Ternary Operational Interval Matrix

Definition

The present formulation extends the binary operational interval matrix toward a ternary intervallic system based on ordered interval triplets.

Each ternary operator is defined as:

$$(I, J, K)^N \to X$$

Starting from an initial pitch X, the process unfolds as:

$$X \to X + I \to X + I + J \to X + I + J + K$$

The global displacement vector is:

$$S = I + J + K$$

The system returns to the initial pitch-class whenever:

$$N(I + J + K) \equiv 0 \pmod{12}$$

Thus:

$$N = \frac{12}{\gcd(12, I + J + K)}$$

Each coordinate (I, J, K) defines a local interval profile, a global rotational vector, a cyclic order, and a pitch-class orbit.

The complete chromatic matrix contains:

$$12 \times 12 \times 12 = 1728$$

distinct ternary operators.

Complete Ternary Interval Matrix

The following twelve tables represent the complete three-dimensional ternary interval matrix.

Rows correspond to interval I, columns correspond to interval J, while each table fixes the value of K.

The interval labels correspond to the following chromatic values:

label	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
value	0	1	2	3	4	5	6	7	8	9	10	11

Although the present matrix is constructed in order to preserve ascending intervallic identities within each local binary structure, every generated sequence may also be realized in descending form through transpositional and inversional operations. In GeCo-Tool, this process is implemented through pitch-class transformations derived from serial music theory, particularly inversion I and transposition T.

The matrices listed in the following sections allow the systematic exploration of ternary intervallic sequences generated through ordered triplets of intervals. Each slice of the three-dimensional matrix corresponds to a fixed value of the third interval parameter K, while the remaining two dimensions define the interaction between the first and second intervallic components.

Consequently, the complete structure functions as a navigable space of cyclic intervallic configurations, enabling the exploration of melodic trajectories, rotational behaviors, and periodic pitch-class orbits derived from ternary interval organization.

As in the binary formulation, the intervallic structures represented in the matrix may also be transformed through transposition, inversion, retrograde, and retrograde-inversion operations. These transformations preserve the internal interval-class relationships while generating alternative directional and registral realizations of the same underlying ternary operator.

Slice $K = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(0,1,0)^{12}$	$(0,2,0)^{6}$	$(0,3,0)^{4}$	$(0,4,0)^{3}$	$(0,5,0)^{12}$	$(0,6,0)^{2}$	$(0,7,0)^{12}$	$(0,8,0)^{3}$	$(0,9,0)^{4}$	$(0,10,0)^{6}$	$(0,11,0)^{12}$
2m	$(1,0,0)^{12}$	$(1,1,0)^{6}$	$(1,2,0)^{4}$	$(1,3,0)^{3}$	$(1,4,0)^{12}$	$(1,5,0)^{2}$	$(1,6,0)^{12}$	$(1,7,0)^{3}$	$(1,8,0)^{4}$	$(1,9,0)^{6}$	$(1,10,0)^{12}$	$(1,11,0)^{1}$
2M	$(2,0,0)^{6}$	$(2,1,0)^{4}$	$(2,2,0)^{3}$	$(2,3,0)^{12}$	$(2,4,0)^{2}$	$(2,5,0)^{12}$	$(2,6,0)^{3}$	$(2,7,0)^{4}$	$(2,8,0)^{6}$	$(2,9,0)^{12}$	$(2,10,0)^{1}$	$(2,11,0)^{12}$
3m	$(3,0,0)^{4}$	$(3,1,0)^{3}$	$(3,2,0)^{12}$	$(3,3,0)^{2}$	$(3,4,0)^{12}$	$(3,5,0)^{3}$	$(3,6,0)^{4}$	$(3,7,0)^{6}$	$(3,8,0)^{12}$	$(3,9,0)^{1}$	$(3,10,0)^{12}$	$(3,11,0)^{6}$
3M	$(4,0,0)^{3}$	$(4,1,0)^{12}$	$(4,2,0)^{2}$	$(4,3,0)^{12}$	$(4,4,0)^{3}$	$(4,5,0)^{4}$	$(4,6,0)^{6}$	$(4,7,0)^{12}$	$(4,8,0)^{1}$	$(4,9,0)^{12}$	$(4,10,0)^{6}$	$(4,11,0)^{4}$
4	$(5,0,0)^{12}$	$(5,1,0)^{2}$	$(5,2,0)^{12}$	$(5,3,0)^{3}$	$(5,4,0)^{4}$	$(5,5,0)^{6}$	$(5,6,0)^{12}$	$(5,7,0)^{1}$	$(5,8,0)^{12}$	$(5,9,0)^{6}$	$(5,10,0)^{4}$	$(5,11,0)^{3}$
5b	$(6,0,0)^{2}$	$(6,1,0)^{12}$	$(6,2,0)^{3}$	$(6,3,0)^{4}$	$(6,4,0)^{6}$	$(6,5,0)^{12}$	$(6,6,0)^{1}$	$(6,7,0)^{12}$	$(6,8,0)^{6}$	$(6,9,0)^{4}$	$(6,10,0)^{3}$	$(6,11,0)^{12}$
5	$(7,0,0)^{12}$	$(7,1,0)^{3}$	$(7,2,0)^{4}$	$(7,3,0)^{6}$	$(7,4,0)^{12}$	$(7,5,0)^{1}$	$(7,6,0)^{12}$	$(7,7,0)^{6}$	$(7,8,0)^{4}$	$(7,9,0)^{3}$	$(7,10,0)^{12}$	$(7,11,0)^{2}$
5#	$(8,0,0)^{3}$	$(8,1,0)^{4}$	$(8,2,0)^{6}$	$(8,3,0)^{12}$	$(8,4,0)^{1}$	$(8,5,0)^{12}$	$(8,6,0)^{6}$	$(8,7,0)^{4}$	$(8,8,0)^{3}$	$(8,9,0)^{12}$	$(8,10,0)^{2}$	$(8,11,0)^{12}$
6	$(9,0,0)^{4}$	$(9,1,0)^{6}$	$(9,2,0)^{12}$	$(9,3,0)^{1}$	$(9,4,0)^{12}$	$(9,5,0)^{6}$	$(9,6,0)^{4}$	$(9,7,0)^{3}$	$(9,8,0)^{12}$	$(9,9,0)^{2}$	$(9,10,0)^{12}$	$(9,11,0)^{3}$
7m	$(10,0,0)^{6}$	$(10,1,0)^{12}$	$(10,2,0)^{1}$	$(10,3,0)^{12}$	$(10,4,0)^{6}$	$(10,5,0)^{4}$	$(10,6,0)^{3}$	$(10,7,0)^{12}$	$(10,8,0)^{2}$	$(10,9,0)^{12}$	$(10,10,0)^{3}$	$(10,11,0)^{4}$
7M	$(11,0,0)^{12}$	$(11,1,0)^{1}$	$(11,2,0)^{12}$	$(11,3,0)^{6}$	$(11,4,0)^{4}$	$(11,5,0)^{3}$	$(11,6,0)^{12}$	$(11,7,0)^{2}$	$(11,8,0)^{12}$	$(11,9,0)^{3}$	$(11,10,0)^{4}$	$(11,11,0)^{6}$

Slice $K = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,1)^{12}$	$(0,1,1)^{6}$	$(0,2,1)^{4}$	$(0,3,1)^{3}$	$(0,4,1)^{12}$	$(0,5,1)^{2}$	$(0,6,1)^{12}$	$(0,7,1)^{3}$	$(0,8,1)^{4}$	$(0,9,1)^{6}$	$(0,10,1)^{12}$	$(0,11,1)^{1}$
2m	$(1,0,1)^{6}$	$(1,1,1)^{4}$	$(1,2,1)^{3}$	$(1,3,1)^{12}$	$(1,4,1)^{2}$	$(1,5,1)^{12}$	$(1,6,1)^{3}$	$(1,7,1)^{4}$	$(1,8,1)^{6}$	$(1,9,1)^{12}$	$(1,10,1)^{1}$	$(1,11,1)^{12}$
2M	$(2,0,1)^{4}$	$(2,1,1)^{3}$	$(2,2,1)^{12}$	$(2,3,1)^{2}$	$(2,4,1)^{12}$	$(2,5,1)^{3}$	$(2,6,1)^{4}$	$(2,7,1)^{6}$	$(2,8,1)^{12}$	$(2,9,1)^{1}$	$(2,10,1)^{12}$	$(2,11,1)^{6}$
3m	$(3,0,1)^{3}$	$(3,1,1)^{12}$	$(3,2,1)^{2}$	$(3,3,1)^{12}$	$(3,4,1)^{3}$	$(3,5,1)^{4}$	$(3,6,1)^{6}$	$(3,7,1)^{12}$	$(3,8,1)^{1}$	$(3,9,1)^{12}$	$(3,10,1)^{6}$	$(3,11,1)^{4}$
3M	$(4,0,1)^{12}$	$(4,1,1)^{2}$	$(4,2,1)^{12}$	$(4,3,1)^{3}$	$(4,4,1)^{4}$	$(4,5,1)^{6}$	$(4,6,1)^{12}$	$(4,7,1)^{1}$	$(4,8,1)^{12}$	$(4,9,1)^{6}$	$(4,10,1)^{4}$	$(4,11,1)^{3}$
4	$(5,0,1)^{2}$	$(5,1,1)^{12}$	$(5,2,1)^{3}$	$(5,3,1)^{4}$	$(5,4,1)^{6}$	$(5,5,1)^{12}$	$(5,6,1)^{1}$	$(5,7,1)^{12}$	$(5,8,1)^{6}$	$(5,9,1)^{4}$	$(5,10,1)^{3}$	$(5,11,1)^{12}$
5b	$(6,0,1)^{12}$	$(6,1,1)^{3}$	$(6,2,1)^{4}$	$(6,3,1)^{6}$	$(6,4,1)^{12}$	$(6,5,1)^{1}$	$(6,6,1)^{12}$	$(6,7,1)^{6}$	$(6,8,1)^{4}$	$(6,9,1)^{3}$	$(6,10,1)^{12}$	$(6,11,1)^{2}$
5	$(7,0,1)^{3}$	$(7,1,1)^{4}$	$(7,2,1)^{6}$	$(7,3,1)^{12}$	$(7,4,1)^{1}$	$(7,5,1)^{12}$	$(7,6,1)^{6}$	$(7,7,1)^{4}$	$(7,8,1)^{3}$	$(7,9,1)^{12}$	$(7,10,1)^{2}$	$(7,11,1)^{12}$
5#	$(8,0,1)^{4}$	$(8,1,1)^{6}$	$(8,2,1)^{12}$	$(8,3,1)^{1}$	$(8,4,1)^{12}$	$(8,5,1)^{6}$	$(8,6,1)^{4}$	$(8,7,1)^{3}$	$(8,8,1)^{12}$	$(8,9,1)^{2}$	$(8,10,1)^{12}$	$(8,11,1)^{3}$
6	$(9,0,1)^{6}$	$(9,1,1)^{12}$	$(9,2,1)^{1}$	$(9,3,1)^{12}$	$(9,4,1)^{6}$	$(9,5,1)^{4}$	$(9,6,1)^{3}$	$(9,7,1)^{12}$	$(9,8,1)^{2}$	$(9,9,1)^{12}$	$(9,10,1)^{3}$	$(9,11,1)^{4}$
7m	$(10,0,1)^{12}$	$(10,1,1)^{1}$	$(10,2,1)^{12}$	$(10,3,1)^{6}$	$(10,4,1)^{4}$	$(10,5,1)^{3}$	$(10,6,1)^{12}$	$(10,7,1)^{2}$	$(10,8,1)^{12}$	$(10,9,1)^{3}$	$(10,10,1)^{4}$	$(10,11,1)^{6}$
7M	$(11,0,1)^{1}$	$(11,1,1)^{12}$	$(11,2,1)^{6}$	$(11,3,1)^{4}$	$(11,4,1)^{3}$	$(11,5,1)^{12}$	$(11,6,1)^{2}$	$(11,7,1)^{12}$	$(11,8,1)^{3}$	$(11,9,1)^{4}$	$(11,10,1)^{6}$	$(11,11,1)^{12}$

Slice $K = 2$: 2M

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,2)^{6}$	$(0,1,2)^{4}$	$(0,2,2)^{3}$	$(0,3,2)^{12}$	$(0,4,2)^{2}$	$(0,5,2)^{12}$	$(0,6,2)^{3}$	$(0,7,2)^{4}$	$(0,8,2)^{6}$	$(0,9,2)^{12}$	$(0,10,2)^{1}$	$(0,11,2)^{12}$
2m	$(1,0,2)^{4}$	$(1,1,2)^{3}$	$(1,2,2)^{12}$	$(1,3,2)^{2}$	$(1,4,2)^{12}$	$(1,5,2)^{3}$	$(1,6,2)^{4}$	$(1,7,2)^{6}$	$(1,8,2)^{12}$	$(1,9,2)^{1}$	$(1,10,2)^{12}$	$(1,11,2)^{6}$
2M	$(2,0,2)^{3}$	$(2,1,2)^{12}$	$(2,2,2)^{2}$	$(2,3,2)^{12}$	$(2,4,2)^{3}$	$(2,5,2)^{4}$	$(2,6,2)^{6}$	$(2,7,2)^{12}$	$(2,8,2)^{1}$	$(2,9,2)^{12}$	$(2,10,2)^{6}$	$(2,11,2)^{4}$
3m	$(3,0,2)^{12}$	$(3,1,2)^{2}$	$(3,2,2)^{12}$	$(3,3,2)^{3}$	$(3,4,2)^{4}$	$(3,5,2)^{6}$	$(3,6,2)^{12}$	$(3,7,2)^{1}$	$(3,8,2)^{12}$	$(3,9,2)^{6}$	$(3,10,2)^{4}$	$(3,11,2)^{3}$
3M	$(4,0,2)^{2}$	$(4,1,2)^{12}$	$(4,2,2)^{3}$	$(4,3,2)^{4}$	$(4,4,2)^{6}$	$(4,5,2)^{12}$	$(4,6,2)^{1}$	$(4,7,2)^{12}$	$(4,8,2)^{6}$	$(4,9,2)^{4}$	$(4,10,2)^{3}$	$(4,11,2)^{12}$
4	$(5,0,2)^{12}$	$(5,1,2)^{3}$	$(5,2,2)^{4}$	$(5,3,2)^{6}$	$(5,4,2)^{12}$	$(5,5,2)^{1}$	$(5,6,2)^{12}$	$(5,7,2)^{6}$	$(5,8,2)^{4}$	$(5,9,2)^{3}$	$(5,10,2)^{12}$	$(5,11,2)^{2}$
5b	$(6,0,2)^{3}$	$(6,1,2)^{4}$	$(6,2,2)^{6}$	$(6,3,2)^{12}$	$(6,4,2)^{1}$	$(6,5,2)^{12}$	$(6,6,2)^{6}$	$(6,7,2)^{4}$	$(6,8,2)^{3}$	$(6,9,2)^{12}$	$(6,10,2)^{2}$	$(6,11,2)^{12}$
5	$(7,0,2)^{4}$	$(7,1,2)^{6}$	$(7,2,2)^{12}$	$(7,3,2)^{1}$	$(7,4,2)^{12}$	$(7,5,2)^{6}$	$(7,6,2)^{4}$	$(7,7,2)^{3}$	$(7,8,2)^{12}$	$(7,9,2)^{2}$	$(7,10,2)^{12}$	$(7,11,2)^{3}$
5#	$(8,0,2)^{6}$	$(8,1,2)^{12}$	$(8,2,2)^{1}$	$(8,3,2)^{12}$	$(8,4,2)^{6}$	$(8,5,2)^{4}$	$(8,6,2)^{3}$	$(8,7,2)^{12}$	$(8,8,2)^{2}$	$(8,9,2)^{12}$	$(8,10,2)^{3}$	$(8,11,2)^{4}$
6	$(9,0,2)^{12}$	$(9,1,2)^{1}$	$(9,2,2)^{12}$	$(9,3,2)^{6}$	$(9,4,2)^{4}$	$(9,5,2)^{3}$	$(9,6,2)^{12}$	$(9,7,2)^{2}$	$(9,8,2)^{12}$	$(9,9,2)^{3}$	$(9,10,2)^{4}$	$(9,11,2)^{6}$
7m	$(10,0,2)^{1}$	$(10,1,2)^{12}$	$(10,2,2)^{6}$	$(10,3,2)^{4}$	$(10,4,2)^{3}$	$(10,5,2)^{12}$	$(10,6,2)^{2}$	$(10,7,2)^{12}$	$(10,8,2)^{3}$	$(10,9,2)^{4}$	$(10,10,2)^{6}$	$(10,11,2)^{12}$
7M	$(11,0,2)^{12}$	$(11,1,2)^{6}$	$(11,2,2)^{4}$	$(11,3,2)^{3}$	$(11,4,2)^{12}$	$(11,5,2)^{2}$	$(11,6,2)^{12}$	$(11,7,2)^{3}$	$(11,8,2)^{4}$	$(11,9,2)^{6}$	$(11,10,2)^{12}$	$(11,11,2)^{1}$

Slice $K = 3$: 3m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,3)^{4}$	$(0,1,3)^{3}$	$(0,2,3)^{12}$	$(0,3,3)^{2}$	$(0,4,3)^{12}$	$(0,5,3)^{3}$	$(0,6,3)^{4}$	$(0,7,3)^{6}$	$(0,8,3)^{12}$	$(0,9,3)^{1}$	$(0,10,3)^{12}$	$(0,11,3)^{6}$
2m	$(1,0,3)^{3}$	$(1,1,3)^{12}$	$(1,2,3)^{2}$	$(1,3,3)^{12}$	$(1,4,3)^{3}$	$(1,5,3)^{4}$	$(1,6,3)^{6}$	$(1,7,3)^{12}$	$(1,8,3)^{1}$	$(1,9,3)^{12}$	$(1,10,3)^{6}$	$(1,11,3)^{4}$
2M	$(2,0,3)^{12}$	$(2,1,3)^{2}$	$(2,2,3)^{12}$	$(2,3,3)^{3}$	$(2,4,3)^{4}$	$(2,5,3)^{6}$	$(2,6,3)^{12}$	$(2,7,3)^{1}$	$(2,8,3)^{12}$	$(2,9,3)^{6}$	$(2,10,3)^{4}$	$(2,11,3)^{3}$
3m	$(3,0,3)^{2}$	$(3,1,3)^{12}$	$(3,2,3)^{3}$	$(3,3,3)^{4}$	$(3,4,3)^{6}$	$(3,5,3)^{12}$	$(3,6,3)^{1}$	$(3,7,3)^{12}$	$(3,8,3)^{6}$	$(3,9,3)^{4}$	$(3,10,3)^{3}$	$(3,11,3)^{12}$
3M	$(4,0,3)^{12}$	$(4,1,3)^{3}$	$(4,2,3)^{4}$	$(4,3,3)^{6}$	$(4,4,3)^{12}$	$(4,5,3)^{1}$	$(4,6,3)^{12}$	$(4,7,3)^{6}$	$(4,8,3)^{4}$	$(4,9,3)^{3}$	$(4,10,3)^{12}$	$(4,11,3)^{2}$
4	$(5,0,3)^{3}$	$(5,1,3)^{4}$	$(5,2,3)^{6}$	$(5,3,3)^{12}$	$(5,4,3)^{1}$	$(5,5,3)^{12}$	$(5,6,3)^{6}$	$(5,7,3)^{4}$	$(5,8,3)^{3}$	$(5,9,3)^{12}$	$(5,10,3)^{2}$	$(5,11,3)^{12}$
5b	$(6,0,3)^{4}$	$(6,1,3)^{6}$	$(6,2,3)^{12}$	$(6,3,3)^{1}$	$(6,4,3)^{12}$	$(6,5,3)^{6}$	$(6,6,3)^{4}$	$(6,7,3)^{3}$	$(6,8,3)^{12}$	$(6,9,3)^{2}$	$(6,10,3)^{12}$	$(6,11,3)^{3}$
5	$(7,0,3)^{6}$	$(7,1,3)^{12}$	$(7,2,3)^{1}$	$(7,3,3)^{12}$	$(7,4,3)^{6}$	$(7,5,3)^{4}$	$(7,6,3)^{3}$	$(7,7,3)^{12}$	$(7,8,3)^{2}$	$(7,9,3)^{12}$	$(7,10,3)^{3}$	$(7,11,3)^{4}$
5#	$(8,0,3)^{12}$	$(8,1,3)^{1}$	$(8,2,3)^{12}$	$(8,3,3)^{6}$	$(8,4,3)^{4}$	$(8,5,3)^{3}$	$(8,6,3)^{12}$	$(8,7,3)^{2}$	$(8,8,3)^{12}$	$(8,9,3)^{3}$	$(8,10,3)^{4}$	$(8,11,3)^{6}$
6	$(9,0,3)^{1}$	$(9,1,3)^{12}$	$(9,2,3)^{6}$	$(9,3,3)^{4}$	$(9,4,3)^{3}$	$(9,5,3)^{12}$	$(9,6,3)^{2}$	$(9,7,3)^{12}$	$(9,8,3)^{3}$	$(9,9,3)^{4}$	$(9,10,3)^{6}$	$(9,11,3)^{12}$
7m	$(10,0,3)^{12}$	$(10,1,3)^{6}$	$(10,2,3)^{4}$	$(10,3,3)^{3}$	$(10,4,3)^{12}$	$(10,5,3)^{2}$	$(10,6,3)^{12}$	$(10,7,3)^{3}$	$(10,8,3)^{4}$	$(10,9,3)^{6}$	$(10,10,3)^{12}$	$(10,11,3)^{1}$
7M	$(11,0,3)^{6}$	$(11,1,3)^{4}$	$(11,2,3)^{3}$	$(11,3,3)^{12}$	$(11,4,3)^{2}$	$(11,5,3)^{12}$	$(11,6,3)^{3}$	$(11,7,3)^{4}$	$(11,8,3)^{6}$	$(11,9,3)^{12}$	$(11,10,3)^{1}$	$(11,11,3)^{12}$

Slice $K = 4$: 3M

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,4)^{3}$	$(0,1,4)^{12}$	$(0,2,4)^{2}$	$(0,3,4)^{12}$	$(0,4,4)^{3}$	$(0,5,4)^{4}$	$(0,6,4)^{6}$	$(0,7,4)^{12}$	$(0,8,4)^{1}$	$(0,9,4)^{12}$	$(0,10,4)^{6}$	$(0,11,4)^{4}$
2m	$(1,0,4)^{12}$	$(1,1,4)^{2}$	$(1,2,4)^{12}$	$(1,3,4)^{3}$	$(1,4,4)^{4}$	$(1,5,4)^{6}$	$(1,6,4)^{12}$	$(1,7,4)^{1}$	$(1,8,4)^{12}$	$(1,9,4)^{6}$	$(1,10,4)^{4}$	$(1,11,4)^{3}$
2M	$(2,0,4)^{2}$	$(2,1,4)^{12}$	$(2,2,4)^{3}$	$(2,3,4)^{4}$	$(2,4,4)^{6}$	$(2,5,4)^{12}$	$(2,6,4)^{1}$	$(2,7,4)^{12}$	$(2,8,4)^{6}$	$(2,9,4)^{4}$	$(2,10,4)^{3}$	$(2,11,4)^{12}$
3m	$(3,0,4)^{12}$	$(3,1,4)^{3}$	$(3,2,4)^{4}$	$(3,3,4)^{6}$	$(3,4,4)^{12}$	$(3,5,4)^{1}$	$(3,6,4)^{12}$	$(3,7,4)^{6}$	$(3,8,4)^{4}$	$(3,9,4)^{3}$	$(3,10,4)^{12}$	$(3,11,4)^{2}$
3M	$(4,0,4)^{3}$	$(4,1,4)^{4}$	$(4,2,4)^{6}$	$(4,3,4)^{12}$	$(4,4,4)^{1}$	$(4,5,4)^{12}$	$(4,6,4)^{6}$	$(4,7,4)^{4}$	$(4,8,4)^{3}$	$(4,9,4)^{12}$	$(4,10,4)^{2}$	$(4,11,4)^{12}$
4	$(5,0,4)^{4}$	$(5,1,4)^{6}$	$(5,2,4)^{12}$	$(5,3,4)^{1}$	$(5,4,4)^{12}$	$(5,5,4)^{6}$	$(5,6,4)^{4}$	$(5,7,4)^{3}$	$(5,8,4)^{12}$	$(5,9,4)^{2}$	$(5,10,4)^{12}$	$(5,11,4)^{3}$
5b	$(6,0,4)^{6}$	$(6,1,4)^{12}$	$(6,2,4)^{1}$	$(6,3,4)^{12}$	$(6,4,4)^{6}$	$(6,5,4)^{4}$	$(6,6,4)^{3}$	$(6,7,4)^{12}$	$(6,8,4)^{2}$	$(6,9,4)^{12}$	$(6,10,4)^{3}$	$(6,11,4)^{4}$
5	$(7,0,4)^{12}$	$(7,1,4)^{1}$	$(7,2,4)^{12}$	$(7,3,4)^{6}$	$(7,4,4)^{4}$	$(7,5,4)^{3}$	$(7,6,4)^{12}$	$(7,7,4)^{2}$	$(7,8,4)^{12}$	$(7,9,4)^{3}$	$(7,10,4)^{4}$	$(7,11,4)^{6}$
5#	$(8,0,4)^{1}$	$(8,1,4)^{12}$	$(8,2,4)^{6}$	$(8,3,4)^{4}$	$(8,4,4)^{3}$	$(8,5,4)^{12}$	$(8,6,4)^{2}$	$(8,7,4)^{12}$	$(8,8,4)^{3}$	$(8,9,4)^{4}$	$(8,10,4)^{6}$	$(8,11,4)^{12}$
6	$(9,0,4)^{12}$	$(9,1,4)^{6}$	$(9,2,4)^{4}$	$(9,3,4)^{3}$	$(9,4,4)^{12}$	$(9,5,4)^{2}$	$(9,6,4)^{12}$	$(9,7,4)^{3}$	$(9,8,4)^{4}$	$(9,9,4)^{6}$	$(9,10,4)^{12}$	$(9,11,4)^{1}$
7m	$(10,0,4)^{6}$	$(10,1,4)^{4}$	$(10,2,4)^{3}$	$(10,3,4)^{12}$	$(10,4,4)^{2}$	$(10,5,4)^{12}$	$(10,6,4)^{3}$	$(10,7,4)^{4}$	$(10,8,4)^{6}$	$(10,9,4)^{12}$	$(10,10,4)^{1}$	$(10,11,4)^{12}$
7M	$(11,0,4)^{4}$	$(11,1,4)^{3}$	$(11,2,4)^{12}$	$(11,3,4)^{2}$	$(11,4,4)^{12}$	$(11,5,4)^{3}$	$(11,6,4)^{4}$	$(11,7,4)^{6}$	$(11,8,4)^{12}$	$(11,9,4)^{1}$	$(11,10,4)^{12}$	$(11,11,4)^{6}$

Slice $K = 5$: 4

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,5)^{12}$	$(0,1,5)^{2}$	$(0,2,5)^{12}$	$(0,3,5)^{3}$	$(0,4,5)^{4}$	$(0,5,5)^{6}$	$(0,6,5)^{12}$	$(0,7,5)^{1}$	$(0,8,5)^{12}$	$(0,9,5)^{6}$	$(0,10,5)^{4}$	$(0,11,5)^{3}$
2m	$(1,0,5)^{2}$	$(1,1,5)^{12}$	$(1,2,5)^{3}$	$(1,3,5)^{4}$	$(1,4,5)^{6}$	$(1,5,5)^{12}$	$(1,6,5)^{1}$	$(1,7,5)^{12}$	$(1,8,5)^{6}$	$(1,9,5)^{4}$	$(1,10,5)^{3}$	$(1,11,5)^{12}$
2M	$(2,0,5)^{12}$	$(2,1,5)^{3}$	$(2,2,5)^{4}$	$(2,3,5)^{6}$	$(2,4,5)^{12}$	$(2,5,5)^{1}$	$(2,6,5)^{12}$	$(2,7,5)^{6}$	$(2,8,5)^{4}$	$(2,9,5)^{3}$	$(2,10,5)^{12}$	$(2,11,5)^{2}$
3m	$(3,0,5)^{3}$	$(3,1,5)^{4}$	$(3,2,5)^{6}$	$(3,3,5)^{12}$	$(3,4,5)^{1}$	$(3,5,5)^{12}$	$(3,6,5)^{6}$	$(3,7,5)^{4}$	$(3,8,5)^{3}$	$(3,9,5)^{12}$	$(3,10,5)^{2}$	$(3,11,5)^{12}$
3M	$(4,0,5)^{4}$	$(4,1,5)^{6}$	$(4,2,5)^{12}$	$(4,3,5)^{1}$	$(4,4,5)^{12}$	$(4,5,5)^{6}$	$(4,6,5)^{4}$	$(4,7,5)^{3}$	$(4,8,5)^{12}$	$(4,9,5)^{2}$	$(4,10,5)^{12}$	$(4,11,5)^{3}$
4	$(5,0,5)^{6}$	$(5,1,5)^{12}$	$(5,2,5)^{1}$	$(5,3,5)^{12}$	$(5,4,5)^{6}$	$(5,5,5)^{4}$	$(5,6,5)^{3}$	$(5,7,5)^{12}$	$(5,8,5)^{2}$	$(5,9,5)^{12}$	$(5,10,5)^{3}$	$(5,11,5)^{4}$
5b	$(6,0,5)^{12}$	$(6,1,5)^{1}$	$(6,2,5)^{12}$	$(6,3,5)^{6}$	$(6,4,5)^{4}$	$(6,5,5)^{3}$	$(6,6,5)^{12}$	$(6,7,5)^{2}$	$(6,8,5)^{12}$	$(6,9,5)^{3}$	$(6,10,5)^{4}$	$(6,11,5)^{6}$
5	$(7,0,5)^{1}$	$(7,1,5)^{12}$	$(7,2,5)^{6}$	$(7,3,5)^{4}$	$(7,4,5)^{3}$	$(7,5,5)^{12}$	$(7,6,5)^{2}$	$(7,7,5)^{12}$	$(7,8,5)^{3}$	$(7,9,5)^{4}$	$(7,10,5)^{6}$	$(7,11,5)^{12}$
5#	$(8,0,5)^{12}$	$(8,1,5)^{6}$	$(8,2,5)^{4}$	$(8,3,5)^{3}$	$(8,4,5)^{12}$	$(8,5,5)^{2}$	$(8,6,5)^{12}$	$(8,7,5)^{3}$	$(8,8,5)^{4}$	$(8,9,5)^{6}$	$(8,10,5)^{12}$	$(8,11,5)^{1}$
6	$(9,0,5)^{6}$	$(9,1,5)^{4}$	$(9,2,5)^{3}$	$(9,3,5)^{12}$	$(9,4,5)^{2}$	$(9,5,5)^{12}$	$(9,6,5)^{3}$	$(9,7,5)^{4}$	$(9,8,5)^{6}$	$(9,9,5)^{12}$	$(9,10,5)^{1}$	$(9,11,5)^{12}$
7m	$(10,0,5)^{4}$	$(10,1,5)^{3}$	$(10,2,5)^{12}$	$(10,3,5)^{2}$	$(10,4,5)^{12}$	$(10,5,5)^{3}$	$(10,6,5)^{4}$	$(10,7,5)^{6}$	$(10,8,5)^{12}$	$(10,9,5)^{1}$	$(10,10,5)^{12}$	$(10,11,5)^{6}$
7M	$(11,0,5)^{3}$	$(11,1,5)^{12}$	$(11,2,5)^{2}$	$(11,3,5)^{12}$	$(11,4,5)^{3}$	$(11,5,5)^{4}$	$(11,6,5)^{6}$	$(11,7,5)^{12}$	$(11,8,5)^{1}$	$(11,9,5)^{12}$	$(11,10,5)^{6}$	$(11,11,5)^{4}$

