Model for "01"

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General Condition

- Basis type: lgs
- SAMB selection:
  - Type: [Q, G]
  - Rank: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]
  - Irrep.: [A_1, A_2, E, T_1, T_2]
  - Spin (s): [0, 1]
- Max. neighbor: 10
- Search cell range: (-2, 3), (-2, 3), (-2, 3)
- Toroidal priority: false

Group and Unit Cell

- Group: SG No. 207 O^1 $P432$ [cubic]
- Associated point group: PG No. 207 O 432 [cubic]
- Unit cell:
  $a =$ 1.00000, $b =$ 1.00000, $c =$ 1.00000, $\alpha =$ 90.0, $\beta =$ 90.0, $\gamma =$ 90.0
- Lattice vectors (conventional cell):
  $\boldsymbol{a}_1 =$ [1.00000, 0.00000, 0.00000]
  $\boldsymbol{a}_2 =$ [0.00000, 1.00000, 0.00000]
  $\boldsymbol{a}_3 =$ [0.00000, 0.00000, 1.00000]

Symmetry Operation

Table 1: Symmetry operation

	#	SO	#	SO	#	SO	#	SO	#	SO
	1	$\{1\|0\}$	2	$\{2_{001}\|0\}$	3	$\{2_{010}\|0\}$	4	$\{2_{100}\|0\}$	5	$\{3^+_{111}\|0\}$

continued ...

Table 1

	#	SO	#	SO	#	SO	#	SO	#	SO
	6	$\{3^{+}_{-11-1}\|0\}$	7	$\{3^{+}_{1-1-1}\|0\}$	8	$\{3^{+}_{-1-11}\|0\}$	9	$\{3^{-}_{111}\|0\}$	10	$\{3^{-}_{1-1-1}\|0\}$
	11	$\{3^{-}_{-1-11}\|0\}$	12	$\{3^{-}_{-11-1}\|0\}$	13	$\{2_{110}\|0\}$	14	$\{2_{1-10}\|0\}$	15	$\{4^{-}_{001}\|0\}$
	16	$\{4^{+}_{001}\|0\}$	17	$\{4^{-}_{100}\|0\}$	18	$\{2_{011}\|0\}$	19	$\{2_{01-1}\|0\}$	20	$\{4^{+}_{100}\|0\}$
	21	$\{4^{+}_{010}\|0\}$	22	$\{2_{101}\|0\}$	23	$\{4^{-}_{010}\|0\}$	24	$\{2_{-101}\|0\}$		

Harmonics

Table 2: Harmonics

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
1	$\mathbb{G}_0(A_1)$	A_1	0	G, M	-	-	1
2	$\mathbb{Q}_0(A_1)$	A_1	0	Q, T	-	-	1
3	$\mathbb{G}_4(A_1)$	A_1	4	G, M	-	-	$\frac{\sqrt{21}\left(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4\right)}{6}$
4	$\mathbb{Q}_4(A_1)$	A_1	4	Q, T	-	-	$\frac{\sqrt{21}\left(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4\right)}{6}$
5	$\mathbb{G}_3(A_2)$	A_2	3	G, M	-	-	$\sqrt{15}xyz$
6	$\mathbb{Q}_3(A_2)$	A_2	3	Q, T	-	-	$\sqrt{15}xyz$
7	$\mathbb{G}_{2,1}(E)$	E	2	G, M	-	1	$-\frac{x^2}{2}-\frac{y^2}{2}+z^2$
8	$\mathbb{G}_{2,2}(E)$					2	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
9	$\mathbb{Q}_{2,1}(E)$	E	2	Q, T	-	1	$-\frac{x^2}{2}-\frac{y^2}{2}+z^2$

continued ...

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
10	$\mathbb{Q}_{2,2}(E)$					2	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
11	$\mathbb{G}_{4,1}(E)$	E	4	G, M	-	1	$-\frac{\sqrt{15}\left(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4\right)}{12}$
12	$\mathbb{G}_{4,2}(E)$					2	$\frac{\sqrt{5}(x-y)(x+y)\left(x^2+y^2-6z^2\right)}{4}$
13	$\mathbb{Q}_{4,1}(E)$	E	4	Q, T	-	1	$-\frac{\sqrt{15}\left(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4\right)}{12}$
14	$\mathbb{Q}_{4,2}(E)$					2	$\frac{\sqrt{5}(x-y)(x+y)\left(x^2+y^2-6z^2\right)}{4}$
15	$\mathbb{Q}_{5,1}(E)$	E	5	Q, T	-	1	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
16	$\mathbb{Q}_{5,2}(E)$					2	$\frac{\sqrt{105}xyz\left(x^2+y^2-2z^2\right)}{2}$
17	$\mathbb{G}_{1,1}(T_1)$	T_1	1	G, M	-	1	x
18	$\mathbb{G}_{1,2}(T_1)$					2	y
19	$\mathbb{G}_{1,3}(T_1)$					3	z
20	$\mathbb{Q}_{1,1}(T_1)$	T_1	1	Q, T	-	1	x
21	$\mathbb{Q}_{1,2}(T_1)$					2	y
22	$\mathbb{Q}_{1,3}(T_1)$					3	z
23	$\mathbb{G}_{3,1}(T_1)$	T_1	3	G, M	-	1	$\frac{x\left(2x^2-3y^2-3z^2\right)}{2}$
24	$\mathbb{G}_{3,2}(T_1)$					2	$-\frac{y\left(3x^2-2y^2+3z^2\right)}{2}$
25	$\mathbb{G}_{3,3}(T_1)$					3	$-\frac{z\left(3x^2+3y^2-2z^2\right)}{2}$
26	$\mathbb{Q}_{3,1}(T_1)$	T_1	3	Q, T	-	1	$\frac{x\left(2x^2-3y^2-3z^2\right)}{2}$
27	$\mathbb{Q}_{3,2}(T_1)$					2	$-\frac{y\left(3x^2-2y^2+3z^2\right)}{2}$
28	$\mathbb{Q}_{3,3}(T_1)$					3	$-\frac{z\left(3x^2+3y^2-2z^2\right)}{2}$
29	$\mathbb{G}_{4,1}(T_1)$	T_1	4	G, M	-	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
30	$\mathbb{G}_{4,2}(T_1)$					2	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued …

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
31	$\mathbb{G}_{4,3}(T_1)$					3	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
32	$\mathbb{Q}_{4,1}(T_1)$	T_1	4	Q, T	-	1	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
33	$\mathbb{Q}_{4,2}(T_1)$					2	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
34	$\mathbb{Q}_{4,3}(T_1)$					3	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
35	$\mathbb{Q}_{5,1}(T_1,2)$	T_1	5	Q, T	2	1	$\frac{3\sqrt{35}x\left(y^2-2yz-z^2\right)\left(y^2+2yz-z^2\right)}{8}$
36	$\mathbb{Q}_{5,2}(T_1,2)$					2	$\frac{3\sqrt{35}y\left(x^2-2xz-z^2\right)\left(x^2+2xz-z^2\right)}{8}$
37	$\mathbb{Q}_{5,3}(T_1,2)$					3	$\frac{3\sqrt{35}z\left(x^2-2xy-y^2\right)\left(x^2+2xy-y^2\right)}{8}$
38	$\mathbb{G}_{2,1}(T_2)$	T_2	2	G, M	-	1	$\sqrt{3}yz$
39	$\mathbb{G}_{2,2}(T_2)$					2	$\sqrt{3}xz$
40	$\mathbb{G}_{2,3}(T_2)$					3	$\sqrt{3}xy$
41	$\mathbb{Q}_{2,1}(T_2)$	T_2	2	Q, T	-	1	$\sqrt{3}yz$
42	$\mathbb{Q}_{2,2}(T_2)$					2	$\sqrt{3}xz$
43	$\mathbb{Q}_{2,3}(T_2)$					3	$\sqrt{3}xy$
44	$\mathbb{G}_{3,1}(T_2)$	T_2	3	G, M	-	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
45	$\mathbb{G}_{3,2}(T_2)$					2	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
46	$\mathbb{G}_{3,3}(T_2)$					3	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
47	$\mathbb{Q}_{3,1}(T_2)$	T_2	3	Q, T	-	1	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
48	$\mathbb{Q}_{3,2}(T_2)$					2	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
49	$\mathbb{Q}_{3,3}(T_2)$					3	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
50	$\mathbb{G}_{4,1}(T_2)$	T_2	4	G, M	-	1	$\frac{\sqrt{5}yz\left(6x^2-y^2-z^2\right)}{2}$
51	$\mathbb{G}_{4,2}(T_2)$					2	$-\frac{\sqrt{5}xz\left(x^2-6y^2+z^2\right)}{2}$

continued …

Table 2

#	symbol	irrep.	rank	X	multiplicity	component	symmetry
52	$\mathbb{G}_{4,3}(T_2)$					3	$-\frac{\sqrt{5}xy\left(x^2+y^2-6z^2\right)}{2}$
53	$\mathbb{Q}_{4,1}(T_2)$	T_2	4	Q, T	-	1	$\frac{\sqrt{5}yz\left(6x^2-y^2-z^2\right)}{2}$
54	$\mathbb{Q}_{4,2}(T_2)$					2	$-\frac{\sqrt{5}xz\left(x^2-6y^2+z^2\right)}{2}$
55	$\mathbb{Q}_{4,3}(T_2)$					3	$-\frac{\sqrt{5}xy\left(x^2+y^2-6z^2\right)}{2}$
56	$\mathbb{Q}_{5,1}(T_2)$	T_2	5	Q, T	-	1	$\frac{\sqrt{105}x(y-z)(y+z)\left(2x^2-y^2-z^2\right)}{4}$
57	$\mathbb{Q}_{5,2}(T_2)$					2	$\frac{\sqrt{105}y(x-z)(x+z)\left(x^2-2y^2+z^2\right)}{4}$
58	$\mathbb{Q}_{5,3}(T_2)$					3	$-\frac{\sqrt{105}z(x-y)(x+y)\left(x^2+y^2-2z^2\right)}{4}$

Basis in full matrix

Table 3: dimension = 8

#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)	#	orbital@atom(SL)
0	$\|s,\uparrow\rangle$ @A(1)	1	$\|s,\downarrow\rangle$ @A(1)	2	$\|p_x,\uparrow\rangle$ @A(1)	3	$\|p_x,\downarrow\rangle$ @A(1)	4	$\|p_y,\uparrow\rangle$ @A(1)
5	$\|p_y,\downarrow\rangle$ @A(1)	6	$\|p_z,\uparrow\rangle$ @A(1)	7	$\|p_z,\downarrow\rangle$ @A(1)				

Table 4: Atomic basis (orbital part only)

orbital	definition
$\|s\rangle$	1
$\|p_x\rangle$	x
$\|p_y\rangle$	y
$\|p_z\rangle$	z

SAMB

261 (all 604) SAMBs

- 'A' site-cluster
  * bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
  * ket: $|s,\uparrow\rangle$, $|s,\downarrow\rangle$
  * wyckoff: 1a

z1 $\quad \mathbb{Q}_0^{(c)}(A_1) = \mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_0^{(s)}(A_1)$

