 20, 36, 22, 9, 38, 31, 16, 25, 10, 3, 32, 19, 5, 21, 33, 17)(2, 29, 27, 35, 26, 28, 34,$   
 $37, 11, 18, 23, 30, 4, 7, 13, 15, 6, 14, 12)$   
 $a_{16} = (1, 24)(2, 29)(3, 31)(4, 11)(5, 22)(6, 26)(7, 37)(8, 17)(9, 19)(10, 16)(12, 27)(13, 34)(14,$   
 $35)(15, 28)(18, 30)(20, 33)(21, 36)(32, 38)$   
 $a_{17} = (1, 21)(2, 6)(3, 36)(4, 26)(5, 24)(7, 35)(8, 19)(9, 25)(10, 22)(12, 14)(13, 27)(15, 29)(16,$   
 $38)(17, 33)(18, 37)(20, 32)(23, 34)(28, 30)$   
 $a_{18} = (1, 21, 32, 25, 38, 36, 24, 33, 19, 10, 31, 22, 8, 17, 5, 3, 16, 9, 20)(2, 6, 7, 23, 37, 26, 29,$   
 $14, 13, 30, 11, 28, 27, 12, 15, 4, 18, 34, 35)$   
 $a_{19} = (1, 30, 20, 13, 9, 14, 16, 29, 3, 26, 5, 37, 17, 23, 8, 7, 22, 6, 31, 2, 10, 35, 19, 34, 33, 18,$   
 $24, 4, 36, 15, 38, 12, 25, 27, 32, 28, 21, 11)$   
 $a_{20} = (1, 30)(2, 10)(3, 12)(4, 17)(5, 15)(6, 19)(7, 33)(8, 18)(9, 28)(11, 20)(13, 21)(14, 32)(16,$   
 $27)(22, 34)(23, 24)(25, 29)(26, 38)(31, 35)(36, 37)$   
 $a_{21} = (1, 34)(2, 9)(3, 7)(4, 32)(5, 23)(6, 16)(8, 26)(10, 13)(11, 33)(12, 38)(14, 31)(15, 25)(17,$   
 $37)(18, 21)(19, 30)(20, 35)(22, 29)(24, 28)(27, 36)$   
 $a_{22} = (1, 34, 3, 12, 22, 30, 33, 26, 25, 6, 20, 18, 5, 27, 31, 13, 24, 37, 32, 2, 9, 4, 17, 28, 10, 14,$   
 $36, 23, 21, 35, 16, 15, 8, 11, 19, 29, 38, 7)$   
 $a_{23} = (1, 8, 36, 9, 31, 25, 3, 19, 21, 17, 24, 20, 22, 38, 16, 10, 32, 5, 33)(2, 27, 26, 34, 11, 23, 4,$   
 $13, 6, 12, 29, 35, 28, 37, 18, 30, 7, 15, 14)$   
 $a_{24} = (1, 8)(2, 27)(3, 16)(4, 18)(5, 9)(6, 28)(7, 11)(10, 25)(12, 35)(13, 37)(14, 26)(15, 34)(17,$   
 $20)(19, 38)(21, 22)(23, 30)(31, 32)(33, 36)$   
 $a_{25} = (1, 5)(2, 15)(3, 20)(4, 35)(6, 12)(7, 27)(8, 32)(9, 16)(10, 36)(11, 37)(13, 29)(17, 21)(18,$   
 $34)(19, 24)(22, 25)(23, 28)(26, 30)(31, 38)$   
 $a_{26} = (1, 5, 10, 38, 20, 17, 19, 25, 9, 8, 33, 32, 16, 22, 24, 21, 3, 31, 36)(2, 15, 30, 37, 35, 12, 13,$   
 $23, 34, 27, 14, 7, 18, 28, 29, 6, 4, 11, 26)$

$a_{27} = (1, 4, 22, 14, 25, 35, 5, 11, 24, 7, 9, 12, 10, 26, 21, 18, 8, 13, 38, 2, 3, 28, 33, 23, 20, 15, 31, 29, 32, 34, 17, 30, 36, 6, 16, 27, 19, 37)$

$a_{28} = (1, 4)(2, 3)(5, 6)(7, 17)(8, 23)(9, 34)(10, 29)(11, 36)(12, 32)(13, 33)(14, 19)(15, 21)(16, 35)(18, 20)(22, 37)(24, 30)(25, 27)(26, 31)(28, 38)$

$a_{29} = (1, 28)(2, 22)(3, 4)(5, 18)(6, 31)(7, 10)(8, 35)(9, 12)(11, 21)(13, 25)(14, 38)(15, 16)(17, 34)(19, 23)(20, 27)(24, 26)(29, 36)(30, 32)(33, 37)$