Slice $K = 6$: 5b

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,6)^{2}$	$(0,1,6)^{12}$	$(0,2,6)^{3}$	$(0,3,6)^{4}$	$(0,4,6)^{6}$	$(0,5,6)^{12}$	$(0,6,6)^{1}$	$(0,7,6)^{12}$	$(0,8,6)^{6}$	$(0,9,6)^{4}$	$(0,10,6)^{3}$	$(0,11,6)^{12}$
2m	$(1,0,6)^{12}$	$(1,1,6)^{3}$	$(1,2,6)^{4}$	$(1,3,6)^{6}$	$(1,4,6)^{12}$	$(1,5,6)^{1}$	$(1,6,6)^{12}$	$(1,7,6)^{6}$	$(1,8,6)^{4}$	$(1,9,6)^{3}$	$(1,10,6)^{12}$	$(1,11,6)^{2}$
2M	$(2,0,6)^{3}$	$(2,1,6)^{4}$	$(2,2,6)^{6}$	$(2,3,6)^{12}$	$(2,4,6)^{1}$	$(2,5,6)^{12}$	$(2,6,6)^{6}$	$(2,7,6)^{4}$	$(2,8,6)^{3}$	$(2,9,6)^{12}$	$(2,10,6)^{2}$	$(2,11,6)^{12}$
3m	$(3,0,6)^{4}$	$(3,1,6)^{6}$	$(3,2,6)^{12}$	$(3,3,6)^{1}$	$(3,4,6)^{12}$	$(3,5,6)^{6}$	$(3,6,6)^{4}$	$(3,7,6)^{3}$	$(3,8,6)^{12}$	$(3,9,6)^{2}$	$(3,10,6)^{12}$	$(3,11,6)^{3}$
3M	$(4,0,6)^{6}$	$(4,1,6)^{12}$	$(4,2,6)^{1}$	$(4,3,6)^{12}$	$(4,4,6)^{6}$	$(4,5,6)^{4}$	$(4,6,6)^{3}$	$(4,7,6)^{12}$	$(4,8,6)^{2}$	$(4,9,6)^{12}$	$(4,10,6)^{3}$	$(4,11,6)^{4}$
4	$(5,0,6)^{12}$	$(5,1,6)^{1}$	$(5,2,6)^{12}$	$(5,3,6)^{6}$	$(5,4,6)^{4}$	$(5,5,6)^{3}$	$(5,6,6)^{12}$	$(5,7,6)^{2}$	$(5,8,6)^{12}$	$(5,9,6)^{3}$	$(5,10,6)^{4}$	$(5,11,6)^{6}$
5b	$(6,0,6)^{1}$	$(6,1,6)^{12}$	$(6,2,6)^{6}$	$(6,3,6)^{4}$	$(6,4,6)^{3}$	$(6,5,6)^{12}$	$(6,6,6)^{2}$	$(6,7,6)^{12}$	$(6,8,6)^{3}$	$(6,9,6)^{4}$	$(6,10,6)^{6}$	$(6,11,6)^{12}$
5	$(7,0,6)^{12}$	$(7,1,6)^{6}$	$(7,2,6)^{4}$	$(7,3,6)^{3}$	$(7,4,6)^{12}$	$(7,5,6)^{2}$	$(7,6,6)^{12}$	$(7,7,6)^{3}$	$(7,8,6)^{4}$	$(7,9,6)^{6}$	$(7,10,6)^{12}$	$(7,11,6)^{1}$
5#	$(8,0,6)^{6}$	$(8,1,6)^{4}$	$(8,2,6)^{3}$	$(8,3,6)^{12}$	$(8,4,6)^{2}$	$(8,5,6)^{12}$	$(8,6,6)^{3}$	$(8,7,6)^{4}$	$(8,8,6)^{6}$	$(8,9,6)^{12}$	$(8,10,6)^{1}$	$(8,11,6)^{12}$
6	$(9,0,6)^{4}$	$(9,1,6)^{3}$	$(9,2,6)^{12}$	$(9,3,6)^{2}$	$(9,4,6)^{12}$	$(9,5,6)^{3}$	$(9,6,6)^{4}$	$(9,7,6)^{6}$	$(9,8,6)^{12}$	$(9,9,6)^{1}$	$(9,10,6)^{12}$	$(9,11,6)^{6}$
7m	$(10,0,6)^{3}$	$(10,1,6)^{12}$	$(10,2,6)^{2}$	$(10,3,6)^{12}$	$(10,4,6)^{3}$	$(10,5,6)^{4}$	$(10,6,6)^{6}$	$(10,7,6)^{12}$	$(10,8,6)^{1}$	$(10,9,6)^{12}$	$(10,10,6)^{6}$	$(10,11,6)^{4}$
7M	$(11,0,6)^{12}$	$(11,1,6)^{2}$	$(11,2,6)^{12}$	$(11,3,6)^{3}$	$(11,4,6)^{4}$	$(11,5,6)^{6}$	$(11,6,6)^{12}$	$(11,7,6)^{1}$	$(11,8,6)^{12}$	$(11,9,6)^{6}$	$(11,10,6)^{4}$	$(11,11,6)^{3}$

Slice $K = 7$: 5

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,7)^{12}$	$(0,1,7)^{3}$	$(0,2,7)^{4}$	$(0,3,7)^{6}$	$(0,4,7)^{12}$	$(0,5,7)^{1}$	$(0,6,7)^{12}$	$(0,7,7)^{6}$	$(0,8,7)^{4}$	$(0,9,7)^{3}$	$(0,10,7)^{12}$	$(0,11,7)^{2}$
2m	$(1,0,7)^{3}$	$(1,1,7)^{4}$	$(1,2,7)^{6}$	$(1,3,7)^{12}$	$(1,4,7)^{1}$	$(1,5,7)^{12}$	$(1,6,7)^{6}$	$(1,7,7)^{4}$	$(1,8,7)^{3}$	$(1,9,7)^{12}$	$(1,10,7)^{2}$	$(1,11,7)^{12}$
2M	$(2,0,7)^{4}$	$(2,1,7)^{6}$	$(2,2,7)^{12}$	$(2,3,7)^{1}$	$(2,4,7)^{12}$	$(2,5,7)^{6}$	$(2,6,7)^{4}$	$(2,7,7)^{3}$	$(2,8,7)^{12}$	$(2,9,7)^{2}$	$(2,10,7)^{12}$	$(2,11,7)^{3}$
3m	$(3,0,7)^{6}$	$(3,1,7)^{12}$	$(3,2,7)^{1}$	$(3,3,7)^{12}$	$(3,4,7)^{6}$	$(3,5,7)^{4}$	$(3,6,7)^{3}$	$(3,7,7)^{12}$	$(3,8,7)^{2}$	$(3,9,7)^{12}$	$(3,10,7)^{3}$	$(3,11,7)^{4}$
3M	$(4,0,7)^{12}$	$(4,1,7)^{1}$	$(4,2,7)^{12}$	$(4,3,7)^{6}$	$(4,4,7)^{4}$	$(4,5,7)^{3}$	$(4,6,7)^{12}$	$(4,7,7)^{2}$	$(4,8,7)^{12}$	$(4,9,7)^{3}$	$(4,10,7)^{4}$	$(4,11,7)^{6}$
4	$(5,0,7)^{1}$	$(5,1,7)^{12}$	$(5,2,7)^{6}$	$(5,3,7)^{4}$	$(5,4,7)^{3}$	$(5,5,7)^{12}$	$(5,6,7)^{2}$	$(5,7,7)^{12}$	$(5,8,7)^{3}$	$(5,9,7)^{4}$	$(5,10,7)^{6}$	$(5,11,7)^{12}$
5b	$(6,0,7)^{12}$	$(6,1,7)^{6}$	$(6,2,7)^{4}$	$(6,3,7)^{3}$	$(6,4,7)^{12}$	$(6,5,7)^{2}$	$(6,6,7)^{12}$	$(6,7,7)^{3}$	$(6,8,7)^{4}$	$(6,9,7)^{6}$	$(6,10,7)^{12}$	$(6,11,7)^{1}$
5	$(7,0,7)^{6}$	$(7,1,7)^{4}$	$(7,2,7)^{3}$	$(7,3,7)^{12}$	$(7,4,7)^{2}$	$(7,5,7)^{12}$	$(7,6,7)^{3}$	$(7,7,7)^{4}$	$(7,8,7)^{6}$	$(7,9,7)^{12}$	$(7,10,7)^{1}$	$(7,11,7)^{12}$
5#	$(8,0,7)^{4}$	$(8,1,7)^{3}$	$(8,2,7)^{12}$	$(8,3,7)^{2}$	$(8,4,7)^{12}$	$(8,5,7)^{3}$	$(8,6,7)^{4}$	$(8,7,7)^{6}$	$(8,8,7)^{12}$	$(8,9,7)^{1}$	$(8,10,7)^{12}$	$(8,11,7)^{6}$
6	$(9,0,7)^{3}$	$(9,1,7)^{12}$	$(9,2,7)^{2}$	$(9,3,7)^{12}$	$(9,4,7)^{3}$	$(9,5,7)^{4}$	$(9,6,7)^{6}$	$(9,7,7)^{12}$	$(9,8,7)^{1}$	$(9,9,7)^{12}$	$(9,10,7)^{6}$	$(9,11,7)^{4}$
7m	$(10,0,7)^{12}$	$(10,1,7)^{2}$	$(10,2,7)^{12}$	$(10,3,7)^{3}$	$(10,4,7)^{4}$	$(10,5,7)^{6}$	$(10,6,7)^{12}$	$(10,7,7)^{1}$	$(10,8,7)^{12}$	$(10,9,7)^{6}$	$(10,10,7)^{4}$	$(10,11,7)^{3}$
7M	$(11,0,7)^{2}$	$(11,1,7)^{12}$	$(11,2,7)^{3}$	$(11,3,7)^{4}$	$(11,4,7)^{6}$	$(11,5,7)^{12}$	$(11,6,7)^{1}$	$(11,7,7)^{12}$	$(11,8,7)^{6}$	$(11,9,7)^{4}$	$(11,10,7)^{3}$	$(11,11,7)^{12}$

Slice $K = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,8)^{3}$	$(0,1,8)^{4}$	$(0,2,8)^{6}$	$(0,3,8)^{12}$	$(0,4,8)^{1}$	$(0,5,8)^{12}$	$(0,6,8)^{6}$	$(0,7,8)^{4}$	$(0,8,8)^{3}$	$(0,9,8)^{12}$	$(0,10,8)^{2}$	$(0,11,8)^{12}$
2m	$(1,0,8)^{4}$	$(1,1,8)^{6}$	$(1,2,8)^{12}$	$(1,3,8)^{1}$	$(1,4,8)^{12}$	$(1,5,8)^{6}$	$(1,6,8)^{4}$	$(1,7,8)^{3}$	$(1,8,8)^{12}$	$(1,9,8)^{2}$	$(1,10,8)^{12}$	$(1,11,8)^{3}$
2M	$(2,0,8)^{6}$	$(2,1,8)^{12}$	$(2,2,8)^{1}$	$(2,3,8)^{12}$	$(2,4,8)^{6}$	$(2,5,8)^{4}$	$(2,6,8)^{3}$	$(2,7,8)^{12}$	$(2,8,8)^{2}$	$(2,9,8)^{12}$	$(2,10,8)^{3}$	$(2,11,8)^{4}$
3m	$(3,0,8)^{12}$	$(3,1,8)^{1}$	$(3,2,8)^{12}$	$(3,3,8)^{6}$	$(3,4,8)^{4}$	$(3,5,8)^{3}$	$(3,6,8)^{12}$	$(3,7,8)^{2}$	$(3,8,8)^{12}$	$(3,9,8)^{3}$	$(3,10,8)^{4}$	$(3,11,8)^{6}$
3M	$(4,0,8)^{1}$	$(4,1,8)^{12}$	$(4,2,8)^{6}$	$(4,3,8)^{4}$	$(4,4,8)^{3}$	$(4,5,8)^{12}$	$(4,6,8)^{2}$	$(4,7,8)^{12}$	$(4,8,8)^{3}$	$(4,9,8)^{4}$	$(4,10,8)^{6}$	$(4,11,8)^{12}$
4	$(5,0,8)^{12}$	$(5,1,8)^{6}$	$(5,2,8)^{4}$	$(5,3,8)^{3}$	$(5,4,8)^{12}$	$(5,5,8)^{2}$	$(5,6,8)^{12}$	$(5,7,8)^{3}$	$(5,8,8)^{4}$	$(5,9,8)^{6}$	$(5,10,8)^{12}$	$(5,11,8)^{1}$
5b	$(6,0,8)^{6}$	$(6,1,8)^{4}$	$(6,2,8)^{3}$	$(6,3,8)^{12}$	$(6,4,8)^{2}$	$(6,5,8)^{12}$	$(6,6,8)^{3}$	$(6,7,8)^{4}$	$(6,8,8)^{6}$	$(6,9,8)^{12}$	$(6,10,8)^{1}$	$(6,11,8)^{12}$
5	$(7,0,8)^{4}$	$(7,1,8)^{3}$	$(7,2,8)^{12}$	$(7,3,8)^{2}$	$(7,4,8)^{12}$	$(7,5,8)^{3}$	$(7,6,8)^{4}$	$(7,7,8)^{6}$	$(7,8,8)^{12}$	$(7,9,8)^{1}$	$(7,10,8)^{12}$	$(7,11,8)^{6}$
5#	$(8,0,8)^{3}$	$(8,1,8)^{12}$	$(8,2,8)^{2}$	$(8,3,8)^{12}$	$(8,4,8)^{3}$	$(8,5,8)^{4}$	$(8,6,8)^{6}$	$(8,7,8)^{12}$	$(8,8,8)^{1}$	$(8,9,8)^{12}$	$(8,10,8)^{6}$	$(8,11,8)^{4}$
6	$(9,0,8)^{12}$	$(9,1,8)^{2}$	$(9,2,8)^{12}$	$(9,3,8)^{3}$	$(9,4,8)^{4}$	$(9,5,8)^{6}$	$(9,6,8)^{12}$	$(9,7,8)^{1}$	$(9,8,8)^{12}$	$(9,9,8)^{6}$	$(9,10,8)^{4}$	$(9,11,8)^{3}$
7m	$(10,0,8)^{2}$	$(10,1,8)^{12}$	$(10,2,8)^{3}$	$(10,3,8)^{4}$	$(10,4,8)^{6}$	$(10,5,8)^{12}$	$(10,6,8)^{1}$	$(10,7,8)^{12}$	$(10,8,8)^{6}$	$(10,9,8)^{4}$	$(10,10,8)^{3}$	$(10,11,8)^{12}$
7M	$(11,0,8)^{12}$	$(11,1,8)^{3}$	$(11,2,8)^{4}$	$(11,3,8)^{6}$	$(11,4,8)^{12}$	$(11,5,8)^{1}$	$(11,6,8)^{12}$	$(11,7,8)^{6}$	$(11,8,8)^{4}$	$(11,9,8)^{3}$	$(11,10,8)^{12}$	$(11,11,8)^{2}$

Slice $K = 9$: **6**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,9)^{4}$	$(0,1,9)^{6}$	$(0,2,9)^{12}$	$(0,3,9)^{1}$	$(0,4,9)^{12}$	$(0,5,9)^{6}$	$(0,6,9)^{4}$	$(0,7,9)^{3}$	$(0,8,9)^{12}$	$(0,9,9)^{2}$	$(0,10,9)^{12}$	$(0,11,9)^{3}$
2m	$(1,0,9)^{6}$	$(1,1,9)^{12}$	$(1,2,9)^{1}$	$(1,3,9)^{12}$	$(1,4,9)^{6}$	$(1,5,9)^{4}$	$(1,6,9)^{3}$	$(1,7,9)^{12}$	$(1,8,9)^{2}$	$(1,9,9)^{12}$	$(1,10,9)^{3}$	$(1,11,9)^{4}$
2M	$(2,0,9)^{12}$	$(2,1,9)^{1}$	$(2,2,9)^{12}$	$(2,3,9)^{6}$	$(2,4,9)^{4}$	$(2,5,9)^{3}$	$(2,6,9)^{12}$	$(2,7,9)^{2}$	$(2,8,9)^{12}$	$(2,9,9)^{3}$	$(2,10,9)^{4}$	$(2,11,9)^{6}$
3m	$(3,0,9)^{1}$	$(3,1,9)^{12}$	$(3,2,9)^{6}$	$(3,3,9)^{4}$	$(3,4,9)^{3}$	$(3,5,9)^{12}$	$(3,6,9)^{2}$	$(3,7,9)^{12}$	$(3,8,9)^{3}$	$(3,9,9)^{4}$	$(3,10,9)^{6}$	$(3,11,9)^{12}$
3M	$(4,0,9)^{12}$	$(4,1,9)^{6}$	$(4,2,9)^{4}$	$(4,3,9)^{3}$	$(4,4,9)^{12}$	$(4,5,9)^{2}$	$(4,6,9)^{12}$	$(4,7,9)^{3}$	$(4,8,9)^{4}$	$(4,9,9)^{6}$	$(4,10,9)^{12}$	$(4,11,9)^{1}$
4	$(5,0,9)^{6}$	$(5,1,9)^{4}$	$(5,2,9)^{3}$	$(5,3,9)^{12}$	$(5,4,9)^{2}$	$(5,5,9)^{12}$	$(5,6,9)^{3}$	$(5,7,9)^{4}$	$(5,8,9)^{6}$	$(5,9,9)^{12}$	$(5,10,9)^{1}$	$(5,11,9)^{12}$
5b	$(6,0,9)^{4}$	$(6,1,9)^{3}$	$(6,2,9)^{12}$	$(6,3,9)^{2}$	$(6,4,9)^{12}$	$(6,5,9)^{3}$	$(6,6,9)^{4}$	$(6,7,9)^{6}$	$(6,8,9)^{12}$	$(6,9,9)^{1}$	$(6,10,9)^{12}$	$(6,11,9)^{6}$
5	$(7,0,9)^{3}$	$(7,1,9)^{12}$	$(7,2,9)^{2}$	$(7,3,9)^{12}$	$(7,4,9)^{3}$	$(7,5,9)^{4}$	$(7,6,9)^{6}$	$(7,7,9)^{12}$	$(7,8,9)^{1}$	$(7,9,9)^{12}$	$(7,10,9)^{6}$	$(7,11,9)^{4}$
5#	$(8,0,9)^{12}$	$(8,1,9)^{2}$	$(8,2,9)^{12}$	$(8,3,9)^{3}$	$(8,4,9)^{4}$	$(8,5,9)^{6}$	$(8,6,9)^{12}$	$(8,7,9)^{1}$	$(8,8,9)^{12}$	$(8,9,9)^{6}$	$(8,10,9)^{4}$	$(8,11,9)^{3}$
6	$(9,0,9)^{2}$	$(9,1,9)^{12}$	$(9,2,9)^{3}$	$(9,3,9)^{4}$	$(9,4,9)^{6}$	$(9,5,9)^{12}$	$(9,6,9)^{1}$	$(9,7,9)^{12}$	$(9,8,9)^{6}$	$(9,9,9)^{4}$	$(9,10,9)^{3}$	$(9,11,9)^{12}$
7m	$(10,0,9)^{12}$	$(10,1,9)^{3}$	$(10,2,9)^{4}$	$(10,3,9)^{6}$	$(10,4,9)^{12}$	$(10,5,9)^{1}$	$(10,6,9)^{12}$	$(10,7,9)^{6}$	$(10,8,9)^{4}$	$(10,9,9)^{3}$	$(10,10,9)^{12}$	$(10,11,9)^{2}$
7M	$(11,0,9)^{3}$	$(11,1,9)^{4}$	$(11,2,9)^{6}$	$(11,3,9)^{12}$	$(11,4,9)^{1}$	$(11,5,9)^{12}$	$(11,6,9)^{6}$	$(11,7,9)^{4}$	$(11,8,9)^{3}$	$(11,9,9)^{12}$	$(11,10,9)^{2}$	$(11,11,9)^{12}$

Slice $K = 10$: **7m**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,10)^{6}$	$(0,1,10)^{12}$	$(0,2,10)^{1}$	$(0,3,10)^{12}$	$(0,4,10)^{6}$	$(0,5,10)^{4}$	$(0,6,10)^{3}$	$(0,7,10)^{12}$	$(0,8,10)^{2}$	$(0,9,10)^{12}$	$(0,10,10)^{3}$	$(0,11,10)^{4}$
2m	$(1,0,10)^{12}$	$(1,1,10)^{1}$	$(1,2,10)^{12}$	$(1,3,10)^{6}$	$(1,4,10)^{4}$	$(1,5,10)^{3}$	$(1,6,10)^{12}$	$(1,7,10)^{2}$	$(1,8,10)^{12}$	$(1,9,10)^{3}$	$(1,10,10)^{4}$	$(1,11,10)^{6}$
2M	$(2,0,10)^{1}$	$(2,1,10)^{12}$	$(2,2,10)^{6}$	$(2,3,10)^{4}$	$(2,4,10)^{3}$	$(2,5,10)^{12}$	$(2,6,10)^{2}$	$(2,7,10)^{12}$	$(2,8,10)^{3}$	$(2,9,10)^{4}$	$(2,10,10)^{6}$	$(2,11,10)^{12}$
3m	$(3,0,10)^{12}$	$(3,1,10)^{6}$	$(3,2,10)^{4}$	$(3,3,10)^{3}$	$(3,4,10)^{12}$	$(3,5,10)^{2}$	$(3,6,10)^{12}$	$(3,7,10)^{3}$	$(3,8,10)^{4}$	$(3,9,10)^{6}$	$(3,10,10)^{12}$	$(3,11,10)^{1}$
3M	$(4,0,10)^{6}$	$(4,1,10)^{4}$	$(4,2,10)^{3}$	$(4,3,10)^{12}$	$(4,4,10)^{2}$	$(4,5,10)^{12}$	$(4,6,10)^{3}$	$(4,7,10)^{4}$	$(4,8,10)^{6}$	$(4,9,10)^{12}$	$(4,10,10)^{1}$	$(4,11,10)^{12}$
4	$(5,0,10)^{4}$	$(5,1,10)^{3}$	$(5,2,10)^{12}$	$(5,3,10)^{2}$	$(5,4,10)^{12}$	$(5,5,10)^{3}$	$(5,6,10)^{4}$	$(5,7,10)^{6}$	$(5,8,10)^{12}$	$(5,9,10)^{1}$	$(5,10,10)^{12}$	$(5,11,10)^{6}$
5b	$(6,0,10)^{3}$	$(6,1,10)^{12}$	$(6,2,10)^{2}$	$(6,3,10)^{12}$	$(6,4,10)^{3}$	$(6,5,10)^{4}$	$(6,6,10)^{6}$	$(6,7,10)^{12}$	$(6,8,10)^{1}$	$(6,9,10)^{12}$	$(6,10,10)^{6}$	$(6,11,10)^{4}$
5	$(7,0,10)^{12}$	$(7,1,10)^{2}$	$(7,2,10)^{12}$	$(7,3,10)^{3}$	$(7,4,10)^{4}$	$(7,5,10)^{6}$	$(7,6,10)^{12}$	$(7,7,10)^{1}$	$(7,8,10)^{12}$	$(7,9,10)^{6}$	$(7,10,10)^{4}$	$(7,11,10)^{3}$
5#	$(8,0,10)^{2}$	$(8,1,10)^{12}$	$(8,2,10)^{3}$	$(8,3,10)^{4}$	$(8,4,10)^{6}$	$(8,5,10)^{12}$	$(8,6,10)^{1}$	$(8,7,10)^{12}$	$(8,8,10)^{6}$	$(8,9,10)^{4}$	$(8,10,10)^{3}$	$(8,11,10)^{12}$
6	$(9,0,10)^{12}$	$(9,1,10)^{3}$	$(9,2,10)^{4}$	$(9,3,10)^{6}$	$(9,4,10)^{12}$	$(9,5,10)^{1}$	$(9,6,10)^{12}$	$(9,7,10)^{6}$	$(9,8,10)^{4}$	$(9,9,10)^{3}$	$(9,10,10)^{12}$	$(9,11,10)^{2}$
7m	$(10,0,10)^{3}$	$(10,1,10)^{4}$	$(10,2,10)^{6}$	$(10,3,10)^{12}$	$(10,4,10)^{1}$	$(10,5,10)^{12}$	$(10,6,10)^{6}$	$(10,7,10)^{4}$	$(10,8,10)^{3}$	$(10,9,10)^{12}$	$(10,10,10)^{2}$	$(10,11,10)^{12}$
7M	$(11,0,10)^{4}$	$(11,1,10)^{6}$	$(11,2,10)^{12}$	$(11,3,10)^{1}$	$(11,4,10)^{12}$	$(11,5,10)^{6}$	$(11,6,10)^{4}$	$(11,7,10)^{3}$	$(11,8,10)^{12}$	$(11,9,10)^{2}$	$(11,10,10)^{12}$	$(11,11,10)^{3}$

Slice $K = 11$: **7M**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,11)^{12}$	$(0,1,11)^{1}$	$(0,2,11)^{12}$	$(0,3,11)^{6}$	$(0,4,11)^{4}$	$(0,5,11)^{3}$	$(0,6,11)^{12}$	$(0,7,11)^{2}$	$(0,8,11)^{12}$	$(0,9,11)^{3}$	$(0,10,11)^{4}$	$(0,11,11)^{6}$
2m	$(1,0,11)^{1}$	$(1,1,11)^{12}$	$(1,2,11)^{6}$	$(1,3,11)^{4}$	$(1,4,11)^{3}$	$(1,5,11)^{12}$	$(1,6,11)^{2}$	$(1,7,11)^{12}$	$(1,8,11)^{3}$	$(1,9,11)^{4}$	$(1,10,11)^{6}$	$(1,11,11)^{12}$
2M	$(2,0,11)^{12}$	$(2,1,11)^{6}$	$(2,2,11)^{4}$	$(2,3,11)^{3}$	$(2,4,11)^{12}$	$(2,5,11)^{2}$	$(2,6,11)^{12}$	$(2,7,11)^{3}$	$(2,8,11)^{4}$	$(2,9,11)^{6}$	$(2,10,11)^{12}$	$(2,11,11)^{1}$
3m	$(3,0,11)^{6}$	$(3,1,11)^{4}$	$(3,2,11)^{3}$	$(3,3,11)^{12}$	$(3,4,11)^{2}$	$(3,5,11)^{12}$	$(3,6,11)^{3}$	$(3,7,11)^{4}$	$(3,8,11)^{6}$	$(3,9,11)^{12}$	$(3,10,11)^{1}$	$(3,11,11)^{12}$
3M	$(4,0,11)^{4}$	$(4,1,11)^{3}$	$(4,2,11)^{12}$	$(4,3,11)^{2}$	$(4,4,11)^{12}$	$(4,5,11)^{3}$	$(4,6,11)^{4}$	$(4,7,11)^{6}$	$(4,8,11)^{12}$	$(4,9,11)^{1}$	$(4,10,11)^{12}$	$(4,11,11)^{6}$
4	$(5,0,11)^{3}$	$(5,1,11)^{12}$	$(5,2,11)^{2}$	$(5,3,11)^{12}$	$(5,4,11)^{3}$	$(5,5,11)^{4}$	$(5,6,11)^{6}$	$(5,7,11)^{12}$	$(5,8,11)^{1}$	$(5,9,11)^{12}$	$(5,10,11)^{6}$	$(5,11,11)^{4}$
5b	$(6,0,11)^{12}$	$(6,1,11)^{2}$	$(6,2,11)^{12}$	$(6,3,11)^{3}$	$(6,4,11)^{4}$	$(6,5,11)^{6}$	$(6,6,11)^{12}$	$(6,7,11)^{1}$	$(6,8,11)^{12}$	$(6,9,11)^{6}$	$(6,10,11)^{4}$	$(6,11,11)^{3}$
5	$(7,0,11)^{2}$	$(7,1,11)^{12}$	$(7,2,11)^{3}$	$(7,3,11)^{4}$	$(7,4,11)^{6}$	$(7,5,11)^{12}$	$(7,6,11)^{1}$	$(7,7,11)^{12}$	$(7,8,11)^{6}$	$(7,9,11)^{4}$	$(7,10,11)^{3}$	$(7,11,11)^{12}$
5#	$(8,0,11)^{12}$	$(8,1,11)^{3}$	$(8,2,11)^{4}$	$(8,3,11)^{6}$	$(8,4,11)^{12}$	$(8,5,11)^{1}$	$(8,6,11)^{12}$	$(8,7,11)^{6}$	$(8,8,11)^{4}$	$(8,9,11)^{3}$	$(8,10,11)^{12}$	$(8,11,11)^{2}$
6	$(9,0,11)^{3}$	$(9,1,11)^{4}$	$(9,2,11)^{6}$	$(9,3,11)^{12}$	$(9,4,11)^{1}$	$(9,5,11)^{12}$	$(9,6,11)^{6}$	$(9,7,11)^{4}$	$(9,8,11)^{3}$	$(9,9,11)^{12}$	$(9,10,11)^{2}$	$(9,11,11)^{12}$
7m	$(10,0,11)^{4}$	$(10,1,11)^{6}$	$(10,2,11)^{12}$	$(10,3,11)^{1}$	$(10,4,11)^{12}$	$(10,5,11)^{6}$	$(10,6,11)^{4}$	$(10,7,11)^{3}$	$(10,8,11)^{12}$	$(10,9,11)^{2}$	$(10,10,11)^{12}$	$(10,11,11)^{3}$
7M	$(11,0,11)^{6}$	$(11,1,11)^{12}$	$(11,2,11)^{1}$	$(11,3,11)^{12}$	$(11,4,11)^{6}$	$(11,5,11)^{4}$	$(11,6,11)^{3}$	$(11,7,11)^{12}$	$(11,8,11)^{2}$	$(11,9,11)^{12}$	$(11,10,11)^{3}$	$(11,11,11)^{4}$

Supplementary Analytical Triplet Matrices

The following matrices preserve the same notational format used in the complete ternary interval matrix:

$$(I, J, K)^N$$

where each cell contains an ordered interval triplet and its cyclic order. Unlike the previous complete matrix, these tables reorganize the ternary space according to additional analytical criteria: global displacement class, palindromic structure, retrograde structure, selective inversion, and contour normalization.

Global Displacement Class Matrices

For each fixed global displacement class S, the third component is derived as:

$$K \equiv S - I - J \pmod{12}.$$

Thus every table gathers all operators satisfying $I + J + K \equiv S \pmod{12}$. All entries in the same table share the same cyclic order $N = 12/\gcd(12, S)$.

Global class $S = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^1$	$(0,1,11)^1$	$(0,2,10)^1$	$(0,3,9)^1$	$(0,4,8)^1$	$(0,5,7)^1$	$(0,6,6)^1$	$(0,7,5)^1$	$(0,8,4)^1$	$(0,9,3)^1$	$(0,10,2)^1$	$(0,11,1)^1$
2m	$(1,0,11)^1$	$(1,1,10)^1$	$(1,2,9)^1$	$(1,3,8)^1$	$(1,4,7)^1$	$(1,5,6)^1$	$(1,6,5)^1$	$(1,7,4)^1$	$(1,8,3)^1$	$(1,9,2)^1$	$(1,10,1)^1$	$(1,11,0)^1$
2M	$(2,0,10)^1$	$(2,1,9)^1$	$(2,2,8)^1$	$(2,3,7)^1$	$(2,4,6)^1$	$(2,5,5)^1$	$(2,6,4)^1$	$(2,7,3)^1$	$(2,8,2)^1$	$(2,9,1)^1$	$(2,10,0)^1$	$(2,11,11)^1$
3m	$(3,0,9)^1$	$(3,1,8)^1$	$(3,2,7)^1$	$(3,3,6)^1$	$(3,4,5)^1$	$(3,5,4)^1$	$(3,6,3)^1$	$(3,7,2)^1$	$(3,8,1)^1$	$(3,9,0)^1$	$(3,10,11)^1$	$(3,11,10)^1$
3M	$(4,0,8)^1$	$(4,1,7)^1$	$(4,2,6)^1$	$(4,3,5)^1$	$(4,4,4)^1$	$(4,5,3)^1$	$(4,6,2)^1$	$(4,7,1)^1$	$(4,8,0)^1$	$(4,9,11)^1$	$(4,10,10)^1$	$(4,11,9)^1$
4	$(5,0,7)^1$	$(5,1,6)^1$	$(5,2,5)^1$	$(5,3,4)^1$	$(5,4,3)^1$	$(5,5,2)^1$	$(5,6,1)^1$	$(5,7,0)^1$	$(5,8,11)^1$	$(5,9,10)^1$	$(5,10,9)^1$	$(5,11,8)^1$
5b	$(6,0,6)^1$	$(6,1,5)^1$	$(6,2,4)^1$	$(6,3,3)^1$	$(6,4,2)^1$	$(6,5,1)^1$	$(6,6,0)^1$	$(6,7,11)^1$	$(6,8,10)^1$	$(6,9,9)^1$	$(6,10,8)^1$	$(6,11,7)^1$
5	$(7,0,5)^1$	$(7,1,4)^1$	$(7,2,3)^1$	$(7,3,2)^1$	$(7,4,1)^1$	$(7,5,0)^1$	$(7,6,11)^1$	$(7,7,10)^1$	$(7,8,9)^1$	$(7,9,8)^1$	$(7,10,7)^1$	$(7,11,6)^1$
5#	$(8,0,4)^1$	$(8,1,3)^1$	$(8,2,2)^1$	$(8,3,1)^1$	$(8,4,0)^1$	$(8,5,11)^1$	$(8,6,10)^1$	$(8,7,9)^1$	$(8,8,8)^1$	$(8,9,7)^1$	$(8,10,6)^1$	$(8,11,5)^1$
6	$(9,0,3)^1$	$(9,1,2)^1$	$(9,2,1)^1$	$(9,3,0)^1$	$(9,4,11)^1$	$(9,5,10)^1$	$(9,6,9)^1$	$(9,7,8)^1$	$(9,8,7)^1$	$(9,9,6)^1$	$(9,10,5)^1$	$(9,11,4)^1$
7m	$(10,0,2)^1$	$(10,1,1)^1$	$(10,2,0)^1$	$(10,3,11)^1$	$(10,4,10)^1$	$(10,5,9)^1$	$(10,6,8)^1$	$(10,7,7)^1$	$(10,8,6)^1$	$(10,9,5)^1$	$(10,10,4)^1$	$(10,11,3)^1$
7M	$(11,0,1)^1$	$(11,1,0)^1$	$(11,2,11)^1$	$(11,3,10)^1$	$(11,4,9)^1$	$(11,5,8)^1$	$(11,6,7)^1$	$(11,7,6)^1$	$(11,8,5)^1$	$(11,9,4)^1$	$(11,10,3)^1$	$(11,11,2)^1$

Table 1: Global displacement class $S = 0$.