- 'A' site-cluster
  * bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
  * ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
  * wyckoff: 1a

z2 $\quad \mathbb{G}_0^{(1,1;c)}(A_1) = \mathbb{G}_0^{(1,1;a)}(A_1)\mathbb{Q}_0^{(s)}(A_1)$

z61 $\quad \mathbb{G}_{2,1}^{(1,-1;c)}(E) = \dfrac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_0^{(s)}(A_1)}{2}$

z62 $\quad \mathbb{G}_{2,2}^{(1,-1;c)}(E) = \dfrac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_0^{(s)}(A_1)}{2}$

z179 $\mathbb{Q}^{(c)}_{1,1}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(a)}_{1,1}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z180 $\mathbb{Q}^{(c)}_{1,2}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(a)}_{1,2}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z181 $\mathbb{Q}^{(c)}_{1,3}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(a)}_{1,3}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z182 $\mathbb{Q}^{(1,0;c)}_{1,1}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(1,0;a)}_{1,1}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z183 $\mathbb{Q}^{(1,0;c)}_{1,2}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(1,0;a)}_{1,2}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z184 $\mathbb{Q}^{(1,0;c)}_{1,3}(T_1) = \dfrac{\sqrt{3}\mathbb{Q}^{(1,0;a)}_{1,3}(T_1)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z386 $\mathbb{G}^{(1,-1;c)}_{2,1}(T_2) = \dfrac{\sqrt{3}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z387 $\mathbb{G}^{(1,-1;c)}_{2,2}(T_2) = \dfrac{\sqrt{3}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

z388 $\mathbb{G}^{(1,-1;c)}_{2,3}(T_2) = \dfrac{\sqrt{3}\mathbb{G}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(s)}_{0}(A_1)}{3}$

- 'A' site-cluster
  * bra: $\langle p_x,\uparrow|$, $\langle p_x,\downarrow|$, $\langle p_y,\uparrow|$, $\langle p_y,\downarrow|$, $\langle p_z,\uparrow|$, $\langle p_z,\downarrow|$
  * ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
  * wyckoff: 1a

z3 $\mathbb{Q}^{(c)}_{0}(A_1) = \mathbb{Q}^{(a)}_{0}(A_1)\mathbb{Q}^{(s)}_{0}(A_1)$

z4 $\mathbb{Q}^{(1,1;c)}_{0}(A_1) = \mathbb{Q}^{(1,1;a)}_{0}(A_1)\mathbb{Q}^{(s)}_{0}(A_1)$

z63 $\mathbb{Q}^{(c)}_{2,1}(E) = \dfrac{\sqrt{2}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(s)}_{0}(A_1)}{2}$

z64 $\mathbb{Q}_{2,2}^{(c)}(E) = \dfrac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{0}^{(s)}(A_1)}{2}$

z65 $\mathbb{Q}_{2,1}^{(1,-1;c)}(E) = \dfrac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(s)}(A_1)}{2}$

z66 $\mathbb{Q}_{2,2}^{(1,-1;c)}(E) = \dfrac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(s)}(A_1)}{2}$

z185 $\mathbb{G}_{1,1}^{(1,0;c)}(T_1) = \dfrac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z186 $\mathbb{G}_{1,2}^{(1,0;c)}(T_1) = \dfrac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z187 $\mathbb{G}_{1,3}^{(1,0;c)}(T_1) = \dfrac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z389 $\mathbb{Q}_{2,1}^{(c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z390 $\mathbb{Q}_{2,2}^{(c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z391 $\mathbb{Q}_{2,3}^{(c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z392 $\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z393 $\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

z394 $\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2) = \dfrac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(s)}(A_1)}{3}$

- 'A'-'A' bond-cluster
  * bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
  * ket: $|s,\uparrow\rangle$, $|s,\downarrow\rangle$

* wyckoff: `3a@3d`

z5 $\mathbb{Q}_{0}^{(c)}(A_1) = \mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{0}^{(b)}(A_1)$

z6 $\mathbb{G}_{0}^{(1,-1;c)}(A_1) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z67 $\mathbb{Q}_{2,1}^{(c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z68 $\mathbb{Q}_{2,2}^{(c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z69 $\mathbb{G}_{2,1}^{(1,-1;c)}(E) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z70 $\mathbb{G}_{2,2}^{(1,-1;c)}(E) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$

z188 $\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$

z189 $\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

z190 $\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

z395 $\mathbb{G}_{2,1}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$

z396 $\mathbb{G}_{2,2}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

z397 $\mathbb{G}_{2,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

- 'A'-'A' bond-cluster
  * bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$

* ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
* wyckoff: `3a@3d`

z7 $\mathbb{Q}_{0}^{(c)}(A_1) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z8 $\mathbb{Q}_{0}^{(1,0;c)}(A_1) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z9 $\mathbb{G}_{0}^{(1,-1;c)}(A_1) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2} + \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z10 $\mathbb{G}_{0}^{(1,1;c)}(A_1) = \mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{0}^{(b)}(A_1)$

z39 $\mathbb{Q}_{3}^{(1,-1;c)}(A_2) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z40 $\mathbb{G}_{3}^{(1,-1;c)}(A_2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z71 $\mathbb{Q}_{2,1}^{(c)}(E) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z72 $\mathbb{Q}_{2,2}^{(c)}(E) = \frac{\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$

z73 $\mathbb{Q}_{2,1}^{(1,-1;c)}(E) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$

z74 $\mathbb{Q}_{2,2}^{(1,-1;c)}(E) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z75 $\mathbb{Q}_{2,1}^{(1,0;c)}(E) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z76 $\mathbb{Q}_{2,2}^{(1,0;c)}(E) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$

z77 $\mathbb{G}_{2,1}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$

z78 $\mathbb{G}_{2,2}^{(1,-1;c)}(E,a) = \dfrac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$

z79 $\mathbb{G}_{2,1}^{(1,-1;c)}(E,b) = \dfrac{\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \dfrac{\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z80 $\mathbb{G}_{2,2}^{(1,-1;c)}(E,b) = -\dfrac{\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \dfrac{\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z81 $\mathbb{G}_{2,1}^{(1,1;c)}(E) = \dfrac{\sqrt{2}\mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z82 $\mathbb{G}_{2,2}^{(1,1;c)}(E) = \dfrac{\sqrt{2}\mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z191 $\mathbb{Q}_{1,1}^{(c)}(T_1,a) = \dfrac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$

z192 $\mathbb{Q}_{1,2}^{(c)}(T_1,a) = \dfrac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$

z193 $\mathbb{Q}_{1,3}^{(c)}(T_1,a) = \dfrac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$

z194 $\mathbb{Q}_{1,1}^{(c)}(T_1,b) = -\dfrac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} + \dfrac{\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z195 $\mathbb{Q}_{1,2}^{(c)}(T_1,b) = -\dfrac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \dfrac{\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z196 $\mathbb{Q}_{1,3}^{(c)}(T_1,b) = \dfrac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$

z197 $\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1) = \dfrac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{2} + \dfrac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$

z198 $\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1) = -\dfrac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{2} + \dfrac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$

z199 $\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1) = -\dfrac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$

z200 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1,a)=\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z201 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1,a)=\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z202 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1,a)=\frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z203 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1,b)=-\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6}+\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z204 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1,b)=-\frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6}-\frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z205 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1,b)=\frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$$

z206 $$\mathbb{G}_{1,1}^{(c)}(T_1)=\frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}-\frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z207 $$\mathbb{G}_{1,2}^{(c)}(T_1)=-\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z208 $$\mathbb{G}_{1,3}^{(c)}(T_1)=\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}-\frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z209 $$\mathbb{G}_{1,1}^{(1,-1;c)}(T_1)=-\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{30}+\frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}+\frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10}+\frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}$$

z210 $$\mathbb{G}_{1,2}^{(1,-1;c)}(T_1)=-\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{30}+\frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10}-\frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}+\frac{\sqrt{10}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z211 $$\mathbb{G}_{1,3}^{(1,-1;c)}(T_1)=\frac{\sqrt{30}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{15}+\frac{\sqrt{10}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}+\frac{\sqrt{10}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z212 $$\mathbb{G}_{3,1}^{(1,-1;c)}(T_1)=-\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}+\frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}-\frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15}-\frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15}$$

z213 $$\mathbb{G}_{3,2}^{(1,-1;c)}(T_1)=-\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}-\frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15}-\frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}-\frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z214 $$\mathbb{G}_{3,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{5} - \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z215 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z216 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z217 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z218 $$\mathbb{G}_{1,1}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z219 $$\mathbb{G}_{1,2}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z220 $$\mathbb{G}_{1,3}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z398 $$\mathbb{Q}_{2,1}^{(c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z399 $$\mathbb{Q}_{2,2}^{(c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z400 $$\mathbb{Q}_{2,3}^{(c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z401 $$\mathbb{Q}_{3,1}^{(c)}(T_2) = -\frac{\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z402 $$\mathbb{Q}_{3,2}^{(c)}(T_2) = \frac{\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z403 $$\mathbb{Q}_{3,3}^{(c)}(T_2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z404 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z405 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2) = -\frac{\sqrt{6}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z406 $$\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2) = -\frac{\sqrt{2}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} + \frac{\sqrt{2}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z407 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2) = -\frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6} + \frac{\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z408 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2) = -\frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z409 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$$

z410 $$\mathbb{Q}_{2,1}^{(1,0;c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z411 $$\mathbb{Q}_{2,2}^{(1,0;c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z412 $$\mathbb{Q}_{2,3}^{(1,0;c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z413 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z414 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_2) = \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z415 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_2) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z416 $$\mathbb{G}_{2,1}^{(1,-1;c)}(T_2) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z417 $$\mathbb{G}_{2,2}^{(1,-1;c)}(T_2) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z418 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z419 $\mathbb{G}^{(1,-1;c)}_{3,1}(T_2) = -\frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{6} - \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{6} - \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{3} + \frac{\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{3}$

z420 $\mathbb{G}^{(1,-1;c)}_{3,2}(T_2) = \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} + \frac{\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{3} - \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} - \frac{\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{3}$

z421 $\mathbb{G}^{(1,-1;c)}_{3,3}(T_2) = -\frac{\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,3}(T_1)}{3} + \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{3}$