$a_{30} = (1, 28, 25, 15, 24, 34, 10, 6, 8, 37, 3, 14, 20, 11, 32, 12, 36, 18, 19, 2, 22, 23, 5, 29, 9, 30, 21, 27, 38, 4, 33, 35, 31, 7, 17, 26, 16, 13)$

$a_{31} = (1, 20, 9, 16, 3, 5, 17, 8, 22, 31, 10, 19, 33, 24, 36, 38, 25, 32, 21)(2, 35, 34, 18, 4, 15, 12, 27, 28, 11, 30, 13, 14, 29, 26, 37, 23, 7, 6)$

$a_{32} = (1, 20)(2, 35)(3, 25)(4, 23)(5, 38)(6, 34)(7, 18)(8, 24)(9, 21)(11, 13)(12, 26)(14, 28)(15, 37)(16, 32)(17, 36)(19, 31)(22, 33)(27, 29)$

$a_{33} = (1, 19)(2, 13)(3, 8)(4, 27)(5, 17)(6, 14)(7, 29)(9, 31)(10, 20)(11, 34)(12, 15)(16, 22)(18, 28)(21, 33)(23, 26)(24, 32)(25, 36)(30, 35)$

$a_{34} = (1, 19, 16, 36, 17, 32, 31, 20, 33, 3, 38, 8, 21, 10, 9, 24, 5, 25, 22)(2, 13, 18, 26, 12, 7, 11, 35, 14, 4, 37, 27, 6, 30, 34, 29, 15, 23, 28)$

$a_{35} = (1, 7, 38, 29, 19, 11, 8, 15, 16, 35, 21, 23, 36, 14, 10, 28, 17, 4, 9, 2, 32, 37, 24, 13, 31, 27, 5, 18, 20, 6, 25, 26, 33, 30, 22, 12, 3, 34)$

$a_{36} = (1, 7)(2, 32)(3, 29)(4, 24)(5, 14)(6, 21)(8, 30)(9, 37)(10, 27)(11, 22)(12, 19)(13, 17)(15, 33)(16, 26)(18, 36)(20, 23)(25, 35)(28, 31)(34, 38)$

$a_{37} = (1, 26)(2, 36)(3, 30)(4, 10)(5, 11)(6, 38)(7, 25)(8, 27)(9, 14)(12, 22)(13, 16)(15, 31)(17, 28)(18, 19)(20, 29)(21, 37)(23, 32)(24, 35)(33, 34)$

$a_{38} = (1, 26, 31, 4, 21, 29, 22, 18, 32, 14, 8, 34, 25, 13, 17, 35, 38, 30, 5, 2, 36, 11, 3, 6, 24, 28, 16, 7, 33, 27, 9, 23, 19, 12, 20, 37, 10, 15)$

$a_{39} = (1, 36, 31, 3, 21, 24, 22, 16, 32, 33, 8, 9, 25, 19, 17, 20, 38, 10, 5)(2, 26, 11, 4, 6, 29, 28, 18, 7, 14, 27, 34, 23, 13, 12, 35, 37, 30, 15)$

$a_{40} = (1, 36)(2, 26)(3, 10)(4, 30)(5, 31)(6, 37)(7, 23)(9, 33)(11, 15)(12, 28)(13, 18)(14, 34)(16, 19)(17, 22)(20, 24)(21, 38)(25, 32)(29, 35)$

$a_{41} = (1, 32)(2, 7)(3, 24)(4, 29)(5, 33)(8, 10)(9, 38)(11, 28)(12, 13)(14, 15)(16, 36)(17, 19)(18,$

26)(20, 25)(22, 31)(23, 35)(27, 30)(34, 37)

$a_{42} = (1, 32, 38, 24, 19, 31, 8, 5, 16, 20, 21, 25, 36, 33, 10, 22, 17, 3, 9)(2, 7, 37, 29, 13, 11, 27, 15, 18, 35, 6, 23, 26, 14, 30, 28, 12, 4, 34)$

$a_{43} = (1, 13, 16, 26, 17, 7, 31, 35, 33, 4, 38, 27, 21, 30, 9, 29, 5, 23, 22, 2, 19, 18, 36, 12, 32, 11, 20, 14, 3, 37, 8, 6, 10, 34, 24, 15, 25, 28)$

$a_{44} = (1, 13)(2, 19)(3, 27)(4, 8)(5, 12)(6, 33)(7, 24)(9, 11)(10, 35)(14, 21)(15, 17)(16, 28)(18, 22)(20, 30)(23, 36)(25, 26)(29, 32)(31, 34)(37, 38)$

$a_{45} = (1, 35)(2, 20)(3, 23)(4, 25)(5, 37)(6, 9)(7, 16)(8, 29)(10, 30)(11, 19)(12, 36)(13, 31)(14, 22)(15, 38)(17, 26)(18, 32)(21, 34)(24, 27)(28, 33)$