Global class $S = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,1)^{12}$	$(0,1,0)^{12}$	$(0,2,11)^{12}$	$(0,3,10)^{12}$	$(0,4,9)^{12}$	$(0,5,8)^{12}$	$(0,6,7)^{12}$	$(0,7,6)^{12}$	$(0,8,5)^{12}$	$(0,9,4)^{12}$	$(0,10,3)^{12}$	$(0,11,2)^{12}$
2m	$(1,0,0)^{12}$	$(1,1,11)^{12}$	$(1,2,10)^{12}$	$(1,3,9)^{12}$	$(1,4,8)^{12}$	$(1,5,7)^{12}$	$(1,6,6)^{12}$	$(1,7,5)^{12}$	$(1,8,4)^{12}$	$(1,9,3)^{12}$	$(1,10,2)^{12}$	$(1,11,1)^{12}$
2M	$(2,0,11)^{12}$	$(2,1,10)^{12}$	$(2,2,9)^{12}$	$(2,3,8)^{12}$	$(2,4,7)^{12}$	$(2,5,6)^{12}$	$(2,6,5)^{12}$	$(2,7,4)^{12}$	$(2,8,3)^{12}$	$(2,9,2)^{12}$	$(2,10,1)^{12}$	$(2,11,0)^{12}$
3m	$(3,0,10)^{12}$	$(3,1,9)^{12}$	$(3,2,8)^{12}$	$(3,3,7)^{12}$	$(3,4,6)^{12}$	$(3,5,5)^{12}$	$(3,6,4)^{12}$	$(3,7,3)^{12}$	$(3,8,2)^{12}$	$(3,9,1)^{12}$	$(3,10,0)^{12}$	$(3,11,11)^{12}$
3M	$(4,0,9)^{12}$	$(4,1,8)^{12}$	$(4,2,7)^{12}$	$(4,3,6)^{12}$	$(4,4,5)^{12}$	$(4,5,4)^{12}$	$(4,6,3)^{12}$	$(4,7,2)^{12}$	$(4,8,1)^{12}$	$(4,9,0)^{12}$	$(4,10,11)^{12}$	$(4,11,10)^{12}$
4	$(5,0,8)^{12}$	$(5,1,7)^{12}$	$(5,2,6)^{12}$	$(5,3,5)^{12}$	$(5,4,4)^{12}$	$(5,5,3)^{12}$	$(5,6,2)^{12}$	$(5,7,1)^{12}$	$(5,8,0)^{12}$	$(5,9,11)^{12}$	$(5,10,10)^{12}$	$(5,11,9)^{12}$
5b	$(6,0,7)^{12}$	$(6,1,6)^{12}$	$(6,2,5)^{12}$	$(6,3,4)^{12}$	$(6,4,3)^{12}$	$(6,5,2)^{12}$	$(6,6,1)^{12}$	$(6,7,0)^{12}$	$(6,8,11)^{12}$	$(6,9,10)^{12}$	$(6,10,9)^{12}$	$(6,11,8)^{12}$
5	$(7,0,6)^{12}$	$(7,1,5)^{12}$	$(7,2,4)^{12}$	$(7,3,3)^{12}$	$(7,4,2)^{12}$	$(7,5,1)^{12}$	$(7,6,0)^{12}$	$(7,7,11)^{12}$	$(7,8,10)^{12}$	$(7,9,9)^{12}$	$(7,10,8)^{12}$	$(7,11,7)^{12}$
5#	$(8,0,5)^{12}$	$(8,1,4)^{12}$	$(8,2,3)^{12}$	$(8,3,2)^{12}$	$(8,4,1)^{12}$	$(8,5,0)^{12}$	$(8,6,11)^{12}$	$(8,7,10)^{12}$	$(8,8,9)^{12}$	$(8,9,8)^{12}$	$(8,10,7)^{12}$	$(8,11,6)^{12}$
6	$(9,0,4)^{12}$	$(9,1,3)^{12}$	$(9,2,2)^{12}$	$(9,3,1)^{12}$	$(9,4,0)^{12}$	$(9,5,11)^{12}$	$(9,6,10)^{12}$	$(9,7,9)^{12}$	$(9,8,8)^{12}$	$(9,9,7)^{12}$	$(9,10,6)^{12}$	$(9,11,5)^{12}$
7m	$(10,0,3)^{12}$	$(10,1,2)^{12}$	$(10,2,1)^{12}$	$(10,3,0)^{12}$	$(10,4,11)^{12}$	$(10,5,10)^{12}$	$(10,6,9)^{12}$	$(10,7,8)^{12}$	$(10,8,7)^{12}$	$(10,9,6)^{12}$	$(10,10,5)^{12}$	$(10,11,4)^{12}$
7M	$(11,0,2)^{12}$	$(11,1,1)^{12}$	$(11,2,0)^{12}$	$(11,3,11)^{12}$	$(11,4,10)^{12}$	$(11,5,9)^{12}$	$(11,6,8)^{12}$	$(11,7,7)^{12}$	$(11,8,6)^{12}$	$(11,9,5)^{12}$	$(11,10,4)^{12}$	$(11,11,3)^{12}$

Table 2: Global displacement class $S = 1$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,2)^6$	$(0,1,1)^6$	$(0,2,0)^6$	$(0,3,11)^6$	$(0,4,10)^6$	$(0,5,9)^6$	$(0,6,8)^6$	$(0,7,7)^6$	$(0,8,6)^6$	$(0,9,5)^6$	$(0,10,4)^6$	$(0,11,3)^6$
2m	$(1,0,1)^6$	$(1,1,0)^6$	$(1,2,11)^6$	$(1,3,10)^6$	$(1,4,9)^6$	$(1,5,8)^6$	$(1,6,7)^6$	$(1,7,6)^6$	$(1,8,5)^6$	$(1,9,4)^6$	$(1,10,3)^6$	$(1,11,2)^6$
2M	$(2,0,0)^6$	$(2,1,11)^6$	$(2,2,10)^6$	$(2,3,9)^6$	$(2,4,8)^6$	$(2,5,7)^6$	$(2,6,6)^6$	$(2,7,5)^6$	$(2,8,4)^6$	$(2,9,3)^6$	$(2,10,2)^6$	$(2,11,1)^6$
3m	$(3,0,11)^6$	$(3,1,10)^6$	$(3,2,9)^6$	$(3,3,8)^6$	$(3,4,7)^6$	$(3,5,6)^6$	$(3,6,5)^6$	$(3,7,4)^6$	$(3,8,3)^6$	$(3,9,2)^6$	$(3,10,1)^6$	$(3,11,0)^6$
3M	$(4,0,10)^6$	$(4,1,9)^6$	$(4,2,8)^6$	$(4,3,7)^6$	$(4,4,6)^6$	$(4,5,5)^6$	$(4,6,4)^6$	$(4,7,3)^6$	$(4,8,2)^6$	$(4,9,1)^6$	$(4,10,0)^6$	$(4,11,11)^6$
4	$(5,0,9)^6$	$(5,1,8)^6$	$(5,2,7)^6$	$(5,3,6)^6$	$(5,4,5)^6$	$(5,5,4)^6$	$(5,6,3)^6$	$(5,7,2)^6$	$(5,8,1)^6$	$(5,9,0)^6$	$(5,10,11)^6$	$(5,11,10)^6$
5b	$(6,0,8)^6$	$(6,1,7)^6$	$(6,2,6)^6$	$(6,3,5)^6$	$(6,4,4)^6$	$(6,5,3)^6$	$(6,6,2)^6$	$(6,7,1)^6$	$(6,8,0)^6$	$(6,9,11)^6$	$(6,10,10)^6$	$(6,11,9)^6$
5	$(7,0,7)^6$	$(7,1,6)^6$	$(7,2,5)^6$	$(7,3,4)^6$	$(7,4,3)^6$	$(7,5,2)^6$	$(7,6,1)^6$	$(7,7,0)^6$	$(7,8,11)^6$	$(7,9,10)^6$	$(7,10,9)^6$	$(7,11,8)^6$
5#	$(8,0,6)^6$	$(8,1,5)^6$	$(8,2,4)^6$	$(8,3,3)^6$	$(8,4,2)^6$	$(8,5,1)^6$	$(8,6,0)^6$	$(8,7,11)^6$	$(8,8,10)^6$	$(8,9,9)^6$	$(8,10,8)^6$	$(8,11,7)^6$
6	$(9,0,5)^6$	$(9,1,4)^6$	$(9,2,3)^6$	$(9,3,2)^6$	$(9,4,1)^6$	$(9,5,0)^6$	$(9,6,11)^6$	$(9,7,10)^6$	$(9,8,9)^6$	$(9,9,8)^6$	$(9,10,7)^6$	$(9,11,6)^6$
7m	$(10,0,4)^6$	$(10,1,3)^6$	$(10,2,2)^6$	$(10,3,1)^6$	$(10,4,0)^6$	$(10,5,11)^6$	$(10,6,10)^6$	$(10,7,9)^6$	$(10,8,8)^6$	$(10,9,7)^6$	$(10,10,6)^6$	$(10,11,5)^6$
7M	$(11,0,3)^6$	$(11,1,2)^6$	$(11,2,1)^6$	$(11,3,0)^6$	$(11,4,11)^6$	$(11,5,10)^6$	$(11,6,9)^6$	$(11,7,8)^6$	$(11,8,7)^6$	$(11,9,6)^6$	$(11,10,5)^6$	$(11,11,4)^6$

Table 3: Global displacement class $S = 2$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,3)^4$	$(0,1,2)^4$	$(0,2,1)^4$	$(0,3,0)^4$	$(0,4,11)^4$	$(0,5,10)^4$	$(0,6,9)^4$	$(0,7,8)^4$	$(0,8,7)^4$	$(0,9,6)^4$	$(0,10,5)^4$	$(0,11,4)^4$
2m	$(1,0,2)^4$	$(1,1,1)^4$	$(1,2,0)^4$	$(1,3,11)^4$	$(1,4,10)^4$	$(1,5,9)^4$	$(1,6,8)^4$	$(1,7,7)^4$	$(1,8,6)^4$	$(1,9,5)^4$	$(1,10,4)^4$	$(1,11,3)^4$
2M	$(2,0,1)^4$	$(2,1,0)^4$	$(2,2,11)^4$	$(2,3,10)^4$	$(2,4,9)^4$	$(2,5,8)^4$	$(2,6,7)^4$	$(2,7,6)^4$	$(2,8,5)^4$	$(2,9,4)^4$	$(2,10,3)^4$	$(2,11,2)^4$
3m	$(3,0,0)^4$	$(3,1,11)^4$	$(3,2,10)^4$	$(3,3,9)^4$	$(3,4,8)^4$	$(3,5,7)^4$	$(3,6,6)^4$	$(3,7,5)^4$	$(3,8,4)^4$	$(3,9,3)^4$	$(3,10,2)^4$	$(3,11,1)^4$
3M	$(4,0,11)^4$	$(4,1,10)^4$	$(4,2,9)^4$	$(4,3,8)^4$	$(4,4,7)^4$	$(4,5,6)^4$	$(4,6,5)^4$	$(4,7,4)^4$	$(4,8,3)^4$	$(4,9,2)^4$	$(4,10,1)^4$	$(4,11,0)^4$
4	$(5,0,10)^4$	$(5,1,9)^4$	$(5,2,8)^4$	$(5,3,7)^4$	$(5,4,6)^4$	$(5,5,5)^4$	$(5,6,4)^4$	$(5,7,3)^4$	$(5,8,2)^4$	$(5,9,1)^4$	$(5,10,0)^4$	$(5,11,11)^4$
5b	$(6,0,9)^4$	$(6,1,8)^4$	$(6,2,7)^4$	$(6,3,6)^4$	$(6,4,5)^4$	$(6,5,4)^4$	$(6,6,3)^4$	$(6,7,2)^4$	$(6,8,1)^4$	$(6,9,0)^4$	$(6,10,11)^4$	$(6,11,10)^4$
5	$(7,0,8)^4$	$(7,1,7)^4$	$(7,2,6)^4$	$(7,3,5)^4$	$(7,4,4)^4$	$(7,5,3)^4$	$(7,6,2)^4$	$(7,7,1)^4$	$(7,8,0)^4$	$(7,9,11)^4$	$(7,10,10)^4$	$(7,11,9)^4$
5#	$(8,0,7)^4$	$(8,1,6)^4$	$(8,2,5)^4$	$(8,3,4)^4$	$(8,4,3)^4$	$(8,5,2)^4$	$(8,6,1)^4$	$(8,7,0)^4$	$(8,8,11)^4$	$(8,9,10)^4$	$(8,10,9)^4$	$(8,11,8)^4$
6	$(9,0,6)^4$	$(9,1,5)^4$	$(9,2,4)^4$	$(9,3,3)^4$	$(9,4,2)^4$	$(9,5,1)^4$	$(9,6,0)^4$	$(9,7,11)^4$	$(9,8,10)^4$	$(9,9,9)^4$	$(9,10,8)^4$	$(9,11,7)^4$
7m	$(10,0,5)^4$	$(10,1,4)^4$	$(10,2,3)^4$	$(10,3,2)^4$	$(10,4,1)^4$	$(10,5,0)^4$	$(10,6,11)^4$	$(10,7,10)^4$	$(10,8,9)^4$	$(10,9,8)^4$	$(10,10,7)^4$	$(10,11,6)^4$
7M	$(11,0,4)^4$	$(11,1,3)^4$	$(11,2,2)^4$	$(11,3,1)^4$	$(11,4,0)^4$	$(11,5,11)^4$	$(11,6,10)^4$	$(11,7,9)^4$	$(11,8,8)^4$	$(11,9,7)^4$	$(11,10,6)^4$	$(11,11,5)^4$

Table 4: Global displacement class $S = 3$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,4)^3$	$(0,1,3)^3$	$(0,2,2)^3$	$(0,3,1)^3$	$(0,4,0)^3$	$(0,5,11)^3$	$(0,6,10)^3$	$(0,7,9)^3$	$(0,8,8)^3$	$(0,9,7)^3$	$(0,10,6)^3$	$(0,11,5)^3$
2m	$(1,0,3)^3$	$(1,1,2)^3$	$(1,2,1)^3$	$(1,3,0)^3$	$(1,4,11)^3$	$(1,5,10)^3$	$(1,6,9)^3$	$(1,7,8)^3$	$(1,8,7)^3$	$(1,9,6)^3$	$(1,10,5)^3$	$(1,11,4)^3$
2M	$(2,0,2)^3$	$(2,1,1)^3$	$(2,2,0)^3$	$(2,3,11)^3$	$(2,4,10)^3$	$(2,5,9)^3$	$(2,6,8)^3$	$(2,7,7)^3$	$(2,8,6)^3$	$(2,9,5)^3$	$(2,10,4)^3$	$(2,11,3)^3$
3m	$(3,0,1)^3$	$(3,1,0)^3$	$(3,2,11)^3$	$(3,3,10)^3$	$(3,4,9)^3$	$(3,5,8)^3$	$(3,6,7)^3$	$(3,7,6)^3$	$(3,8,5)^3$	$(3,9,4)^3$	$(3,10,3)^3$	$(3,11,2)^3$
3M	$(4,0,0)^3$	$(4,1,11)^3$	$(4,2,10)^3$	$(4,3,9)^3$	$(4,4,8)^3$	$(4,5,7)^3$	$(4,6,6)^3$	$(4,7,5)^3$	$(4,8,4)^3$	$(4,9,3)^3$	$(4,10,2)^3$	$(4,11,1)^3$
4	$(5,0,11)^3$	$(5,1,10)^3$	$(5,2,9)^3$	$(5,3,8)^3$	$(5,4,7)^3$	$(5,5,6)^3$	$(5,6,5)^3$	$(5,7,4)^3$	$(5,8,3)^3$	$(5,9,2)^3$	$(5,10,1)^3$	$(5,11,0)^3$
5b	$(6,0,10)^3$	$(6,1,9)^3$	$(6,2,8)^3$	$(6,3,7)^3$	$(6,4,6)^3$	$(6,5,5)^3$	$(6,6,4)^3$	$(6,7,3)^3$	$(6,8,2)^3$	$(6,9,1)^3$	$(6,10,0)^3$	$(6,11,11)^3$
5	$(7,0,9)^3$	$(7,1,8)^3$	$(7,2,7)^3$	$(7,3,6)^3$	$(7,4,5)^3$	$(7,5,4)^3$	$(7,6,3)^3$	$(7,7,2)^3$	$(7,8,1)^3$	$(7,9,0)^3$	$(7,10,11)^3$	$(7,11,10)^3$
5#	$(8,0,8)^3$	$(8,1,7)^3$	$(8,2,6)^3$	$(8,3,5)^3$	$(8,4,4)^3$	$(8,5,3)^3$	$(8,6,2)^3$	$(8,7,1)^3$	$(8,8,0)^3$	$(8,9,11)^3$	$(8,10,10)^3$	$(8,11,9)^3$
6	$(9,0,7)^3$	$(9,1,6)^3$	$(9,2,5)^3$	$(9,3,4)^3$	$(9,4,3)^3$	$(9,5,2)^3$	$(9,6,1)^3$	$(9,7,0)^3$	$(9,8,11)^3$	$(9,9,10)^3$	$(9,10,9)^3$	$(9,11,8)^3$
7m	$(10,0,6)^3$	$(10,1,5)^3$	$(10,2,4)^3$	$(10,3,3)^3$	$(10,4,2)^3$	$(10,5,1)^3$	$(10,6,0)^3$	$(10,7,11)^3$	$(10,8,10)^3$	$(10,9,9)^3$	$(10,10,8)^3$	$(10,11,7)^3$
7M	$(11,0,5)^3$	$(11,1,4)^3$	$(11,2,3)^3$	$(11,3,2)^3$	$(11,4,1)^3$	$(11,5,0)^3$	$(11,6,11)^3$	$(11,7,10)^3$	$(11,8,9)^3$	$(11,9,8)^3$	$(11,10,7)^3$	$(11,11,6)^3$

Table 5: Global displacement class $S = 4$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,5)^{12}$	$(0,1,4)^{12}$	$(0,2,3)^{12}$	$(0,3,2)^{12}$	$(0,4,1)^{12}$	$(0,5,0)^{12}$	$(0,6,11)^{12}$	$(0,7,10)^{12}$	$(0,8,9)^{12}$	$(0,9,8)^{12}$	$(0,10,7)^{12}$	$(0,11,6)^{12}$
2m	$(1,0,4)^{12}$	$(1,1,3)^{12}$	$(1,2,2)^{12}$	$(1,3,1)^{12}$	$(1,4,0)^{12}$	$(1,5,11)^{12}$	$(1,6,10)^{12}$	$(1,7,9)^{12}$	$(1,8,8)^{12}$	$(1,9,7)^{12}$	$(1,10,6)^{12}$	$(1,11,5)^{12}$
2M	$(2,0,3)^{12}$	$(2,1,2)^{12}$	$(2,2,1)^{12}$	$(2,3,0)^{12}$	$(2,4,11)^{12}$	$(2,5,10)^{12}$	$(2,6,9)^{12}$	$(2,7,8)^{12}$	$(2,8,7)^{12}$	$(2,9,6)^{12}$	$(2,10,5)^{12}$	$(2,11,4)^{12}$
3m	$(3,0,2)^{12}$	$(3,1,1)^{12}$	$(3,2,0)^{12}$	$(3,3,11)^{12}$	$(3,4,10)^{12}$	$(3,5,9)^{12}$	$(3,6,8)^{12}$	$(3,7,7)^{12}$	$(3,8,6)^{12}$	$(3,9,5)^{12}$	$(3,10,4)^{12}$	$(3,11,3)^{12}$
3M	$(4,0,1)^{12}$	$(4,1,0)^{12}$	$(4,2,11)^{12}$	$(4,3,10)^{12}$	$(4,4,9)^{12}$	$(4,5,8)^{12}$	$(4,6,7)^{12}$	$(4,7,6)^{12}$	$(4,8,5)^{12}$	$(4,9,4)^{12}$	$(4,10,3)^{12}$	$(4,11,2)^{12}$
4	$(5,0,0)^{12}$	$(5,1,11)^{12}$	$(5,2,10)^{12}$	$(5,3,9)^{12}$	$(5,4,8)^{12}$	$(5,5,7)^{12}$	$(5,6,6)^{12}$	$(5,7,5)^{12}$	$(5,8,4)^{12}$	$(5,9,3)^{12}$	$(5,10,2)^{12}$	$(5,11,1)^{12}$
5b	$(6,0,11)^{12}$	$(6,1,10)^{12}$	$(6,2,9)^{12}$	$(6,3,8)^{12}$	$(6,4,7)^{12}$	$(6,5,6)^{12}$	$(6,6,5)^{12}$	$(6,7,4)^{12}$	$(6,8,3)^{12}$	$(6,9,2)^{12}$	$(6,10,1)^{12}$	$(6,11,0)^{12}$
5	$(7,0,10)^{12}$	$(7,1,9)^{12}$	$(7,2,8)^{12}$	$(7,3,7)^{12}$	$(7,4,6)^{12}$	$(7,5,5)^{12}$	$(7,6,4)^{12}$	$(7,7,3)^{12}$	$(7,8,2)^{12}$	$(7,9,1)^{12}$	$(7,10,0)^{12}$	$(7,11,11)^{12}$
5#	$(8,0,9)^{12}$	$(8,1,8)^{12}$	$(8,2,7)^{12}$	$(8,3,6)^{12}$	$(8,4,5)^{12}$	$(8,5,4)^{12}$	$(8,6,3)^{12}$	$(8,7,2)^{12}$	$(8,8,1)^{12}$	$(8,9,0)^{12}$	$(8,10,11)^{12}$	$(8,11,10)^{12}$
6	$(9,0,8)^{12}$	$(9,1,7)^{12}$	$(9,2,6)^{12}$	$(9,3,5)^{12}$	$(9,4,4)^{12}$	$(9,5,3)^{12}$	$(9,6,2)^{12}$	$(9,7,1)^{12}$	$(9,8,0)^{12}$	$(9,9,11)^{12}$	$(9,10,10)^{12}$	$(9,11,9)^{12}$
7m	$(10,0,7)^{12}$	$(10,1,6)^{12}$	$(10,2,5)^{12}$	$(10,3,4)^{12}$	$(10,4,3)^{12}$	$(10,5,2)^{12}$	$(10,6,1)^{12}$	$(10,7,0)^{12}$	$(10,8,11)^{12}$	$(10,9,10)^{12}$	$(10,10,9)^{12}$	$(10,11,8)^{12}$
7M	$(11,0,6)^{12}$	$(11,1,5)^{12}$	$(11,2,4)^{12}$	$(11,3,3)^{12}$	$(11,4,2)^{12}$	$(11,5,1)^{12}$	$(11,6,0)^{12}$	$(11,7,11)^{12}$	$(11,8,10)^{12}$	$(11,9,9)^{12}$	$(11,10,8)^{12}$	$(11,11,7)^{12}$

Table 6: Global displacement class $S = 5$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,6)^2$	$(0,1,5)^2$	$(0,2,4)^2$	$(0,3,3)^2$	$(0,4,2)^2$	$(0,5,1)^2$	$(0,6,0)^2$	$(0,7,11)^2$	$(0,8,10)^2$	$(0,9,9)^2$	$(0,10,8)^2$	$(0,11,7)^2$
2m	$(1,0,5)^2$	$(1,1,4)^2$	$(1,2,3)^2$	$(1,3,2)^2$	$(1,4,1)^2$	$(1,5,0)^2$	$(1,6,11)^2$	$(1,7,10)^2$	$(1,8,9)^2$	$(1,9,8)^2$	$(1,10,7)^2$	$(1,11,6)^2$
2M	$(2,0,4)^2$	$(2,1,3)^2$	$(2,2,2)^2$	$(2,3,1)^2$	$(2,4,0)^2$	$(2,5,11)^2$	$(2,6,10)^2$	$(2,7,9)^2$	$(2,8,8)^2$	$(2,9,7)^2$	$(2,10,6)^2$	$(2,11,5)^2$
3m	$(3,0,3)^2$	$(3,1,2)^2$	$(3,2,1)^2$	$(3,3,0)^2$	$(3,4,11)^2$	$(3,5,10)^2$	$(3,6,9)^2$	$(3,7,8)^2$	$(3,8,7)^2$	$(3,9,6)^2$	$(3,10,5)^2$	$(3,11,4)^2$
3M	$(4,0,2)^2$	$(4,1,1)^2$	$(4,2,0)^2$	$(4,3,11)^2$	$(4,4,10)^2$	$(4,5,9)^2$	$(4,6,8)^2$	$(4,7,7)^2$	$(4,8,6)^2$	$(4,9,5)^2$	$(4,10,4)^2$	$(4,11,3)^2$
4	$(5,0,1)^2$	$(5,1,0)^2$	$(5,2,11)^2$	$(5,3,10)^2$	$(5,4,9)^2$	$(5,5,8)^2$	$(5,6,7)^2$	$(5,7,6)^2$	$(5,8,5)^2$	$(5,9,4)^2$	$(5,10,3)^2$	$(5,11,2)^2$
5b	$(6,0,0)^2$	$(6,1,11)^2$	$(6,2,10)^2$	$(6,3,9)^2$	$(6,4,8)^2$	$(6,5,7)^2$	$(6,6,6)^2$	$(6,7,5)^2$	$(6,8,4)^2$	$(6,9,3)^2$	$(6,10,2)^2$	$(6,11,1)^2$
5	$(7,0,11)^2$	$(7,1,10)^2$	$(7,2,9)^2$	$(7,3,8)^2$	$(7,4,7)^2$	$(7,5,6)^2$	$(7,6,5)^2$	$(7,7,4)^2$	$(7,8,3)^2$	$(7,9,2)^2$	$(7,10,1)^2$	$(7,11,0)^2$
5#	$(8,0,10)^2$	$(8,1,9)^2$	$(8,2,8)^2$	$(8,3,7)^2$	$(8,4,6)^2$	$(8,5,5)^2$	$(8,6,4)^2$	$(8,7,3)^2$	$(8,8,2)^2$	$(8,9,1)^2$	$(8,10,0)^2$	$(8,11,11)^2$
6	$(9,0,9)^2$	$(9,1,8)^2$	$(9,2,7)^2$	$(9,3,6)^2$	$(9,4,5)^2$	$(9,5,4)^2$	$(9,6,3)^2$	$(9,7,2)^2$	$(9,8,1)^2$	$(9,9,0)^2$	$(9,10,11)^2$	$(9,11,10)^2$
7m	$(10,0,8)^2$	$(10,1,7)^2$	$(10,2,6)^2$	$(10,3,5)^2$	$(10,4,4)^2$	$(10,5,3)^2$	$(10,6,2)^2$	$(10,7,1)^2$	$(10,8,0)^2$	$(10,9,11)^2$	$(10,10,10)^2$	$(10,11,9)^2$
7M	$(11,0,7)^2$	$(11,1,6)^2$	$(11,2,5)^2$	$(11,3,4)^2$	$(11,4,3)^2$	$(11,5,2)^2$	$(11,6,1)^2$	$(11,7,0)^2$	$(11,8,11)^2$	$(11,9,10)^2$	$(11,10,9)^2$	$(11,11,8)^2$

Table 7: Global displacement class $S = 6$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,7)^{12}$	$(0,1,6)^{12}$	$(0,2,5)^{12}$	$(0,3,4)^{12}$	$(0,4,3)^{12}$	$(0,5,2)^{12}$	$(0,6,1)^{12}$	$(0,7,0)^{12}$	$(0,8,11)^{12}$	$(0,9,10)^{12}$	$(0,10,9)^{12}$	$(0,11,8)^{12}$
2m	$(1,0,6)^{12}$	$(1,1,5)^{12}$	$(1,2,4)^{12}$	$(1,3,3)^{12}$	$(1,4,2)^{12}$	$(1,5,1)^{12}$	$(1,6,0)^{12}$	$(1,7,11)^{12}$	$(1,8,10)^{12}$	$(1,9,9)^{12}$	$(1,10,8)^{12}$	$(1,11,7)^{12}$
2M	$(2,0,5)^{12}$	$(2,1,4)^{12}$	$(2,2,3)^{12}$	$(2,3,2)^{12}$	$(2,4,1)^{12}$	$(2,5,0)^{12}$	$(2,6,11)^{12}$	$(2,7,10)^{12}$	$(2,8,9)^{12}$	$(2,9,8)^{12}$	$(2,10,7)^{12}$	$(2,11,6)^{12}$
3m	$(3,0,4)^{12}$	$(3,1,3)^{12}$	$(3,2,2)^{12}$	$(3,3,1)^{12}$	$(3,4,0)^{12}$	$(3,5,11)^{12}$	$(3,6,10)^{12}$	$(3,7,9)^{12}$	$(3,8,8)^{12}$	$(3,9,7)^{12}$	$(3,10,6)^{12}$	$(3,11,5)^{12}$
3M	$(4,0,3)^{12}$	$(4,1,2)^{12}$	$(4,2,1)^{12}$	$(4,3,0)^{12}$	$(4,4,11)^{12}$	$(4,5,10)^{12}$	$(4,6,9)^{12}$	$(4,7,8)^{12}$	$(4,8,7)^{12}$	$(4,9,6)^{12}$	$(4,10,5)^{12}$	$(4,11,4)^{12}$
4	$(5,0,2)^{12}$	$(5,1,1)^{12}$	$(5,2,0)^{12}$	$(5,3,11)^{12}$	$(5,4,10)^{12}$	$(5,5,9)^{12}$	$(5,6,8)^{12}$	$(5,7,7)^{12}$	$(5,8,6)^{12}$	$(5,9,5)^{12}$	$(5,10,4)^{12}$	$(5,11,3)^{12}$
5b	$(6,0,1)^{12}$	$(6,1,0)^{12}$	$(6,2,11)^{12}$	$(6,3,10)^{12}$	$(6,4,9)^{12}$	$(6,5,8)^{12}$	$(6,6,7)^{12}$	$(6,7,6)^{12}$	$(6,8,5)^{12}$	$(6,9,4)^{12}$	$(6,10,3)^{12}$	$(6,11,2)^{12}$
5	$(7,0,0)^{12}$	$(7,1,11)^{12}$	$(7,2,10)^{12}$	$(7,3,9)^{12}$	$(7,4,8)^{12}$	$(7,5,7)^{12}$	$(7,6,6)^{12}$	$(7,7,5)^{12}$	$(7,8,4)^{12}$	$(7,9,3)^{12}$	$(7,10,2)^{12}$	$(7,11,1)^{12}$
5#	$(8,0,11)^{12}$	$(8,1,10)^{12}$	$(8,2,9)^{12}$	$(8,3,8)^{12}$	$(8,4,7)^{12}$	$(8,5,6)^{12}$	$(8,6,5)^{12}$	$(8,7,4)^{12}$	$(8,8,3)^{12}$	$(8,9,2)^{12}$	$(8,10,1)^{12}$	$(8,11,0)^{12}$
6	$(9,0,10)^{12}$	$(9,1,9)^{12}$	$(9,2,8)^{12}$	$(9,3,7)^{12}$	$(9,4,6)^{12}$	$(9,5,5)^{12}$	$(9,6,4)^{12}$	$(9,7,3)^{12}$	$(9,8,2)^{12}$	$(9,9,1)^{12}$	$(9,10,0)^{12}$	$(9,11,11)^{12}$
7m	$(10,0,9)^{12}$	$(10,1,8)^{12}$	$(10,2,7)^{12}$	$(10,3,6)^{12}$	$(10,4,5)^{12}$	$(10,5,4)^{12}$	$(10,6,3)^{12}$	$(10,7,2)^{12}$	$(10,8,1)^{12}$	$(10,9,0)^{12}$	$(10,10,11)^{12}$	$(10,11,10)^{12}$
7M	$(11,0,8)^{12}$	$(11,1,7)^{12}$	$(11,2,6)^{12}$	$(11,3,5)^{12}$	$(11,4,4)^{12}$	$(11,5,3)^{12}$	$(11,6,2)^{12}$	$(11,7,1)^{12}$	$(11,8,0)^{12}$	$(11,9,11)^{12}$	$(11,10,10)^{12}$	$(11,11,9)^{12}$

Table 8: Global displacement class $S = 7$.

Global class $S = 2$: 2M

Global class $S = 3$: 3m

Global class $S = 4$: 3M

Global class $S = 5$: 4

Global class $S = 6$: 5b

Global class $S = 7$: 5

Global class $S = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,8)^3$	$(0,1,7)^3$	$(0,2,6)^3$	$(0,3,5)^3$	$(0,4,4)^3$	$(0,5,3)^3$	$(0,6,2)^3$	$(0,7,1)^3$	$(0,8,0)^3$	$(0,9,11)^3$	$(0,10,10)^3$	$(0,11,9)^3$
2m	$(1,0,7)^3$	$(1,1,6)^3$	$(1,2,5)^3$	$(1,3,4)^3$	$(1,4,3)^3$	$(1,5,2)^3$	$(1,6,1)^3$	$(1,7,0)^3$	$(1,8,11)^3$	$(1,9,10)^3$	$(1,10,9)^3$	$(1,11,8)^3$
2M	$(2,0,6)^3$	$(2,1,5)^3$	$(2,2,4)^3$	$(2,3,3)^3$	$(2,4,2)^3$	$(2,5,1)^3$	$(2,6,0)^3$	$(2,7,11)^3$	$(2,8,10)^3$	$(2,9,9)^3$	$(2,10,8)^3$	$(2,11,7)^3$
3m	$(3,0,5)^3$	$(3,1,4)^3$	$(3,2,3)^3$	$(3,3,2)^3$	$(3,4,1)^3$	$(3,5,0)^3$	$(3,6,11)^3$	$(3,7,10)^3$	$(3,8,9)^3$	$(3,9,8)^3$	$(3,10,7)^3$	$(3,11,6)^3$
3M	$(4,0,4)^3$	$(4,1,3)^3$	$(4,2,2)^3$	$(4,3,1)^3$	$(4,4,0)^3$	$(4,5,11)^3$	$(4,6,10)^3$	$(4,7,9)^3$	$(4,8,8)^3$	$(4,9,7)^3$	$(4,10,6)^3$	$(4,11,5)^3$
4	$(5,0,3)^3$	$(5,1,2)^3$	$(5,2,1)^3$	$(5,3,0)^3$	$(5,4,11)^3$	$(5,5,10)^3$	$(5,6,9)^3$	$(5,7,8)^3$	$(5,8,7)^3$	$(5,9,6)^3$	$(5,10,5)^3$	$(5,11,4)^3$
5b	$(6,0,2)^3$	$(6,1,1)^3$	$(6,2,0)^3$	$(6,3,11)^3$	$(6,4,10)^3$	$(6,5,9)^3$	$(6,6,8)^3$	$(6,7,7)^3$	$(6,8,6)^3$	$(6,9,5)^3$	$(6,10,4)^3$	$(6,11,3)^3$
5	$(7,0,1)^3$	$(7,1,0)^3$	$(7,2,11)^3$	$(7,3,10)^3$	$(7,4,9)^3$	$(7,5,8)^3$	$(7,6,7)^3$	$(7,7,6)^3$	$(7,8,5)^3$	$(7,9,4)^3$	$(7,10,3)^3$	$(7,11,2)^3$
5#	$(8,0,0)^3$	$(8,1,11)^3$	$(8,2,10)^3$	$(8,3,9)^3$	$(8,4,8)^3$	$(8,5,7)^3$	$(8,6,6)^3$	$(8,7,5)^3$	$(8,8,4)^3$	$(8,9,3)^3$	$(8,10,2)^3$	$(8,11,1)^3$
6	$(9,0,11)^3$	$(9,1,10)^3$	$(9,2,9)^3$	$(9,3,8)^3$	$(9,4,7)^3$	$(9,5,6)^3$	$(9,6,5)^3$	$(9,7,4)^3$	$(9,8,3)^3$	$(9,9,2)^3$	$(9,10,1)^3$	$(9,11,0)^3$
7m	$(10,0,10)^3$	$(10,1,9)^3$	$(10,2,8)^3$	$(10,3,7)^3$	$(10,4,6)^3$	$(10,5,5)^3$	$(10,6,4)^3$	$(10,7,3)^3$	$(10,8,2)^3$	$(10,9,1)^3$	$(10,10,0)^3$	$(10,11,11)^3$
7M	$(11,0,9)^3$	$(11,1,8)^3$	$(11,2,7)^3$	$(11,3,6)^3$	$(11,4,5)^3$	$(11,5,4)^3$	$(11,6,3)^3$	$(11,7,2)^3$	$(11,8,1)^3$	$(11,9,0)^3$	$(11,10,11)^3$	$(11,11,10)^3$

Table 9: Global displacement class $S = 8$.