- 'A'-'A' bond-cluster
  * bra: $\langle p_x,\uparrow|$, $\langle p_x,\downarrow|$, $\langle p_y,\uparrow|$, $\langle p_y,\downarrow|$, $\langle p_z,\uparrow|$, $\langle p_z,\downarrow|$
  * ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
  * wyckoff: `3a@3d`

z11 $\mathbb{Q}^{(c)}_0(A_1,a) = \mathbb{Q}^{(a)}_0(A_1)\mathbb{Q}^{(b)}_0(A_1)$

z12 $\mathbb{Q}^{(c)}_0(A_1,b) = \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(E)}{2} + \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(E)}{2}$

z13 $\mathbb{Q}^{(1,-1;c)}_0(A_1) = \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(E)}{2} + \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(E)}{2}$

z14 $\mathbb{Q}^{(1,1;c)}_0(A_1) = \mathbb{Q}^{(1,1;a)}_0(A_1)\mathbb{Q}^{(b)}_0(A_1)$

z15 $\mathbb{G}^{(c)}_0(A_1) = \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$

z16 $\mathbb{G}^{(1,-1;c)}_0(A_1) = \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$

z17 $\mathbb{G}^{(1,-1;c)}_4(A_1) = \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$

z18 $\mathbb{G}^{(1,1;c)}_0(A_1) = \frac{\sqrt{3}\mathbb{M}^{(1,1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}^{(1,1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$

z41 $\mathbb{Q}^{(1,-1;c)}_3(A_2) = -\frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{3} - \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} - \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$

z42 $$\mathbb{Q}_{3}^{(1,0;c)}(A_2) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z43 $$\mathbb{G}_{3}^{(c)}(A_2) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z44 $$\mathbb{G}_{3}^{(1,-1;c)}(A_2) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z83 $$\mathbb{Q}_{2,1}^{(c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z84 $$\mathbb{Q}_{2,2}^{(c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z85 $$\mathbb{Q}_{2,1}^{(c)}(E,b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z86 $$\mathbb{Q}_{2,2}^{(c)}(E,b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z87 $$\mathbb{Q}_{2,1}^{(c)}(E,c) = \frac{\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z88 $$\mathbb{Q}_{2,2}^{(c)}(E,c) = -\frac{\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z89 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z90 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z91 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,b) = \frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z92 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,b) = -\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z93 $$\mathbb{Q}_{2,1}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z94 $$\mathbb{Q}_{2,2}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z95 $$\mathbb{G}_{2,1}^{(c)}(E) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z96 $$\mathbb{G}_{2,2}^{(c)}(E) = \frac{\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z97 $$\mathbb{G}_{2,1}^{(1,-1;c)}(E,a) = -\frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} + \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{14}$$

z98 $$\mathbb{G}_{2,2}^{(1,-1;c)}(E,a) = \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{84} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{42}$$

z99 $$\mathbb{G}_{2,1}^{(1,-1;c)}(E,b) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z100 $$\mathbb{G}_{2,2}^{(1,-1;c)}(E,b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z101 $$\mathbb{G}_{4,1}^{(1,-1;c)}(E) = -\frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{42}$$

z102 $$\mathbb{G}_{4,2}^{(1,-1;c)}(E) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{14}$$

z103 $$\mathbb{G}_{2,1}^{(1,0;c)}(E) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z104 $$\mathbb{G}_{2,2}^{(1,0;c)}(E) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z105 $$\mathbb{G}_{2,1}^{(1,1;c)}(E) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z106 $$\mathbb{G}_{2,2}^{(1,1;c)}(E) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z221 $$\mathbb{Q}_{1,1}^{(c)}(T_1) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z222 $$\mathbb{Q}^{(c)}_{1,2}(T_1) = -\frac{\sqrt{6}\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}^{(a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z223 $$\mathbb{Q}^{(c)}_{1,3}(T_1) = \frac{\sqrt{6}\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}^{(a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z224 $$\mathbb{Q}^{(c)}_{4,1}(T_1) = -\frac{\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{6}$$

z225 $$\mathbb{Q}^{(c)}_{4,2}(T_1) = \frac{\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{6}$$

z226 $$\mathbb{Q}^{(c)}_{4,3}(T_1) = \frac{\sqrt{3}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{3}$$

z227 $$\mathbb{Q}^{(1,-1;c)}_{1,1}(T_1) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6}$$

z228 $$\mathbb{Q}^{(1,-1;c)}_{1,2}(T_1) = -\frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z229 $$\mathbb{Q}^{(1,-1;c)}_{1,3}(T_1) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z230 $$\mathbb{Q}^{(1,-1;c)}_{3,1}(T_1) = -\frac{\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{12} + \frac{\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{12}$$

z231 $$\mathbb{Q}^{(1,-1;c)}_{3,2}(T_1) = \frac{\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{12} - \frac{\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{12}$$

z232 $$\mathbb{Q}^{(1,-1;c)}_{3,3}(T_1) = -\frac{\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{12} + \frac{\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{12}$$

z233 $$\mathbb{Q}^{(1,-1;c)}_{4,1}(T_1) = -\frac{\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{6}$$

z234 $$\mathbb{Q}^{(1,-1;c)}_{4,2}(T_1) = \frac{\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{2} - \frac{\sqrt{3}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{6}$$

z235 $$\mathbb{Q}^{(1,-1;c)}_{4,3}(T_1) = \frac{\sqrt{3}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{3}$$

z236 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}$$

z237 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z238 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z239 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15}$$

z240 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_1) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z241 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_1) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z242 $$\mathbb{Q}_{1,1}^{(1,1;c)}(T_1) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z243 $$\mathbb{Q}_{1,2}^{(1,1;c)}(T_1) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z244 $$\mathbb{Q}_{1,3}^{(1,1;c)}(T_1) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z245 $$\mathbb{G}_{4,1}^{(1,-1;c)}(T_1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{4}$$

z246 $$\mathbb{G}_{4,2}^{(1,-1;c)}(T_1) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{4}$$

z247 $$\mathbb{G}_{4,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{4}$$

z248 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z249 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z250 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1,a)=\frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z251 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1,b)=-\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6}+\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z252 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1,b)=-\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6}-\frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z253 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1,b)=\frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$$

z422 $$\mathbb{Q}_{2,1}^{(c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z423 $$\mathbb{Q}_{2,2}^{(c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z424 $$\mathbb{Q}_{2,3}^{(c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z425 $$\mathbb{Q}_{2,1}^{(c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6}-\frac{\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z426 $$\mathbb{Q}_{2,2}^{(c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6}+\frac{\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z427 $$\mathbb{Q}_{2,3}^{(c)}(T_2,b)=-\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$$

z428 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z429 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z430 $$\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z431 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6}-\frac{\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z432 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{6}+\frac{\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z433 $$\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2,b)=-\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{3}$$

z434 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2)=\frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12}+\frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12}-\frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z435 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2)=\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12}-\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12}+\frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z436 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2)=\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12}+\frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}-\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}+\frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z437 $$\mathbb{Q}_{2,1}^{(1,0;c)}(T_2)=-\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}-\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z438 $$\mathbb{Q}_{2,2}^{(1,0;c)}(T_2)=\frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}-\frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z439 $$\mathbb{Q}_{2,3}^{(1,0;c)}(T_2)=\frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z440 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_2)=-\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}-\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}-\frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}+\frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z441 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_2)=\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}+\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}-\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}-\frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z442 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_2)=-\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}+\frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z443 $$\mathbb{G}_{2,1}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z444 $$\mathbb{G}_{2,2}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z445 $$\mathbb{G}_{2,3}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z446 $$\mathbb{G}_{2,1}^{(1,-1;c)}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{21}$$

z447 $$\mathbb{G}_{2,2}^{(1,-1;c)}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{21}$$

z448 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{21}$$

z449 $$\mathbb{G}_{2,1}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z450 $$\mathbb{G}_{2,2}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z451 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z452 $$\mathbb{G}_{4,1}^{(1,-1;c)}(T_2) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{7}$$

z453 $$\mathbb{G}_{4,2}^{(1,-1;c)}(T_2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{7}$$

z454 $$\mathbb{G}_{4,3}^{(1,-1;c)}(T_2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{7}$$

z455 $$\mathbb{G}_{2,1}^{(1,0;c)}(T_2) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z456 $$\mathbb{G}_{2,2}^{(1,0;c)}(T_2) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z457 $$\mathbb{G}_{2,3}^{(1,0;c)}(T_2) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z458 $$\mathbb{G}_{2,1}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z459 $$\mathbb{G}_{2,2}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z460 $\mathbb{G}_{2,3}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

- 'A'-'A' bond-cluster
  * bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
  * ket: $|s,\uparrow\rangle$, $|s,\downarrow\rangle$
  * wyckoff: 6b@3c

z19 $\mathbb{Q}_0^{(c)}(A_1) = \mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_0^{(b)}(A_1)$

z20 $\mathbb{G}_0^{(1,-1;c)}(A_1) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z45 $\mathbb{Q}_3^{(1,-1;c)}(A_2) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z107 $\mathbb{Q}_{2,1}^{(c)}(E) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z108 $\mathbb{Q}_{2,2}^{(c)}(E) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z109 $\mathbb{G}_{2,1}^{(1,-1;c)}(E,a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z110 $\mathbb{G}_{2,2}^{(1,-1;c)}(E,a) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$

z111 $\mathbb{G}_{2,1}^{(1,-1;c)}(E,b) = \frac{\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$

z112 $\mathbb{G}_{2,2}^{(1,-1;c)}(E,b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z254 $\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$

z255 $\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1,a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$

z256 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z257 $$\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z258 $$\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z259 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z461 $$\mathbb{Q}_{2,1}^{(c)}(T_2) = \frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3}$$

z462 $$\mathbb{Q}_{2,2}^{(c)}(T_2) = \frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3}$$

z463 $$\mathbb{Q}_{2,3}^{(c)}(T_2) = \frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z464 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z465 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z466 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z467 $$\mathbb{G}_{2,1}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z468 $$\mathbb{G}_{2,2}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z469 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

- 'A'-'A' bond-cluster

* bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
* ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
* wyckoff: `6b@3c`

z21 $$\mathbb{Q}_{0}^{(c)}(A_1) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z22 $$\mathbb{Q}_{0}^{(1,-1;c)}(A_1) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z23 $$\mathbb{Q}_{0}^{(1,0;c)}(A_1) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z24 $$\mathbb{G}_{0}^{(1,-1;c)}(A_1) = \frac{\sqrt{5}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{5} + \frac{\sqrt{5}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{5}$$

z25 $$\mathbb{G}_{4}^{(1,-1;c)}(A_1) = \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{10} - \frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15} + \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{10} - \frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15} - \frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}$$

z26 $$\mathbb{G}_{0}^{(1,1;c)}(A_1) = \mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{0}^{(b)}(A_1)$$

z46 $$\mathbb{Q}_{3}^{(c)}(A_2) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z47 $$\mathbb{Q}_{3}^{(1,-1;c)}(A_2) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z48 $$\mathbb{Q}_{3}^{(1,0;c)}(A_2) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z49 $$\mathbb{G}_{3}^{(c)}(A_2) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z50 $$\mathbb{G}_{3}^{(1,-1;c)}(A_2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z51 $$\mathbb{G}_{3}^{(1,0;c)}(A_2) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z113 $$\mathbb{Q}_{2,1}^{(c)}(E,a) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z114 $$\mathbb{Q}_{2,2}^{(c)}(E,a) = \frac{\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z115 $$\mathbb{Q}_{2,1}^{(c)}(E,b) = \frac{\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z116 $$\mathbb{Q}_{2,2}^{(c)}(E,b) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z117 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,a) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z118 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,a) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z119 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,b) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z120 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,b) = -\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} + \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z121 $$\mathbb{Q}_{2,1}^{(1,0;c)}(E,a) = -\frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z122 $$\mathbb{Q}_{2,2}^{(1,0;c)}(E,a) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z123 $$\mathbb{Q}_{2,1}^{(1,0;c)}(E,b) = \frac{\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z124 $$\mathbb{Q}_{2,2}^{(1,0;c)}(E,b) = \frac{\sqrt{3}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z125 $$\mathbb{G}_{2,1}^{(c)}(E) = \frac{\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{2}$$

z126 $$\mathbb{G}_{2,2}^{(c)}(E) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z127 $$\mathbb{G}_{2,1}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z128 $$\mathbb{G}_{2,2}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z129 $$\mathbb{G}_{2,1}^{(1,-1;c)}(E,b) = \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{7}$$

z130 $$\mathbb{G}_{2,2}^{(1,-1;c)}(E,b) = -\frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} - \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}$$

z131 $$\mathbb{G}_{4,1}^{(1,-1;c)}(E) = \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21} + \frac{2\sqrt{21}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}$$

z132 $$\mathbb{G}_{4,2}^{(1,-1;c)}(E) = -\frac{\sqrt{21}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} + \frac{\sqrt{7}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{7} - \frac{\sqrt{21}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{7}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{7}$$

z133 $$\mathbb{G}_{2,1}^{(1,0;c)}(E) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{2}$$