$a_{46} = (1, 35, 9, 18, 3, 15, 17, 27, 22, 11, 10, 13, 33, 29, 36, 37, 25, 7, 21, 2, 20, 34, 16, 4, 5, 12, 8, 28, 31, 30, 19, 14, 24, 26, 38, 23, 32, 6)$

$a_{47} = (1, 22, 25, 5, 24, 9, 10, 21, 8, 38, 3, 33, 20, 31, 32, 17, 36, 16, 19)(2, 28, 23, 15, 29, 34, 30, 6, 27, 37, 4, 14, 35, 11, 7, 12, 26, 18, 13)$

$a_{48} = (1, 22)(2, 28)(5, 16)(6, 11)(7, 30)(8, 20)(9, 17)(10, 32)(12, 34)(13, 23)(14, 37)(15, 18)(19, 25)(21, 31)(24, 36)(26, 29)(27, 35)(33, 38)$

$a_{49} = (1, 3)(2, 4)(5, 21)(6, 15)(7, 12)(8, 25)(10, 24)(11, 26)(13, 14)(16, 20)(17, 32)(18, 35)(19, 33)(22, 38)(23, 27)(28, 37)(29, 30)(31, 36)$

$a_{50} = (1, 3, 22, 33, 25, 20, 5, 31, 24, 32, 9, 17, 10, 36, 21, 16, 8, 19, 38)(2, 4, 28, 14, 23, 35, 15, 11, 29, 7, 34, 12, 30, 26, 6, 18, 27, 13, 37)$

$a_{51} = (1, 15, 10, 37, 20, 12, 19, 23, 9, 27, 33, 7, 16, 28, 24, 6, 3, 11, 36, 2, 5, 30, 38, 35, 17, 13, 25, 34, 8, 14, 32, 18, 22, 29, 21, 4, 31, 26)$

$a_{52} = (1, 15)(2, 5)(3, 35)(4, 20)(6, 17)(7, 8)(9, 18)(10, 26)(11, 38)(12, 21)(13, 24)(14, 33)(16, 34)(19, 29)(22, 23)(25, 28)(27, 32)(30, 36)(31, 37)$

$a_{53} = (1, 27)(2, 8)(3, 18)(4, 16)(5, 34)(6, 22)(7, 31)(9, 15)(10, 23)(11, 32)(12, 20)(13, 38)(14, 36)(17, 35)(19, 37)(21, 28)(24, 29)(25, 30)(26, 33)$

$a_{54} = (1, 27, 36, 34, 31, 23, 3, 13, 21, 12, 24, 35, 22, 37, 16, 30, 32, 15, 33, 2, 8, 26, 9, 11, 25, 4, 19, 6, 17, 29, 20, 28, 38, 18, 10, 7, 5, 14)$

$a_{55} = (1, 9, 3, 17, 22, 10, 33, 36, 25, 21, 20, 16, 5, 8, 31, 19, 24, 38, 32)(2, 34, 4, 12, 28, 30, 14, 26, 23, 6, 35, 18, 15, 27, 11, 13, 29, 37, 7)$

$$a_{56} = (1, 9)(2, 34)(3, 32)(4, 7)(5, 25)(6, 18)(8, 36)(10, 19)(11, 14)(12, 37)(13, 30)(15, 23)(16, 21)(17, 38)(22, 24)(26, 27)(28, 29)(31, 33)$$

$$a_{57} = (1, 10)(2, 30)(3, 17)(4, 12)(6, 13)(7, 14)(8, 16)(9, 22)(11, 35)(18, 27)(19, 21)(20, 31)(23, 29)(24, 25)(26, 37)(28, 34)(32, 33)(36, 38)$$

$$a_{58} = (1, 10, 20, 19, 9, 33, 16, 24, 3, 36, 5, 38, 17, 25, 8, 32, 22, 21, 31)(2, 30, 35, 13, 34, 14, 18, 29, 4, 26, 15, 37, 12, 23, 27, 7, 28, 6, 11)$$

$$a_{59} = (1, 6, 32, 23, 38, 26, 24, 14, 19, 30, 31, 28, 8, 12, 5, 4, 16, 34, 20, 2, 21, 7, 25, 37, 36, 29, 33, 13, 10, 11, 22, 27, 17, 15, 3, 18, 9, 35)$$

$$a_{60} = (1, 6)(2, 21)(3, 26)(4, 36)(5, 29)(7, 20)(8, 13)(9, 23)(10, 28)(11, 31)(12, 33)(14, 17)(15, 24)(16, 37)(18, 38)(19, 27)(22, 30)(25, 34)(32, 35)$$

$$a_{61} = (1, 29)(2, 24)(3, 11)(4, 31)(5, 28)(6, 36)(7, 38)(8, 12)(9, 13)(10, 18)(14, 20)(15, 22)(16, 30)(17, 27)(19, 34)(21, 26)(23, 25)(32, 37)(33, 35)$$