Global class $S = 9$: **6**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,9)^4$	$(0,1,8)^4$	$(0,2,7)^4$	$(0,3,6)^4$	$(0,4,5)^4$	$(0,5,4)^4$	$(0,6,3)^4$	$(0,7,2)^4$	$(0,8,1)^4$	$(0,9,0)^4$	$(0,10,11)^4$	$(0,11,10)^4$
2m	$(1,0,8)^4$	$(1,1,7)^4$	$(1,2,6)^4$	$(1,3,5)^4$	$(1,4,4)^4$	$(1,5,3)^4$	$(1,6,2)^4$	$(1,7,1)^4$	$(1,8,0)^4$	$(1,9,11)^4$	$(1,10,10)^4$	$(1,11,9)^4$
2M	$(2,0,7)^4$	$(2,1,6)^4$	$(2,2,5)^4$	$(2,3,4)^4$	$(2,4,3)^4$	$(2,5,2)^4$	$(2,6,1)^4$	$(2,7,0)^4$	$(2,8,11)^4$	$(2,9,10)^4$	$(2,10,9)^4$	$(2,11,8)^4$
3m	$(3,0,6)^4$	$(3,1,5)^4$	$(3,2,4)^4$	$(3,3,3)^4$	$(3,4,2)^4$	$(3,5,1)^4$	$(3,6,0)^4$	$(3,7,11)^4$	$(3,8,10)^4$	$(3,9,9)^4$	$(3,10,8)^4$	$(3,11,7)^4$
3M	$(4,0,5)^4$	$(4,1,4)^4$	$(4,2,3)^4$	$(4,3,2)^4$	$(4,4,1)^4$	$(4,5,0)^4$	$(4,6,11)^4$	$(4,7,10)^4$	$(4,8,9)^4$	$(4,9,8)^4$	$(4,10,7)^4$	$(4,11,6)^4$
4	$(5,0,4)^4$	$(5,1,3)^4$	$(5,2,2)^4$	$(5,3,1)^4$	$(5,4,0)^4$	$(5,5,11)^4$	$(5,6,10)^4$	$(5,7,9)^4$	$(5,8,8)^4$	$(5,9,7)^4$	$(5,10,6)^4$	$(5,11,5)^4$
5b	$(6,0,3)^4$	$(6,1,2)^4$	$(6,2,1)^4$	$(6,3,0)^4$	$(6,4,11)^4$	$(6,5,10)^4$	$(6,6,9)^4$	$(6,7,8)^4$	$(6,8,7)^4$	$(6,9,6)^4$	$(6,10,5)^4$	$(6,11,4)^4$
5	$(7,0,2)^4$	$(7,1,1)^4$	$(7,2,0)^4$	$(7,3,11)^4$	$(7,4,10)^4$	$(7,5,9)^4$	$(7,6,8)^4$	$(7,7,7)^4$	$(7,8,6)^4$	$(7,9,5)^4$	$(7,10,4)^4$	$(7,11,3)^4$
5#	$(8,0,1)^4$	$(8,1,0)^4$	$(8,2,11)^4$	$(8,3,10)^4$	$(8,4,9)^4$	$(8,5,8)^4$	$(8,6,7)^4$	$(8,7,6)^4$	$(8,8,5)^4$	$(8,9,4)^4$	$(8,10,3)^4$	$(8,11,2)^4$
6	$(9,0,0)^4$	$(9,1,11)^4$	$(9,2,10)^4$	$(9,3,9)^4$	$(9,4,8)^4$	$(9,5,7)^4$	$(9,6,6)^4$	$(9,7,5)^4$	$(9,8,4)^4$	$(9,9,3)^4$	$(9,10,2)^4$	$(9,11,1)^4$
7m	$(10,0,11)^4$	$(10,1,10)^4$	$(10,2,9)^4$	$(10,3,8)^4$	$(10,4,7)^4$	$(10,5,6)^4$	$(10,6,5)^4$	$(10,7,4)^4$	$(10,8,3)^4$	$(10,9,2)^4$	$(10,10,1)^4$	$(10,11,0)^4$
7M	$(11,0,10)^4$	$(11,1,9)^4$	$(11,2,8)^4$	$(11,3,7)^4$	$(11,4,6)^4$	$(11,5,5)^4$	$(11,6,4)^4$	$(11,7,3)^4$	$(11,8,2)^4$	$(11,9,1)^4$	$(11,10,0)^4$	$(11,11,11)^4$

Table 10: Global displacement class $S = 9$.

Global class $S = 10$: **7m**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,10)^6$	$(0,1,9)^6$	$(0,2,8)^6$	$(0,3,7)^6$	$(0,4,6)^6$	$(0,5,5)^6$	$(0,6,4)^6$	$(0,7,3)^6$	$(0,8,2)^6$	$(0,9,1)^6$	$(0,10,0)^6$	$(0,11,11)^6$
2m	$(1,0,9)^6$	$(1,1,8)^6$	$(1,2,7)^6$	$(1,3,6)^6$	$(1,4,5)^6$	$(1,5,4)^6$	$(1,6,3)^6$	$(1,7,2)^6$	$(1,8,1)^6$	$(1,9,0)^6$	$(1,10,11)^6$	$(1,11,10)^6$
2M	$(2,0,8)^6$	$(2,1,7)^6$	$(2,2,6)^6$	$(2,3,5)^6$	$(2,4,4)^6$	$(2,5,3)^6$	$(2,6,2)^6$	$(2,7,1)^6$	$(2,8,0)^6$	$(2,9,11)^6$	$(2,10,10)^6$	$(2,11,9)^6$
3m	$(3,0,7)^6$	$(3,1,6)^6$	$(3,2,5)^6$	$(3,3,4)^6$	$(3,4,3)^6$	$(3,5,2)^6$	$(3,6,1)^6$	$(3,7,0)^6$	$(3,8,11)^6$	$(3,9,10)^6$	$(3,10,9)^6$	$(3,11,8)^6$
3M	$(4,0,6)^6$	$(4,1,5)^6$	$(4,2,4)^6$	$(4,3,3)^6$	$(4,4,2)^6$	$(4,5,1)^6$	$(4,6,0)^6$	$(4,7,11)^6$	$(4,8,10)^6$	$(4,9,9)^6$	$(4,10,8)^6$	$(4,11,7)^6$
4	$(5,0,5)^6$	$(5,1,4)^6$	$(5,2,3)^6$	$(5,3,2)^6$	$(5,4,1)^6$	$(5,5,0)^6$	$(5,6,11)^6$	$(5,7,10)^6$	$(5,8,9)^6$	$(5,9,8)^6$	$(5,10,7)^6$	$(5,11,6)^6$
5b	$(6,0,4)^6$	$(6,1,3)^6$	$(6,2,2)^6$	$(6,3,1)^6$	$(6,4,0)^6$	$(6,5,11)^6$	$(6,6,10)^6$	$(6,7,9)^6$	$(6,8,8)^6$	$(6,9,7)^6$	$(6,10,6)^6$	$(6,11,5)^6$
5	$(7,0,3)^6$	$(7,1,2)^6$	$(7,2,1)^6$	$(7,3,0)^6$	$(7,4,11)^6$	$(7,5,10)^6$	$(7,6,9)^6$	$(7,7,8)^6$	$(7,8,7)^6$	$(7,9,6)^6$	$(7,10,5)^6$	$(7,11,4)^6$
5#	$(8,0,2)^6$	$(8,1,1)^6$	$(8,2,0)^6$	$(8,3,11)^6$	$(8,4,10)^6$	$(8,5,9)^6$	$(8,6,8)^6$	$(8,7,7)^6$	$(8,8,6)^6$	$(8,9,5)^6$	$(8,10,4)^6$	$(8,11,3)^6$
6	$(9,0,1)^6$	$(9,1,0)^6$	$(9,2,11)^6$	$(9,3,10)^6$	$(9,4,9)^6$	$(9,5,8)^6$	$(9,6,7)^6$	$(9,7,6)^6$	$(9,8,5)^6$	$(9,9,4)^6$	$(9,10,3)^6$	$(9,11,2)^6$
7m	$(10,0,0)^6$	$(10,1,11)^6$	$(10,2,10)^6$	$(10,3,9)^6$	$(10,4,8)^6$	$(10,5,7)^6$	$(10,6,6)^6$	$(10,7,5)^6$	$(10,8,4)^6$	$(10,9,3)^6$	$(10,10,2)^6$	$(10,11,1)^6$
7M	$(11,0,11)^6$	$(11,1,10)^6$	$(11,2,9)^6$	$(11,3,8)^6$	$(11,4,7)^6$	$(11,5,6)^6$	$(11,6,5)^6$	$(11,7,4)^6$	$(11,8,3)^6$	$(11,9,2)^6$	$(11,10,1)^6$	$(11,11,0)^6$

Table 11: Global displacement class $S = 10$.

Global class $S = 11$: **7M**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,11)^{12}$	$(0,1,10)^{12}$	$(0,2,9)^{12}$	$(0,3,8)^{12}$	$(0,4,7)^{12}$	$(0,5,6)^{12}$	$(0,6,5)^{12}$	$(0,7,4)^{12}$	$(0,8,3)^{12}$	$(0,9,2)^{12}$	$(0,10,1)^{12}$	$(0,11,0)^{12}$
2m	$(1,0,10)^{12}$	$(1,1,9)^{12}$	$(1,2,8)^{12}$	$(1,3,7)^{12}$	$(1,4,6)^{12}$	$(1,5,5)^{12}$	$(1,6,4)^{12}$	$(1,7,3)^{12}$	$(1,8,2)^{12}$	$(1,9,1)^{12}$	$(1,10,0)^{12}$	$(1,11,11)^{12}$
2M	$(2,0,9)^{12}$	$(2,1,8)^{12}$	$(2,2,7)^{12}$	$(2,3,6)^{12}$	$(2,4,5)^{12}$	$(2,5,4)^{12}$	$(2,6,3)^{12}$	$(2,7,2)^{12}$	$(2,8,1)^{12}$	$(2,9,0)^{12}$	$(2,10,11)^{12}$	$(2,11,10)^{12}$
3m	$(3,0,8)^{12}$	$(3,1,7)^{12}$	$(3,2,6)^{12}$	$(3,3,5)^{12}$	$(3,4,4)^{12}$	$(3,5,3)^{12}$	$(3,6,2)^{12}$	$(3,7,1)^{12}$	$(3,8,0)^{12}$	$(3,9,11)^{12}$	$(3,10,10)^{12}$	$(3,11,9)^{12}$
3M	$(4,0,7)^{12}$	$(4,1,6)^{12}$	$(4,2,5)^{12}$	$(4,3,4)^{12}$	$(4,4,3)^{12}$	$(4,5,2)^{12}$	$(4,6,1)^{12}$	$(4,7,0)^{12}$	$(4,8,11)^{12}$	$(4,9,10)^{12}$	$(4,10,9)^{12}$	$(4,11,8)^{12}$
4	$(5,0,6)^{12}$	$(5,1,5)^{12}$	$(5,2,4)^{12}$	$(5,3,3)^{12}$	$(5,4,2)^{12}$	$(5,5,1)^{12}$	$(5,6,0)^{12}$	$(5,7,11)^{12}$	$(5,8,10)^{12}$	$(5,9,9)^{12}$	$(5,10,8)^{12}$	$(5,11,7)^{12}$
5b	$(6,0,5)^{12}$	$(6,1,4)^{12}$	$(6,2,3)^{12}$	$(6,3,2)^{12}$	$(6,4,1)^{12}$	$(6,5,0)^{12}$	$(6,6,11)^{12}$	$(6,7,10)^{12}$	$(6,8,9)^{12}$	$(6,9,8)^{12}$	$(6,10,7)^{12}$	$(6,11,6)^{12}$
5	$(7,0,4)^{12}$	$(7,1,3)^{12}$	$(7,2,2)^{12}$	$(7,3,1)^{12}$	$(7,4,0)^{12}$	$(7,5,11)^{12}$	$(7,6,10)^{12}$	$(7,7,9)^{12}$	$(7,8,8)^{12}$	$(7,9,7)^{12}$	$(7,10,6)^{12}$	$(7,11,5)^{12}$
5#	$(8,0,3)^{12}$	$(8,1,2)^{12}$	$(8,2,1)^{12}$	$(8,3,0)^{12}$	$(8,4,11)^{12}$	$(8,5,10)^{12}$	$(8,6,9)^{12}$	$(8,7,8)^{12}$	$(8,8,7)^{12}$	$(8,9,6)^{12}$	$(8,10,5)^{12}$	$(8,11,4)^{12}$
6	$(9,0,2)^{12}$	$(9,1,1)^{12}$	$(9,2,0)^{12}$	$(9,3,11)^{12}$	$(9,4,10)^{12}$	$(9,5,9)^{12}$	$(9,6,8)^{12}$	$(9,7,7)^{12}$	$(9,8,6)^{12}$	$(9,9,5)^{12}$	$(9,10,4)^{12}$	$(9,11,3)^{12}$
7m	$(10,0,1)^{12}$	$(10,1,0)^{12}$	$(10,2,11)^{12}$	$(10,3,10)^{12}$	$(10,4,9)^{12}$	$(10,5,8)^{12}$	$(10,6,7)^{12}$	$(10,7,6)^{12}$	$(10,8,5)^{12}$	$(10,9,4)^{12}$	$(10,10,3)^{12}$	$(10,11,2)^{12}$
7M	$(11,0,0)^{12}$	$(11,1,11)^{12}$	$(11,2,10)^{12}$	$(11,3,9)^{12}$	$(11,4,8)^{12}$	$(11,5,7)^{12}$	$(11,6,6)^{12}$	$(11,7,5)^{12}$	$(11,8,4)^{12}$	$(11,9,3)^{12}$	$(11,10,2)^{12}$	$(11,11,1)^{12}$

Table 12: Global displacement class $S = 11$.

Palindromic Operator Matrix

This matrix isolates operators of the form:

$$(I, J, I)^N.$$

The first and third components coincide, producing a locally symmetric interval profile around the central component J.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(0,1,0)^{12}$	$(0,2,0)^{6}$	$(0,3,0)^{4}$	$(0,4,0)^{3}$	$(0,5,0)^{12}$	$(0,6,0)^{2}$	$(0,7,0)^{12}$	$(0,8,0)^{3}$	$(0,9,0)^{4}$	$(0,10,0)^{6}$	$(0,11,0)^{12}$
2m	$(1,0,1)^{6}$	$(1,1,1)^{4}$	$(1,2,1)^{3}$	$(1,3,1)^{12}$	$(1,4,1)^{2}$	$(1,5,1)^{12}$	$(1,6,1)^{3}$	$(1,7,1)^{4}$	$(1,8,1)^{6}$	$(1,9,1)^{12}$	$(1,10,1)^{1}$	$(1,11,1)^{12}$
2M	$(2,0,2)^{3}$	$(2,1,2)^{12}$	$(2,2,2)^{2}$	$(2,3,2)^{12}$	$(2,4,2)^{3}$	$(2,5,2)^{4}$	$(2,6,2)^{6}$	$(2,7,2)^{12}$	$(2,8,2)^{1}$	$(2,9,2)^{12}$	$(2,10,2)^{6}$	$(2,11,2)^{4}$
3m	$(3,0,3)^{2}$	$(3,1,3)^{12}$	$(3,2,3)^{3}$	$(3,3,3)^{4}$	$(3,4,3)^{6}$	$(3,5,3)^{12}$	$(3,6,3)^{1}$	$(3,7,3)^{12}$	$(3,8,3)^{6}$	$(3,9,3)^{4}$	$(3,10,3)^{3}$	$(3,11,3)^{12}$
3M	$(4,0,4)^{3}$	$(4,1,4)^{4}$	$(4,2,4)^{6}$	$(4,3,4)^{12}$	$(4,4,4)^{1}$	$(4,5,4)^{12}$	$(4,6,4)^{6}$	$(4,7,4)^{4}$	$(4,8,4)^{3}$	$(4,9,4)^{12}$	$(4,10,4)^{2}$	$(4,11,4)^{12}$
4	$(5,0,5)^{6}$	$(5,1,5)^{12}$	$(5,2,5)^{1}$	$(5,3,5)^{12}$	$(5,4,5)^{6}$	$(5,5,5)^{4}$	$(5,6,5)^{3}$	$(5,7,5)^{12}$	$(5,8,5)^{2}$	$(5,9,5)^{12}$	$(5,10,5)^{3}$	$(5,11,5)^{4}$
5b	$(6,0,6)^{1}$	$(6,1,6)^{12}$	$(6,2,6)^{6}$	$(6,3,6)^{4}$	$(6,4,6)^{3}$	$(6,5,6)^{12}$	$(6,6,6)^{2}$	$(6,7,6)^{12}$	$(6,8,6)^{3}$	$(6,9,6)^{4}$	$(6,10,6)^{6}$	$(6,11,6)^{12}$
5	$(7,0,7)^{6}$	$(7,1,7)^{4}$	$(7,2,7)^{3}$	$(7,3,7)^{12}$	$(7,4,7)^{2}$	$(7,5,7)^{12}$	$(7,6,7)^{3}$	$(7,7,7)^{4}$	$(7,8,7)^{6}$	$(7,9,7)^{12}$	$(7,10,7)^{1}$	$(7,11,7)^{12}$
5#	$(8,0,8)^{3}$	$(8,1,8)^{12}$	$(8,2,8)^{2}$	$(8,3,8)^{12}$	$(8,4,8)^{3}$	$(8,5,8)^{4}$	$(8,6,8)^{6}$	$(8,7,8)^{12}$	$(8,8,8)^{1}$	$(8,9,8)^{12}$	$(8,10,8)^{6}$	$(8,11,8)^{4}$
6	$(9,0,9)^{2}$	$(9,1,9)^{12}$	$(9,2,9)^{3}$	$(9,3,9)^{4}$	$(9,4,9)^{6}$	$(9,5,9)^{12}$	$(9,6,9)^{1}$	$(9,7,9)^{12}$	$(9,8,9)^{6}$	$(9,9,9)^{4}$	$(9,10,9)^{3}$	$(9,11,9)^{12}$
7m	$(10,0,10)^{3}$	$(10,1,10)^{4}$	$(10,2,10)^{6}$	$(10,3,10)^{12}$	$(10,4,10)^{1}$	$(10,5,10)^{12}$	$(10,6,10)^{6}$	$(10,7,10)^{4}$	$(10,8,10)^{3}$	$(10,9,10)^{12}$	$(10,10,10)^{2}$	$(10,11,10)^{12}$
7M	$(11,0,11)^{6}$	$(11,1,11)^{12}$	$(11,2,11)^{1}$	$(11,3,11)^{12}$	$(11,4,11)^{6}$	$(11,5,11)^{4}$	$(11,6,11)^{3}$	$(11,7,11)^{12}$	$(11,8,11)^{2}$	$(11,9,11)^{12}$	$(11,10,11)^{3}$	$(11,11,11)^{4}$

Table 13: Palindromic ternary operators $(I, J, I)^N$.

Retrograde-Equivalent Slice Matrices

For a fixed original third component K, each cell displays the retrograde-equivalent operator:

$$(I, J, K) \mapsto (K, J, I).$$

These matrices make it possible to compare the original directional operator with its reversed interval profile while preserving the same grid coordinates.

Retrograde-equivalent slice $K = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(0,1,0)^{12}$	$(0,2,0)^{6}$	$(0,3,0)^{4}$	$(0,4,0)^{3}$	$(0,5,0)^{12}$	$(0,6,0)^{2}$	$(0,7,0)^{12}$	$(0,8,0)^{3}$	$(0,9,0)^{4}$	$(0,10,0)^{6}$	$(0,11,0)^{12}$
2m	$(0,0,1)^{12}$	$(0,1,1)^{6}$	$(0,2,1)^{4}$	$(0,3,1)^{3}$	$(0,4,1)^{12}$	$(0,5,1)^{2}$	$(0,6,1)^{12}$	$(0,7,1)^{3}$	$(0,8,1)^{4}$	$(0,9,1)^{6}$	$(0,10,1)^{12}$	$(0,11,1)^{1}$
2M	$(0,0,2)^{6}$	$(0,1,2)^{4}$	$(0,2,2)^{3}$	$(0,3,2)^{12}$	$(0,4,2)^{2}$	$(0,5,2)^{12}$	$(0,6,2)^{3}$	$(0,7,2)^{4}$	$(0,8,2)^{6}$	$(0,9,2)^{12}$	$(0,10,2)^{1}$	$(0,11,2)^{12}$
3m	$(0,0,3)^{4}$	$(0,1,3)^{3}$	$(0,2,3)^{12}$	$(0,3,3)^{2}$	$(0,4,3)^{12}$	$(0,5,3)^{3}$	$(0,6,3)^{4}$	$(0,7,3)^{6}$	$(0,8,3)^{12}$	$(0,9,3)^{1}$	$(0,10,3)^{12}$	$(0,11,3)^{6}$
3M	$(0,0,4)^{3}$	$(0,1,4)^{12}$	$(0,2,4)^{2}$	$(0,3,4)^{12}$	$(0,4,4)^{3}$	$(0,5,4)^{4}$	$(0,6,4)^{6}$	$(0,7,4)^{12}$	$(0,8,4)^{1}$	$(0,9,4)^{12}$	$(0,10,4)^{6}$	$(0,11,4)^{4}$
4	$(0,0,5)^{12}$	$(0,1,5)^{2}$	$(0,2,5)^{12}$	$(0,3,5)^{3}$	$(0,4,5)^{4}$	$(0,5,5)^{6}$	$(0,6,5)^{12}$	$(0,7,5)^{1}$	$(0,8,5)^{12}$	$(0,9,5)^{6}$	$(0,10,5)^{4}$	$(0,11,5)^{3}$
5b	$(0,0,6)^{2}$	$(0,1,6)^{12}$	$(0,2,6)^{3}$	$(0,3,6)^{4}$	$(0,4,6)^{6}$	$(0,5,6)^{12}$	$(0,6,6)^{1}$	$(0,7,6)^{12}$	$(0,8,6)^{6}$	$(0,9,6)^{4}$	$(0,10,6)^{3}$	$(0,11,6)^{12}$
5	$(0,0,7)^{12}$	$(0,1,7)^{3}$	$(0,2,7)^{4}$	$(0,3,7)^{6}$	$(0,4,7)^{12}$	$(0,5,7)^{1}$	$(0,6,7)^{12}$	$(0,7,7)^{6}$	$(0,8,7)^{4}$	$(0,9,7)^{3}$	$(0,10,7)^{12}$	$(0,11,7)^{2}$
5#	$(0,0,8)^{3}$	$(0,1,8)^{4}$	$(0,2,8)^{6}$	$(0,3,8)^{12}$	$(0,4,8)^{1}$	$(0,5,8)^{12}$	$(0,6,8)^{6}$	$(0,7,8)^{4}$	$(0,8,8)^{3}$	$(0,9,8)^{12}$	$(0,10,8)^{2}$	$(0,11,8)^{12}$
6	$(0,0,9)^{4}$	$(0,1,9)^{6}$	$(0,2,9)^{12}$	$(0,3,9)^{1}$	$(0,4,9)^{12}$	$(0,5,9)^{6}$	$(0,6,9)^{4}$	$(0,7,9)^{3}$	$(0,8,9)^{12}$	$(0,9,9)^{2}$	$(0,10,9)^{12}$	$(0,11,9)^{3}$
7m	$(0,0,10)^{6}$	$(0,1,10)^{12}$	$(0,2,10)^{1}$	$(0,3,10)^{12}$	$(0,4,10)^{6}$	$(0,5,10)^{4}$	$(0,6,10)^{3}$	$(0,7,10)^{12}$	$(0,8,10)^{2}$	$(0,9,10)^{12}$	$(0,10,10)^{3}$	$(0,11,10)^{4}$
7M	$(0,0,11)^{12}$	$(0,1,11)^{1}$	$(0,2,11)^{12}$	$(0,3,11)^{6}$	$(0,4,11)^{4}$	$(0,5,11)^{3}$	$(0,6,11)^{12}$	$(0,7,11)^{2}$	$(0,8,11)^{12}$	$(0,9,11)^{3}$	$(0,10,11)^{4}$	$(0,11,11)^{6}$

Table 14: Retrograde-equivalent operators for fixed original $K = 0$.

Retrograde-equivalent slice $K = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(1,0,0)^{12}$	$(1,1,0)^{6}$	$(1,2,0)^{4}$	$(1,3,0)^{3}$	$(1,4,0)^{12}$	$(1,5,0)^{2}$	$(1,6,0)^{12}$	$(1,7,0)^{3}$	$(1,8,0)^{4}$	$(1,9,0)^{6}$	$(1,10,0)^{12}$	$(1,11,0)^{1}$
2m	$(1,0,1)^{6}$	$(1,1,1)^{4}$	$(1,2,1)^{3}$	$(1,3,1)^{12}$	$(1,4,1)^{2}$	$(1,5,1)^{12}$	$(1,6,1)^{3}$	$(1,7,1)^{4}$	$(1,8,1)^{6}$	$(1,9,1)^{12}$	$(1,10,1)^{1}$	$(1,11,1)^{12}$
2M	$(1,0,2)^{4}$	$(1,1,2)^{3}$	$(1,2,2)^{12}$	$(1,3,2)^{2}$	$(1,4,2)^{12}$	$(1,5,2)^{3}$	$(1,6,2)^{4}$	$(1,7,2)^{6}$	$(1,8,2)^{12}$	$(1,9,2)^{1}$	$(1,10,2)^{12}$	$(1,11,2)^{6}$
3m	$(1,0,3)^{3}$	$(1,1,3)^{12}$	$(1,2,3)^{2}$	$(1,3,3)^{12}$	$(1,4,3)^{3}$	$(1,5,3)^{4}$	$(1,6,3)^{6}$	$(1,7,3)^{12}$	$(1,8,3)^{1}$	$(1,9,3)^{12}$	$(1,10,3)^{6}$	$(1,11,3)^{4}$
3M	$(1,0,4)^{12}$	$(1,1,4)^{2}$	$(1,2,4)^{12}$	$(1,3,4)^{3}$	$(1,4,4)^{4}$	$(1,5,4)^{6}$	$(1,6,4)^{12}$	$(1,7,4)^{1}$	$(1,8,4)^{12}$	$(1,9,4)^{6}$	$(1,10,4)^{4}$	$(1,11,4)^{3}$
4	$(1,0,5)^{2}$	$(1,1,5)^{12}$	$(1,2,5)^{3}$	$(1,3,5)^{4}$	$(1,4,5)^{6}$	$(1,5,5)^{12}$	$(1,6,5)^{1}$	$(1,7,5)^{12}$	$(1,8,5)^{6}$	$(1,9,5)^{4}$	$(1,10,5)^{3}$	$(1,11,5)^{12}$
5b	$(1,0,6)^{12}$	$(1,1,6)^{3}$	$(1,2,6)^{4}$	$(1,3,6)^{6}$	$(1,4,6)^{12}$	$(1,5,6)^{1}$	$(1,6,6)^{12}$	$(1,7,6)^{6}$	$(1,8,6)^{4}$	$(1,9,6)^{3}$	$(1,10,6)^{12}$	$(1,11,6)^{2}$
5	$(1,0,7)^{3}$	$(1,1,7)^{4}$	$(1,2,7)^{6}$	$(1,3,7)^{12}$	$(1,4,7)^{1}$	$(1,5,7)^{12}$	$(1,6,7)^{6}$	$(1,7,7)^{4}$	$(1,8,7)^{3}$	$(1,9,7)^{12}$	$(1,10,7)^{2}$	$(1,11,7)^{12}$
5#	$(1,0,8)^{4}$	$(1,1,8)^{6}$	$(1,2,8)^{12}$	$(1,3,8)^{1}$	$(1,4,8)^{12}$	$(1,5,8)^{6}$	$(1,6,8)^{4}$	$(1,7,8)^{3}$	$(1,8,8)^{12}$	$(1,9,8)^{2}$	$(1,10,8)^{12}$	$(1,11,8)^{3}$
6	$(1,0,9)^{6}$	$(1,1,9)^{12}$	$(1,2,9)^{1}$	$(1,3,9)^{12}$	$(1,4,9)^{6}$	$(1,5,9)^{4}$	$(1,6,9)^{3}$	$(1,7,9)^{12}$	$(1,8,9)^{2}$	$(1,9,9)^{12}$	$(1,10,9)^{3}$	$(1,11,9)^{4}$
7m	$(1,0,10)^{12}$	$(1,1,10)^{1}$	$(1,2,10)^{12}$	$(1,3,10)^{6}$	$(1,4,10)^{4}$	$(1,5,10)^{3}$	$(1,6,10)^{12}$	$(1,7,10)^{2}$	$(1,8,10)^{12}$	$(1,9,10)^{3}$	$(1,10,10)^{4}$	$(1,11,10)^{6}$
7M	$(1,0,11)^{1}$	$(1,1,11)^{12}$	$(1,2,11)^{6}$	$(1,3,11)^{4}$	$(1,4,11)^{3}$	$(1,5,11)^{12}$	$(1,6,11)^{2}$	$(1,7,11)^{12}$	$(1,8,11)^{3}$	$(1,9,11)^{4}$	$(1,10,11)^{6}$	$(1,11,11)^{12}$

Table 15: Retrograde-equivalent operators for fixed original $K = 1$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(2,0,0)^{6}$	$(2,1,0)^{4}$	$(2,2,0)^{3}$	$(2,3,0)^{12}$	$(2,4,0)^{2}$	$(2,5,0)^{12}$	$(2,6,0)^{3}$	$(2,7,0)^{4}$	$(2,8,0)^{6}$	$(2,9,0)^{12}$	$(2,10,0)^{1}$	$(2,11,0)^{12}$
2m	$(2,0,1)^{4}$	$(2,1,1)^{3}$	$(2,2,1)^{12}$	$(2,3,1)^{2}$	$(2,4,1)^{12}$	$(2,5,1)^{3}$	$(2,6,1)^{4}$	$(2,7,1)^{6}$	$(2,8,1)^{12}$	$(2,9,1)^{1}$	$(2,10,1)^{12}$	$(2,11,1)^{6}$
2M	$(2,0,2)^{3}$	$(2,1,2)^{12}$	$(2,2,2)^{2}$	$(2,3,2)^{12}$	$(2,4,2)^{3}$	$(2,5,2)^{4}$	$(2,6,2)^{6}$	$(2,7,2)^{12}$	$(2,8,2)^{1}$	$(2,9,2)^{12}$	$(2,10,2)^{6}$	$(2,11,2)^{4}$
3m	$(2,0,3)^{12}$	$(2,1,3)^{2}$	$(2,2,3)^{12}$	$(2,3,3)^{3}$	$(2,4,3)^{4}$	$(2,5,3)^{6}$	$(2,6,3)^{12}$	$(2,7,3)^{1}$	$(2,8,3)^{12}$	$(2,9,3)^{6}$	$(2,10,3)^{4}$	$(2,11,3)^{3}$
3M	$(2,0,4)^{2}$	$(2,1,4)^{12}$	$(2,2,4)^{3}$	$(2,3,4)^{4}$	$(2,4,4)^{6}$	$(2,5,4)^{12}$	$(2,6,4)^{1}$	$(2,7,4)^{12}$	$(2,8,4)^{6}$	$(2,9,4)^{4}$	$(2,10,4)^{3}$	$(2,11,4)^{12}$
4	$(2,0,5)^{12}$	$(2,1,5)^{3}$	$(2,2,5)^{4}$	$(2,3,5)^{6}$	$(2,4,5)^{12}$	$(2,5,5)^{1}$	$(2,6,5)^{12}$	$(2,7,5)^{6}$	$(2,8,5)^{4}$	$(2,9,5)^{3}$	$(2,10,5)^{12}$	$(2,11,5)^{2}$
5b	$(2,0,6)^{3}$	$(2,1,6)^{4}$	$(2,2,6)^{6}$	$(2,3,6)^{12}$	$(2,4,6)^{1}$	$(2,5,6)^{12}$	$(2,6,6)^{6}$	$(2,7,6)^{4}$	$(2,8,6)^{3}$	$(2,9,6)^{12}$	$(2,10,6)^{2}$	$(2,11,6)^{12}$
5	$(2,0,7)^{4}$	$(2,1,7)^{6}$	$(2,2,7)^{12}$	$(2,3,7)^{1}$	$(2,4,7)^{12}$	$(2,5,7)^{6}$	$(2,6,7)^{4}$	$(2,7,7)^{3}$	$(2,8,7)^{12}$	$(2,9,7)^{2}$	$(2,10,7)^{12}$	$(2,11,7)^{3}$
5#	$(2,0,8)^{6}$	$(2,1,8)^{12}$	$(2,2,8)^{1}$	$(2,3,8)^{12}$	$(2,4,8)^{6}$	$(2,5,8)^{4}$	$(2,6,8)^{3}$	$(2,7,8)^{12}$	$(2,8,8)^{2}$	$(2,9,8)^{12}$	$(2,10,8)^{3}$	$(2,11,8)^{4}$
6	$(2,0,9)^{12}$	$(2,1,9)^{1}$	$(2,2,9)^{12}$	$(2,3,9)^{6}$	$(2,4,9)^{4}$	$(2,5,9)^{3}$	$(2,6,9)^{12}$	$(2,7,9)^{2}$	$(2,8,9)^{12}$	$(2,9,9)^{3}$	$(2,10,9)^{4}$	$(2,11,9)^{6}$
7m	$(2,0,10)^{1}$	$(2,1,10)^{12}$	$(2,2,10)^{6}$	$(2,3,10)^{4}$	$(2,4,10)^{3}$	$(2,5,10)^{12}$	$(2,6,10)^{2}$	$(2,7,10)^{12}$	$(2,8,10)^{3}$	$(2,9,10)^{4}$	$(2,10,10)^{6}$	$(2,11,10)^{12}$
7M	$(2,0,11)^{12}$	$(2,1,11)^{6}$	$(2,2,11)^{4}$	$(2,3,11)^{3}$	$(2,4,11)^{12}$	$(2,5,11)^{2}$	$(2,6,11)^{12}$	$(2,7,11)^{3}$	$(2,8,11)^{4}$	$(2,9,11)^{6}$	$(2,10,11)^{12}$	$(2,11,11)^{1}$