z134 $$\mathbb{G}_{2,2}^{(1,0;c)}(E) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z135 $$\mathbb{G}_{2,1}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z136 $$\mathbb{G}_{2,2}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{G}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z260 $$\mathbb{Q}_{1,1}^{(c)}(T_1,a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z261 $$\mathbb{Q}_{1,2}^{(c)}(T_1,a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z262 $$\mathbb{Q}_{1,3}^{(c)}(T_1,a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z263 $$\mathbb{Q}_{1,1}^{(c)}(T_1,b) = -\frac{\sqrt{30}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} + \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10}$$

z264 $$\mathbb{Q}_{1,2}^{(c)}(T_1,b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} - \frac{\sqrt{30}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} - \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10}$$

z265 $$\mathbb{Q}_{1,3}^{(c)}(T_1,b)=\frac{\sqrt{10}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10}+\frac{\sqrt{10}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10}+\frac{\sqrt{30}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{15}$$

z266 $$\mathbb{Q}_{3,1}^{(c)}(T_1)=-\frac{\sqrt{5}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10}+\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10}-\frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}-\frac{\sqrt{15}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}$$

z267 $$\mathbb{Q}_{3,2}^{(c)}(T_1)=-\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}-\frac{\sqrt{5}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10}-\frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10}-\frac{\sqrt{15}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}$$

z268 $$\mathbb{Q}_{3,3}^{(c)}(T_1)=-\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}-\frac{\sqrt{15}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}+\frac{\sqrt{5}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{5}$$

z269 $$\begin{aligned}\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1)=&-\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10}+\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{10}+\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{30}\\&-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{30}-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{30}+\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{30}\end{aligned}$$

z270 $$\begin{aligned}\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1)=&\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10}+\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{30}-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{30}\\&-\frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{10}+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{30}-\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{30}\end{aligned}$$

z271 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1)=-\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{30}+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{30}-\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{15}$$

z272 $$\begin{aligned}\mathbb{Q}_{3,1}^{(1,-1;c)}(T_1)=&\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{20}-\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{20}-\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{60}\\&+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{60}-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}\end{aligned}$$

z273 $$\begin{aligned}\mathbb{Q}_{3,2}^{(1,-1;c)}(T_1)=&-\frac{\sqrt{10}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{20}+\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{60}\\&+\frac{\sqrt{10}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{20}-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{60}-\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}\end{aligned}$$

z274 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_1)=-\frac{\sqrt{30}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}-\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{30}+\frac{\sqrt{30}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{30}$$

z275 $$\mathbb{Q}_{4,1}^{(1,-1;c)}(T_1)=-\frac{\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{2}-\frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z276 $$\mathbb{Q}_{4,2}^{(1,-1;c)}(T_1) = \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{2} - \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z277 $$\mathbb{Q}_{4,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z278 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z279 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z280 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z281 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1, b) = -\frac{\sqrt{30}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} + \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10}$$

z282 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} - \frac{\sqrt{30}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} - \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10}$$

z283 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1, b) = \frac{\sqrt{10}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10} + \frac{\sqrt{30}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{15}$$

z284 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_1) = -\frac{\sqrt{5}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10} + \frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}$$

z285 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15} - \frac{\sqrt{5}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}$$

z286 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_1) = -\frac{\sqrt{15}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15} - \frac{\sqrt{15}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15} + \frac{\sqrt{5}\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{5}$$

z287 $$\mathbb{G}_{1,1}^{(c)}(T_1, a) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z288 $$\mathbb{G}_{1,2}^{(c)}(T_1, a) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z289 $$\mathbb{G}_{1,3}^{(c)}(T_1, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z290 $$\mathbb{G}^{(c)}_{1,1}(T_1,b) = \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,3}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{6}$$

z291 $$\mathbb{G}^{(c)}_{1,2}(T_1,b) = \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,3}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z292 $$\mathbb{G}^{(c)}_{1,3}(T_1,b) = \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z293 $$\mathbb{G}^{(1,-1;c)}_{1,1}(T_1,a) = -\frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{30} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{10}$$

z294 $$\mathbb{G}^{(1,-1;c)}_{1,2}(T_1,a) = -\frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{30} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{10} - \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{10}$$

z295 $$\mathbb{G}^{(1,-1;c)}_{1,3}(T_1,a) = \frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,3}(T_1)}{15} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{10}$$

z296 $$\mathbb{G}^{(1,-1;c)}_{1,1}(T_1,b) = -\frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{M}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{6}$$

z297 $$\mathbb{G}^{(1,-1;c)}_{1,2}(T_1,b) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{M}^{(b)}_{2,3}(T_2)}{6} - \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z298 $$\mathbb{G}^{(1,-1;c)}_{1,3}(T_1,b) = -\frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z299 $$\mathbb{G}^{(1,-1;c)}_{3,1}(T_1) = -\frac{\sqrt{5}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{10} + \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{10} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{15} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{15}$$

z300 $$\mathbb{G}^{(1,-1;c)}_{3,2}(T_1) = -\frac{\sqrt{5}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{10} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{15} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{10} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{15}$$

z301 $$\mathbb{G}^{(1,-1;c)}_{3,3}(T_1) = \frac{\sqrt{5}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,3}(T_1)}{5} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{15} - \frac{\sqrt{15}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{15}$$

z302 $$\mathbb{G}^{(1,-1;c)}_{4,1}(T_1) = -\frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{4} - \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{4} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{12} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{12}$$

z303 $$\mathbb{G}^{(1,-1;c)}_{4,2}(T_1) = \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{4} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{12} + \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{4} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{12}$$

z304 $$\mathbb{G}_{4,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{6}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z305 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1, a) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z306 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1, a) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z307 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z308 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1, b) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z309 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z310 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z311 $$\mathbb{G}_{1,1}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z312 $$\mathbb{G}_{1,2}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z313 $$\mathbb{G}_{1,3}^{(1,1;c)}(T_1) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z470 $$\mathbb{Q}_{2,1}^{(c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z471 $$\mathbb{Q}_{2,2}^{(c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z472 $$\mathbb{Q}_{2,3}^{(c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z473 $$\mathbb{Q}_{2,1}^{(c)}(T_2, b) = -\frac{\sqrt{6}\mathbb{T}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z474 $$\mathbb{Q}^{(c)}_{2,2}(T_2,b) = \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{6} - \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,3}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z475 $$\mathbb{Q}^{(c)}_{2,3}(T_2,b) = -\frac{\sqrt{6}\mathbb{T}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}^{(a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6}$$

z476 $$\mathbb{Q}^{(c)}_{3,1}(T_2) = -\frac{\sqrt{3}\mathbb{Q}^{(a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,1}(E)}{6} - \frac{\mathbb{Q}^{(a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{6} + \frac{\mathbb{Q}^{(a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,3}(T_2)}{3} - \frac{\mathbb{Q}^{(a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,2}(T_2)}{3}$$

z477 $$\mathbb{Q}^{(c)}_{3,2}(T_2) = -\frac{\mathbb{Q}^{(a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,3}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}^{(a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,1}(E)}{6} - \frac{\mathbb{Q}^{(a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{6} + \frac{\mathbb{Q}^{(a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,1}(T_2)}{3}$$

z478 $$\mathbb{Q}^{(c)}_{3,3}(T_2) = \frac{\mathbb{Q}^{(a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,2}(T_2)}{3} - \frac{\mathbb{Q}^{(a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,1}(T_2)}{3} + \frac{\mathbb{Q}^{(a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{3}$$

z479 $$\mathbb{Q}^{(1,-1;c)}_{2,1}(T_2,a) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,1}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{6}$$

z480 $$\mathbb{Q}^{(1,-1;c)}_{2,2}(T_2,a) = -\frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z481 $$\mathbb{Q}^{(1,-1;c)}_{2,3}(T_2,a) = -\frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} - \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,3}(T_1)}{3} + \frac{\sqrt{2}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z482 $$\mathbb{Q}^{(1,-1;c)}_{2,1}(T_2,b) = \frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{M}^{(b)}_{2,1}(T_2)}{30} - \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{M}^{(b)}_{2,1}(T_2)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{M}^{(b)}_{2,3}(T_2)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{10}$$

z483 $$\mathbb{Q}^{(1,-1;c)}_{2,2}(T_2,b) = \frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{M}^{(b)}_{2,2}(T_2)}{30} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{M}^{(b)}_{2,3}(T_2)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{M}^{(b)}_{2,2}(T_2)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,3}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{10}$$

z484 $$\mathbb{Q}^{(1,-1;c)}_{2,3}(T_2,b) = -\frac{\sqrt{30}\mathbb{M}^{(1,-1;a)}_{2,1}(E)\mathbb{M}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{10} + \frac{\sqrt{10}\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{10}$$

z485 $$\mathbb{Q}^{(1,-1;c)}_{3,1}(T_2) = \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{12} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} + \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4} - \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{4}$$

z486 $$\mathbb{Q}^{(1,-1;c)}_{3,2}(T_2) = \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{12} + \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{4} - \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} - \frac{\sqrt{2}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4}$$

z487 $$\mathbb{Q}^{(1,-1;c)}_{3,3}(T_2) = -\frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{G}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{6}$$

z488 $$\mathbb{Q}_{4,1}^{(1,-1;c)}(T_2) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{15} + \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{15}$$

z489 $$\mathbb{Q}_{4,2}^{(1,-1;c)}(T_2) = -\frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{15} - \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{10} + \frac{\sqrt{15}\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{15}$$

z490 $$\mathbb{Q}_{4,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{5}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{M}_{2,3}^{(b)}(T_2)}{5} + \frac{\sqrt{15}\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{15} + \frac{\sqrt{15}\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{15}$$

z491 $$\mathbb{Q}_{2,1}^{(1,0;c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z492 $$\mathbb{Q}_{2,2}^{(1,0;c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z493 $$\mathbb{Q}_{2,3}^{(1,0;c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z494 $$\mathbb{Q}_{2,1}^{(1,0;c)}(T_2, b) = -\frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z495 $$\mathbb{Q}_{2,2}^{(1,0;c)}(T_2, b) = \frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} - \frac{\sqrt{6}\mathbb{T}_{1,3}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z496 $$\mathbb{Q}_{2,3}^{(1,0;c)}(T_2, b) = -\frac{\sqrt{6}\mathbb{T}_{1,1}^{(1,0;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{1,2}^{(1,0;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z497 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_2) = -\frac{\sqrt{3}\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} + \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3} - \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3}$$

z498 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_2) = -\frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} + \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3}$$

z499 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_2) = \frac{\mathbb{Q}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3} - \frac{\mathbb{Q}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3} + \frac{\mathbb{Q}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z500 $$\mathbb{Q}_{2,1}^{(1,1;c)}(T_2) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}$$

z501 $$\mathbb{Q}_{2,2}^{(1,1;c)}(T_2) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3}$$

z502 $$\mathbb{Q}_{2,3}^{(1,1;c)}(T_2) = \frac{\sqrt{3}\mathbb{M}_{0}^{(1,1;a)}(A_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z503 $$\mathbb{G}_{2,1}^{(c)}(T_2) = -\frac{\sqrt{6}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6}$$

z504 $$\mathbb{G}_{2,2}^{(c)}(T_2) = \frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6}$$

