

Table: Visibility at Higher Level by William Stein

We represent A_f by a triple (N, d, i) , where N is the level, d is the dimension, and f is the i th newform in $S_2(\Gamma_0(N))$. Column 1 has most A_f whose III is conjecturally divisible by an odd prime, which is listed in Column 2. Column 3 contains abelian varieties $B = A_g$, with $\text{ord}_{s=1}L(g, s) > 1$, that *probably* explain III. Entries in Column 3 are $(M, [p], B)$, where B has level $N \cdot M$ and is probably congruent mod p to A .

A_f	$p \mid \text{III}$	$B's$
(389, 20, 5)	5	(1, [5], (389, 1, 1))
(433, 16, 4)	7	(1, [7], (433, 1, 1))
(446, 8, 6)	11	(1, [11], (446, 1, 1))
(551, 18, 8)	3	(2, [3], (1102, 1, 1)); (3, [3], (1653, 1, 1)); (10, [3], (5510, 1, 3)); (37, [3], (20387, 1, 1))
(563, 31, 5)	13	(1, [13], (563, 1, 1))
(571, 2, 4)	3	(1, [3], (571, 1, 1)); (13, [3], (7423, 1, 2)); (15, [3], (8565, 1, 8)); (42, [3], (23982, 1, 6))
(655, 13, 5)	3	(1, [3], (655, 1, 1)); (13, [3], (8515, 1, 1)); (27, [3], (17685, 1, 1))
(681, 1, 5)	3	(1, [3], (681, 1, 1)); (17, [3], (11577, 1, 1))
(707, 15, 7)	13	(1, [13], (707, 1, 1))
(709, 30, 3)	11	(1, [11], (709, 1, 1))
(718, 7, 6)	7	(1, [7], (718, 1, 1))
(767, 23, 6)	3	(2, [3], (1534, 1, 1)); (7, [3], (5369, 1, 2)); (9, [3], (6903, 1, 2)); (28, [3], (21476, 1, 9))
(794, 12, 7)	11	(1, [11], (794, 1, 1))
(817, 15, 5)	7	(1, [7], (817, 1, 1))
(959, 24, 4)	3	(2, [3], (1918, 1, 2))
(997, 42, 8)	3	(1, [3], (997, 1, 1)); (1, [3], (997, 1, 3)); (6, [3], (5982, 1, 2)); (9, [3], (8973, 1, 3)) (18, [3], (17946, 1, 2))
(1001, 3, 6)	3	(1, [3], (1001, 1, 1)); (13, [3], (13013, 1, 6)); (22, [3], (22022, 1, 15))
(1001, 7, 12)	7	(1, [7], (1001, 1, 1))
(1041, 4, 5)	5	(1, [5], (1041, 2, 1)); (7, [5], (7287, 1, 1))
(1041, 13, 10)	5	(1, [5], (1041, 2, 1)); (7, [5], (7287, 1, 1))
(1058, 1, 5)	5	(1, [5], (1058, 1, 1))
(1061, 46, 4)	151	(1, [151], (1061, 2, 1))
(1070, 7, 13)	3, 5	(1, [3], (1070, 1, 1)); (9, [3], (9630, 1, 1)); (1, [5], (1070, 1, 1)); (19, [5], (20330, 1, 1))
(1077, 15, 10)	3	(1, [3], (1077, 1, 1)); (5, [3], (5385, 1, 1))
(1091, 62, 3)	7	(7, [7], (7637, 2, 1))
(1094, 13, 6)	11	(1, [11], (1094, 1, 1))
(1102, 4, 11)	3	(1, [3], (1102, 1, 1)); (5, [3], (5510, 1, 3))
(1126, 11, 6)	11	(1, [11], (1126, 1, 1))
(1137, 14, 3)	3	(1, [3], (1137, 1, 1))
(1141, 22, 9)	7	(1, [7], (1141, 1, 1))
(1147, 23, 8)	5	(1, [5], (1147, 1, 2))
(1171, 53, 4)	11	(1, [11], (1171, 1, 1))
(1246, 1, 7)	5	(1, [5], (1246, 1, 1))
(1247, 32, 4)	3	(9, [3], (11223, 1, 2))
(1283, 62, 3)	5	(3, [5], (3849, 2, 4))
(1337, 33, 5)	3	(2, [3], (2674, 1, 1)); (8, [3], (10696, 1, 2)); (9, [3], (12033, 1, 3))
(1339, 30, 7)	3	(2, [3], (2678, 1, 1)); (11, [3], (14729, 1, 1))
(1355, 28, 5)	3	(2, [3], (2710, 1, 2)); (9, [3], (12195, 1, 1))
(1363, 25, 6)	31	(1, [31], (1363, 2, 1))
(1429, 64, 2)	5	(2, [5], (2858, 2, 1))
(1443, 5, 7)	7	(1, [7], (1443, 1, 1))
(1446, 7, 14)	3	(1, [3], (1446, 1, 1)); (5, [3], (7230, 1, 2))
(1466, 23, 8)	13	(1, [13], (1466, 1, 2))
(1477, 24, 3)	13	(1, [13], (1477, 1, 1))
(1481, 71, 3)	13	None
(1483, 67, 4)	3, 5	(1, [3], (1483, 1, 1)); (1, [5], (1483, 1, 1))
(1513, 31, 6)	3	(2, [3], (3026, 1, 1)); (6, [3], (9078, 1, 1)); (6, [3], (9078, 1, 6)); (9, [3], (13617, 1, 1)) (9, [3], (13617, 1, 2)); (9, [3], (13617, 1, 6)); (14, [3], (21182, 1, 3))
(1529, 36, 4)	5	(7, [5], (10703, 1, 4))