Table 16: Retrograde-equivalent operators for fixed original $K = 2$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(3,0,0)^{4}$	$(3,1,0)^{3}$	$(3,2,0)^{12}$	$(3,3,0)^{2}$	$(3,4,0)^{12}$	$(3,5,0)^{3}$	$(3,6,0)^{4}$	$(3,7,0)^{6}$	$(3,8,0)^{12}$	$(3,9,0)^{1}$	$(3,10,0)^{12}$	$(3,11,0)^{6}$
2m	$(3,0,1)^{3}$	$(3,1,1)^{12}$	$(3,2,1)^{2}$	$(3,3,1)^{12}$	$(3,4,1)^{3}$	$(3,5,1)^{4}$	$(3,6,1)^{6}$	$(3,7,1)^{12}$	$(3,8,1)^{1}$	$(3,9,1)^{12}$	$(3,10,1)^{6}$	$(3,11,1)^{4}$
2M	$(3,0,2)^{12}$	$(3,1,2)^{2}$	$(3,2,2)^{12}$	$(3,3,2)^{3}$	$(3,4,2)^{4}$	$(3,5,2)^{6}$	$(3,6,2)^{12}$	$(3,7,2)^{1}$	$(3,8,2)^{12}$	$(3,9,2)^{6}$	$(3,10,2)^{4}$	$(3,11,2)^{3}$
3m	$(3,0,3)^{2}$	$(3,1,3)^{12}$	$(3,2,3)^{3}$	$(3,3,3)^{4}$	$(3,4,3)^{6}$	$(3,5,3)^{12}$	$(3,6,3)^{1}$	$(3,7,3)^{12}$	$(3,8,3)^{6}$	$(3,9,3)^{4}$	$(3,10,3)^{3}$	$(3,11,3)^{12}$
3M	$(3,0,4)^{12}$	$(3,1,4)^{3}$	$(3,2,4)^{4}$	$(3,3,4)^{6}$	$(3,4,4)^{12}$	$(3,5,4)^{1}$	$(3,6,4)^{12}$	$(3,7,4)^{6}$	$(3,8,4)^{4}$	$(3,9,4)^{3}$	$(3,10,4)^{12}$	$(3,11,4)^{2}$
4	$(3,0,5)^{3}$	$(3,1,5)^{4}$	$(3,2,5)^{6}$	$(3,3,5)^{12}$	$(3,4,5)^{1}$	$(3,5,5)^{12}$	$(3,6,5)^{6}$	$(3,7,5)^{4}$	$(3,8,5)^{3}$	$(3,9,5)^{12}$	$(3,10,5)^{2}$	$(3,11,5)^{12}$
5b	$(3,0,6)^{4}$	$(3,1,6)^{6}$	$(3,2,6)^{12}$	$(3,3,6)^{1}$	$(3,4,6)^{12}$	$(3,5,6)^{6}$	$(3,6,6)^{4}$	$(3,7,6)^{3}$	$(3,8,6)^{12}$	$(3,9,6)^{2}$	$(3,10,6)^{12}$	$(3,11,6)^{3}$
5	$(3,0,7)^{6}$	$(3,1,7)^{12}$	$(3,2,7)^{1}$	$(3,3,7)^{12}$	$(3,4,7)^{6}$	$(3,5,7)^{4}$	$(3,6,7)^{3}$	$(3,7,7)^{12}$	$(3,8,7)^{2}$	$(3,9,7)^{12}$	$(3,10,7)^{3}$	$(3,11,7)^{4}$
5#	$(3,0,8)^{12}$	$(3,1,8)^{1}$	$(3,2,8)^{12}$	$(3,3,8)^{6}$	$(3,4,8)^{4}$	$(3,5,8)^{3}$	$(3,6,8)^{12}$	$(3,7,8)^{2}$	$(3,8,8)^{12}$	$(3,9,8)^{3}$	$(3,10,8)^{4}$	$(3,11,8)^{6}$
6	$(3,0,9)^{1}$	$(3,1,9)^{12}$	$(3,2,9)^{6}$	$(3,3,9)^{4}$	$(3,4,9)^{3}$	$(3,5,9)^{12}$	$(3,6,9)^{2}$	$(3,7,9)^{12}$	$(3,8,9)^{3}$	$(3,9,9)^{4}$	$(3,10,9)^{6}$	$(3,11,9)^{12}$
7m	$(3,0,10)^{12}$	$(3,1,10)^{6}$	$(3,2,10)^{4}$	$(3,3,10)^{3}$	$(3,4,10)^{12}$	$(3,5,10)^{2}$	$(3,6,10)^{12}$	$(3,7,10)^{3}$	$(3,8,10)^{4}$	$(3,9,10)^{6}$	$(3,10,10)^{12}$	$(3,11,10)^{1}$
7M	$(3,0,11)^{6}$	$(3,1,11)^{4}$	$(3,2,11)^{3}$	$(3,3,11)^{12}$	$(3,4,11)^{2}$	$(3,5,11)^{12}$	$(3,6,11)^{3}$	$(3,7,11)^{4}$	$(3,8,11)^{6}$	$(3,9,11)^{12}$	$(3,10,11)^{1}$	$(3,11,11)^{12}$

Table 17: Retrograde-equivalent operators for fixed original $K = 3$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(4,0,0)^{3}$	$(4,1,0)^{12}$	$(4,2,0)^{2}$	$(4,3,0)^{12}$	$(4,4,0)^{3}$	$(4,5,0)^{4}$	$(4,6,0)^{6}$	$(4,7,0)^{12}$	$(4,8,0)^{1}$	$(4,9,0)^{12}$	$(4,10,0)^{6}$	$(4,11,0)^{4}$
2m	$(4,0,1)^{12}$	$(4,1,1)^{2}$	$(4,2,1)^{12}$	$(4,3,1)^{3}$	$(4,4,1)^{4}$	$(4,5,1)^{6}$	$(4,6,1)^{12}$	$(4,7,1)^{1}$	$(4,8,1)^{12}$	$(4,9,1)^{6}$	$(4,10,1)^{4}$	$(4,11,1)^{3}$
2M	$(4,0,2)^{2}$	$(4,1,2)^{12}$	$(4,2,2)^{3}$	$(4,3,2)^{4}$	$(4,4,2)^{6}$	$(4,5,2)^{12}$	$(4,6,2)^{1}$	$(4,7,2)^{12}$	$(4,8,2)^{6}$	$(4,9,2)^{4}$	$(4,10,2)^{3}$	$(4,11,2)^{12}$
3m	$(4,0,3)^{12}$	$(4,1,3)^{3}$	$(4,2,3)^{4}$	$(4,3,3)^{6}$	$(4,4,3)^{12}$	$(4,5,3)^{1}$	$(4,6,3)^{12}$	$(4,7,3)^{6}$	$(4,8,3)^{4}$	$(4,9,3)^{3}$	$(4,10,3)^{12}$	$(4,11,3)^{2}$
3M	$(4,0,4)^{3}$	$(4,1,4)^{4}$	$(4,2,4)^{6}$	$(4,3,4)^{12}$	$(4,4,4)^{1}$	$(4,5,4)^{12}$	$(4,6,4)^{6}$	$(4,7,4)^{4}$	$(4,8,4)^{3}$	$(4,9,4)^{12}$	$(4,10,4)^{2}$	$(4,11,4)^{12}$
4	$(4,0,5)^{4}$	$(4,1,5)^{6}$	$(4,2,5)^{12}$	$(4,3,5)^{1}$	$(4,4,5)^{12}$	$(4,5,5)^{6}$	$(4,6,5)^{4}$	$(4,7,5)^{3}$	$(4,8,5)^{12}$	$(4,9,5)^{2}$	$(4,10,5)^{12}$	$(4,11,5)^{3}$
5b	$(4,0,6)^{6}$	$(4,1,6)^{12}$	$(4,2,6)^{1}$	$(4,3,6)^{12}$	$(4,4,6)^{6}$	$(4,5,6)^{4}$	$(4,6,6)^{3}$	$(4,7,6)^{12}$	$(4,8,6)^{2}$	$(4,9,6)^{12}$	$(4,10,6)^{3}$	$(4,11,6)^{4}$
5	$(4,0,7)^{12}$	$(4,1,7)^{1}$	$(4,2,7)^{12}$	$(4,3,7)^{6}$	$(4,4,7)^{4}$	$(4,5,7)^{3}$	$(4,6,7)^{12}$	$(4,7,7)^{2}$	$(4,8,7)^{12}$	$(4,9,7)^{3}$	$(4,10,7)^{4}$	$(4,11,7)^{6}$
5#	$(4,0,8)^{1}$	$(4,1,8)^{12}$	$(4,2,8)^{6}$	$(4,3,8)^{4}$	$(4,4,8)^{3}$	$(4,5,8)^{12}$	$(4,6,8)^{2}$	$(4,7,8)^{12}$	$(4,8,8)^{3}$	$(4,9,8)^{4}$	$(4,10,8)^{6}$	$(4,11,8)^{12}$
6	$(4,0,9)^{12}$	$(4,1,9)^{6}$	$(4,2,9)^{4}$	$(4,3,9)^{3}$	$(4,4,9)^{12}$	$(4,5,9)^{2}$	$(4,6,9)^{12}$	$(4,7,9)^{3}$	$(4,8,9)^{4}$	$(4,9,9)^{6}$	$(4,10,9)^{12}$	$(4,11,9)^{1}$
7m	$(4,0,10)^{6}$	$(4,1,10)^{4}$	$(4,2,10)^{3}$	$(4,3,10)^{12}$	$(4,4,10)^{2}$	$(4,5,10)^{12}$	$(4,6,10)^{3}$	$(4,7,10)^{4}$	$(4,8,10)^{6}$	$(4,9,10)^{12}$	$(4,10,10)^{1}$	$(4,11,10)^{12}$
7M	$(4,0,11)^{4}$	$(4,1,11)^{3}$	$(4,2,11)^{12}$	$(4,3,11)^{2}$	$(4,4,11)^{12}$	$(4,5,11)^{3}$	$(4,6,11)^{4}$	$(4,7,11)^{6}$	$(4,8,11)^{12}$	$(4,9,11)^{1}$	$(4,10,11)^{12}$	$(4,11,11)^{6}$

Table 18: Retrograde-equivalent operators for fixed original $K = 4$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(5,0,0)^{12}$	$(5,1,0)^{2}$	$(5,2,0)^{12}$	$(5,3,0)^{3}$	$(5,4,0)^{4}$	$(5,5,0)^{6}$	$(5,6,0)^{12}$	$(5,7,0)^{1}$	$(5,8,0)^{12}$	$(5,9,0)^{6}$	$(5,10,0)^{4}$	$(5,11,0)^{3}$
2m	$(5,0,1)^{2}$	$(5,1,1)^{12}$	$(5,2,1)^{3}$	$(5,3,1)^{4}$	$(5,4,1)^{6}$	$(5,5,1)^{12}$	$(5,6,1)^{1}$	$(5,7,1)^{12}$	$(5,8,1)^{6}$	$(5,9,1)^{4}$	$(5,10,1)^{3}$	$(5,11,1)^{12}$
2M	$(5,0,2)^{12}$	$(5,1,2)^{3}$	$(5,2,2)^{4}$	$(5,3,2)^{6}$	$(5,4,2)^{12}$	$(5,5,2)^{1}$	$(5,6,2)^{12}$	$(5,7,2)^{6}$	$(5,8,2)^{4}$	$(5,9,2)^{3}$	$(5,10,2)^{12}$	$(5,11,2)^{2}$
3m	$(5,0,3)^{3}$	$(5,1,3)^{4}$	$(5,2,3)^{6}$	$(5,3,3)^{12}$	$(5,4,3)^{1}$	$(5,5,3)^{12}$	$(5,6,3)^{6}$	$(5,7,3)^{4}$	$(5,8,3)^{3}$	$(5,9,3)^{12}$	$(5,10,3)^{2}$	$(5,11,3)^{12}$
3M	$(5,0,4)^{4}$	$(5,1,4)^{6}$	$(5,2,4)^{12}$	$(5,3,4)^{1}$	$(5,4,4)^{12}$	$(5,5,4)^{6}$	$(5,6,4)^{4}$	$(5,7,4)^{3}$	$(5,8,4)^{12}$	$(5,9,4)^{2}$	$(5,10,4)^{12}$	$(5,11,4)^{3}$
4	$(5,0,5)^{6}$	$(5,1,5)^{12}$	$(5,2,5)^{1}$	$(5,3,5)^{12}$	$(5,4,5)^{6}$	$(5,5,5)^{4}$	$(5,6,5)^{3}$	$(5,7,5)^{12}$	$(5,8,5)^{2}$	$(5,9,5)^{12}$	$(5,10,5)^{3}$	$(5,11,5)^{4}$
5b	$(5,0,6)^{12}$	$(5,1,6)^{1}$	$(5,2,6)^{12}$	$(5,3,6)^{6}$	$(5,4,6)^{4}$	$(5,5,6)^{3}$	$(5,6,6)^{12}$	$(5,7,6)^{2}$	$(5,8,6)^{12}$	$(5,9,6)^{3}$	$(5,10,6)^{4}$	$(5,11,6)^{6}$
5	$(5,0,7)^{1}$	$(5,1,7)^{12}$	$(5,2,7)^{6}$	$(5,3,7)^{4}$	$(5,4,7)^{3}$	$(5,5,7)^{12}$	$(5,6,7)^{2}$	$(5,7,7)^{12}$	$(5,8,7)^{3}$	$(5,9,7)^{4}$	$(5,10,7)^{6}$	$(5,11,7)^{12}$
5#	$(5,0,8)^{12}$	$(5,1,8)^{6}$	$(5,2,8)^{4}$	$(5,3,8)^{3}$	$(5,4,8)^{12}$	$(5,5,8)^{2}$	$(5,6,8)^{12}$	$(5,7,8)^{3}$	$(5,8,8)^{4}$	$(5,9,8)^{6}$	$(5,10,8)^{12}$	$(5,11,8)^{1}$
6	$(5,0,9)^{6}$	$(5,1,9)^{4}$	$(5,2,9)^{3}$	$(5,3,9)^{12}$	$(5,4,9)^{2}$	$(5,5,9)^{12}$	$(5,6,9)^{3}$	$(5,7,9)^{4}$	$(5,8,9)^{6}$	$(5,9,9)^{12}$	$(5,10,9)^{1}$	$(5,11,9)^{12}$
7m	$(5,0,10)^{4}$	$(5,1,10)^{3}$	$(5,2,10)^{12}$	$(5,3,10)^{2}$	$(5,4,10)^{12}$	$(5,5,10)^{3}$	$(5,6,10)^{4}$	$(5,7,10)^{6}$	$(5,8,10)^{12}$	$(5,9,10)^{1}$	$(5,10,10)^{12}$	$(5,11,10)^{6}$
7M	$(5,0,11)^{3}$	$(5,1,11)^{12}$	$(5,2,11)^{2}$	$(5,3,11)^{12}$	$(5,4,11)^{3}$	$(5,5,11)^{4}$	$(5,6,11)^{6}$	$(5,7,11)^{12}$	$(5,8,11)^{1}$	$(5,9,11)^{12}$	$(5,10,11)^{6}$	$(5,11,11)^{4}$

Table 19: Retrograde-equivalent operators for fixed original $K = 5$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(6,0,0)^{2}$	$(6,1,0)^{12}$	$(6,2,0)^{3}$	$(6,3,0)^{4}$	$(6,4,0)^{6}$	$(6,5,0)^{12}$	$(6,6,0)^{1}$	$(6,7,0)^{12}$	$(6,8,0)^{6}$	$(6,9,0)^{4}$	$(6,10,0)^{3}$	$(6,11,0)^{12}$
2m	$(6,0,1)^{12}$	$(6,1,1)^{3}$	$(6,2,1)^{4}$	$(6,3,1)^{6}$	$(6,4,1)^{12}$	$(6,5,1)^{1}$	$(6,6,1)^{12}$	$(6,7,1)^{6}$	$(6,8,1)^{4}$	$(6,9,1)^{3}$	$(6,10,1)^{12}$	$(6,11,1)^{2}$
2M	$(6,0,2)^{3}$	$(6,1,2)^{4}$	$(6,2,2)^{6}$	$(6,3,2)^{12}$	$(6,4,2)^{1}$	$(6,5,2)^{12}$	$(6,6,2)^{6}$	$(6,7,2)^{4}$	$(6,8,2)^{3}$	$(6,9,2)^{12}$	$(6,10,2)^{2}$	$(6,11,2)^{12}$
3m	$(6,0,3)^{4}$	$(6,1,3)^{6}$	$(6,2,3)^{12}$	$(6,3,3)^{1}$	$(6,4,3)^{12}$	$(6,5,3)^{6}$	$(6,6,3)^{4}$	$(6,7,3)^{3}$	$(6,8,3)^{12}$	$(6,9,3)^{2}$	$(6,10,3)^{12}$	$(6,11,3)^{3}$
3M	$(6,0,4)^{6}$	$(6,1,4)^{12}$	$(6,2,4)^{1}$	$(6,3,4)^{12}$	$(6,4,4)^{6}$	$(6,5,4)^{4}$	$(6,6,4)^{3}$	$(6,7,4)^{12}$	$(6,8,4)^{2}$	$(6,9,4)^{12}$	$(6,10,4)^{3}$	$(6,11,4)^{4}$
4	$(6,0,5)^{12}$	$(6,1,5)^{1}$	$(6,2,5)^{12}$	$(6,3,5)^{6}$	$(6,4,5)^{4}$	$(6,5,5)^{3}$	$(6,6,5)^{12}$	$(6,7,5)^{2}$	$(6,8,5)^{12}$	$(6,9,5)^{3}$	$(6,10,5)^{4}$	$(6,11,5)^{6}$
5b	$(6,0,6)^{1}$	$(6,1,6)^{12}$	$(6,2,6)^{6}$	$(6,3,6)^{4}$	$(6,4,6)^{3}$	$(6,5,6)^{12}$	$(6,6,6)^{2}$	$(6,7,6)^{12}$	$(6,8,6)^{3}$	$(6,9,6)^{4}$	$(6,10,6)^{6}$	$(6,11,6)^{12}$
5	$(6,0,7)^{12}$	$(6,1,7)^{6}$	$(6,2,7)^{4}$	$(6,3,7)^{3}$	$(6,4,7)^{12}$	$(6,5,7)^{2}$	$(6,6,7)^{12}$	$(6,7,7)^{3}$	$(6,8,7)^{4}$	$(6,9,7)^{6}$	$(6,10,7)^{12}$	$(6,11,7)^{1}$
5#	$(6,0,8)^{6}$	$(6,1,8)^{4}$	$(6,2,8)^{3}$	$(6,3,8)^{12}$	$(6,4,8)^{2}$	$(6,5,8)^{12}$	$(6,6,8)^{3}$	$(6,7,8)^{4}$	$(6,8,8)^{6}$	$(6,9,8)^{12}$	$(6,10,8)^{1}$	$(6,11,8)^{12}$
6	$(6,0,9)^{4}$	$(6,1,9)^{3}$	$(6,2,9)^{12}$	$(6,3,9)^{2}$	$(6,4,9)^{12}$	$(6,5,9)^{3}$	$(6,6,9)^{4}$	$(6,7,9)^{6}$	$(6,8,9)^{12}$	$(6,9,9)^{1}$	$(6,10,9)^{12}$	$(6,11,9)^{6}$
7m	$(6,0,10)^{3}$	$(6,1,10)^{12}$	$(6,2,10)^{2}$	$(6,3,10)^{12}$	$(6,4,10)^{3}$	$(6,5,10)^{4}$	$(6,6,10)^{6}$	$(6,7,10)^{12}$	$(6,8,10)^{1}$	$(6,9,10)^{12}$	$(6,10,10)^{6}$	$(6,11,10)^{4}$
7M	$(6,0,11)^{12}$	$(6,1,11)^{2}$	$(6,2,11)^{12}$	$(6,3,11)^{3}$	$(6,4,11)^{4}$	$(6,5,11)^{6}$	$(6,6,11)^{12}$	$(6,7,11)^{1}$	$(6,8,11)^{12}$	$(6,9,11)^{6}$	$(6,10,11)^{4}$	$(6,11,11)^{3}$

Table 20: Retrograde-equivalent operators for fixed original $K = 6$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(7,0,0)^{12}$	$(7,1,0)^{3}$	$(7,2,0)^{4}$	$(7,3,0)^{6}$	$(7,4,0)^{12}$	$(7,5,0)^{1}$	$(7,6,0)^{12}$	$(7,7,0)^{6}$	$(7,8,0)^{4}$	$(7,9,0)^{3}$	$(7,10,0)^{12}$	$(7,11,0)^{2}$
2m	$(7,0,1)^{3}$	$(7,1,1)^{4}$	$(7,2,1)^{6}$	$(7,3,1)^{12}$	$(7,4,1)^{1}$	$(7,5,1)^{12}$	$(7,6,1)^{6}$	$(7,7,1)^{4}$	$(7,8,1)^{3}$	$(7,9,1)^{12}$	$(7,10,1)^{2}$	$(7,11,1)^{12}$
2M	$(7,0,2)^{4}$	$(7,1,2)^{6}$	$(7,2,2)^{12}$	$(7,3,2)^{1}$	$(7,4,2)^{12}$	$(7,5,2)^{6}$	$(7,6,2)^{4}$	$(7,7,2)^{3}$	$(7,8,2)^{12}$	$(7,9,2)^{2}$	$(7,10,2)^{12}$	$(7,11,2)^{3}$
3m	$(7,0,3)^{6}$	$(7,1,3)^{12}$	$(7,2,3)^{1}$	$(7,3,3)^{12}$	$(7,4,3)^{6}$	$(7,5,3)^{4}$	$(7,6,3)^{3}$	$(7,7,3)^{12}$	$(7,8,3)^{2}$	$(7,9,3)^{12}$	$(7,10,3)^{3}$	$(7,11,3)^{4}$
3M	$(7,0,4)^{12}$	$(7,1,4)^{1}$	$(7,2,4)^{12}$	$(7,3,4)^{6}$	$(7,4,4)^{4}$	$(7,5,4)^{3}$	$(7,6,4)^{12}$	$(7,7,4)^{2}$	$(7,8,4)^{12}$	$(7,9,4)^{3}$	$(7,10,4)^{4}$	$(7,11,4)^{6}$
4	$(7,0,5)^{1}$	$(7,1,5)^{12}$	$(7,2,5)^{6}$	$(7,3,5)^{4}$	$(7,4,5)^{3}$	$(7,5,5)^{12}$	$(7,6,5)^{2}$	$(7,7,5)^{12}$	$(7,8,5)^{3}$	$(7,9,5)^{4}$	$(7,10,5)^{6}$	$(7,11,5)^{12}$
5b	$(7,0,6)^{12}$	$(7,1,6)^{6}$	$(7,2,6)^{4}$	$(7,3,6)^{3}$	$(7,4,6)^{12}$	$(7,5,6)^{2}$	$(7,6,6)^{12}$	$(7,7,6)^{3}$	$(7,8,6)^{4}$	$(7,9,6)^{6}$	$(7,10,6)^{12}$	$(7,11,6)^{1}$
5	$(7,0,7)^{6}$	$(7,1,7)^{4}$	$(7,2,7)^{3}$	$(7,3,7)^{12}$	$(7,4,7)^{2}$	$(7,5,7)^{12}$	$(7,6,7)^{3}$	$(7,7,7)^{4}$	$(7,8,7)^{6}$	$(7,9,7)^{12}$	$(7,10,7)^{1}$	$(7,11,7)^{12}$
5#	$(7,0,8)^{4}$	$(7,1,8)^{3}$	$(7,2,8)^{12}$	$(7,3,8)^{2}$	$(7,4,8)^{12}$	$(7,5,8)^{3}$	$(7,6,8)^{4}$	$(7,7,8)^{6}$	$(7,8,8)^{12}$	$(7,9,8)^{1}$	$(7,10,8)^{12}$	$(7,11,8)^{6}$
6	$(7,0,9)^{3}$	$(7,1,9)^{12}$	$(7,2,9)^{2}$	$(7,3,9)^{12}$	$(7,4,9)^{3}$	$(7,5,9)^{4}$	$(7,6,9)^{6}$	$(7,7,9)^{12}$	$(7,8,9)^{1}$	$(7,9,9)^{12}$	$(7,10,9)^{6}$	$(7,11,9)^{4}$
7m	$(7,0,10)^{12}$	$(7,1,10)^{2}$	$(7,2,10)^{12}$	$(7,3,10)^{3}$	$(7,4,10)^{4}$	$(7,5,10)^{6}$	$(7,6,10)^{12}$	$(7,7,10)^{1}$	$(7,8,10)^{12}$	$(7,9,10)^{6}$	$(7,10,10)^{4}$	$(7,11,10)^{3}$
7M	$(7,0,11)^{2}$	$(7,1,11)^{12}$	$(7,2,11)^{3}$	$(7,3,11)^{4}$	$(7,4,11)^{6}$	$(7,5,11)^{12}$	$(7,6,11)^{1}$	$(7,7,11)^{12}$	$(7,8,11)^{6}$	$(7,9,11)^{4}$	$(7,10,11)^{3}$	$(7,11,11)^{12}$

Table 21: Retrograde-equivalent operators for fixed original $K = 7$.

Retrograde-equivalent slice $K = 2$: 2M

Retrograde-equivalent slice $K = 3$: 3m

Retrograde-equivalent slice $K = 4$: 3M

Retrograde-equivalent slice $K = 5$: 4

Retrograde-equivalent slice $K = 6$: 5b

Retrograde-equivalent slice $K = 7$: 5

Retrograde-equivalent slice $K = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(8,0,0)^{3}$	$(8,1,0)^{4}$	$(8,2,0)^{6}$	$(8,3,0)^{12}$	$(8,4,0)^{1}$	$(8,5,0)^{12}$	$(8,6,0)^{6}$	$(8,7,0)^{4}$	$(8,8,0)^{3}$	$(8,9,0)^{12}$	$(8,10,0)^{2}$	$(8,11,0)^{12}$
2m	$(8,0,1)^{4}$	$(8,1,1)^{6}$	$(8,2,1)^{12}$	$(8,3,1)^{1}$	$(8,4,1)^{12}$	$(8,5,1)^{6}$	$(8,6,1)^{4}$	$(8,7,1)^{3}$	$(8,8,1)^{12}$	$(8,9,1)^{2}$	$(8,10,1)^{12}$	$(8,11,1)^{3}$
2M	$(8,0,2)^{6}$	$(8,1,2)^{12}$	$(8,2,2)^{1}$	$(8,3,2)^{12}$	$(8,4,2)^{6}$	$(8,5,2)^{4}$	$(8,6,2)^{3}$	$(8,7,2)^{12}$	$(8,8,2)^{2}$	$(8,9,2)^{12}$	$(8,10,2)^{3}$	$(8,11,2)^{4}$
3m	$(8,0,3)^{12}$	$(8,1,3)^{1}$	$(8,2,3)^{12}$	$(8,3,3)^{6}$	$(8,4,3)^{4}$	$(8,5,3)^{3}$	$(8,6,3)^{12}$	$(8,7,3)^{2}$	$(8,8,3)^{12}$	$(8,9,3)^{3}$	$(8,10,3)^{4}$	$(8,11,3)^{6}$
3M	$(8,0,4)^{1}$	$(8,1,4)^{12}$	$(8,2,4)^{6}$	$(8,3,4)^{4}$	$(8,4,4)^{3}$	$(8,5,4)^{12}$	$(8,6,4)^{2}$	$(8,7,4)^{12}$	$(8,8,4)^{3}$	$(8,9,4)^{4}$	$(8,10,4)^{6}$	$(8,11,4)^{12}$
4	$(8,0,5)^{12}$	$(8,1,5)^{6}$	$(8,2,5)^{4}$	$(8,3,5)^{3}$	$(8,4,5)^{12}$	$(8,5,5)^{2}$	$(8,6,5)^{12}$	$(8,7,5)^{3}$	$(8,8,5)^{4}$	$(8,9,5)^{6}$	$(8,10,5)^{12}$	$(8,11,5)^{1}$
5b	$(8,0,6)^{6}$	$(8,1,6)^{4}$	$(8,2,6)^{3}$	$(8,3,6)^{12}$	$(8,4,6)^{2}$	$(8,5,6)^{12}$	$(8,6,6)^{3}$	$(8,7,6)^{4}$	$(8,8,6)^{6}$	$(8,9,6)^{12}$	$(8,10,6)^{1}$	$(8,11,6)^{12}$
5	$(8,0,7)^{4}$	$(8,1,7)^{3}$	$(8,2,7)^{12}$	$(8,3,7)^{2}$	$(8,4,7)^{12}$	$(8,5,7)^{3}$	$(8,6,7)^{4}$	$(8,7,7)^{6}$	$(8,8,7)^{12}$	$(8,9,7)^{1}$	$(8,10,7)^{12}$	$(8,11,7)^{6}$
5#	$(8,0,8)^{3}$	$(8,1,8)^{12}$	$(8,2,8)^{2}$	$(8,3,8)^{12}$	$(8,4,8)^{3}$	$(8,5,8)^{4}$	$(8,6,8)^{6}$	$(8,7,8)^{12}$	$(8,8,8)^{1}$	$(8,9,8)^{12}$	$(8,10,8)^{6}$	$(8,11,8)^{4}$
6	$(8,0,9)^{12}$	$(8,1,9)^{2}$	$(8,2,9)^{12}$	$(8,3,9)^{3}$	$(8,4,9)^{4}$	$(8,5,9)^{6}$	$(8,6,9)^{12}$	$(8,7,9)^{1}$	$(8,8,9)^{12}$	$(8,9,9)^{6}$	$(8,10,9)^{4}$	$(8,11,9)^{3}$
7m	$(8,0,10)^{2}$	$(8,1,10)^{12}$	$(8,2,10)^{3}$	$(8,3,10)^{4}$	$(8,4,10)^{6}$	$(8,5,10)^{12}$	$(8,6,10)^{1}$	$(8,7,10)^{12}$	$(8,8,10)^{6}$	$(8,9,10)^{4}$	$(8,10,10)^{3}$	$(8,11,10)^{12}$
7M	$(8,0,11)^{12}$	$(8,1,11)^{3}$	$(8,2,11)^{4}$	$(8,3,11)^{6}$	$(8,4,11)^{12}$	$(8,5,11)^{1}$	$(8,6,11)^{12}$	$(8,7,11)^{6}$	$(8,8,11)^{4}$	$(8,9,11)^{3}$	$(8,10,11)^{12}$	$(8,11,11)^{2}$

Table 22: Retrograde-equivalent operators for fixed original $K = 8$.

Retrograde-equivalent slice $K = 9$: **6**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(9,0,0)^{4}$	$(9,1,0)^{6}$	$(9,2,0)^{12}$	$(9,3,0)^{1}$	$(9,4,0)^{12}$	$(9,5,0)^{6}$	$(9,6,0)^{4}$	$(9,7,0)^{3}$	$(9,8,0)^{12}$	$(9,9,0)^{2}$	$(9,10,0)^{12}$	$(9,11,0)^{3}$
2m	$(9,0,1)^{6}$	$(9,1,1)^{12}$	$(9,2,1)^{1}$	$(9,3,1)^{12}$	$(9,4,1)^{6}$	$(9,5,1)^{4}$	$(9,6,1)^{3}$	$(9,7,1)^{12}$	$(9,8,1)^{2}$	$(9,9,1)^{12}$	$(9,10,1)^{3}$	$(9,11,1)^{4}$
2M	$(9,0,2)^{12}$	$(9,1,2)^{1}$	$(9,2,2)^{12}$	$(9,3,2)^{6}$	$(9,4,2)^{4}$	$(9,5,2)^{3}$	$(9,6,2)^{12}$	$(9,7,2)^{2}$	$(9,8,2)^{12}$	$(9,9,2)^{3}$	$(9,10,2)^{4}$	$(9,11,2)^{6}$
3m	$(9,0,3)^{1}$	$(9,1,3)^{12}$	$(9,2,3)^{6}$	$(9,3,3)^{4}$	$(9,4,3)^{3}$	$(9,5,3)^{12}$	$(9,6,3)^{2}$	$(9,7,3)^{12}$	$(9,8,3)^{3}$	$(9,9,3)^{4}$	$(9,10,3)^{6}$	$(9,11,3)^{12}$
3M	$(9,0,4)^{12}$	$(9,1,4)^{6}$	$(9,2,4)^{4}$	$(9,3,4)^{3}$	$(9,4,4)^{12}$	$(9,5,4)^{2}$	$(9,6,4)^{12}$	$(9,7,4)^{3}$	$(9,8,4)^{4}$	$(9,9,4)^{6}$	$(9,10,4)^{12}$	$(9,11,4)^{1}$
4	$(9,0,5)^{6}$	$(9,1,5)^{4}$	$(9,2,5)^{3}$	$(9,3,5)^{12}$	$(9,4,5)^{2}$	$(9,5,5)^{12}$	$(9,6,5)^{3}$	$(9,7,5)^{4}$	$(9,8,5)^{6}$	$(9,9,5)^{12}$	$(9,10,5)^{1}$	$(9,11,5)^{12}$
5b	$(9,0,6)^{4}$	$(9,1,6)^{3}$	$(9,2,6)^{12}$	$(9,3,6)^{2}$	$(9,4,6)^{12}$	$(9,5,6)^{3}$	$(9,6,6)^{4}$	$(9,7,6)^{6}$	$(9,8,6)^{12}$	$(9,9,6)^{1}$	$(9,10,6)^{12}$	$(9,11,6)^{6}$
5	$(9,0,7)^{3}$	$(9,1,7)^{12}$	$(9,2,7)^{2}$	$(9,3,7)^{12}$	$(9,4,7)^{3}$	$(9,5,7)^{4}$	$(9,6,7)^{6}$	$(9,7,7)^{12}$	$(9,8,7)^{1}$	$(9,9,7)^{12}$	$(9,10,7)^{6}$	$(9,11,7)^{4}$
5#	$(9,0,8)^{12}$	$(9,1,8)^{2}$	$(9,2,8)^{12}$	$(9,3,8)^{3}$	$(9,4,8)^{4}$	$(9,5,8)^{6}$	$(9,6,8)^{12}$	$(9,7,8)^{1}$	$(9,8,8)^{12}$	$(9,9,8)^{6}$	$(9,10,8)^{4}$	$(9,11,8)^{3}$
6	$(9,0,9)^{2}$	$(9,1,9)^{12}$	$(9,2,9)^{3}$	$(9,3,9)^{4}$	$(9,4,9)^{6}$	$(9,5,9)^{12}$	$(9,6,9)^{1}$	$(9,7,9)^{12}$	$(9,8,9)^{6}$	$(9,9,9)^{4}$	$(9,10,9)^{3}$	$(9,11,9)^{12}$
7m	$(9,0,10)^{12}$	$(9,1,10)^{3}$	$(9,2,10)^{4}$	$(9,3,10)^{6}$	$(9,4,10)^{12}$	$(9,5,10)^{1}$	$(9,6,10)^{12}$	$(9,7,10)^{6}$	$(9,8,10)^{4}$	$(9,9,10)^{3}$	$(9,10,10)^{12}$	$(9,11,10)^{2}$
7M	$(9,0,11)^{3}$	$(9,1,11)^{4}$	$(9,2,11)^{6}$	$(9,3,11)^{12}$	$(9,4,11)^{1}$	$(9,5,11)^{12}$	$(9,6,11)^{6}$	$(9,7,11)^{4}$	$(9,8,11)^{3}$	$(9,9,11)^{12}$	$(9,10,11)^{2}$	$(9,11,11)^{12}$

Table 23: Retrograde-equivalent operators for fixed original $K = 9$.