z505 $$\mathbb{G}_{2,3}^{(c)}(T_2) = -\frac{\sqrt{2}\mathbb{Q}_{1,1}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,2}^{(a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}_{1,3}^{(a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z506 $$\mathbb{G}_{2,1}^{(1,-1;c)}(T_2, a) = \frac{\sqrt{3}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z507 $$\mathbb{G}_{2,2}^{(1,-1;c)}(T_2, a) = \frac{\sqrt{3}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z508 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2, a) = \frac{\sqrt{3}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z509 $$\begin{aligned}\mathbb{G}_{2,1}^{(1,-1;c)}(T_2, b) = {} & \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{42} + \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42} - \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14} \\ & - \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}\end{aligned}$$

z510 $$\begin{aligned}\mathbb{G}_{2,2}^{(1,-1;c)}(T_2, b) = {} & \frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{42} + \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} \\ & + \frac{\sqrt{42}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14}\end{aligned}$$

z511 $$\mathbb{G}_{2,3}^{(1,-1;c)}(T_2, b) = -\frac{\sqrt{42}\mathbb{G}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21} + \frac{\sqrt{14}\mathbb{G}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{G}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{42}\mathbb{G}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{21}$$

z512 $$\mathbb{G}_{3,1}^{(1,-1;c)}(T_2) = -\frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} + \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z513 $$\mathbb{G}_{3,2}^{(1,-1;c)}(T_2) = \frac{\sqrt{3}\mathbb{M}_{2,1}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\mathbb{M}_{2,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} - \frac{\mathbb{M}_{2,2}^{(1,-1;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\mathbb{M}_{2,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z514 $$\mathbb{G}^{(1,-1;c)}_{3,3}(T_2) = -\frac{\mathbb{M}^{(1,-1;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{3} + \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(E)\mathbb{T}^{(b)}_{1,3}(T_1)}{3} + \frac{\mathbb{M}^{(1,-1;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{3}$$

z515 $$\mathbb{G}^{(1,-1;c)}_{4,1}(T_2) = -\frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{28} - \frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{28} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{28} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{28} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{21} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{21}$$

z516 $$\mathbb{G}^{(1,-1;c)}_{4,2}(T_2) = -\frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{28} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{21} - \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{28} - \frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{28} - \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{28} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{21}$$

z517 $$\mathbb{G}^{(1,-1;c)}_{4,3}(T_2) = \frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{14} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{21} + \frac{\sqrt{42}\mathbb{G}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{21} + \frac{\sqrt{14}\mathbb{G}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{14}$$

z518 $$\mathbb{G}^{(1,0;c)}_{2,1}(T_2) = -\frac{\sqrt{6}\mathbb{Q}^{(1,0;a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,1}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,2}(T_2)}{6}$$

z519 $$\mathbb{G}^{(1,0;c)}_{2,2}(T_2) = \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}^{(1,0;a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,1}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{6} - \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,1}(T_2)}{6}$$

z520 $$\mathbb{G}^{(1,0;c)}_{2,3}(T_2) = -\frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,1}(T_1)\mathbb{Q}^{(b)}_{2,2}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,2}(T_1)\mathbb{Q}^{(b)}_{2,1}(T_2)}{6} + \frac{\sqrt{2}\mathbb{Q}^{(1,0;a)}_{1,3}(T_1)\mathbb{Q}^{(b)}_{2,2}(E)}{3}$$

z521 $$\mathbb{G}^{(1,1;c)}_{2,1}(T_2) = \frac{\sqrt{3}\mathbb{G}^{(1,1;a)}_{0}(A_1)\mathbb{Q}^{(b)}_{2,1}(T_2)}{3}$$

z522 $$\mathbb{G}^{(1,1;c)}_{2,2}(T_2) = \frac{\sqrt{3}\mathbb{G}^{(1,1;a)}_{0}(A_1)\mathbb{Q}^{(b)}_{2,2}(T_2)}{3}$$

z523 $$\mathbb{G}^{(1,1;c)}_{2,3}(T_2) = \frac{\sqrt{3}\mathbb{G}^{(1,1;a)}_{0}(A_1)\mathbb{Q}^{(b)}_{2,3}(T_2)}{3}$$

- 'A'-'A' bond-cluster
  * bra: $\langle p_x,\uparrow|$, $\langle p_x,\downarrow|$, $\langle p_y,\uparrow|$, $\langle p_y,\downarrow|$, $\langle p_z,\uparrow|$, $\langle p_z,\downarrow|$
  * ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$
  * wyckoff: `6b@3c`

z27 $\mathbb{Q}_0^{(c)}(A_1,a)=\mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_0^{(b)}(A_1)$

z28 $\mathbb{Q}_0^{(c)}(A_1,b)=\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{5}$

z29 $\mathbb{Q}_4^{(c)}(A_1)=\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{10}-\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{10}-\frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}-\frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}$

z30 $\mathbb{Q}_0^{(1,-1;c)}(A_1)=\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{5}+\frac{\sqrt{5}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{5}$

z31 $\mathbb{Q}_4^{(1,-1;c)}(A_1)=\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{10}-\frac{\sqrt{30}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}+\frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{10}-\frac{\sqrt{30}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}-\frac{\sqrt{30}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15}$

z32 $\mathbb{Q}_0^{(1,1;c)}(A_1)=\mathbb{Q}_0^{(1,1;a)}(A_1)\mathbb{Q}_0^{(b)}(A_1)$

z33 $\mathbb{G}_0^{(c)}(A_1)=\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z34 $\mathbb{G}_0^{(1,-1;c)}(A_1)=\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z35 $\mathbb{G}_4^{(1,-1;c)}(A_1,a)=\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z36 $\mathbb{G}_4^{(1,-1;c)}(A_1,b)=-\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}-\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{3}-\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z37 $\mathbb{G}_0^{(1,0;c)}(A_1)=\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}+\frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{3}+\frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z38 $\mathbb{G}_0^{(1,1;c)}(A_1)=\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z52 $\mathbb{Q}_3^{(c)}(A_2)=\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3}+\frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z53 $\mathbb{Q}_3^{(1,-1;c)}(A_2,a)=-\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}-\frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}-\frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z54 $\mathbb{Q}_3^{(1,-1;c)}(A_2,b) = -\frac{\sqrt{3}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} - \frac{\sqrt{3}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z55 $\mathbb{Q}_3^{(1,-1;c)}(A_2,c) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z56 $\mathbb{Q}_3^{(1,0;c)}(A_2) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$

z57 $\mathbb{Q}_3^{(1,1;c)}(A_2) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$

z58 $\mathbb{G}_3^{(c)}(A_2) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z59 $\mathbb{G}_3^{(1,-1;c)}(A_2) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{2} - \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z60 $\mathbb{G}_3^{(1,0;c)}(A_2) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$

z137 $\mathbb{Q}_{2,1}^{(c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$

z138 $\mathbb{Q}_{2,2}^{(c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_0^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$

z139 $\mathbb{Q}_{2,1}^{(c)}(E,b) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_0^{(b)}(A_1)}{2}$

z140 $\mathbb{Q}_{2,2}^{(c)}(E,b) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_0^{(b)}(A_1)}{2}$

z141 $\mathbb{Q}_{2,1}^{(c)}(E,c) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{7}$

z142 $\mathbb{Q}_{2,2}^{(c)}(E,c) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}$

z143 $\mathbb{Q}_{4,1}^{(c)}(E) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}$

z144 $$\mathbb{Q}_{4,2}^{(c)}(E) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{7}$$

z145 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z146 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,a) = \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{0}^{(b)}(A_1)}{2}$$

z147 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(E,b) = \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} + \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{7}$$

z148 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(E,b) = -\frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{7} + \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}$$

z149 $$\mathbb{Q}_{4,1}^{(1,-1;c)}(E) = \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21} + \frac{2\sqrt{21}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}$$

z150 $$\mathbb{Q}_{4,2}^{(1,-1;c)}(E) = -\frac{\sqrt{21}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(E)}{14} + \frac{\sqrt{7}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{7} - \frac{\sqrt{21}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(E)}{14} - \frac{\sqrt{7}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{7}$$

z151 $$\mathbb{Q}_{5,1}^{(1,-1;c)}(E) = \frac{\sqrt{70}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{28} - \frac{\sqrt{70}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{28} - \frac{\sqrt{42}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{28} + \frac{\sqrt{42}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{14}$$

z152 $$\mathbb{Q}_{5,2}^{(1,-1;c)}(E) = \frac{\sqrt{210}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{84} + \frac{3\sqrt{14}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{28} + \frac{\sqrt{210}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{84} - \frac{3\sqrt{14}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{28} - \frac{\sqrt{210}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{42}$$

z153 $$\mathbb{Q}_{2,1}^{(1,0;c)}(E) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{2}$$

z154 $$\mathbb{Q}_{2,2}^{(1,0;c)}(E) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z155 $$\mathbb{Q}_{2,1}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(E)}{2}$$

z156 $$\mathbb{Q}_{2,2}^{(1,1;c)}(E) = \frac{\sqrt{2}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(E)}{2}$$

z157 $$\mathbb{G}_{2,1}^{(c)}(E,a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z158 $$\mathbb{G}^{(c)}_{2,2}(E,a) = \frac{\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{2} - \frac{\mathbb{M}^{(a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{2}$$

z159 $$\mathbb{G}^{(c)}_{2,1}(E,b) = \frac{\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{2} - \frac{\mathbb{M}^{(a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{2}$$

z160 $$\mathbb{G}^{(c)}_{2,2}(E,b) = \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6} + \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{6} - \frac{\sqrt{3}\mathbb{M}^{(a)}_{1,3}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{3}$$

z161 $$\mathbb{G}^{(1,-1;c)}_{2,1}(E,a) = -\frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} - \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} - \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} + \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{14}$$

z162 $$\mathbb{G}^{(1,-1;c)}_{2,2}(E,a) = \frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{84} - \frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{84} + \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{42}$$

z163 $$\mathbb{G}^{(1,-1;c)}_{2,1}(E,b) = -\frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{28} - \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{84} + \frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{28} - \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{84} + \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{M}^{(b)}_{2,3}(T_2)}{42}$$

z164 $$\mathbb{G}^{(1,-1;c)}_{2,2}(E,b) = -\frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{28} + \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{M}^{(b)}_{2,1}(T_2)}{28} - \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{28} - \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{M}^{(b)}_{2,2}(T_2)}{28} + \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{14}$$

z165 $$\mathbb{G}^{(1,-1;c)}_{2,1}(E,c) = -\frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{3}$$

z166 $$\mathbb{G}^{(1,-1;c)}_{2,2}(E,c) = \frac{\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{2} - \frac{\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{2}$$

z167 $$\mathbb{G}^{(1,-1;c)}_{2,1}(E,d) = \frac{\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{2} - \frac{\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{2}$$

z168 $$\mathbb{G}^{(1,-1;c)}_{2,2}(E,d) = \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{M}^{(b)}_{2,1}(T_2)}{6} + \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{M}^{(b)}_{2,2}(T_2)}{6} - \frac{\sqrt{3}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{M}^{(b)}_{2,3}(T_2)}{3}$$

z169 $$\mathbb{G}^{(1,-1;c)}_{4,1}(E) = -\frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{84} + \frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} - \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{84} - \frac{3\sqrt{14}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} + \frac{\sqrt{210}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{42}$$

z170 $$\mathbb{G}^{(1,-1;c)}_{4,2}(E) = \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} - \frac{\sqrt{70}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} + \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} - \frac{\sqrt{42}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{14}$$

z171 $$\mathbb{G}^{(1,0;c)}_{2,1}(E,a) = -\frac{\mathbb{T}^{(1,0;a)}_{2,1}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{2} + \frac{\mathbb{T}^{(1,0;a)}_{2,2}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{2}$$