A_f	p III	$B's$
(1531, 73, 4)	3	(1, [3], (1531, 1, 1)); (10, [3], (15310, 1, 1))
(1534, 6, 11)	3	(1, [3], (1534, 1, 1)); (14, [3], (21476, 1, 9))
(1551, 13, 7)	3	(2, [3], (3102, 1, 1))
(1559, 90, 2)	11	None
(1567, 69, 4)	7, 41	(1, [7], (1567, 3, 2)); (1, [41], (1567, 3, 2))
(1570, 6, 10)	11	(1, [11], (1570, 1, 1))
(1577, 36, 5)	3	(3, [3], (4731, 2, 4))
(1589, 35, 4)	3	(9, [3], (14301, 1, 2))
(1591, 35, 6)	31	(1, [31], (1591, 1, 1))
(1594, 17, 10)	3	(1, [3], (1594, 1, 1))
(1613, 75, 4)	5	(1, [5], (1613, 1, 1))
(1615, 13, 10)	3	(1, [3], (1615, 1, 2))
(1621, 70, 3)	17	(1, [17], (1621, 1, 1))
(1627, 73, 3)	3	(1, [3], (1627, 1, 1))
(1631, 37, 3)	5	(2, [5], (3262, 1, 1))
(1633, 27, 4)	3, 7	(1, [3], (1633, 3, 1)); (1, [7], (1633, 3, 1)); (6, [7], (9798, 1, 1))
(1634, 12, 11)	3	(9, [3], (14706, 1, 2))
(1639, 34, 7)	17	(1, [17], (1639, 1, 1))
(1641, 24, 10)	23	(1, [23], (1641, 1, 1))
(1642, 14, 4)	7	(1, [7], (1642, 1, 1))
(1662, 7, 11)	11	(1, [11], (1662, 1, 1))
(1664, 1, 18)	5	(1, [5], (1664, 1, 1))
(1679, 45, 3)	11	(2, [11], (3358, 2, 1))
(1689, 28, 5)	3	(3, [3], (5067, 1, 1)); (7, [3], (11823, 1, 2))
(1693, 72, 3)	1301	(1, [1301], (1693, 3, 1))
(1717, 34, 8)	13	(1, [13], (1717, 1, 2))
(1727, 39, 5)	3	(2, [3], (3454, 1, 1)); (13, [3], (22451, 1, 1))
(1739, 43, 6)	659	(1, [659], (1739, 2, 2))
(1745, 33, 11)	5	(1, [5], (1745, 1, 1))
(1751, 45, 3)	5	None
(1781, 44, 4)	3	(2, [3], (3562, 1, 1))
(1793, 36, 8)	23	(1, [23], (1793, 1, 1))
(1799, 44, 4)	5	(2, [5], (3598, 2, 3)); (3, [5], (5397, 2, 4))
(1811, 98, 4)	31	None
(1829, 44, 5)	13	None
(1843, 40, 6)	3	(2, [3], (3686, 2, 7)); (6, [3], (11058, 1, 1)); (9, [3], (16587, 1, 1))
(1847, 98, 2)	3	None
(1871, 98, 3)	19	None
(1877, 86, 2)	7	None
(1887, 12, 10)	5	(1, [5], (1887, 1, 1))
(1891, 40, 8)	7	(1, [7], (1891, 2, 3))
(1907, 90, 4)	7	(1, [7], (1907, 1, 1))
(1909, 38, 4)	3	(1, [3], (1909, 1, 1)); (10, [3], (19090, 1, 3))
(1913, 1, 2)	3	(1, [3], (1913, 1, 1)); (9, [3], (17217, 1, 2))
(1913, 84, 5)	5, 61	(1, [5], (1913, 1, 1)); (1, [5], (1913, 2, 3)); (1, [61], (1913, 2, 3))
(1919, 52, 4)	23	None
(1927, 45, 5)	3	(3, [3], (5781, 1, 4)); (10, [3], (19270, 1, 6))
(1933, 83, 3)	3, 7	(1, [3], (1933, 1, 1)); (1, [7], (1933, 1, 1))
(1943, 46, 5)	13	(2, [13], (3886, 2, 10))
(1945, 34, 5)	3	(9, [3], (17505, 1, 2))
(1957, 37, 5)	7, 11	(1, [7], (1957, 1, 1)); (1, [11], (1957, 1, 2))
(1979, 104, 3)	19	None
(1991, 49, 3)	7	(7, [7], (13937, 1, 1))
(1994, 26, 4)	3	(3, [3], (5982, 1, 2)); (8, [3], (15952, 1, 3)); (9, [3], (17946, 1, 2))
(1997, 93, 3)	17	None