Retrograde-equivalent slice $K = 10$: **7m**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(10,0,0)^{6}$	$(10,1,0)^{12}$	$(10,2,0)^{1}$	$(10,3,0)^{12}$	$(10,4,0)^{6}$	$(10,5,0)^{4}$	$(10,6,0)^{3}$	$(10,7,0)^{12}$	$(10,8,0)^{2}$	$(10,9,0)^{12}$	$(10,10,0)^{3}$	$(10,11,0)^{4}$
2m	$(10,0,1)^{12}$	$(10,1,1)^{1}$	$(10,2,1)^{12}$	$(10,3,1)^{6}$	$(10,4,1)^{4}$	$(10,5,1)^{3}$	$(10,6,1)^{12}$	$(10,7,1)^{2}$	$(10,8,1)^{12}$	$(10,9,1)^{3}$	$(10,10,1)^{4}$	$(10,11,1)^{6}$
2M	$(10,0,2)^{1}$	$(10,1,2)^{12}$	$(10,2,2)^{6}$	$(10,3,2)^{4}$	$(10,4,2)^{3}$	$(10,5,2)^{12}$	$(10,6,2)^{2}$	$(10,7,2)^{12}$	$(10,8,2)^{3}$	$(10,9,2)^{4}$	$(10,10,2)^{6}$	$(10,11,2)^{12}$
3m	$(10,0,3)^{12}$	$(10,1,3)^{6}$	$(10,2,3)^{4}$	$(10,3,3)^{3}$	$(10,4,3)^{12}$	$(10,5,3)^{2}$	$(10,6,3)^{12}$	$(10,7,3)^{3}$	$(10,8,3)^{4}$	$(10,9,3)^{6}$	$(10,10,3)^{12}$	$(10,11,3)^{1}$
3M	$(10,0,4)^{6}$	$(10,1,4)^{4}$	$(10,2,4)^{3}$	$(10,3,4)^{12}$	$(10,4,4)^{2}$	$(10,5,4)^{12}$	$(10,6,4)^{3}$	$(10,7,4)^{4}$	$(10,8,4)^{6}$	$(10,9,4)^{12}$	$(10,10,4)^{1}$	$(10,11,4)^{12}$
4	$(10,0,5)^{4}$	$(10,1,5)^{3}$	$(10,2,5)^{12}$	$(10,3,5)^{2}$	$(10,4,5)^{12}$	$(10,5,5)^{3}$	$(10,6,5)^{4}$	$(10,7,5)^{6}$	$(10,8,5)^{12}$	$(10,9,5)^{1}$	$(10,10,5)^{12}$	$(10,11,5)^{6}$
5b	$(10,0,6)^{3}$	$(10,1,6)^{12}$	$(10,2,6)^{2}$	$(10,3,6)^{12}$	$(10,4,6)^{3}$	$(10,5,6)^{4}$	$(10,6,6)^{6}$	$(10,7,6)^{12}$	$(10,8,6)^{1}$	$(10,9,6)^{12}$	$(10,10,6)^{6}$	$(10,11,6)^{4}$
5	$(10,0,7)^{12}$	$(10,1,7)^{2}$	$(10,2,7)^{12}$	$(10,3,7)^{3}$	$(10,4,7)^{4}$	$(10,5,7)^{6}$	$(10,6,7)^{12}$	$(10,7,7)^{1}$	$(10,8,7)^{12}$	$(10,9,7)^{6}$	$(10,10,7)^{4}$	$(10,11,7)^{3}$
5#	$(10,0,8)^{2}$	$(10,1,8)^{12}$	$(10,2,8)^{3}$	$(10,3,8)^{4}$	$(10,4,8)^{6}$	$(10,5,8)^{12}$	$(10,6,8)^{1}$	$(10,7,8)^{12}$	$(10,8,8)^{6}$	$(10,9,8)^{4}$	$(10,10,8)^{3}$	$(10,11,8)^{12}$
6	$(10,0,9)^{12}$	$(10,1,9)^{3}$	$(10,2,9)^{4}$	$(10,3,9)^{6}$	$(10,4,9)^{12}$	$(10,5,9)^{1}$	$(10,6,9)^{12}$	$(10,7,9)^{6}$	$(10,8,9)^{4}$	$(10,9,9)^{3}$	$(10,10,9)^{12}$	$(10,11,9)^{2}$
7m	$(10,0,10)^{3}$	$(10,1,10)^{4}$	$(10,2,10)^{6}$	$(10,3,10)^{12}$	$(10,4,10)^{1}$	$(10,5,10)^{12}$	$(10,6,10)^{6}$	$(10,7,10)^{4}$	$(10,8,10)^{3}$	$(10,9,10)^{12}$	$(10,10,10)^{2}$	$(10,11,10)^{12}$
7M	$(10,0,11)^{4}$	$(10,1,11)^{6}$	$(10,2,11)^{12}$	$(10,3,11)^{1}$	$(10,4,11)^{12}$	$(10,5,11)^{6}$	$(10,6,11)^{4}$	$(10,7,11)^{3}$	$(10,8,11)^{12}$	$(10,9,11)^{2}$	$(10,10,11)^{12}$	$(10,11,11)^{3}$

Table 24: Retrograde-equivalent operators for fixed original $K = 10$.

Retrograde-equivalent slice $K = 11$: **7M**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(11,0,0)^{12}$	$(11,1,0)^{1}$	$(11,2,0)^{12}$	$(11,3,0)^{6}$	$(11,4,0)^{4}$	$(11,5,0)^{3}$	$(11,6,0)^{12}$	$(11,7,0)^{2}$	$(11,8,0)^{12}$	$(11,9,0)^{3}$	$(11,10,0)^{4}$	$(11,11,0)^{6}$
2m	$(11,0,1)^{1}$	$(11,1,1)^{12}$	$(11,2,1)^{6}$	$(11,3,1)^{4}$	$(11,4,1)^{3}$	$(11,5,1)^{12}$	$(11,6,1)^{2}$	$(11,7,1)^{12}$	$(11,8,1)^{3}$	$(11,9,1)^{4}$	$(11,10,1)^{6}$	$(11,11,1)^{12}$
2M	$(11,0,2)^{12}$	$(11,1,2)^{6}$	$(11,2,2)^{4}$	$(11,3,2)^{3}$	$(11,4,2)^{12}$	$(11,5,2)^{2}$	$(11,6,2)^{12}$	$(11,7,2)^{3}$	$(11,8,2)^{4}$	$(11,9,2)^{6}$	$(11,10,2)^{12}$	$(11,11,2)^{1}$
3m	$(11,0,3)^{6}$	$(11,1,3)^{4}$	$(11,2,3)^{3}$	$(11,3,3)^{12}$	$(11,4,3)^{2}$	$(11,5,3)^{12}$	$(11,6,3)^{3}$	$(11,7,3)^{4}$	$(11,8,3)^{6}$	$(11,9,3)^{12}$	$(11,10,3)^{1}$	$(11,11,3)^{12}$
3M	$(11,0,4)^{4}$	$(11,1,4)^{3}$	$(11,2,4)^{12}$	$(11,3,4)^{2}$	$(11,4,4)^{12}$	$(11,5,4)^{3}$	$(11,6,4)^{4}$	$(11,7,4)^{6}$	$(11,8,4)^{12}$	$(11,9,4)^{1}$	$(11,10,4)^{12}$	$(11,11,4)^{6}$
4	$(11,0,5)^{3}$	$(11,1,5)^{12}$	$(11,2,5)^{2}$	$(11,3,5)^{12}$	$(11,4,5)^{3}$	$(11,5,5)^{4}$	$(11,6,5)^{6}$	$(11,7,5)^{12}$	$(11,8,5)^{1}$	$(11,9,5)^{12}$	$(11,10,5)^{6}$	$(11,11,5)^{4}$
5b	$(11,0,6)^{12}$	$(11,1,6)^{2}$	$(11,2,6)^{12}$	$(11,3,6)^{3}$	$(11,4,6)^{4}$	$(11,5,6)^{6}$	$(11,6,6)^{12}$	$(11,7,6)^{1}$	$(11,8,6)^{12}$	$(11,9,6)^{6}$	$(11,10,6)^{4}$	$(11,11,6)^{3}$
5	$(11,0,7)^{2}$	$(11,1,7)^{12}$	$(11,2,7)^{3}$	$(11,3,7)^{4}$	$(11,4,7)^{6}$	$(11,5,7)^{12}$	$(11,6,7)^{1}$	$(11,7,7)^{12}$	$(11,8,7)^{6}$	$(11,9,7)^{4}$	$(11,10,7)^{3}$	$(11,11,7)^{12}$
5#	$(11,0,8)^{12}$	$(11,1,8)^{3}$	$(11,2,8)^{4}$	$(11,3,8)^{6}$	$(11,4,8)^{12}$	$(11,5,8)^{1}$	$(11,6,8)^{12}$	$(11,7,8)^{6}$	$(11,8,8)^{4}$	$(11,9,8)^{3}$	$(11,10,8)^{12}$	$(11,11,8)^{2}$
6	$(11,0,9)^{3}$	$(11,1,9)^{4}$	$(11,2,9)^{6}$	$(11,3,9)^{12}$	$(11,4,9)^{1}$	$(11,5,9)^{12}$	$(11,6,9)^{6}$	$(11,7,9)^{4}$	$(11,8,9)^{3}$	$(11,9,9)^{12}$	$(11,10,9)^{2}$	$(11,11,9)^{12}$
7m	$(11,0,10)^{4}$	$(11,1,10)^{6}$	$(11,2,10)^{12}$	$(11,3,10)^{1}$	$(11,4,10)^{12}$	$(11,5,10)^{6}$	$(11,6,10)^{4}$	$(11,7,10)^{3}$	$(11,8,10)^{12}$	$(11,9,10)^{2}$	$(11,10,10)^{12}$	$(11,11,10)^{3}$
7M	$(11,0,11)^{6}$	$(11,1,11)^{12}$	$(11,2,11)^{1}$	$(11,3,11)^{12}$	$(11,4,11)^{6}$	$(11,5,11)^{4}$	$(11,6,11)^{3}$	$(11,7,11)^{12}$	$(11,8,11)^{2}$	$(11,9,11)^{12}$	$(11,10,11)^{3}$	$(11,11,11)^{4}$

Table 25: Retrograde-equivalent operators for fixed original $K = 11$.

Selective First-Component Inversion Matrices

These matrices apply inversion only to the first intervallic component:

$$(I, J, K) \mapsto (-I, J, K) \equiv (12 - I, J, K) \pmod{12}.$$

They are useful for comparing local directional deformation with the original ternary operator.

Selective inversion of I, slice $K = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(0,1,0)^{12}$	$(0,2,0)^{6}$	$(0,3,0)^{4}$	$(0,4,0)^{3}$	$(0,5,0)^{12}$	$(0,6,0)^{2}$	$(0,7,0)^{12}$	$(0,8,0)^{3}$	$(0,9,0)^{4}$	$(0,10,0)^{6}$	$(0,11,0)^{12}$
2m	$(11,0,0)^{12}$	$(11,1,0)^{1}$	$(11,2,0)^{12}$	$(11,3,0)^{6}$	$(11,4,0)^{4}$	$(11,5,0)^{3}$	$(11,6,0)^{12}$	$(11,7,0)^{2}$	$(11,8,0)^{12}$	$(11,9,0)^{3}$	$(11,10,0)^{4}$	$(11,11,0)^{6}$
2M	$(10,0,0)^{6}$	$(10,1,0)^{12}$	$(10,2,0)^{1}$	$(10,3,0)^{12}$	$(10,4,0)^{6}$	$(10,5,0)^{4}$	$(10,6,0)^{3}$	$(10,7,0)^{12}$	$(10,8,0)^{2}$	$(10,9,0)^{12}$	$(10,10,0)^{3}$	$(10,11,0)^{4}$
3m	$(9,0,0)^{4}$	$(9,1,0)^{6}$	$(9,2,0)^{12}$	$(9,3,0)^{1}$	$(9,4,0)^{12}$	$(9,5,0)^{6}$	$(9,6,0)^{4}$	$(9,7,0)^{3}$	$(9,8,0)^{12}$	$(9,9,0)^{2}$	$(9,10,0)^{12}$	$(9,11,0)^{3}$
3M	$(8,0,0)^{3}$	$(8,1,0)^{4}$	$(8,2,0)^{6}$	$(8,3,0)^{12}$	$(8,4,0)^{1}$	$(8,5,0)^{12}$	$(8,6,0)^{6}$	$(8,7,0)^{4}$	$(8,8,0)^{3}$	$(8,9,0)^{12}$	$(8,10,0)^{2}$	$(8,11,0)^{12}$
4	$(7,0,0)^{12}$	$(7,1,0)^{3}$	$(7,2,0)^{4}$	$(7,3,0)^{6}$	$(7,4,0)^{12}$	$(7,5,0)^{1}$	$(7,6,0)^{12}$	$(7,7,0)^{6}$	$(7,8,0)^{4}$	$(7,9,0)^{3}$	$(7,10,0)^{12}$	$(7,11,0)^{2}$
5b	$(6,0,0)^{2}$	$(6,1,0)^{12}$	$(6,2,0)^{3}$	$(6,3,0)^{4}$	$(6,4,0)^{6}$	$(6,5,0)^{12}$	$(6,6,0)^{1}$	$(6,7,0)^{12}$	$(6,8,0)^{6}$	$(6,9,0)^{4}$	$(6,10,0)^{3}$	$(6,11,0)^{12}$
5	$(5,0,0)^{12}$	$(5,1,0)^{2}$	$(5,2,0)^{12}$	$(5,3,0)^{3}$	$(5,4,0)^{4}$	$(5,5,0)^{6}$	$(5,6,0)^{12}$	$(5,7,0)^{1}$	$(5,8,0)^{12}$	$(5,9,0)^{6}$	$(5,10,0)^{4}$	$(5,11,0)^{3}$
5#	$(4,0,0)^{3}$	$(4,1,0)^{12}$	$(4,2,0)^{2}$	$(4,3,0)^{12}$	$(4,4,0)^{3}$	$(4,5,0)^{4}$	$(4,6,0)^{6}$	$(4,7,0)^{12}$	$(4,8,0)^{1}$	$(4,9,0)^{12}$	$(4,10,0)^{6}$	$(4,11,0)^{4}$
6	$(3,0,0)^{4}$	$(3,1,0)^{3}$	$(3,2,0)^{12}$	$(3,3,0)^{2}$	$(3,4,0)^{12}$	$(3,5,0)^{3}$	$(3,6,0)^{4}$	$(3,7,0)^{6}$	$(3,8,0)^{12}$	$(3,9,0)^{1}$	$(3,10,0)^{12}$	$(3,11,0)^{6}$
7m	$(2,0,0)^{6}$	$(2,1,0)^{4}$	$(2,2,0)^{3}$	$(2,3,0)^{12}$	$(2,4,0)^{2}$	$(2,5,0)^{12}$	$(2,6,0)^{3}$	$(2,7,0)^{4}$	$(2,8,0)^{6}$	$(2,9,0)^{12}$	$(2,10,0)^{1}$	$(2,11,0)^{12}$
7M	$(1,0,0)^{12}$	$(1,1,0)^{6}$	$(1,2,0)^{4}$	$(1,3,0)^{3}$	$(1,4,0)^{12}$	$(1,5,0)^{2}$	$(1,6,0)^{12}$	$(1,7,0)^{3}$	$(1,8,0)^{4}$	$(1,9,0)^{6}$	$(1,10,0)^{12}$	$(1,11,0)^{1}$

Table 26: Selective inversion of the first component for fixed $K = 0$.

Selective inversion of I, slice $K = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,1)^{12}$	$(0,1,1)^{6}$	$(0,2,1)^{4}$	$(0,3,1)^{3}$	$(0,4,1)^{12}$	$(0,5,1)^{2}$	$(0,6,1)^{12}$	$(0,7,1)^{3}$	$(0,8,1)^{4}$	$(0,9,1)^{6}$	$(0,10,1)^{12}$	$(0,11,1)^{1}$
2m	$(11,0,1)^{1}$	$(11,1,1)^{12}$	$(11,2,1)^{6}$	$(11,3,1)^{4}$	$(11,4,1)^{3}$	$(11,5,1)^{12}$	$(11,6,1)^{2}$	$(11,7,1)^{12}$	$(11,8,1)^{3}$	$(11,9,1)^{4}$	$(11,10,1)^{6}$	$(11,11,1)^{12}$
2M	$(10,0,1)^{12}$	$(10,1,1)^{1}$	$(10,2,1)^{12}$	$(10,3,1)^{6}$	$(10,4,1)^{4}$	$(10,5,1)^{3}$	$(10,6,1)^{12}$	$(10,7,1)^{2}$	$(10,8,1)^{12}$	$(10,9,1)^{3}$	$(10,10,1)^{4}$	$(10,11,1)^{6}$
3m	$(9,0,1)^{6}$	$(9,1,1)^{12}$	$(9,2,1)^{1}$	$(9,3,1)^{12}$	$(9,4,1)^{6}$	$(9,5,1)^{4}$	$(9,6,1)^{3}$	$(9,7,1)^{12}$	$(9,8,1)^{2}$	$(9,9,1)^{12}$	$(9,10,1)^{3}$	$(9,11,1)^{4}$
3M	$(8,0,1)^{4}$	$(8,1,1)^{6}$	$(8,2,1)^{12}$	$(8,3,1)^{1}$	$(8,4,1)^{12}$	$(8,5,1)^{6}$	$(8,6,1)^{4}$	$(8,7,1)^{3}$	$(8,8,1)^{12}$	$(8,9,1)^{2}$	$(8,10,1)^{12}$	$(8,11,1)^{3}$
4	$(7,0,1)^{3}$	$(7,1,1)^{4}$	$(7,2,1)^{6}$	$(7,3,1)^{12}$	$(7,4,1)^{1}$	$(7,5,1)^{12}$	$(7,6,1)^{6}$	$(7,7,1)^{4}$	$(7,8,1)^{3}$	$(7,9,1)^{12}$	$(7,10,1)^{2}$	$(7,11,1)^{12}$
5b	$(6,0,1)^{12}$	$(6,1,1)^{3}$	$(6,2,1)^{4}$	$(6,3,1)^{6}$	$(6,4,1)^{12}$	$(6,5,1)^{1}$	$(6,6,1)^{12}$	$(6,7,1)^{6}$	$(6,8,1)^{4}$	$(6,9,1)^{3}$	$(6,10,1)^{12}$	$(6,11,1)^{2}$
5	$(5,0,1)^{2}$	$(5,1,1)^{12}$	$(5,2,1)^{3}$	$(5,3,1)^{4}$	$(5,4,1)^{6}$	$(5,5,1)^{12}$	$(5,6,1)^{1}$	$(5,7,1)^{12}$	$(5,8,1)^{6}$	$(5,9,1)^{4}$	$(5,10,1)^{3}$	$(5,11,1)^{12}$
5#	$(4,0,1)^{12}$	$(4,1,1)^{2}$	$(4,2,1)^{12}$	$(4,3,1)^{3}$	$(4,4,1)^{4}$	$(4,5,1)^{6}$	$(4,6,1)^{12}$	$(4,7,1)^{1}$	$(4,8,1)^{12}$	$(4,9,1)^{6}$	$(4,10,1)^{4}$	$(4,11,1)^{3}$
6	$(3,0,1)^{3}$	$(3,1,1)^{12}$	$(3,2,1)^{2}$	$(3,3,1)^{12}$	$(3,4,1)^{3}$	$(3,5,1)^{4}$	$(3,6,1)^{6}$	$(3,7,1)^{12}$	$(3,8,1)^{1}$	$(3,9,1)^{12}$	$(3,10,1)^{6}$	$(3,11,1)^{4}$
7m	$(2,0,1)^{4}$	$(2,1,1)^{3}$	$(2,2,1)^{12}$	$(2,3,1)^{2}$	$(2,4,1)^{12}$	$(2,5,1)^{3}$	$(2,6,1)^{4}$	$(2,7,1)^{6}$	$(2,8,1)^{12}$	$(2,9,1)^{1}$	$(2,10,1)^{12}$	$(2,11,1)^{6}$
7M	$(1,0,1)^{6}$	$(1,1,1)^{4}$	$(1,2,1)^{3}$	$(1,3,1)^{12}$	$(1,4,1)^{2}$	$(1,5,1)^{12}$	$(1,6,1)^{3}$	$(1,7,1)^{4}$	$(1,8,1)^{6}$	$(1,9,1)^{12}$	$(1,10,1)^{1}$	$(1,11,1)^{12}$

Table 27: Selective inversion of the first component for fixed $K = 1$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,2)^{6}$	$(0,1,2)^{4}$	$(0,2,2)^{3}$	$(0,3,2)^{12}$	$(0,4,2)^{2}$	$(0,5,2)^{12}$	$(0,6,2)^{3}$	$(0,7,2)^{4}$	$(0,8,2)^{6}$	$(0,9,2)^{12}$	$(0,10,2)^{1}$	$(0,11,2)^{12}$
2m	$(11,0,2)^{12}$	$(11,1,2)^{6}$	$(11,2,2)^{4}$	$(11,3,2)^{3}$	$(11,4,2)^{12}$	$(11,5,2)^{2}$	$(11,6,2)^{12}$	$(11,7,2)^{3}$	$(11,8,2)^{4}$	$(11,9,2)^{6}$	$(11,10,2)^{12}$	$(11,11,2)^{1}$
2M	$(10,0,2)^{1}$	$(10,1,2)^{12}$	$(10,2,2)^{6}$	$(10,3,2)^{4}$	$(10,4,2)^{3}$	$(10,5,2)^{12}$	$(10,6,2)^{2}$	$(10,7,2)^{12}$	$(10,8,2)^{3}$	$(10,9,2)^{4}$	$(10,10,2)^{6}$	$(10,11,2)^{12}$
3m	$(9,0,2)^{12}$	$(9,1,2)^{1}$	$(9,2,2)^{12}$	$(9,3,2)^{6}$	$(9,4,2)^{4}$	$(9,5,2)^{3}$	$(9,6,2)^{12}$	$(9,7,2)^{2}$	$(9,8,2)^{12}$	$(9,9,2)^{3}$	$(9,10,2)^{4}$	$(9,11,2)^{6}$
3M	$(8,0,2)^{6}$	$(8,1,2)^{12}$	$(8,2,2)^{1}$	$(8,3,2)^{12}$	$(8,4,2)^{6}$	$(8,5,2)^{4}$	$(8,6,2)^{3}$	$(8,7,2)^{12}$	$(8,8,2)^{2}$	$(8,9,2)^{12}$	$(8,10,2)^{3}$	$(8,11,2)^{4}$
4	$(7,0,2)^{4}$	$(7,1,2)^{6}$	$(7,2,2)^{12}$	$(7,3,2)^{1}$	$(7,4,2)^{12}$	$(7,5,2)^{6}$	$(7,6,2)^{4}$	$(7,7,2)^{3}$	$(7,8,2)^{12}$	$(7,9,2)^{2}$	$(7,10,2)^{12}$	$(7,11,2)^{3}$
5b	$(6,0,2)^{3}$	$(6,1,2)^{4}$	$(6,2,2)^{6}$	$(6,3,2)^{12}$	$(6,4,2)^{1}$	$(6,5,2)^{12}$	$(6,6,2)^{6}$	$(6,7,2)^{4}$	$(6,8,2)^{3}$	$(6,9,2)^{12}$	$(6,10,2)^{2}$	$(6,11,2)^{12}$
5	$(5,0,2)^{12}$	$(5,1,2)^{3}$	$(5,2,2)^{4}$	$(5,3,2)^{6}$	$(5,4,2)^{12}$	$(5,5,2)^{1}$	$(5,6,2)^{12}$	$(5,7,2)^{6}$	$(5,8,2)^{4}$	$(5,9,2)^{3}$	$(5,10,2)^{12}$	$(5,11,2)^{2}$
5#	$(4,0,2)^{2}$	$(4,1,2)^{12}$	$(4,2,2)^{3}$	$(4,3,2)^{4}$	$(4,4,2)^{6}$	$(4,5,2)^{12}$	$(4,6,2)^{1}$	$(4,7,2)^{12}$	$(4,8,2)^{6}$	$(4,9,2)^{4}$	$(4,10,2)^{3}$	$(4,11,2)^{12}$
6	$(3,0,2)^{12}$	$(3,1,2)^{2}$	$(3,2,2)^{12}$	$(3,3,2)^{3}$	$(3,4,2)^{4}$	$(3,5,2)^{6}$	$(3,6,2)^{12}$	$(3,7,2)^{1}$	$(3,8,2)^{12}$	$(3,9,2)^{6}$	$(3,10,2)^{4}$	$(3,11,2)^{3}$
7m	$(2,0,2)^{3}$	$(2,1,2)^{12}$	$(2,2,2)^{2}$	$(2,3,2)^{12}$	$(2,4,2)^{3}$	$(2,5,2)^{4}$	$(2,6,2)^{6}$	$(2,7,2)^{12}$	$(2,8,2)^{1}$	$(2,9,2)^{12}$	$(2,10,2)^{6}$	$(2,11,2)^{4}$
7M	$(1,0,2)^{4}$	$(1,1,2)^{3}$	$(1,2,2)^{12}$	$(1,3,2)^{2}$	$(1,4,2)^{12}$	$(1,5,2)^{3}$	$(1,6,2)^{4}$	$(1,7,2)^{6}$	$(1,8,2)^{12}$	$(1,9,2)^{1}$	$(1,10,2)^{12}$	$(1,11,2)^{6}$

Table 28: Selective inversion of the first component for fixed $K = 2$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,3)^{4}$	$(0,1,3)^{3}$	$(0,2,3)^{12}$	$(0,3,3)^{2}$	$(0,4,3)^{12}$	$(0,5,3)^{3}$	$(0,6,3)^{4}$	$(0,7,3)^{6}$	$(0,8,3)^{12}$	$(0,9,3)^{1}$	$(0,10,3)^{12}$	$(0,11,3)^{6}$
2m	$(11,0,3)^{6}$	$(11,1,3)^{4}$	$(11,2,3)^{3}$	$(11,3,3)^{12}$	$(11,4,3)^{2}$	$(11,5,3)^{12}$	$(11,6,3)^{3}$	$(11,7,3)^{4}$	$(11,8,3)^{6}$	$(11,9,3)^{12}$	$(11,10,3)^{1}$	$(11,11,3)^{12}$
2M	$(10,0,3)^{12}$	$(10,1,3)^{6}$	$(10,2,3)^{4}$	$(10,3,3)^{3}$	$(10,4,3)^{12}$	$(10,5,3)^{2}$	$(10,6,3)^{12}$	$(10,7,3)^{3}$	$(10,8,3)^{4}$	$(10,9,3)^{6}$	$(10,10,3)^{12}$	$(10,11,3)^{1}$
3m	$(9,0,3)^{1}$	$(9,1,3)^{12}$	$(9,2,3)^{6}$	$(9,3,3)^{4}$	$(9,4,3)^{3}$	$(9,5,3)^{12}$	$(9,6,3)^{2}$	$(9,7,3)^{12}$	$(9,8,3)^{3}$	$(9,9,3)^{4}$	$(9,10,3)^{6}$	$(9,11,3)^{12}$
3M	$(8,0,3)^{12}$	$(8,1,3)^{1}$	$(8,2,3)^{12}$	$(8,3,3)^{6}$	$(8,4,3)^{4}$	$(8,5,3)^{3}$	$(8,6,3)^{12}$	$(8,7,3)^{2}$	$(8,8,3)^{12}$	$(8,9,3)^{3}$	$(8,10,3)^{4}$	$(8,11,3)^{6}$
4	$(7,0,3)^{6}$	$(7,1,3)^{12}$	$(7,2,3)^{1}$	$(7,3,3)^{12}$	$(7,4,3)^{6}$	$(7,5,3)^{4}$	$(7,6,3)^{3}$	$(7,7,3)^{12}$	$(7,8,3)^{2}$	$(7,9,3)^{12}$	$(7,10,3)^{3}$	$(7,11,3)^{4}$
5b	$(6,0,3)^{4}$	$(6,1,3)^{6}$	$(6,2,3)^{12}$	$(6,3,3)^{1}$	$(6,4,3)^{12}$	$(6,5,3)^{6}$	$(6,6,3)^{4}$	$(6,7,3)^{3}$	$(6,8,3)^{12}$	$(6,9,3)^{2}$	$(6,10,3)^{12}$	$(6,11,3)^{3}$
5	$(5,0,3)^{3}$	$(5,1,3)^{4}$	$(5,2,3)^{6}$	$(5,3,3)^{12}$	$(5,4,3)^{1}$	$(5,5,3)^{12}$	$(5,6,3)^{6}$	$(5,7,3)^{4}$	$(5,8,3)^{3}$	$(5,9,3)^{12}$	$(5,10,3)^{2}$	$(5,11,3)^{12}$
5#	$(4,0,3)^{12}$	$(4,1,3)^{3}$	$(4,2,3)^{4}$	$(4,3,3)^{6}$	$(4,4,3)^{12}$	$(4,5,3)^{1}$	$(4,6,3)^{12}$	$(4,7,3)^{6}$	$(4,8,3)^{4}$	$(4,9,3)^{3}$	$(4,10,3)^{12}$	$(4,11,3)^{2}$
6	$(3,0,3)^{2}$	$(3,1,3)^{12}$	$(3,2,3)^{3}$	$(3,3,3)^{4}$	$(3,4,3)^{6}$	$(3,5,3)^{12}$	$(3,6,3)^{1}$	$(3,7,3)^{12}$	$(3,8,3)^{6}$	$(3,9,3)^{4}$	$(3,10,3)^{3}$	$(3,11,3)^{12}$
7m	$(2,0,3)^{12}$	$(2,1,3)^{2}$	$(2,2,3)^{12}$	$(2,3,3)^{3}$	$(2,4,3)^{4}$	$(2,5,3)^{6}$	$(2,6,3)^{12}$	$(2,7,3)^{1}$	$(2,8,3)^{12}$	$(2,9,3)^{6}$	$(2,10,3)^{4}$	$(2,11,3)^{3}$
7M	$(1,0,3)^{3}$	$(1,1,3)^{12}$	$(1,2,3)^{2}$	$(1,3,3)^{12}$	$(1,4,3)^{3}$	$(1,5,3)^{4}$	$(1,6,3)^{6}$	$(1,7,3)^{12}$	$(1,8,3)^{1}$	$(1,9,3)^{12}$	$(1,10,3)^{6}$	$(1,11,3)^{4}$