z172 $$\mathbb{G}_{2,2}^{(1,0;c)}(E,a) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z173 $$\mathbb{G}_{2,1}^{(1,0;c)}(E,b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z174 $$\mathbb{G}_{2,2}^{(1,0;c)}(E,b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z175 $$\mathbb{G}_{2,1}^{(1,1;c)}(E,a) = -\frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z176 $$\mathbb{G}_{2,2}^{(1,1;c)}(E,a) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{2}$$

z177 $$\mathbb{G}_{2,1}^{(1,1;c)}(E,b) = \frac{\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{2} - \frac{\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z178 $$\mathbb{G}_{2,2}^{(1,1;c)}(E,b) = \frac{\sqrt{3}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{3}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{3}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z314 $$\mathbb{Q}_{1,1}^{(c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z315 $$\mathbb{Q}_{1,2}^{(c)}(T_1,a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z316 $$\mathbb{Q}_{1,3}^{(c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z317 $$\mathbb{Q}_{1,1}^{(c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z318 $$\mathbb{Q}_{1,2}^{(c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z319 $$\mathbb{Q}_{1,3}^{(c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z320 $$\mathbb{Q}_{4,1}^{(c)}(T_1) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{12}$$

z321 $$\mathbb{Q}_{4,2}^{(c)}(T_1) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{12}$$

z322 $$\mathbb{Q}_{4,3}^{(c)}(T_1) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z323 $$\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1,a) = -\frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{21}$$

z324 $$\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1,a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{21}$$

z325 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1,a) = -\frac{\sqrt{21}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{21} - \frac{\sqrt{35}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{21} - \frac{\sqrt{21}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{21} + \frac{\sqrt{35}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{21}$$

z326 $$\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z327 $$\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1,b) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z328 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z329 $$\mathbb{Q}_{1,1}^{(1,-1;c)}(T_1,c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z330 $$\mathbb{Q}_{1,2}^{(1,-1;c)}(T_1,c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z331 $$\mathbb{Q}_{1,3}^{(1,-1;c)}(T_1,c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z332 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_1,a) = -\frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12}$$

z333 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_1,a) = \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}$$

z334 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_1,a) = -\frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12}$$

z335 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_1,b) = -\frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{84} - \frac{5\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{84} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{84} + \frac{5\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{84} - \frac{4\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{21}$$

z336 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_1,b) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{84} + \frac{5\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{84} - \frac{\sqrt{105}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{84} - \frac{5\sqrt{7}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{84} - \frac{4\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{21}$$

z337 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_1,b) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{84} - \frac{5\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{84} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{84} + \frac{5\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{84} - \frac{4\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{21}$$

z338 $$\mathbb{Q}_{4,1}^{(1,-1;c)}(T_1) = -\frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{4} - \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{12} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{12}$$

z339 $$\mathbb{Q}_{4,2}^{(1,-1;c)}(T_1) = \frac{\sqrt{2}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{12} + \frac{\sqrt{2}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{4} - \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{12}$$

z340 $$\mathbb{Q}_{4,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{6}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{6}$$

z341 $$\mathbb{Q}_{5,1}^{(1,-1;c)}(T_1,2) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{4}$$

z342 $$\mathbb{Q}_{5,2}^{(1,-1;c)}(T_1,2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{4}$$

z343 $$\mathbb{Q}_{5,3}^{(1,-1;c)}(T_1,2) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{4}$$

z344 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1,a) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10}$$

z345 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1,a) = -\frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{30} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{10} - \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z346 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1,a) = \frac{\sqrt{30}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} + \frac{\sqrt{10}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} + \frac{\sqrt{10}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{10}$$

z347 $$\mathbb{Q}_{1,1}^{(1,0;c)}(T_1,b) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z348 $$\mathbb{Q}_{1,2}^{(1,0;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z349 $$\mathbb{Q}_{1,3}^{(1,0;c)}(T_1,b) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,3}^{(b)}(T_2)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z350 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_1,a) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} + \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15}$$

z351 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_1,a) = -\frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{10} - \frac{\sqrt{15}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z352 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_1,a) = \frac{\sqrt{5}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{5} - \frac{\sqrt{15}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{15} - \frac{\sqrt{15}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{15}$$

z353 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_1,b) = \frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{3}$$

z354 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_1,b) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}$$

z355 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_1,b) = -\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{3} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,3}^{(b)}(T_2)}{3} + \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{3}$$

z356 $$\mathbb{Q}_{1,1}^{(1,1;c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z357 $$\mathbb{Q}_{1,2}^{(1,1;c)}(T_1,a) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z358 $$\mathbb{Q}_{1,3}^{(1,1;c)}(T_1,a) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z359 $$\mathbb{Q}_{1,1}^{(1,1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z360 $$\mathbb{Q}_{1,2}^{(1,1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z361 $$\mathbb{Q}_{1,3}^{(1,1;c)}(T_1,b) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z362 $$\mathbb{G}_{1,1}^{(c)}(T_1) = -\frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{10} + \frac{\sqrt{30}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{30}$$

z363 $$\mathbb{G}^{(c)}_{1,2}(T_1) = \frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{10} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{30} - \frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{10} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{30}$$

z364 $$\mathbb{G}^{(c)}_{1,3}(T_1) = -\frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{15}$$

z365 $$\mathbb{G}^{(c)}_{3,1}(T_1) = \frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{20} - \frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{20} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{60} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{60} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{15}$$

z366 $$\mathbb{G}^{(c)}_{3,2}(T_1) = -\frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{20} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{60} + \frac{\sqrt{10}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{20} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{60} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{15}$$

z367 $$\mathbb{G}^{(c)}_{3,3}(T_1) = -\frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{15} - \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{30}$$

z368 $$\mathbb{G}^{(1,-1;c)}_{1,1}(T_1) = -\frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{10} + \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{10} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{30}$$

z369 $$\mathbb{G}^{(1,-1;c)}_{1,2}(T_1) = \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{10} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{30} - \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{10} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{30}$$

z370 $$\mathbb{G}^{(1,-1;c)}_{1,3}(T_1) = -\frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{30} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{15}$$

z371 $$\mathbb{G}^{(1,-1;c)}_{3,1}(T_1) = \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{20} - \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{20} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{60} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{60} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{15}$$

z372 $$\mathbb{G}^{(1,-1;c)}_{3,2}(T_1) = -\frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{20} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,3}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{60} + \frac{\sqrt{10}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{20} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{60} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{15}$$

z373 $$\mathbb{G}^{(1,-1;c)}_{3,3}(T_1) = -\frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(T_2)}{15} - \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{30} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(T_2)}{15} + \frac{\sqrt{30}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{30}$$

z374 $$\mathbb{G}_{4,1}^{(1,-1;c)}(T_1) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{4}$$

z375 $$\mathbb{G}_{4,2}^{(1,-1;c)}(T_1) = -\frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{4} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{4}$$

z376 $$\mathbb{G}_{4,3}^{(1,-1;c)}(T_1) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{4} - \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{4}$$

z377 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z378 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z379 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1, a) = \frac{\sqrt{3}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z380 $$\mathbb{G}_{1,1}^{(1,0;c)}(T_1, b) = -\frac{\sqrt{30}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} + \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10}$$

z381 $$\mathbb{G}_{1,2}^{(1,0;c)}(T_1, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{10} - \frac{\sqrt{30}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{30} - \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10}$$

z382 $$\mathbb{G}_{1,3}^{(1,0;c)}(T_1, b) = \frac{\sqrt{10}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{10} + \frac{\sqrt{10}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{10} + \frac{\sqrt{30}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{15}$$

z383 $$\mathbb{G}_{3,1}^{(1,0;c)}(T_1) = -\frac{\sqrt{5}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10} + \frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15}$$

z384 $$\mathbb{G}_{3,2}^{(1,0;c)}(T_1) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{15} - \frac{\sqrt{5}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{10} - \frac{\sqrt{15}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15}$$

z385 $$\mathbb{G}_{3,3}^{(1,0;c)}(T_1) = -\frac{\sqrt{15}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{15} - \frac{\sqrt{15}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{15} + \frac{\sqrt{5}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{5}$$

z524 $$\mathbb{Q}_{2,1}^{(c)}(T_2, a) = \frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3}$$

z525 $$\mathbb{Q}_{2,2}^{(c)}(T_2, a) = \frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3}$$

z526 $$\mathbb{Q}_{2,3}^{(c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{0}^{(a)}(A_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z527 $$\mathbb{Q}_{2,1}^{(c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z528 $$\mathbb{Q}_{2,2}^{(c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z529 $$\mathbb{Q}_{2,3}^{(c)}(T_2,b)=\frac{\sqrt{3}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z530 $$\mathbb{Q}_{2,1}^{(c)}(T_2,c)=\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{42}+\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42}-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14}-\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14}+\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14}+\frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}$$

z531 $$\mathbb{Q}_{2,2}^{(c)}(T_2,c)=\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{42}+\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14}+\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}+\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42}+\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14}+\frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14}$$

z532 $$\mathbb{Q}_{2,3}^{(c)}(T_2,c)=-\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}+\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}+\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14}-\frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{21}$$

z533 $$\mathbb{Q}_{3,1}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6}-\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z534 $$\mathbb{Q}_{3,2}^{(c)}(T_2)=-\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z535 $$\mathbb{Q}_{3,3}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}-\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z536 $$\mathbb{Q}_{4,1}^{(c)}(T_2)=-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{28}-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{28}+\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{28}+\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{28}+\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}+\frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21}$$

z537 $$\mathbb{Q}_{4,2}^{(c)}(T_2)=-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{28}+\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21}-\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{28}-\frac{\sqrt{14}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{28}-\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{28}+\frac{\sqrt{42}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21}$$

z538 $$\mathbb{Q}_{4,3}^{(c)}(T_2)=\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14}+\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21}+\frac{\sqrt{42}\mathbb{Q}_{2,2}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21}+\frac{\sqrt{14}\mathbb{Q}_{2,3}^{(a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{14}$$

z539 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2,a)=\frac{\sqrt{3}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z540 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2,a) = \frac{\sqrt{3}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z541 $$\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2,a) = \frac{\sqrt{3}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{0}^{(b)}(A_1)}{3}$$

z542 $$\mathbb{Q}_{2,1}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{42} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14} - \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14}$$

z543 $$\mathbb{Q}_{2,2}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{42} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14}$$

z544 $$\mathbb{Q}_{2,3}^{(1,-1;c)}(T_2,b) = -\frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{14} + \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{14} - \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{21}$$

z545 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2,a) = \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z546 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2,a) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z547 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2,a) = \frac{\sqrt{15}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{12} + \frac{\sqrt{15}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} - \frac{\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{12} + \frac{\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}$$

z548 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{8}$$

z549 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2,b) = -\frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{8} + \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{8}$$

z550 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2,b) = \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{8}$$

z551 $$\mathbb{Q}_{3,1}^{(1,-1;c)}(T_2,c) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z552 $$\mathbb{Q}_{3,2}^{(1,-1;c)}(T_2,c) = -\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z553 $$\mathbb{Q}_{3,3}^{(1,-1;c)}(T_2,c) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} - \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z554 $$\begin{aligned}\mathbb{Q}_{4,1}^{(1,-1;c)}(T_2) = &-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{28} - \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{28}\\ &+ \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,1}^{(b)}(T_2)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21}\end{aligned}$$