$$a_{62} = (1, 29, 8, 35, 36, 28, 9, 37, 31, 18, 25, 30, 3, 7, 19, 15, 21, 14, 17, 2, 24, 27, 20, 26, 22, 34, 38, 11, 16, 23, 10, 4, 32, 13, 5, 6, 33, 12)$$

$$a_{63} = (1, 38, 19, 8, 16, 21, 36, 10, 17, 9, 32, 24, 31, 5, 20, 25, 33, 22, 3)(2, 37, 13, 27, 18, 6, 26, 30, 12, 34, 7, 29, 11, 15, 35, 23, 14, 28, 4)$$

$$a_{64} = (1, 38)(2, 37)(3, 19)(4, 13)(5, 10)(6, 23)(8, 22)(9, 24)(11, 12)(14, 18)(15, 30)(16, 33)(17, 31)(20, 36)(21, 25)(26, 35)(27, 28)(29, 34)$$

$$a_{65} = (1, 25)(2, 23)(3, 33)(4, 14)(5, 19)(6, 7)(8, 31)(9, 36)(10, 17)(11, 27)(12, 30)(13, 15)(16, 24)(18, 29)(20, 38)(21, 32)(26, 34)(35, 37)$$

$$a_{66} = (1, 25, 24, 10, 8, 3, 20, 32, 36, 19, 22, 5, 9, 21, 38, 33, 31, 17, 16)(2, 23, 29, 30, 27, 4, 35, 7, 26, 13, 28, 15, 34, 6, 37, 14, 11, 12, 18)$$

$$a_{67} = (1, 14, 5, 7, 10, 18, 38, 28, 20, 29, 17, 6, 19, 4, 25, 11, 9, 26, 8, 2, 33, 15, 32, 30, 16, 37, 22, 35, 24, 12, 21, 13, 3, 23, 31, 34, 36, 27)$$

$$a_{68} = (1, 14)(2, 33)(3, 28)(4, 22)(5, 27)(6, 24)(7, 36)(8, 15)(9, 30)(10, 34)(11, 16)(12, 17)(13, 20)(18, 31)(19, 35)(21, 29)(23, 38)(25, 37)(26, 32)$$

$$a_{69} = (1, 2)(3, 37)(4, 38)(5, 26)(6, 20)(7, 9)(8, 14)(10, 11)(12, 24)(13, 22)(15, 36)(16, 23)(17, 29)(18, 25)(19, 28)(21, 35)(27, 33)(30, 31)(32, 34)$$

$$a_{70} = (1, 2)(3, 4)(5, 15)(6, 21)(7, 32)(8, 27)(9, 34)(10, 30)(11, 31)(12, 17)(13, 19)(14, 33)(16,$$

18)(20, 35)(22, 28)(23, 25)(24, 29)(26, 36)(37, 38)

$a_{71} = (1, 31, 21, 22, 32, 8, 25, 17, 38, 5, 36, 3, 24, 16, 33, 9, 19, 20, 10)(2, 11, 6, 28, 7, 27, 23, 12, 37, 15, 26, 4, 29, 18, 14, 34, 13, 35, 30)$

$a_{72} = (1, 31)(2, 11)(3, 5)(4, 15)(6, 30)(7, 13)(8, 9)(10, 21)(12, 18)(14, 23)(16, 17)(19, 32)(20, 22)(24, 38)(25, 33)(27, 34)(28, 35)(29, 37)$

$a_{73} = (1, 16)(2, 18)(3, 21)(4, 6)(5, 32)(7, 15)(8, 38)(9, 20)(10, 33)(11, 29)(12, 23)(14, 30)(17, 25)(22, 36)(24, 31)(26, 28)(27, 37)(34, 35)$

$a_{74} = (1, 16, 17, 31, 33, 38, 21, 9, 5, 22, 19, 36, 32, 20, 3, 8, 10, 24, 25)(2, 18, 12, 11, 14, 37, 6, 34, 15, 28, 13, 26, 7, 35, 4, 27, 30, 29, 23)$

$a_{75} = (1, 12, 33, 6, 5, 13, 32, 4, 10, 23, 16, 11, 38, 34, 22, 26, 20, 27, 24, 2, 17, 14, 21, 15, 19, 7, 3, 30, 25, 18, 31, 37, 9, 28, 36, 35, 8, 29)$

$a_{76} = (1, 12)(2, 17)(3, 34)(4, 9)(5, 35)(6, 8)(7, 22)(10, 37)(11, 25)(13, 36)(14, 24)(15, 20)(16, 18)(19, 26)(21, 27)(23, 31)(28, 32)(29, 33)(30, 38)$

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [38]

The orbits are:

$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38\}$   
(length 38)