Table 29: Selective inversion of the first component for fixed $K = 3$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,4)^{3}$	$(0,1,4)^{12}$	$(0,2,4)^{2}$	$(0,3,4)^{12}$	$(0,4,4)^{3}$	$(0,5,4)^{4}$	$(0,6,4)^{6}$	$(0,7,4)^{12}$	$(0,8,4)^{1}$	$(0,9,4)^{12}$	$(0,10,4)^{6}$	$(0,11,4)^{4}$
2m	$(11,0,4)^{4}$	$(11,1,4)^{3}$	$(11,2,4)^{12}$	$(11,3,4)^{2}$	$(11,4,4)^{12}$	$(11,5,4)^{3}$	$(11,6,4)^{4}$	$(11,7,4)^{6}$	$(11,8,4)^{12}$	$(11,9,4)^{1}$	$(11,10,4)^{12}$	$(11,11,4)^{6}$
2M	$(10,0,4)^{6}$	$(10,1,4)^{4}$	$(10,2,4)^{3}$	$(10,3,4)^{12}$	$(10,4,4)^{2}$	$(10,5,4)^{12}$	$(10,6,4)^{3}$	$(10,7,4)^{4}$	$(10,8,4)^{6}$	$(10,9,4)^{12}$	$(10,10,4)^{1}$	$(10,11,4)^{12}$
3m	$(9,0,4)^{12}$	$(9,1,4)^{6}$	$(9,2,4)^{4}$	$(9,3,4)^{3}$	$(9,4,4)^{12}$	$(9,5,4)^{2}$	$(9,6,4)^{12}$	$(9,7,4)^{3}$	$(9,8,4)^{4}$	$(9,9,4)^{6}$	$(9,10,4)^{12}$	$(9,11,4)^{1}$
3M	$(8,0,4)^{1}$	$(8,1,4)^{12}$	$(8,2,4)^{6}$	$(8,3,4)^{4}$	$(8,4,4)^{3}$	$(8,5,4)^{12}$	$(8,6,4)^{2}$	$(8,7,4)^{12}$	$(8,8,4)^{3}$	$(8,9,4)^{4}$	$(8,10,4)^{6}$	$(8,11,4)^{12}$
4	$(7,0,4)^{12}$	$(7,1,4)^{1}$	$(7,2,4)^{12}$	$(7,3,4)^{6}$	$(7,4,4)^{4}$	$(7,5,4)^{3}$	$(7,6,4)^{12}$	$(7,7,4)^{2}$	$(7,8,4)^{12}$	$(7,9,4)^{3}$	$(7,10,4)^{4}$	$(7,11,4)^{6}$
5b	$(6,0,4)^{6}$	$(6,1,4)^{12}$	$(6,2,4)^{1}$	$(6,3,4)^{12}$	$(6,4,4)^{6}$	$(6,5,4)^{4}$	$(6,6,4)^{3}$	$(6,7,4)^{12}$	$(6,8,4)^{2}$	$(6,9,4)^{12}$	$(6,10,4)^{3}$	$(6,11,4)^{4}$
5	$(5,0,4)^{4}$	$(5,1,4)^{6}$	$(5,2,4)^{12}$	$(5,3,4)^{1}$	$(5,4,4)^{12}$	$(5,5,4)^{6}$	$(5,6,4)^{4}$	$(5,7,4)^{3}$	$(5,8,4)^{12}$	$(5,9,4)^{2}$	$(5,10,4)^{12}$	$(5,11,4)^{3}$
5#	$(4,0,4)^{3}$	$(4,1,4)^{4}$	$(4,2,4)^{6}$	$(4,3,4)^{12}$	$(4,4,4)^{1}$	$(4,5,4)^{12}$	$(4,6,4)^{6}$	$(4,7,4)^{4}$	$(4,8,4)^{3}$	$(4,9,4)^{12}$	$(4,10,4)^{2}$	$(4,11,4)^{12}$
6	$(3,0,4)^{12}$	$(3,1,4)^{3}$	$(3,2,4)^{4}$	$(3,3,4)^{6}$	$(3,4,4)^{12}$	$(3,5,4)^{1}$	$(3,6,4)^{12}$	$(3,7,4)^{6}$	$(3,8,4)^{4}$	$(3,9,4)^{3}$	$(3,10,4)^{12}$	$(3,11,4)^{2}$
7m	$(2,0,4)^{2}$	$(2,1,4)^{12}$	$(2,2,4)^{3}$	$(2,3,4)^{4}$	$(2,4,4)^{6}$	$(2,5,4)^{12}$	$(2,6,4)^{1}$	$(2,7,4)^{12}$	$(2,8,4)^{6}$	$(2,9,4)^{4}$	$(2,10,4)^{3}$	$(2,11,4)^{12}$
7M	$(1,0,4)^{12}$	$(1,1,4)^{2}$	$(1,2,4)^{12}$	$(1,3,4)^{3}$	$(1,4,4)^{4}$	$(1,5,4)^{6}$	$(1,6,4)^{12}$	$(1,7,4)^{1}$	$(1,8,4)^{12}$	$(1,9,4)^{6}$	$(1,10,4)^{4}$	$(1,11,4)^{3}$

Table 30: Selective inversion of the first component for fixed $K = 4$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,5)^{12}$	$(0,1,5)^{2}$	$(0,2,5)^{12}$	$(0,3,5)^{3}$	$(0,4,5)^{4}$	$(0,5,5)^{6}$	$(0,6,5)^{12}$	$(0,7,5)^{1}$	$(0,8,5)^{12}$	$(0,9,5)^{6}$	$(0,10,5)^{4}$	$(0,11,5)^{3}$
2m	$(11,0,5)^{3}$	$(11,1,5)^{12}$	$(11,2,5)^{2}$	$(11,3,5)^{12}$	$(11,4,5)^{3}$	$(11,5,5)^{4}$	$(11,6,5)^{6}$	$(11,7,5)^{12}$	$(11,8,5)^{1}$	$(11,9,5)^{12}$	$(11,10,5)^{6}$	$(11,11,5)^{4}$
2M	$(10,0,5)^{4}$	$(10,1,5)^{3}$	$(10,2,5)^{12}$	$(10,3,5)^{2}$	$(10,4,5)^{12}$	$(10,5,5)^{3}$	$(10,6,5)^{4}$	$(10,7,5)^{6}$	$(10,8,5)^{12}$	$(10,9,5)^{1}$	$(10,10,5)^{12}$	$(10,11,5)^{6}$
3m	$(9,0,5)^{6}$	$(9,1,5)^{4}$	$(9,2,5)^{3}$	$(9,3,5)^{12}$	$(9,4,5)^{2}$	$(9,5,5)^{12}$	$(9,6,5)^{3}$	$(9,7,5)^{4}$	$(9,8,5)^{6}$	$(9,9,5)^{12}$	$(9,10,5)^{1}$	$(9,11,5)^{12}$
3M	$(8,0,5)^{12}$	$(8,1,5)^{6}$	$(8,2,5)^{4}$	$(8,3,5)^{3}$	$(8,4,5)^{12}$	$(8,5,5)^{2}$	$(8,6,5)^{12}$	$(8,7,5)^{3}$	$(8,8,5)^{4}$	$(8,9,5)^{6}$	$(8,10,5)^{12}$	$(8,11,5)^{1}$
4	$(7,0,5)^{1}$	$(7,1,5)^{12}$	$(7,2,5)^{6}$	$(7,3,5)^{4}$	$(7,4,5)^{3}$	$(7,5,5)^{12}$	$(7,6,5)^{2}$	$(7,7,5)^{12}$	$(7,8,5)^{3}$	$(7,9,5)^{4}$	$(7,10,5)^{6}$	$(7,11,5)^{12}$
5b	$(6,0,5)^{12}$	$(6,1,5)^{1}$	$(6,2,5)^{12}$	$(6,3,5)^{6}$	$(6,4,5)^{4}$	$(6,5,5)^{3}$	$(6,6,5)^{12}$	$(6,7,5)^{2}$	$(6,8,5)^{12}$	$(6,9,5)^{3}$	$(6,10,5)^{4}$	$(6,11,5)^{6}$
5	$(5,0,5)^{6}$	$(5,1,5)^{12}$	$(5,2,5)^{1}$	$(5,3,5)^{12}$	$(5,4,5)^{6}$	$(5,5,5)^{4}$	$(5,6,5)^{3}$	$(5,7,5)^{12}$	$(5,8,5)^{2}$	$(5,9,5)^{12}$	$(5,10,5)^{3}$	$(5,11,5)^{4}$
5#	$(4,0,5)^{4}$	$(4,1,5)^{6}$	$(4,2,5)^{12}$	$(4,3,5)^{1}$	$(4,4,5)^{12}$	$(4,5,5)^{6}$	$(4,6,5)^{4}$	$(4,7,5)^{3}$	$(4,8,5)^{12}$	$(4,9,5)^{2}$	$(4,10,5)^{12}$	$(4,11,5)^{3}$
6	$(3,0,5)^{3}$	$(3,1,5)^{4}$	$(3,2,5)^{6}$	$(3,3,5)^{12}$	$(3,4,5)^{1}$	$(3,5,5)^{12}$	$(3,6,5)^{6}$	$(3,7,5)^{4}$	$(3,8,5)^{3}$	$(3,9,5)^{12}$	$(3,10,5)^{2}$	$(3,11,5)^{12}$
7m	$(2,0,5)^{12}$	$(2,1,5)^{3}$	$(2,2,5)^{4}$	$(2,3,5)^{6}$	$(2,4,5)^{12}$	$(2,5,5)^{1}$	$(2,6,5)^{12}$	$(2,7,5)^{6}$	$(2,8,5)^{4}$	$(2,9,5)^{3}$	$(2,10,5)^{12}$	$(2,11,5)^{2}$
7M	$(1,0,5)^{2}$	$(1,1,5)^{12}$	$(1,2,5)^{3}$	$(1,3,5)^{4}$	$(1,4,5)^{6}$	$(1,5,5)^{12}$	$(1,6,5)^{1}$	$(1,7,5)^{12}$	$(1,8,5)^{6}$	$(1,9,5)^{4}$	$(1,10,5)^{3}$	$(1,11,5)^{12}$

Table 31: Selective inversion of the first component for fixed $K = 5$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,6)^{2}$	$(0,1,6)^{12}$	$(0,2,6)^{3}$	$(0,3,6)^{4}$	$(0,4,6)^{6}$	$(0,5,6)^{12}$	$(0,6,6)^{1}$	$(0,7,6)^{12}$	$(0,8,6)^{6}$	$(0,9,6)^{4}$	$(0,10,6)^{3}$	$(0,11,6)^{12}$
2m	$(11,0,6)^{12}$	$(11,1,6)^{2}$	$(11,2,6)^{12}$	$(11,3,6)^{3}$	$(11,4,6)^{4}$	$(11,5,6)^{6}$	$(11,6,6)^{12}$	$(11,7,6)^{1}$	$(11,8,6)^{12}$	$(11,9,6)^{6}$	$(11,10,6)^{4}$	$(11,11,6)^{3}$
2M	$(10,0,6)^{3}$	$(10,1,6)^{12}$	$(10,2,6)^{2}$	$(10,3,6)^{12}$	$(10,4,6)^{3}$	$(10,5,6)^{4}$	$(10,6,6)^{6}$	$(10,7,6)^{12}$	$(10,8,6)^{1}$	$(10,9,6)^{12}$	$(10,10,6)^{6}$	$(10,11,6)^{4}$
3m	$(9,0,6)^{4}$	$(9,1,6)^{3}$	$(9,2,6)^{12}$	$(9,3,6)^{2}$	$(9,4,6)^{12}$	$(9,5,6)^{3}$	$(9,6,6)^{4}$	$(9,7,6)^{6}$	$(9,8,6)^{12}$	$(9,9,6)^{1}$	$(9,10,6)^{12}$	$(9,11,6)^{6}$
3M	$(8,0,6)^{6}$	$(8,1,6)^{4}$	$(8,2,6)^{3}$	$(8,3,6)^{12}$	$(8,4,6)^{2}$	$(8,5,6)^{12}$	$(8,6,6)^{3}$	$(8,7,6)^{4}$	$(8,8,6)^{6}$	$(8,9,6)^{12}$	$(8,10,6)^{1}$	$(8,11,6)^{12}$
4	$(7,0,6)^{12}$	$(7,1,6)^{6}$	$(7,2,6)^{4}$	$(7,3,6)^{3}$	$(7,4,6)^{12}$	$(7,5,6)^{2}$	$(7,6,6)^{12}$	$(7,7,6)^{3}$	$(7,8,6)^{4}$	$(7,9,6)^{6}$	$(7,10,6)^{12}$	$(7,11,6)^{1}$
5b	$(6,0,6)^{1}$	$(6,1,6)^{12}$	$(6,2,6)^{6}$	$(6,3,6)^{4}$	$(6,4,6)^{3}$	$(6,5,6)^{12}$	$(6,6,6)^{2}$	$(6,7,6)^{12}$	$(6,8,6)^{3}$	$(6,9,6)^{4}$	$(6,10,6)^{6}$	$(6,11,6)^{12}$
5	$(5,0,6)^{12}$	$(5,1,6)^{1}$	$(5,2,6)^{12}$	$(5,3,6)^{6}$	$(5,4,6)^{4}$	$(5,5,6)^{3}$	$(5,6,6)^{12}$	$(5,7,6)^{2}$	$(5,8,6)^{12}$	$(5,9,6)^{3}$	$(5,10,6)^{4}$	$(5,11,6)^{6}$
5#	$(4,0,6)^{6}$	$(4,1,6)^{12}$	$(4,2,6)^{1}$	$(4,3,6)^{12}$	$(4,4,6)^{6}$	$(4,5,6)^{4}$	$(4,6,6)^{3}$	$(4,7,6)^{12}$	$(4,8,6)^{2}$	$(4,9,6)^{12}$	$(4,10,6)^{3}$	$(4,11,6)^{4}$
6	$(3,0,6)^{4}$	$(3,1,6)^{6}$	$(3,2,6)^{12}$	$(3,3,6)^{1}$	$(3,4,6)^{12}$	$(3,5,6)^{6}$	$(3,6,6)^{4}$	$(3,7,6)^{3}$	$(3,8,6)^{12}$	$(3,9,6)^{2}$	$(3,10,6)^{12}$	$(3,11,6)^{3}$
7m	$(2,0,6)^{3}$	$(2,1,6)^{4}$	$(2,2,6)^{6}$	$(2,3,6)^{12}$	$(2,4,6)^{1}$	$(2,5,6)^{12}$	$(2,6,6)^{6}$	$(2,7,6)^{4}$	$(2,8,6)^{3}$	$(2,9,6)^{12}$	$(2,10,6)^{2}$	$(2,11,6)^{12}$
7M	$(1,0,6)^{12}$	$(1,1,6)^{3}$	$(1,2,6)^{4}$	$(1,3,6)^{6}$	$(1,4,6)^{12}$	$(1,5,6)^{1}$	$(1,6,6)^{12}$	$(1,7,6)^{6}$	$(1,8,6)^{4}$	$(1,9,6)^{3}$	$(1,10,6)^{12}$	$(1,11,6)^{2}$

Table 32: Selective inversion of the first component for fixed $K = 6$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,7)^{12}$	$(0,1,7)^{3}$	$(0,2,7)^{4}$	$(0,3,7)^{6}$	$(0,4,7)^{12}$	$(0,5,7)^{1}$	$(0,6,7)^{12}$	$(0,7,7)^{6}$	$(0,8,7)^{4}$	$(0,9,7)^{3}$	$(0,10,7)^{12}$	$(0,11,7)^{2}$
2m	$(11,0,7)^{2}$	$(11,1,7)^{12}$	$(11,2,7)^{3}$	$(11,3,7)^{4}$	$(11,4,7)^{6}$	$(11,5,7)^{12}$	$(11,6,7)^{1}$	$(11,7,7)^{12}$	$(11,8,7)^{6}$	$(11,9,7)^{4}$	$(11,10,7)^{3}$	$(11,11,7)^{12}$
2M	$(10,0,7)^{12}$	$(10,1,7)^{2}$	$(10,2,7)^{12}$	$(10,3,7)^{3}$	$(10,4,7)^{4}$	$(10,5,7)^{6}$	$(10,6,7)^{12}$	$(10,7,7)^{1}$	$(10,8,7)^{12}$	$(10,9,7)^{6}$	$(10,10,7)^{4}$	$(10,11,7)^{3}$
3m	$(9,0,7)^{3}$	$(9,1,7)^{12}$	$(9,2,7)^{2}$	$(9,3,7)^{12}$	$(9,4,7)^{3}$	$(9,5,7)^{4}$	$(9,6,7)^{6}$	$(9,7,7)^{12}$	$(9,8,7)^{1}$	$(9,9,7)^{12}$	$(9,10,7)^{6}$	$(9,11,7)^{4}$
3M	$(8,0,7)^{4}$	$(8,1,7)^{3}$	$(8,2,7)^{12}$	$(8,3,7)^{2}$	$(8,4,7)^{12}$	$(8,5,7)^{3}$	$(8,6,7)^{4}$	$(8,7,7)^{6}$	$(8,8,7)^{12}$	$(8,9,7)^{1}$	$(8,10,7)^{12}$	$(8,11,7)^{6}$
4	$(7,0,7)^{6}$	$(7,1,7)^{4}$	$(7,2,7)^{3}$	$(7,3,7)^{12}$	$(7,4,7)^{2}$	$(7,5,7)^{12}$	$(7,6,7)^{3}$	$(7,7,7)^{4}$	$(7,8,7)^{6}$	$(7,9,7)^{12}$	$(7,10,7)^{1}$	$(7,11,7)^{12}$
5b	$(6,0,7)^{12}$	$(6,1,7)^{6}$	$(6,2,7)^{4}$	$(6,3,7)^{3}$	$(6,4,7)^{12}$	$(6,5,7)^{2}$	$(6,6,7)^{12}$	$(6,7,7)^{3}$	$(6,8,7)^{4}$	$(6,9,7)^{6}$	$(6,10,7)^{12}$	$(6,11,7)^{1}$
5	$(5,0,7)^{1}$	$(5,1,7)^{12}$	$(5,2,7)^{6}$	$(5,3,7)^{4}$	$(5,4,7)^{3}$	$(5,5,7)^{12}$	$(5,6,7)^{2}$	$(5,7,7)^{12}$	$(5,8,7)^{3}$	$(5,9,7)^{4}$	$(5,10,7)^{6}$	$(5,11,7)^{12}$
5#	$(4,0,7)^{12}$	$(4,1,7)^{1}$	$(4,2,7)^{12}$	$(4,3,7)^{6}$	$(4,4,7)^{4}$	$(4,5,7)^{3}$	$(4,6,7)^{12}$	$(4,7,7)^{2}$	$(4,8,7)^{12}$	$(4,9,7)^{3}$	$(4,10,7)^{4}$	$(4,11,7)^{6}$
6	$(3,0,7)^{6}$	$(3,1,7)^{12}$	$(3,2,7)^{1}$	$(3,3,7)^{12}$	$(3,4,7)^{6}$	$(3,5,7)^{4}$	$(3,6,7)^{3}$	$(3,7,7)^{12}$	$(3,8,7)^{2}$	$(3,9,7)^{12}$	$(3,10,7)^{3}$	$(3,11,7)^{4}$
7m	$(2,0,7)^{4}$	$(2,1,7)^{6}$	$(2,2,7)^{12}$	$(2,3,7)^{1}$	$(2,4,7)^{12}$	$(2,5,7)^{6}$	$(2,6,7)^{4}$	$(2,7,7)^{3}$	$(2,8,7)^{12}$	$(2,9,7)^{2}$	$(2,10,7)^{12}$	$(2,11,7)^{3}$
7M	$(1,0,7)^{3}$	$(1,1,7)^{4}$	$(1,2,7)^{6}$	$(1,3,7)^{12}$	$(1,4,7)^{1}$	$(1,5,7)^{12}$	$(1,6,7)^{6}$	$(1,7,7)^{4}$	$(1,8,7)^{3}$	$(1,9,7)^{12}$	$(1,10,7)^{2}$	$(1,11,7)^{12}$

Table 33: Selective inversion of the first component for fixed $K = 7$.

Selective inversion of I, slice $K = 2$: 2M

Selective inversion of I, slice $K = 3$: 3m

Selective inversion of I, slice $K = 4$: 3M

Selective inversion of I, slice $K = 5$: 4

Selective inversion of I, slice $K = 6$: 5b

Selective inversion of I, slice $K = 7$: 5

Selective inversion of I, slice $K = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,8)^{3}$	$(0,1,8)^{4}$	$(0,2,8)^{6}$	$(0,3,8)^{12}$	$(0,4,8)^{1}$	$(0,5,8)^{12}$	$(0,6,8)^{6}$	$(0,7,8)^{4}$	$(0,8,8)^{3}$	$(0,9,8)^{12}$	$(0,10,8)^{2}$	$(0,11,8)^{12}$
2m	$(11,0,8)^{12}$	$(11,1,8)^{3}$	$(11,2,8)^{4}$	$(11,3,8)^{6}$	$(11,4,8)^{12}$	$(11,5,8)^{1}$	$(11,6,8)^{12}$	$(11,7,8)^{6}$	$(11,8,8)^{4}$	$(11,9,8)^{3}$	$(11,10,8)^{12}$	$(11,11,8)^{2}$
2M	$(10,0,8)^{2}$	$(10,1,8)^{12}$	$(10,2,8)^{3}$	$(10,3,8)^{4}$	$(10,4,8)^{6}$	$(10,5,8)^{12}$	$(10,6,8)^{1}$	$(10,7,8)^{12}$	$(10,8,8)^{6}$	$(10,9,8)^{4}$	$(10,10,8)^{3}$	$(10,11,8)^{12}$
3m	$(9,0,8)^{12}$	$(9,1,8)^{2}$	$(9,2,8)^{12}$	$(9,3,8)^{3}$	$(9,4,8)^{4}$	$(9,5,8)^{6}$	$(9,6,8)^{12}$	$(9,7,8)^{1}$	$(9,8,8)^{12}$	$(9,9,8)^{6}$	$(9,10,8)^{4}$	$(9,11,8)^{3}$
3M	$(8,0,8)^{3}$	$(8,1,8)^{12}$	$(8,2,8)^{2}$	$(8,3,8)^{12}$	$(8,4,8)^{3}$	$(8,5,8)^{4}$	$(8,6,8)^{6}$	$(8,7,8)^{12}$	$(8,8,8)^{1}$	$(8,9,8)^{12}$	$(8,10,8)^{6}$	$(8,11,8)^{4}$
4	$(7,0,8)^{4}$	$(7,1,8)^{3}$	$(7,2,8)^{12}$	$(7,3,8)^{2}$	$(7,4,8)^{12}$	$(7,5,8)^{3}$	$(7,6,8)^{4}$	$(7,7,8)^{6}$	$(7,8,8)^{12}$	$(7,9,8)^{1}$	$(7,10,8)^{12}$	$(7,11,8)^{6}$
5b	$(6,0,8)^{6}$	$(6,1,8)^{4}$	$(6,2,8)^{3}$	$(6,3,8)^{12}$	$(6,4,8)^{2}$	$(6,5,8)^{12}$	$(6,6,8)^{3}$	$(6,7,8)^{4}$	$(6,8,8)^{6}$	$(6,9,8)^{12}$	$(6,10,8)^{1}$	$(6,11,8)^{12}$
5	$(5,0,8)^{12}$	$(5,1,8)^{6}$	$(5,2,8)^{4}$	$(5,3,8)^{3}$	$(5,4,8)^{12}$	$(5,5,8)^{2}$	$(5,6,8)^{12}$	$(5,7,8)^{3}$	$(5,8,8)^{4}$	$(5,9,8)^{6}$	$(5,10,8)^{12}$	$(5,11,8)^{1}$
5#	$(4,0,8)^{1}$	$(4,1,8)^{12}$	$(4,2,8)^{6}$	$(4,3,8)^{4}$	$(4,4,8)^{3}$	$(4,5,8)^{12}$	$(4,6,8)^{2}$	$(4,7,8)^{12}$	$(4,8,8)^{3}$	$(4,9,8)^{4}$	$(4,10,8)^{6}$	$(4,11,8)^{12}$
6	$(3,0,8)^{12}$	$(3,1,8)^{1}$	$(3,2,8)^{12}$	$(3,3,8)^{6}$	$(3,4,8)^{4}$	$(3,5,8)^{3}$	$(3,6,8)^{12}$	$(3,7,8)^{2}$	$(3,8,8)^{12}$	$(3,9,8)^{3}$	$(3,10,8)^{4}$	$(3,11,8)^{6}$
7m	$(2,0,8)^{6}$	$(2,1,8)^{12}$	$(2,2,8)^{1}$	$(2,3,8)^{12}$	$(2,4,8)^{6}$	$(2,5,8)^{4}$	$(2,6,8)^{3}$	$(2,7,8)^{12}$	$(2,8,8)^{2}$	$(2,9,8)^{12}$	$(2,10,8)^{3}$	$(2,11,8)^{4}$
7M	$(1,0,8)^{4}$	$(1,1,8)^{6}$	$(1,2,8)^{12}$	$(1,3,8)^{1}$	$(1,4,8)^{12}$	$(1,5,8)^{6}$	$(1,6,8)^{4}$	$(1,7,8)^{3}$	$(1,8,8)^{12}$	$(1,9,8)^{2}$	$(1,10,8)^{12}$	$(1,11,8)^{3}$

Table 34: Selective inversion of the first component for fixed $K = 8$.

Selective inversion of I, slice $K = 9$: **6**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,9)^{4}$	$(0,1,9)^{6}$	$(0,2,9)^{12}$	$(0,3,9)^{1}$	$(0,4,9)^{12}$	$(0,5,9)^{6}$	$(0,6,9)^{4}$	$(0,7,9)^{3}$	$(0,8,9)^{12}$	$(0,9,9)^{2}$	$(0,10,9)^{12}$	$(0,11,9)^{3}$
2m	$(11,0,9)^{3}$	$(11,1,9)^{4}$	$(11,2,9)^{6}$	$(11,3,9)^{12}$	$(11,4,9)^{1}$	$(11,5,9)^{12}$	$(11,6,9)^{6}$	$(11,7,9)^{4}$	$(11,8,9)^{3}$	$(11,9,9)^{12}$	$(11,10,9)^{2}$	$(11,11,9)^{12}$
2M	$(10,0,9)^{12}$	$(10,1,9)^{3}$	$(10,2,9)^{4}$	$(10,3,9)^{6}$	$(10,4,9)^{12}$	$(10,5,9)^{1}$	$(10,6,9)^{12}$	$(10,7,9)^{6}$	$(10,8,9)^{4}$	$(10,9,9)^{3}$	$(10,10,9)^{12}$	$(10,11,9)^{2}$
3m	$(9,0,9)^{2}$	$(9,1,9)^{12}$	$(9,2,9)^{3}$	$(9,3,9)^{4}$	$(9,4,9)^{6}$	$(9,5,9)^{12}$	$(9,6,9)^{1}$	$(9,7,9)^{12}$	$(9,8,9)^{6}$	$(9,9,9)^{4}$	$(9,10,9)^{3}$	$(9,11,9)^{12}$
3M	$(8,0,9)^{12}$	$(8,1,9)^{2}$	$(8,2,9)^{12}$	$(8,3,9)^{3}$	$(8,4,9)^{4}$	$(8,5,9)^{6}$	$(8,6,9)^{12}$	$(8,7,9)^{1}$	$(8,8,9)^{12}$	$(8,9,9)^{6}$	$(8,10,9)^{4}$	$(8,11,9)^{3}$
4	$(7,0,9)^{3}$	$(7,1,9)^{12}$	$(7,2,9)^{2}$	$(7,3,9)^{12}$	$(7,4,9)^{3}$	$(7,5,9)^{4}$	$(7,6,9)^{6}$	$(7,7,9)^{12}$	$(7,8,9)^{1}$	$(7,9,9)^{12}$	$(7,10,9)^{6}$	$(7,11,9)^{4}$
5b	$(6,0,9)^{4}$	$(6,1,9)^{3}$	$(6,2,9)^{12}$	$(6,3,9)^{2}$	$(6,4,9)^{12}$	$(6,5,9)^{3}$	$(6,6,9)^{4}$	$(6,7,9)^{6}$	$(6,8,9)^{12}$	$(6,9,9)^{1}$	$(6,10,9)^{12}$	$(6,11,9)^{6}$
5	$(5,0,9)^{6}$	$(5,1,9)^{4}$	$(5,2,9)^{3}$	$(5,3,9)^{12}$	$(5,4,9)^{2}$	$(5,5,9)^{12}$	$(5,6,9)^{3}$	$(5,7,9)^{4}$	$(5,8,9)^{6}$	$(5,9,9)^{12}$	$(5,10,9)^{1}$	$(5,11,9)^{12}$
5#	$(4,0,9)^{12}$	$(4,1,9)^{6}$	$(4,2,9)^{4}$	$(4,3,9)^{3}$	$(4,4,9)^{12}$	$(4,5,9)^{2}$	$(4,6,9)^{12}$	$(4,7,9)^{3}$	$(4,8,9)^{4}$	$(4,9,9)^{6}$	$(4,10,9)^{12}$	$(4,11,9)^{1}$
6	$(3,0,9)^{1}$	$(3,1,9)^{12}$	$(3,2,9)^{6}$	$(3,3,9)^{4}$	$(3,4,9)^{3}$	$(3,5,9)^{12}$	$(3,6,9)^{2}$	$(3,7,9)^{12}$	$(3,8,9)^{3}$	$(3,9,9)^{4}$	$(3,10,9)^{6}$	$(3,11,9)^{12}$
7m	$(2,0,9)^{12}$	$(2,1,9)^{1}$	$(2,2,9)^{12}$	$(2,3,9)^{6}$	$(2,4,9)^{4}$	$(2,5,9)^{3}$	$(2,6,9)^{12}$	$(2,7,9)^{2}$	$(2,8,9)^{12}$	$(2,9,9)^{3}$	$(2,10,9)^{4}$	$(2,11,9)^{6}$
7M	$(1,0,9)^{6}$	$(1,1,9)^{12}$	$(1,2,9)^{1}$	$(1,3,9)^{12}$	$(1,4,9)^{6}$	$(1,5,9)^{4}$	$(1,6,9)^{3}$	$(1,7,9)^{12}$	$(1,8,9)^{2}$	$(1,9,9)^{12}$	$(1,10,9)^{3}$	$(1,11,9)^{4}$

Table 35: Selective inversion of the first component for fixed $K = 9$.

Selective inversion of I, slice $K = 10$: **7m**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,10)^{6}$	$(0,1,10)^{12}$	$(0,2,10)^{1}$	$(0,3,10)^{12}$	$(0,4,10)^{6}$	$(0,5,10)^{4}$	$(0,6,10)^{3}$	$(0,7,10)^{12}$	$(0,8,10)^{2}$	$(0,9,10)^{12}$	$(0,10,10)^{3}$	$(0,11,10)^{4}$
2m	$(11,0,10)^{4}$	$(11,1,10)^{6}$	$(11,2,10)^{12}$	$(11,3,10)^{1}$	$(11,4,10)^{12}$	$(11,5,10)^{6}$	$(11,6,10)^{4}$	$(11,7,10)^{3}$	$(11,8,10)^{12}$	$(11,9,10)^{2}$	$(11,10,10)^{12}$	$(11,11,10)^{3}$
2M	$(10,0,10)^{3}$	$(10,1,10)^{4}$	$(10,2,10)^{6}$	$(10,3,10)^{12}$	$(10,4,10)^{1}$	$(10,5,10)^{12}$	$(10,6,10)^{6}$	$(10,7,10)^{4}$	$(10,8,10)^{3}$	$(10,9,10)^{12}$	$(10,10,10)^{2}$	$(10,11,10)^{12}$
3m	$(9,0,10)^{12}$	$(9,1,10)^{3}$	$(9,2,10)^{4}$	$(9,3,10)^{6}$	$(9,4,10)^{12}$	$(9,5,10)^{1}$	$(9,6,10)^{12}$	$(9,7,10)^{6}$	$(9,8,10)^{4}$	$(9,9,10)^{3}$	$(9,10,10)^{12}$	$(9,11,10)^{2}$
3M	$(8,0,10)^{2}$	$(8,1,10)^{12}$	$(8,2,10)^{3}$	$(8,3,10)^{4}$	$(8,4,10)^{6}$	$(8,5,10)^{12}$	$(8,6,10)^{1}$	$(8,7,10)^{12}$	$(8,8,10)^{6}$	$(8,9,10)^{4}$	$(8,10,10)^{3}$	$(8,11,10)^{12}$
4	$(7,0,10)^{12}$	$(7,1,10)^{2}$	$(7,2,10)^{12}$	$(7,3,10)^{3}$	$(7,4,10)^{4}$	$(7,5,10)^{6}$	$(7,6,10)^{12}$	$(7,7,10)^{1}$	$(7,8,10)^{12}$	$(7,9,10)^{6}$	$(7,10,10)^{4}$	$(7,11,10)^{3}$
5b	$(6,0,10)^{3}$	$(6,1,10)^{12}$	$(6,2,10)^{2}$	$(6,3,10)^{12}$	$(6,4,10)^{3}$	$(6,5,10)^{4}$	$(6,6,10)^{6}$	$(6,7,10)^{12}$	$(6,8,10)^{1}$	$(6,9,10)^{12}$	$(6,10,10)^{6}$	$(6,11,10)^{4}$
5	$(5,0,10)^{4}$	$(5,1,10)^{3}$	$(5,2,10)^{12}$	$(5,3,10)^{2}$	$(5,4,10)^{12}$	$(5,5,10)^{3}$	$(5,6,10)^{4}$	$(5,7,10)^{6}$	$(5,8,10)^{12}$	$(5,9,10)^{1}$	$(5,10,10)^{12}$	$(5,11,10)^{6}$
5#	$(4,0,10)^{6}$	$(4,1,10)^{4}$	$(4,2,10)^{3}$	$(4,3,10)^{12}$	$(4,4,10)^{2}$	$(4,5,10)^{12}$	$(4,6,10)^{3}$	$(4,7,10)^{4}$	$(4,8,10)^{6}$	$(4,9,10)^{12}$	$(4,10,10)^{1}$	$(4,11,10)^{12}$
6	$(3,0,10)^{12}$	$(3,1,10)^{6}$	$(3,2,10)^{4}$	$(3,3,10)^{3}$	$(3,4,10)^{12}$	$(3,5,10)^{2}$	$(3,6,10)^{12}$	$(3,7,10)^{3}$	$(3,8,10)^{4}$	$(3,9,10)^{6}$	$(3,10,10)^{12}$	$(3,11,10)^{1}$
7m	$(2,0,10)^{1}$	$(2,1,10)^{12}$	$(2,2,10)^{6}$	$(2,3,10)^{4}$	$(2,4,10)^{3}$	$(2,5,10)^{12}$	$(2,6,10)^{2}$	$(2,7,10)^{12}$	$(2,8,10)^{3}$	$(2,9,10)^{4}$	$(2,10,10)^{6}$	$(2,11,10)^{12}$
7M	$(1,0,10)^{12}$	$(1,1,10)^{1}$	$(1,2,10)^{12}$	$(1,3,10)^{6}$	$(1,4,10)^{4}$	$(1,5,10)^{3}$	$(1,6,10)^{12}$	$(1,7,10)^{2}$	$(1,8,10)^{12}$	$(1,9,10)^{3}$	$(1,10,10)^{4}$	$(1,11,10)^{6}$

Table 36: Selective inversion of the first component for fixed $K = 10$.