z555 $$\begin{aligned}\mathbb{Q}_{4,2}^{(1,-1;c)}(T_2) = &-\frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,3}^{(b)}(T_2)}{21} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(E)\mathbb{Q}_{2,2}^{(b)}(T_2)}{28}\\ &- \frac{\sqrt{14}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{28} - \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(E)}{28} + \frac{\sqrt{42}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21}\end{aligned}$$

z556 $$\mathbb{Q}_{4,3}^{(1,-1;c)}(T_2) = \frac{\sqrt{14}\mathbb{Q}_{2,1}^{(1,-1;a)}(E)\mathbb{Q}_{2,3}^{(b)}(T_2)}{14} + \frac{\sqrt{42}\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,2}^{(b)}(T_2)}{21} + \frac{\sqrt{42}\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(T_2)}{21} + \frac{\sqrt{14}\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2)\mathbb{Q}_{2,1}^{(b)}(E)}{14}$$

z557 $$\mathbb{Q}_{5,1}^{(1,-1;c)}(T_2) = -\frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{24} + \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{24}$$

z558 $$\mathbb{Q}_{5,2}^{(1,-1;c)}(T_2) = \frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{24} - \frac{\sqrt{10}\mathbb{M}_{3,3}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,3}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{24}$$

z559 $$\mathbb{Q}_{5,3}^{(1,-1;c)}(T_2) = -\frac{\sqrt{10}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{24} + \frac{\sqrt{10}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{8} - \frac{\sqrt{6}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{24}$$

z560 $$\mathbb{Q}_{2,1}^{(1,0;c)}(T_2) = -\frac{\sqrt{6}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6}$$

z561 $$\mathbb{Q}_{2,2}^{(1,0;c)}(T_2) = \frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} - \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6}$$

z562 $$\mathbb{Q}_{2,3}^{(1,0;c)}(T_2) = -\frac{\sqrt{2}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{6} + \frac{\sqrt{2}\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z563 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_2,a) = -\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} + \frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}$$

z564 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_2,a)=\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}+\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}-\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}-\frac{\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z565 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_2,a)=-\frac{\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{3}+\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{3}+\frac{\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{3}$$

z566 $$\mathbb{Q}_{3,1}^{(1,0;c)}(T_2,b)=\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}-\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,1}^{(b)}(T_2)}{2}$$

z567 $$\mathbb{Q}_{3,2}^{(1,0;c)}(T_2,b)=\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}+\frac{\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{M}_{2,2}^{(b)}(T_2)}{2}$$

z568 $$\mathbb{Q}_{3,3}^{(1,0;c)}(T_2,b)=-\frac{\sqrt{3}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{M}_{2,3}^{(b)}(T_2)}{3}$$

z569 $$\mathbb{Q}_{2,1}^{(1,1;c)}(T_2)=\frac{\sqrt{3}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3}$$

z570 $$\mathbb{Q}_{2,2}^{(1,1;c)}(T_2)=\frac{\sqrt{3}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3}$$

z571 $$\mathbb{Q}_{2,3}^{(1,1;c)}(T_2)=\frac{\sqrt{3}\mathbb{Q}_{0}^{(1,1;a)}(A_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3}$$

z572 $$\mathbb{Q}_{3,1}^{(1,1;c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6}-\frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z573 $$\mathbb{Q}_{3,2}^{(1,1;c)}(T_2)=-\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,3}^{(b)}(T_2)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z574 $$\mathbb{Q}_{3,3}^{(1,1;c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}-\frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z575 $$\mathbb{G}_{2,1}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z576 $$\mathbb{G}_{2,2}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,3}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z577 $$\mathbb{G}_{2,3}^{(c)}(T_2)=\frac{\sqrt{6}\mathbb{M}_{1,1}^{(a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}+\frac{\sqrt{6}\mathbb{M}_{1,2}^{(a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z578 $$\mathbb{G}^{(c)}_{3,1}(T_2) = \frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{12} - \frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} + \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4} - \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{4}$$

z579 $$\mathbb{G}^{(c)}_{3,2}(T_2) = \frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{12} + \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{4} - \frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} - \frac{\sqrt{2}\mathbb{Q}^{(a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4}$$

z580 $$\mathbb{G}^{(c)}_{3,3}(T_2) = -\frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}^{(a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{6}$$

z581 $$\mathbb{G}^{(1,-1;c)}_{2,1}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3}(A_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{21}$$

z582 $$\mathbb{G}^{(1,-1;c)}_{2,2}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3}(A_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{21}$$

z583 $$\mathbb{G}^{(1,-1;c)}_{2,3}(T_2,a) = -\frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{21} - \frac{\sqrt{21}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{21} - \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{21} + \frac{\sqrt{35}\mathbb{M}^{(1,-1;a)}_{3}(A_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{21}$$

z584 $$\mathbb{G}^{(1,-1;c)}_{2,1}(T_2,b) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6}$$

z585 $$\mathbb{G}^{(1,-1;c)}_{2,2}(T_2,b) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z586 $$\mathbb{G}^{(1,-1;c)}_{2,3}(T_2,b) = \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,1}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}^{(1,-1;a)}_{1,2}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{6}$$

z587 $$\mathbb{G}^{(1,-1;c)}_{3,1}(T_2) = \frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{12} - \frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} + \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,1}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4} - \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,1}(T_2)}{4}$$

z588 $$\mathbb{G}^{(1,-1;c)}_{3,2}(T_2) = \frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{12} + \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,2}(E)\mathbb{Q}^{(b)}_{2,2}(T_2)}{4} - \frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{12} - \frac{\sqrt{2}\mathbb{Q}^{(1,-1;a)}_{2,2}(T_2)\mathbb{Q}^{(b)}_{2,2}(E)}{4}$$

z589 $$\mathbb{G}^{(1,-1;c)}_{3,3}(T_2) = -\frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,1}(E)\mathbb{Q}^{(b)}_{2,3}(T_2)}{6} + \frac{\sqrt{6}\mathbb{Q}^{(1,-1;a)}_{2,3}(T_2)\mathbb{Q}^{(b)}_{2,1}(E)}{6}$$

z590 $$\mathbb{G}^{(1,-1;c)}_{4,1}(T_2) = -\frac{\sqrt{105}\mathbb{M}^{(1,-1;a)}_{3,2}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3,2}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,2}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3}(A_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{7}$$

z591 $$\mathbb{G}^{(1,-1;c)}_{4,2}(T_2) = -\frac{\sqrt{105}\mathbb{M}^{(1,-1;a)}_{3,1}(T_1)\mathbb{T}^{(b)}_{1,3}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3,1}(T_2)\mathbb{T}^{(b)}_{1,3}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}^{(1,-1;a)}_{3,3}(T_1)\mathbb{T}^{(b)}_{1,1}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3,3}(T_2)\mathbb{T}^{(b)}_{1,1}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}^{(1,-1;a)}_{3}(A_2)\mathbb{T}^{(b)}_{1,2}(T_1)}{7}$$

z592 $$\mathbb{G}_{4,3}^{(1,-1;c)}(T_2) = -\frac{\sqrt{105}\mathbb{M}_{3,1}^{(1,-1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{84} - \frac{3\sqrt{7}\mathbb{M}_{3,1}^{(1,-1;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{28} - \frac{\sqrt{105}\mathbb{M}_{3,2}^{(1,-1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{84} + \frac{3\sqrt{7}\mathbb{M}_{3,2}^{(1,-1;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{28} + \frac{\sqrt{7}\mathbb{M}_{3}^{(1,-1;a)}(A_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{7}$$

z593 $$\mathbb{G}_{2,1}^{(1,0;c)}(T_2, a) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,1}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z594 $$\mathbb{G}_{2,2}^{(1,0;c)}(T_2, a) = -\frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z595 $$\mathbb{G}_{2,3}^{(1,0;c)}(T_2, a) = -\frac{\sqrt{2}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} - \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(E)\mathbb{T}_{1,3}^{(b)}(T_1)}{3} + \frac{\sqrt{2}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z596 $$\mathbb{G}_{2,1}^{(1,0;c)}(T_2, b) = \frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6}$$

z597 $$\mathbb{G}_{2,2}^{(1,0;c)}(T_2, b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,3}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,3}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z598 $$\mathbb{G}_{2,3}^{(1,0;c)}(T_2, b) = \frac{\sqrt{6}\mathbb{T}_{2,1}^{(1,0;a)}(T_2)\mathbb{M}_{2,2}^{(b)}(T_2)}{6} + \frac{\sqrt{6}\mathbb{T}_{2,2}^{(1,0;a)}(T_2)\mathbb{M}_{2,1}^{(b)}(T_2)}{6}$$

z599 $$\mathbb{G}_{3,1}^{(1,0;c)}(T_2) = -\frac{\sqrt{3}\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} + \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3} - \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3}$$

z600 $$\mathbb{G}_{3,2}^{(1,0;c)}(T_2) = -\frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,3}^{(b)}(T_2)}{3} + \frac{\sqrt{3}\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(E)}{6} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{6} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3}$$

z601 $$\mathbb{G}_{3,3}^{(1,0;c)}(T_2) = \frac{\mathbb{G}_{1,1}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(T_2)}{3} - \frac{\mathbb{G}_{1,2}^{(1,0;a)}(T_1)\mathbb{Q}_{2,1}^{(b)}(T_2)}{3} + \frac{\mathbb{G}_{1,3}^{(1,0;a)}(T_1)\mathbb{Q}_{2,2}^{(b)}(E)}{3}$$

z602 $$\mathbb{G}_{2,1}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6}$$

z603 $$\mathbb{G}_{2,2}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,3}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,3}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

z604 $$\mathbb{G}_{2,3}^{(1,1;c)}(T_2) = \frac{\sqrt{6}\mathbb{M}_{1,1}^{(1,1;a)}(T_1)\mathbb{T}_{1,2}^{(b)}(T_1)}{6} + \frac{\sqrt{6}\mathbb{M}_{1,2}^{(1,1;a)}(T_1)\mathbb{T}_{1,1}^{(b)}(T_1)}{6}$$

- bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
- ket: $|s,\uparrow\rangle$, $|s,\downarrow\rangle$

x1 $\mathbb{Q}_0^{(a)}(A_1) = \begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{bmatrix}$

x2 $\mathbb{M}_{1,1}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{bmatrix}$

x3 $\mathbb{M}_{1,2}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & -\frac{\sqrt{2}i}{2} \\ \frac{\sqrt{2}i}{2} & 0 \end{bmatrix}$

x4 $\mathbb{M}_{1,3}^{(1,-1;a)}(T_1) = \begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & -\frac{\sqrt{2}}{2} \end{bmatrix}$

- bra: $\langle s,\uparrow|$, $\langle s,\downarrow|$
- ket: $|p_x,\uparrow\rangle$, $|p_x,\downarrow\rangle$, $|p_y,\uparrow\rangle$, $|p_y,\downarrow\rangle$, $|p_z,\uparrow\rangle$, $|p_z,\downarrow\rangle$

x5 $\mathbb{Q}_{1,1}^{(a)}(T_1) = \begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$

x6 $\mathbb{Q}_{1,2}^{(a)}(T_1) = \begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$

x7 $\mathbb{Q}_{1,3}^{(a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$

x8 $\mathbb{Q}_{1,1}^{(1,0;a)}(T_1) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$

x9 $\mathbb{Q}_{1,2}^{(1,0;a)}(T_1) = \begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$

x10 $\mathbb{Q}_{1,3}^{(1,0;a)}(T_1) = \begin{bmatrix} 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$

x11 $\mathbb{G}_{2,1}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \end{bmatrix}$

x12 $\mathbb{G}_{2,2}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

x13 $\mathbb{G}_{2,1}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$

x14 $\mathbb{G}_{2,2}^{(1,-1;a)}(T_2) = \begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$

x15 $\mathbb{G}_{2,3}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$

x16 $\mathbb{G}_{0}^{(1,1;a)}(A_1) = \begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \end{bmatrix}$

x17 $\mathbb{M}_{2,1}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{6} & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$

x18 $\mathbb{M}_{2,2}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$

x19 $\mathbb{M}_{2,1}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$

x20 $\mathbb{M}_{2,2}^{(1,-1;a)}(T_2) = \begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \end{bmatrix}$

x21 $\mathbb{M}_{2,3}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

x22 $\mathbb{M}_{0}^{(1,1;a)}(A_1) = \begin{bmatrix} 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$

x23 $\mathbb{T}_{1,1}^{(a)}(T_1) = \begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$

x24 $\mathbb{T}^{(a)}_{1,2}(T_1) = \begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$

x25 $\mathbb{T}^{(a)}_{1,3}(T_1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$

x26 $\mathbb{T}^{(1,0;a)}_{1,1}(T_1) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$

x27 $\mathbb{T}^{(1,0;a)}_{1,2}(T_1) = \begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$

x28 $\mathbb{T}^{(1,0;a)}_{1,3}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

- bra: $\langle p_x, \uparrow |$, $\langle p_x, \downarrow |$, $\langle p_y, \uparrow |$, $\langle p_y, \downarrow |$, $\langle p_z, \uparrow |$, $\langle p_z, \downarrow |$
- ket: $| p_x, \uparrow \rangle$, $| p_x, \downarrow \rangle$, $| p_y, \uparrow \rangle$, $| p_y, \downarrow \rangle$, $| p_z, \uparrow \rangle$, $| p_z, \downarrow \rangle$

x29 $\mathbb{Q}^{(a)}_{0}(A_1) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$

x30 $\mathbb{Q}^{(a)}_{2,1}(E) = \begin{bmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{bmatrix}$

x31 $\mathbb{Q}^{(a)}_{2,2}(E) = \begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

x32 $\mathbb{Q}_{2,1}^{(a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$

x33 $\mathbb{Q}_{2,2}^{(a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$

x34 $\mathbb{Q}_{2,3}^{(a)}(T_2) = \begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

x35 $\mathbb{Q}_{2,1}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$

x36 $\mathbb{Q}_{2,2}^{(1,-1;a)}(E) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$

x37 $\mathbb{Q}_{2,1}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$

x38 $\mathbb{Q}_{2,2}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$

x39 $\mathbb{Q}_{2,3}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

x40 $\mathbb{Q}_{0}^{(1,1;a)}(A_1) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$

x41 $\mathbb{G}_{1,1}^{(1,0;a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$

x42 $\mathbb{G}_{1,2}^{(1,0;a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$

x43 $\mathbb{G}_{1,3}^{(1,0;a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

x44 $\mathbb{M}_{1,1}^{(a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$

x45 $\mathbb{M}_{1,2}^{(a)}(T_1) = \begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$

x46 $\mathbb{M}_{1,3}^{(a)}(T_1) = \begin{bmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

x47 $\mathbb{M}_{3}^{(1,-1;a)}(A_2) = \begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$

x48 $\mathbb{M}_{1,1}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{bmatrix}$

x49 $\mathbb{M}_{1,2}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$

x50 $\mathbb{M}_{1,3}^{(1,-1;a)}(T_1) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$

x51 $\mathbb{M}_{3,1}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{5}}{5} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ \frac{\sqrt{5}}{5} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$

x52 $\mathbb{M}_{3,2}^{(1,-1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$

x53 $\mathbb{M}_{3,3}^{(1,-1;a)}(T_1) = \begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{bmatrix}$

x54 $\mathbb{M}_{3,1}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \end{bmatrix}$

x55 $\mathbb{M}_{3,2}^{(1,-1;a)}(T_2) = \begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$

x56 $\mathbb{M}_{3,3}^{(1,-1;a)}(T_2) = \begin{bmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$

x57 $\mathbb{M}_{1,1}^{(1,1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{bmatrix}$

x58 $\mathbb{M}_{1,2}^{(1,1;a)}(T_1) = \begin{bmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{bmatrix}$

x59 $\mathbb{M}_{1,3}^{(1,1;a)}(T_1) = \begin{bmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{bmatrix}$

x60 $\mathbb{T}_{2,1}^{(1,0;a)}(E) = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$

x61 $\mathbb{T}_{2,2}^{(1,0;a)}(E) = \begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$

x62 $\mathbb{T}_{2,1}^{(1,0;a)}(T_2) = \begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{bmatrix}$

x63 $\mathbb{T}_{2,2}^{(1,0;a)}(T_2) = \begin{bmatrix} 0 & \frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$

x64 $\mathbb{T}^{(1,0;a)}_{2,3}(T_2) = \begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$

Cluster SAMB

- Site cluster

** Wyckoff: `1a`

y1 $\mathbb{Q}^{(s)}_{0}(A_1) = [1]$

- Bond cluster

** Wyckoff: `3a@3d`

y2 $\mathbb{Q}^{(s)}_{0}(A_1) = \left[\frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}\right]$

y3 $\mathbb{Q}^{(s)}_{2,1}(E) = \left[-\frac{\sqrt{6}}{6}, -\frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{3}\right]$

y4 $\mathbb{Q}^{(s)}_{2,2}(E) = \left[\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}, 0\right]$

y5 $\mathbb{T}^{(s)}_{1,1}(T_1) = [i,\ 0,\ 0]$

y6 $\mathbb{T}^{(s)}_{1,2}(T_1) = [0,\ i,\ 0]$

y7 $\mathbb{T}^{(s)}_{1,3}(T_1) = [0,\ 0,\ i]$

** Wyckoff: `6b@3c`

y8 $\mathbb{Q}_0^{(s)}(A_1) = \left[\frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}, \frac{\sqrt{6}}{6}\right]$

y9 $\mathbb{Q}_{2,1}^{(s)}(E) = \left[-\frac{\sqrt{3}}{6}, -\frac{\sqrt{3}}{6}, -\frac{\sqrt{3}}{6}, -\frac{\sqrt{3}}{6}, \frac{\sqrt{3}}{3}, \frac{\sqrt{3}}{3}\right]$

y10 $\mathbb{Q}_{2,2}^{(s)}(E) = \left[\frac{1}{2}, \frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, 0, 0\right]$

y11 $\mathbb{T}_{1,1}^{(s)}(T_1) = \left[0, 0, \frac{i}{2}, \frac{i}{2}, \frac{i}{2}, -\frac{i}{2}\right]$

y12 $\mathbb{T}_{1,2}^{(s)}(T_1) = \left[\frac{i}{2}, -\frac{i}{2}, 0, 0, \frac{i}{2}, \frac{i}{2}\right]$

y13 $\mathbb{T}_{1,3}^{(s)}(T_1) = \left[\frac{i}{2}, \frac{i}{2}, \frac{i}{2}, -\frac{i}{2}, 0, 0\right]$

y14 $\mathbb{Q}_{2,1}^{(s)}(T_2) = \left[\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}, 0, 0, 0, 0\right]$

y15 $\mathbb{Q}_{2,2}^{(s)}(T_2) = \left[0, 0, \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}, 0, 0\right]$

y16 $\mathbb{Q}_{2,3}^{(s)}(T_2) = \left[0, 0, 0, 0, \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right]$

y17 $\mathbb{M}_{2,1}^{(s)}(T_2) = \left[0, 0, -\frac{i}{2}, -\frac{i}{2}, \frac{i}{2}, -\frac{i}{2}\right]$

y18 $\mathbb{M}_{2,2}^{(s)}(T_2) = \left[\frac{i}{2}, -\frac{i}{2}, 0, 0, -\frac{i}{2}, -\frac{i}{2}\right]$

y19 $\mathbb{M}_{2,3}^{(s)}(T_2) = \left[-\frac{i}{2}, -\frac{i}{2}, \frac{i}{2}, -\frac{i}{2}, 0, 0\right]$

Table 5: Orbital of each site

#	site	orbital
1	A	$\|s,\uparrow\rangle$, $\|s,\downarrow\rangle$, $\|p_x,\uparrow\rangle$, $\|p_x,\downarrow\rangle$, $\|p_y,\uparrow\rangle$, $\|p_y,\downarrow\rangle$, $\|p_z,\uparrow\rangle$, $\|p_z,\downarrow\rangle$

Table 6: Neighbor and bra-ket of each bond

#	head	tail	neighbor	head (bra)	tail (ket)
1	A	A	[1,2]	[s,p]	[s,p]

Site in Unit Cell

Sites in (conventional) cell (no plus set), SL = sublattice

Table 7: 'A' (#1) site cluster (1a), 432

SL	position ($\boldsymbol{s}$)	mapping
1	[0.00000, 0.00000, 0.00000]	[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24]

Bond in Unit Cell

Bonds in (conventional) cell (no plus set): tail, head = (SL, plus set), (N)D = (non)directional (listed up to 5th neighbor at most)

Table 8: 1-th 'A'-'A' [1] (#1) bond cluster (3a@3d), ND, $|\boldsymbol{v}|$= 1.0 (cartesian)

SL	vector ($\boldsymbol{v}$)	center ($\boldsymbol{c}$)	mapping	head	tail	$\boldsymbol{R}$ (primitive)
1	[-1.00000, 0.00000, 0.00000]	[0.50000, 0.00000, 0.00000]	[1,-2,-3,4,17,-18,-19,20]	(1,1)	(1,1)	[1,0,0]
2	[0.00000,-1.00000, 0.00000]	[0.00000, 0.50000, 0.00000]	[5,-6,-7,8,13,-14,-15,16]	(1,1)	(1,1)	[0,1,0]
3	[0.00000, 0.00000,-1.00000]	[0.00000, 0.00000, 0.50000]	[9,-10,-11,12,-21,22,23,-24]	(1,1)	(1,1)	[0,0,1]

Table 9: 2-th 'A'-'A' [1] (#2) bond cluster (6b@3c), ND, $|\boldsymbol{v}|$= 1.41421 (cartesian)

SL	vector ($\boldsymbol{v}$)	center ($\boldsymbol{c}$)	mapping	head	tail	$\boldsymbol{R}$ (primitive)
1	[0.00000,-1.00000,-1.00000]	[0.00000, 0.50000, 0.50000]	[1,-4,18,-19]	(1,1)	(1,1)	[0,1,1]
2	[0.00000, 1.00000,-1.00000]	[0.00000, 0.50000, 0.50000]	[2,-3,-17,20]	(1,1)	(1,1)	[0,-1,1]
3	[-1.00000, 0.00000,-1.00000]	[0.50000, 0.00000, 0.50000]	[5,-8,-14,15]	(1,1)	(1,1)	[1,0,1]
4	[-1.00000, 0.00000, 1.00000]	[0.50000, 0.00000, 0.50000]	[6,-7,13,-16]	(1,1)	(1,1)	[1,0,-1]
5	[-1.00000,-1.00000, 0.00000]	[0.50000, 0.50000, 0.00000]	[9,-12,21,-24]	(1,1)	(1,1)	[1,1,0]
6	[1.00000,-1.00000, 0.00000]	[0.50000, 0.50000, 0.00000]	[10,-11,-22,23]	(1,1)	(1,1)	[-1,1,0]