Selective inversion of I, slice $K = 11$: **7M**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,11)^{12}$	$(0,1,11)^{1}$	$(0,2,11)^{12}$	$(0,3,11)^{6}$	$(0,4,11)^{4}$	$(0,5,11)^{3}$	$(0,6,11)^{12}$	$(0,7,11)^{2}$	$(0,8,11)^{12}$	$(0,9,11)^{3}$	$(0,10,11)^{4}$	$(0,11,11)^{6}$
2m	$(11,0,11)^{6}$	$(11,1,11)^{12}$	$(11,2,11)^{1}$	$(11,3,11)^{12}$	$(11,4,11)^{6}$	$(11,5,11)^{4}$	$(11,6,11)^{3}$	$(11,7,11)^{12}$	$(11,8,11)^{2}$	$(11,9,11)^{12}$	$(11,10,11)^{3}$	$(11,11,11)^{4}$
2M	$(10,0,11)^{4}$	$(10,1,11)^{6}$	$(10,2,11)^{12}$	$(10,3,11)^{1}$	$(10,4,11)^{12}$	$(10,5,11)^{6}$	$(10,6,11)^{4}$	$(10,7,11)^{3}$	$(10,8,11)^{12}$	$(10,9,11)^{2}$	$(10,10,11)^{12}$	$(10,11,11)^{3}$
3m	$(9,0,11)^{3}$	$(9,1,11)^{4}$	$(9,2,11)^{6}$	$(9,3,11)^{12}$	$(9,4,11)^{1}$	$(9,5,11)^{12}$	$(9,6,11)^{6}$	$(9,7,11)^{4}$	$(9,8,11)^{3}$	$(9,9,11)^{12}$	$(9,10,11)^{2}$	$(9,11,11)^{12}$
3M	$(8,0,11)^{12}$	$(8,1,11)^{3}$	$(8,2,11)^{4}$	$(8,3,11)^{6}$	$(8,4,11)^{12}$	$(8,5,11)^{1}$	$(8,6,11)^{12}$	$(8,7,11)^{6}$	$(8,8,11)^{4}$	$(8,9,11)^{3}$	$(8,10,11)^{12}$	$(8,11,11)^{2}$
4	$(7,0,11)^{2}$	$(7,1,11)^{12}$	$(7,2,11)^{3}$	$(7,3,11)^{4}$	$(7,4,11)^{6}$	$(7,5,11)^{12}$	$(7,6,11)^{1}$	$(7,7,11)^{12}$	$(7,8,11)^{6}$	$(7,9,11)^{4}$	$(7,10,11)^{3}$	$(7,11,11)^{12}$
5b	$(6,0,11)^{12}$	$(6,1,11)^{2}$	$(6,2,11)^{12}$	$(6,3,11)^{3}$	$(6,4,11)^{4}$	$(6,5,11)^{6}$	$(6,6,11)^{12}$	$(6,7,11)^{1}$	$(6,8,11)^{12}$	$(6,9,11)^{6}$	$(6,10,11)^{4}$	$(6,11,11)^{3}$
5	$(5,0,11)^{3}$	$(5,1,11)^{12}$	$(5,2,11)^{2}$	$(5,3,11)^{12}$	$(5,4,11)^{3}$	$(5,5,11)^{4}$	$(5,6,11)^{6}$	$(5,7,11)^{12}$	$(5,8,11)^{1}$	$(5,9,11)^{12}$	$(5,10,11)^{6}$	$(5,11,11)^{4}$
5#	$(4,0,11)^{4}$	$(4,1,11)^{3}$	$(4,2,11)^{12}$	$(4,3,11)^{2}$	$(4,4,11)^{12}$	$(4,5,11)^{3}$	$(4,6,11)^{4}$	$(4,7,11)^{6}$	$(4,8,11)^{12}$	$(4,9,11)^{1}$	$(4,10,11)^{12}$	$(4,11,11)^{6}$
6	$(3,0,11)^{6}$	$(3,1,11)^{4}$	$(3,2,11)^{3}$	$(3,3,11)^{12}$	$(3,4,11)^{2}$	$(3,5,11)^{12}$	$(3,6,11)^{3}$	$(3,7,11)^{4}$	$(3,8,11)^{6}$	$(3,9,11)^{12}$	$(3,10,11)^{1}$	$(3,11,11)^{12}$
7m	$(2,0,11)^{12}$	$(2,1,11)^{6}$	$(2,2,11)^{4}$	$(2,3,11)^{3}$	$(2,4,11)^{12}$	$(2,5,11)^{2}$	$(2,6,11)^{12}$	$(2,7,11)^{3}$	$(2,8,11)^{4}$	$(2,9,11)^{6}$	$(2,10,11)^{12}$	$(2,11,11)^{1}$
7M	$(1,0,11)^{1}$	$(1,1,11)^{12}$	$(1,2,11)^{6}$	$(1,3,11)^{4}$	$(1,4,11)^{3}$	$(1,5,11)^{12}$	$(1,6,11)^{2}$	$(1,7,11)^{12}$	$(1,8,11)^{3}$	$(1,9,11)^{4}$	$(1,10,11)^{6}$	$(1,11,11)^{12}$

Table 37: Selective inversion of the first component for fixed $K = 11$.

Ascending-Contour Normalization Matrices

Each original coordinate (I, J, K) is rewritten as an ascending interval contour:

$$(I, J, K) \mapsto \mathrm{sort}(I, J, K).$$

The resulting entries preserve intervallic content but remove the original order, allowing comparison between ordered ternary operators and their unordered contour class.

Ascending-contour normalization, source slice $K = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(0,0,1)^{12}$	$(0,0,2)^{6}$	$(0,0,3)^{4}$	$(0,0,4)^{3}$	$(0,0,5)^{12}$	$(0,0,6)^{2}$	$(0,0,7)^{12}$	$(0,0,8)^{3}$	$(0,0,9)^{4}$	$(0,0,10)^{6}$	$(0,0,11)^{12}$
2m	$(0,0,1)^{12}$	$(0,1,1)^{6}$	$(0,1,2)^{4}$	$(0,1,3)^{3}$	$(0,1,4)^{12}$	$(0,1,5)^{2}$	$(0,1,6)^{12}$	$(0,1,7)^{3}$	$(0,1,8)^{4}$	$(0,1,9)^{6}$	$(0,1,10)^{12}$	$(0,1,11)^{1}$
2M	$(0,0,2)^{6}$	$(0,1,2)^{4}$	$(0,2,2)^{3}$	$(0,2,3)^{12}$	$(0,2,4)^{2}$	$(0,2,5)^{12}$	$(0,2,6)^{3}$	$(0,2,7)^{4}$	$(0,2,8)^{6}$	$(0,2,9)^{12}$	$(0,2,10)^{1}$	$(0,2,11)^{12}$
3m	$(0,0,3)^{4}$	$(0,1,3)^{3}$	$(0,2,3)^{12}$	$(0,3,3)^{2}$	$(0,3,4)^{12}$	$(0,3,5)^{3}$	$(0,3,6)^{4}$	$(0,3,7)^{6}$	$(0,3,8)^{12}$	$(0,3,9)^{1}$	$(0,3,10)^{12}$	$(0,3,11)^{6}$
3M	$(0,0,4)^{3}$	$(0,1,4)^{12}$	$(0,2,4)^{2}$	$(0,3,4)^{12}$	$(0,4,4)^{3}$	$(0,4,5)^{4}$	$(0,4,6)^{6}$	$(0,4,7)^{12}$	$(0,4,8)^{1}$	$(0,4,9)^{12}$	$(0,4,10)^{6}$	$(0,4,11)^{4}$
4	$(0,0,5)^{12}$	$(0,1,5)^{2}$	$(0,2,5)^{12}$	$(0,3,5)^{3}$	$(0,4,5)^{4}$	$(0,5,5)^{6}$	$(0,5,6)^{12}$	$(0,5,7)^{1}$	$(0,5,8)^{12}$	$(0,5,9)^{6}$	$(0,5,10)^{4}$	$(0,5,11)^{3}$
5b	$(0,0,6)^{2}$	$(0,1,6)^{12}$	$(0,2,6)^{3}$	$(0,3,6)^{4}$	$(0,4,6)^{6}$	$(0,5,6)^{12}$	$(0,6,6)^{1}$	$(0,6,7)^{12}$	$(0,6,8)^{6}$	$(0,6,9)^{4}$	$(0,6,10)^{3}$	$(0,6,11)^{12}$
5	$(0,0,7)^{12}$	$(0,1,7)^{3}$	$(0,2,7)^{4}$	$(0,3,7)^{6}$	$(0,4,7)^{12}$	$(0,5,7)^{1}$	$(0,6,7)^{12}$	$(0,7,7)^{6}$	$(0,7,8)^{4}$	$(0,7,9)^{3}$	$(0,7,10)^{12}$	$(0,7,11)^{2}$
5#	$(0,0,8)^{3}$	$(0,1,8)^{4}$	$(0,2,8)^{6}$	$(0,3,8)^{12}$	$(0,4,8)^{1}$	$(0,5,8)^{12}$	$(0,6,8)^{6}$	$(0,7,8)^{4}$	$(0,8,8)^{3}$	$(0,8,9)^{12}$	$(0,8,10)^{2}$	$(0,8,11)^{12}$
6	$(0,0,9)^{4}$	$(0,1,9)^{6}$	$(0,2,9)^{12}$	$(0,3,9)^{1}$	$(0,4,9)^{12}$	$(0,5,9)^{6}$	$(0,6,9)^{4}$	$(0,7,9)^{3}$	$(0,8,9)^{12}$	$(0,9,9)^{2}$	$(0,9,10)^{12}$	$(0,9,11)^{3}$
7m	$(0,0,10)^{6}$	$(0,1,10)^{12}$	$(0,2,10)^{1}$	$(0,3,10)^{12}$	$(0,4,10)^{6}$	$(0,5,10)^{4}$	$(0,6,10)^{3}$	$(0,7,10)^{12}$	$(0,8,10)^{2}$	$(0,9,10)^{12}$	$(0,10,10)^{3}$	$(0,10,11)^{4}$
7M	$(0,0,11)^{12}$	$(0,1,11)^{1}$	$(0,2,11)^{12}$	$(0,3,11)^{6}$	$(0,4,11)^{4}$	$(0,5,11)^{3}$	$(0,6,11)^{12}$	$(0,7,11)^{2}$	$(0,8,11)^{12}$	$(0,9,11)^{3}$	$(0,10,11)^{4}$	$(0,11,11)^{6}$

Table 38: Ascending-contour normalized operators for source slice $K = 0$.

Ascending-contour normalization, source slice $K = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,1)^{12}$	$(0,1,1)^{6}$	$(0,1,2)^{4}$	$(0,1,3)^{3}$	$(0,1,4)^{12}$	$(0,1,5)^{2}$	$(0,1,6)^{12}$	$(0,1,7)^{3}$	$(0,1,8)^{4}$	$(0,1,9)^{6}$	$(0,1,10)^{12}$	$(0,1,11)^{1}$
2m	$(0,1,1)^{6}$	$(1,1,1)^{4}$	$(1,1,2)^{3}$	$(1,1,3)^{12}$	$(1,1,4)^{2}$	$(1,1,5)^{12}$	$(1,1,6)^{3}$	$(1,1,7)^{4}$	$(1,1,8)^{6}$	$(1,1,9)^{12}$	$(1,1,10)^{1}$	$(1,1,11)^{12}$
2M	$(0,1,2)^{4}$	$(1,1,2)^{3}$	$(1,2,2)^{12}$	$(1,2,3)^{2}$	$(1,2,4)^{12}$	$(1,2,5)^{3}$	$(1,2,6)^{4}$	$(1,2,7)^{6}$	$(1,2,8)^{12}$	$(1,2,9)^{1}$	$(1,2,10)^{12}$	$(1,2,11)^{6}$
3m	$(0,1,3)^{3}$	$(1,1,3)^{12}$	$(1,2,3)^{2}$	$(1,3,3)^{12}$	$(1,3,4)^{3}$	$(1,3,5)^{4}$	$(1,3,6)^{6}$	$(1,3,7)^{12}$	$(1,3,8)^{1}$	$(1,3,9)^{12}$	$(1,3,10)^{6}$	$(1,3,11)^{4}$
3M	$(0,1,4)^{12}$	$(1,1,4)^{2}$	$(1,2,4)^{12}$	$(1,3,4)^{3}$	$(1,4,4)^{4}$	$(1,4,5)^{6}$	$(1,4,6)^{12}$	$(1,4,7)^{1}$	$(1,4,8)^{12}$	$(1,4,9)^{6}$	$(1,4,10)^{4}$	$(1,4,11)^{3}$
4	$(0,1,5)^{2}$	$(1,1,5)^{12}$	$(1,2,5)^{3}$	$(1,3,5)^{4}$	$(1,4,5)^{6}$	$(1,5,5)^{12}$	$(1,5,6)^{1}$	$(1,5,7)^{12}$	$(1,5,8)^{6}$	$(1,5,9)^{4}$	$(1,5,10)^{3}$	$(1,5,11)^{12}$
5b	$(0,1,6)^{12}$	$(1,1,6)^{3}$	$(1,2,6)^{4}$	$(1,3,6)^{6}$	$(1,4,6)^{12}$	$(1,5,6)^{1}$	$(1,6,6)^{12}$	$(1,6,7)^{6}$	$(1,6,8)^{4}$	$(1,6,9)^{3}$	$(1,6,10)^{12}$	$(1,6,11)^{2}$
5	$(0,1,7)^{3}$	$(1,1,7)^{4}$	$(1,2,7)^{6}$	$(1,3,7)^{12}$	$(1,4,7)^{1}$	$(1,5,7)^{12}$	$(1,6,7)^{6}$	$(1,7,7)^{4}$	$(1,7,8)^{3}$	$(1,7,9)^{12}$	$(1,7,10)^{2}$	$(1,7,11)^{12}$
5#	$(0,1,8)^{4}$	$(1,1,8)^{6}$	$(1,2,8)^{12}$	$(1,3,8)^{1}$	$(1,4,8)^{12}$	$(1,5,8)^{6}$	$(1,6,8)^{4}$	$(1,7,8)^{3}$	$(1,8,8)^{12}$	$(1,8,9)^{2}$	$(1,8,10)^{12}$	$(1,8,11)^{3}$
6	$(0,1,9)^{6}$	$(1,1,9)^{12}$	$(1,2,9)^{1}$	$(1,3,9)^{12}$	$(1,4,9)^{6}$	$(1,5,9)^{4}$	$(1,6,9)^{3}$	$(1,7,9)^{12}$	$(1,8,9)^{2}$	$(1,9,9)^{12}$	$(1,9,10)^{3}$	$(1,9,11)^{4}$
7m	$(0,1,10)^{12}$	$(1,1,10)^{1}$	$(1,2,10)^{12}$	$(1,3,10)^{6}$	$(1,4,10)^{4}$	$(1,5,10)^{3}$	$(1,6,10)^{12}$	$(1,7,10)^{2}$	$(1,8,10)^{12}$	$(1,9,10)^{3}$	$(1,10,10)^{4}$	$(1,10,11)^{6}$
7M	$(0,1,11)^{1}$	$(1,1,11)^{12}$	$(1,2,11)^{6}$	$(1,3,11)^{4}$	$(1,4,11)^{3}$	$(1,5,11)^{12}$	$(1,6,11)^{2}$	$(1,7,11)^{12}$	$(1,8,11)^{3}$	$(1,9,11)^{4}$	$(1,10,11)^{6}$	$(1,11,11)^{12}$

Table 39: Ascending-contour normalized operators for source slice $K = 1$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,2)^{6}$	$(0,1,2)^{4}$	$(0,2,2)^{3}$	$(0,2,3)^{12}$	$(0,2,4)^{2}$	$(0,2,5)^{12}$	$(0,2,6)^{3}$	$(0,2,7)^{4}$	$(0,2,8)^{6}$	$(0,2,9)^{12}$	$(0,2,10)^{1}$	$(0,2,11)^{12}$
2m	$(0,1,2)^{4}$	$(1,1,2)^{3}$	$(1,2,2)^{12}$	$(1,2,3)^{2}$	$(1,2,4)^{12}$	$(1,2,5)^{3}$	$(1,2,6)^{4}$	$(1,2,7)^{6}$	$(1,2,8)^{12}$	$(1,2,9)^{1}$	$(1,2,10)^{12}$	$(1,2,11)^{6}$
2M	$(0,2,2)^{3}$	$(1,2,2)^{12}$	$(2,2,2)^{2}$	$(2,2,3)^{12}$	$(2,2,4)^{3}$	$(2,2,5)^{4}$	$(2,2,6)^{6}$	$(2,2,7)^{12}$	$(2,2,8)^{1}$	$(2,2,9)^{12}$	$(2,2,10)^{6}$	$(2,2,11)^{4}$
3m	$(0,2,3)^{12}$	$(1,2,3)^{2}$	$(2,2,3)^{12}$	$(2,3,3)^{3}$	$(2,3,4)^{4}$	$(2,3,5)^{6}$	$(2,3,6)^{12}$	$(2,3,7)^{1}$	$(2,3,8)^{12}$	$(2,3,9)^{6}$	$(2,3,10)^{4}$	$(2,3,11)^{3}$
3M	$(0,2,4)^{2}$	$(1,2,4)^{12}$	$(2,2,4)^{3}$	$(2,3,4)^{4}$	$(2,4,4)^{6}$	$(2,4,5)^{12}$	$(2,4,6)^{1}$	$(2,4,7)^{12}$	$(2,4,8)^{6}$	$(2,4,9)^{4}$	$(2,4,10)^{3}$	$(2,4,11)^{12}$
4	$(0,2,5)^{12}$	$(1,2,5)^{3}$	$(2,2,5)^{4}$	$(2,3,5)^{6}$	$(2,4,5)^{12}$	$(2,5,5)^{1}$	$(2,5,6)^{12}$	$(2,5,7)^{6}$	$(2,5,8)^{4}$	$(2,5,9)^{3}$	$(2,5,10)^{12}$	$(2,5,11)^{2}$
5b	$(0,2,6)^{3}$	$(1,2,6)^{4}$	$(2,2,6)^{6}$	$(2,3,6)^{12}$	$(2,4,6)^{1}$	$(2,5,6)^{12}$	$(2,6,6)^{6}$	$(2,6,7)^{4}$	$(2,6,8)^{3}$	$(2,6,9)^{12}$	$(2,6,10)^{2}$	$(2,6,11)^{12}$
5	$(0,2,7)^{4}$	$(1,2,7)^{6}$	$(2,2,7)^{12}$	$(2,3,7)^{1}$	$(2,4,7)^{12}$	$(2,5,7)^{6}$	$(2,6,7)^{4}$	$(2,7,7)^{3}$	$(2,7,8)^{12}$	$(2,7,9)^{2}$	$(2,7,10)^{12}$	$(2,7,11)^{3}$
5#	$(0,2,8)^{6}$	$(1,2,8)^{12}$	$(2,2,8)^{1}$	$(2,3,8)^{12}$	$(2,4,8)^{6}$	$(2,5,8)^{4}$	$(2,6,8)^{3}$	$(2,7,8)^{12}$	$(2,8,8)^{2}$	$(2,8,9)^{12}$	$(2,8,10)^{3}$	$(2,8,11)^{4}$
6	$(0,2,9)^{12}$	$(1,2,9)^{1}$	$(2,2,9)^{12}$	$(2,3,9)^{6}$	$(2,4,9)^{4}$	$(2,5,9)^{3}$	$(2,6,9)^{12}$	$(2,7,9)^{2}$	$(2,8,9)^{12}$	$(2,9,9)^{3}$	$(2,9,10)^{4}$	$(2,9,11)^{6}$
7m	$(0,2,10)^{1}$	$(1,2,10)^{12}$	$(2,2,10)^{6}$	$(2,3,10)^{4}$	$(2,4,10)^{3}$	$(2,5,10)^{12}$	$(2,6,10)^{2}$	$(2,7,10)^{12}$	$(2,8,10)^{3}$	$(2,9,10)^{4}$	$(2,10,10)^{6}$	$(2,10,11)^{12}$
7M	$(0,2,11)^{12}$	$(1,2,11)^{6}$	$(2,2,11)^{4}$	$(2,3,11)^{3}$	$(2,4,11)^{12}$	$(2,5,11)^{2}$	$(2,6,11)^{12}$	$(2,7,11)^{3}$	$(2,8,11)^{4}$	$(2,9,11)^{6}$	$(2,10,11)^{12}$	$(2,11,11)^{1}$

Table 40: Ascending-contour normalized operators for source slice $K = 2$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,3)^{4}$	$(0,1,3)^{3}$	$(0,2,3)^{12}$	$(0,3,3)^{2}$	$(0,3,4)^{12}$	$(0,3,5)^{3}$	$(0,3,6)^{4}$	$(0,3,7)^{6}$	$(0,3,8)^{12}$	$(0,3,9)^{1}$	$(0,3,10)^{12}$	$(0,3,11)^{6}$
2m	$(0,1,3)^{3}$	$(1,1,3)^{12}$	$(1,2,3)^{2}$	$(1,3,3)^{12}$	$(1,3,4)^{3}$	$(1,3,5)^{4}$	$(1,3,6)^{6}$	$(1,3,7)^{12}$	$(1,3,8)^{1}$	$(1,3,9)^{12}$	$(1,3,10)^{6}$	$(1,3,11)^{4}$
2M	$(0,2,3)^{12}$	$(1,2,3)^{2}$	$(2,2,3)^{12}$	$(2,3,3)^{3}$	$(2,3,4)^{4}$	$(2,3,5)^{6}$	$(2,3,6)^{12}$	$(2,3,7)^{1}$	$(2,3,8)^{12}$	$(2,3,9)^{6}$	$(2,3,10)^{4}$	$(2,3,11)^{3}$
3m	$(0,3,3)^{2}$	$(1,3,3)^{12}$	$(2,3,3)^{3}$	$(3,3,3)^{4}$	$(3,3,4)^{6}$	$(3,3,5)^{12}$	$(3,3,6)^{1}$	$(3,3,7)^{12}$	$(3,3,8)^{6}$	$(3,3,9)^{4}$	$(3,3,10)^{3}$	$(3,3,11)^{12}$
3M	$(0,3,4)^{12}$	$(1,3,4)^{3}$	$(2,3,4)^{4}$	$(3,3,4)^{6}$	$(3,4,4)^{12}$	$(3,4,5)^{1}$	$(3,4,6)^{12}$	$(3,4,7)^{6}$	$(3,4,8)^{4}$	$(3,4,9)^{3}$	$(3,4,10)^{12}$	$(3,4,11)^{2}$
4	$(0,3,5)^{3}$	$(1,3,5)^{4}$	$(2,3,5)^{6}$	$(3,3,5)^{12}$	$(3,4,5)^{1}$	$(3,5,5)^{12}$	$(3,5,6)^{6}$	$(3,5,7)^{4}$	$(3,5,8)^{3}$	$(3,5,9)^{12}$	$(3,5,10)^{2}$	$(3,5,11)^{12}$
5b	$(0,3,6)^{4}$	$(1,3,6)^{6}$	$(2,3,6)^{12}$	$(3,3,6)^{1}$	$(3,4,6)^{12}$	$(3,5,6)^{6}$	$(3,6,6)^{4}$	$(3,6,7)^{3}$	$(3,6,8)^{12}$	$(3,6,9)^{2}$	$(3,6,10)^{12}$	$(3,6,11)^{3}$
5	$(0,3,7)^{6}$	$(1,3,7)^{12}$	$(2,3,7)^{1}$	$(3,3,7)^{12}$	$(3,4,7)^{6}$	$(3,5,7)^{4}$	$(3,6,7)^{3}$	$(3,7,7)^{12}$	$(3,7,8)^{2}$	$(3,7,9)^{12}$	$(3,7,10)^{3}$	$(3,7,11)^{4}$
5#	$(0,3,8)^{12}$	$(1,3,8)^{1}$	$(2,3,8)^{12}$	$(3,3,8)^{6}$	$(3,4,8)^{4}$	$(3,5,8)^{3}$	$(3,6,8)^{12}$	$(3,7,8)^{2}$	$(3,8,8)^{12}$	$(3,8,9)^{3}$	$(3,8,10)^{4}$	$(3,8,11)^{6}$
6	$(0,3,9)^{1}$	$(1,3,9)^{12}$	$(2,3,9)^{6}$	$(3,3,9)^{4}$	$(3,4,9)^{3}$	$(3,5,9)^{12}$	$(3,6,9)^{2}$	$(3,7,9)^{12}$	$(3,8,9)^{3}$	$(3,9,9)^{4}$	$(3,9,10)^{6}$	$(3,9,11)^{12}$
7m	$(0,3,10)^{12}$	$(1,3,10)^{6}$	$(2,3,10)^{4}$	$(3,3,10)^{3}$	$(3,4,10)^{12}$	$(3,5,10)^{2}$	$(3,6,10)^{12}$	$(3,7,10)^{3}$	$(3,8,10)^{4}$	$(3,9,10)^{6}$	$(3,10,10)^{12}$	$(3,10,11)^{1}$
7M	$(0,3,11)^{6}$	$(1,3,11)^{4}$	$(2,3,11)^{3}$	$(3,3,11)^{12}$	$(3,4,11)^{2}$	$(3,5,11)^{12}$	$(3,6,11)^{3}$	$(3,7,11)^{4}$	$(3,8,11)^{6}$	$(3,9,11)^{12}$	$(3,10,11)^{1}$	$(3,11,11)^{12}$

Table 41: Ascending-contour normalized operators for source slice $K = 3$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,4)^{3}$	$(0,1,4)^{12}$	$(0,2,4)^{2}$	$(0,3,4)^{12}$	$(0,4,4)^{3}$	$(0,4,5)^{4}$	$(0,4,6)^{6}$	$(0,4,7)^{12}$	$(0,4,8)^{1}$	$(0,4,9)^{12}$	$(0,4,10)^{6}$	$(0,4,11)^{4}$
2m	$(0,1,4)^{12}$	$(1,1,4)^{2}$	$(1,2,4)^{12}$	$(1,3,4)^{3}$	$(1,4,4)^{4}$	$(1,4,5)^{6}$	$(1,4,6)^{12}$	$(1,4,7)^{1}$	$(1,4,8)^{12}$	$(1,4,9)^{6}$	$(1,4,10)^{4}$	$(1,4,11)^{3}$
2M	$(0,2,4)^{2}$	$(1,2,4)^{12}$	$(2,2,4)^{3}$	$(2,3,4)^{4}$	$(2,4,4)^{6}$	$(2,4,5)^{12}$	$(2,4,6)^{1}$	$(2,4,7)^{12}$	$(2,4,8)^{6}$	$(2,4,9)^{4}$	$(2,4,10)^{3}$	$(2,4,11)^{12}$
3m	$(0,3,4)^{12}$	$(1,3,4)^{3}$	$(2,3,4)^{4}$	$(3,3,4)^{6}$	$(3,4,4)^{12}$	$(3,4,5)^{1}$	$(3,4,6)^{12}$	$(3,4,7)^{6}$	$(3,4,8)^{4}$	$(3,4,9)^{3}$	$(3,4,10)^{12}$	$(3,4,11)^{2}$
3M	$(0,4,4)^{3}$	$(1,4,4)^{4}$	$(2,4,4)^{6}$	$(3,4,4)^{12}$	$(4,4,4)^{1}$	$(4,4,5)^{12}$	$(4,4,6)^{6}$	$(4,4,7)^{4}$	$(4,4,8)^{3}$	$(4,4,9)^{12}$	$(4,4,10)^{2}$	$(4,4,11)^{12}$
4	$(0,4,5)^{4}$	$(1,4,5)^{6}$	$(2,4,5)^{12}$	$(3,4,5)^{1}$	$(4,4,5)^{12}$	$(4,5,5)^{6}$	$(4,5,6)^{4}$	$(4,5,7)^{3}$	$(4,5,8)^{12}$	$(4,5,9)^{2}$	$(4,5,10)^{12}$	$(4,5,11)^{3}$
5b	$(0,4,6)^{6}$	$(1,4,6)^{12}$	$(2,4,6)^{1}$	$(3,4,6)^{12}$	$(4,4,6)^{6}$	$(4,5,6)^{4}$	$(4,6,6)^{3}$	$(4,6,7)^{12}$	$(4,6,8)^{2}$	$(4,6,9)^{12}$	$(4,6,10)^{3}$	$(4,6,11)^{4}$
5	$(0,4,7)^{12}$	$(1,4,7)^{1}$	$(2,4,7)^{12}$	$(3,4,7)^{6}$	$(4,4,7)^{4}$	$(4,5,7)^{3}$	$(4,6,7)^{12}$	$(4,7,7)^{2}$	$(4,7,8)^{12}$	$(4,7,9)^{3}$	$(4,7,10)^{4}$	$(4,7,11)^{6}$
5#	$(0,4,8)^{1}$	$(1,4,8)^{12}$	$(2,4,8)^{6}$	$(3,4,8)^{4}$	$(4,4,8)^{3}$	$(4,5,8)^{12}$	$(4,6,8)^{2}$	$(4,7,8)^{12}$	$(4,8,8)^{3}$	$(4,8,9)^{4}$	$(4,8,10)^{6}$	$(4,8,11)^{12}$
6	$(0,4,9)^{12}$	$(1,4,9)^{6}$	$(2,4,9)^{4}$	$(3,4,9)^{3}$	$(4,4,9)^{12}$	$(4,5,9)^{2}$	$(4,6,9)^{12}$	$(4,7,9)^{3}$	$(4,8,9)^{4}$	$(4,9,9)^{6}$	$(4,9,10)^{12}$	$(4,9,11)^{1}$
7m	$(0,4,10)^{6}$	$(1,4,10)^{4}$	$(2,4,10)^{3}$	$(3,4,10)^{12}$	$(4,4,10)^{2}$	$(4,5,10)^{12}$	$(4,6,10)^{3}$	$(4,7,10)^{4}$	$(4,8,10)^{6}$	$(4,9,10)^{12}$	$(4,10,10)^{1}$	$(4,10,11)^{12}$
7M	$(0,4,11)^{4}$	$(1,4,11)^{3}$	$(2,4,11)^{12}$	$(3,4,11)^{2}$	$(4,4,11)^{12}$	$(4,5,11)^{3}$	$(4,6,11)^{4}$	$(4,7,11)^{6}$	$(4,8,11)^{12}$	$(4,9,11)^{1}$	$(4,10,11)^{12}$	$(4,11,11)^{6}$

Table 42: Ascending-contour normalized operators for source slice $K = 4$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,5)^{12}$	$(0,1,5)^{2}$	$(0,2,5)^{12}$	$(0,3,5)^{3}$	$(0,4,5)^{4}$	$(0,5,5)^{6}$	$(0,5,6)^{12}$	$(0,5,7)^{1}$	$(0,5,8)^{12}$	$(0,5,9)^{6}$	$(0,5,10)^{4}$	$(0,5,11)^{3}$
2m	$(0,1,5)^{2}$	$(1,1,5)^{12}$	$(1,2,5)^{3}$	$(1,3,5)^{4}$	$(1,4,5)^{6}$	$(1,5,5)^{12}$	$(1,5,6)^{1}$	$(1,5,7)^{12}$	$(1,5,8)^{6}$	$(1,5,9)^{4}$	$(1,5,10)^{3}$	$(1,5,11)^{12}$
2M	$(0,2,5)^{12}$	$(1,2,5)^{3}$	$(2,2,5)^{4}$	$(2,3,5)^{6}$	$(2,4,5)^{12}$	$(2,5,5)^{1}$	$(2,5,6)^{12}$	$(2,5,7)^{6}$	$(2,5,8)^{4}$	$(2,5,9)^{3}$	$(2,5,10)^{12}$	$(2,5,11)^{2}$
3m	$(0,3,5)^{3}$	$(1,3,5)^{4}$	$(2,3,5)^{6}$	$(3,3,5)^{12}$	$(3,4,5)^{1}$	$(3,5,5)^{12}$	$(3,5,6)^{6}$	$(3,5,7)^{4}$	$(3,5,8)^{3}$	$(3,5,9)^{12}$	$(3,5,10)^{2}$	$(3,5,11)^{12}$
3M	$(0,4,5)^{4}$	$(1,4,5)^{6}$	$(2,4,5)^{12}$	$(3,4,5)^{1}$	$(4,4,5)^{12}$	$(4,5,5)^{6}$	$(4,5,6)^{4}$	$(4,5,7)^{3}$	$(4,5,8)^{12}$	$(4,5,9)^{2}$	$(4,5,10)^{12}$	$(4,5,11)^{3}$
4	$(0,5,5)^{6}$	$(1,5,5)^{12}$	$(2,5,5)^{1}$	$(3,5,5)^{12}$	$(4,5,5)^{6}$	$(5,5,5)^{4}$	$(5,5,6)^{3}$	$(5,5,7)^{12}$	$(5,5,8)^{2}$	$(5,5,9)^{12}$	$(5,5,10)^{3}$	$(5,5,11)^{4}$
5b	$(0,5,6)^{12}$	$(1,5,6)^{1}$	$(2,5,6)^{12}$	$(3,5,6)^{6}$	$(4,5,6)^{4}$	$(5,5,6)^{3}$	$(5,6,6)^{12}$	$(5,6,7)^{2}$	$(5,6,8)^{12}$	$(5,6,9)^{3}$	$(5,6,10)^{4}$	$(5,6,11)^{6}$
5	$(0,5,7)^{1}$	$(1,5,7)^{12}$	$(2,5,7)^{6}$	$(3,5,7)^{4}$	$(4,5,7)^{3}$	$(5,5,7)^{12}$	$(5,6,7)^{2}$	$(5,7,7)^{12}$	$(5,7,8)^{3}$	$(5,7,9)^{4}$	$(5,7,10)^{6}$	$(5,7,11)^{12}$
5#	$(0,5,8)^{12}$	$(1,5,8)^{6}$	$(2,5,8)^{4}$	$(3,5,8)^{3}$	$(4,5,8)^{12}$	$(5,5,8)^{2}$	$(5,6,8)^{12}$	$(5,7,8)^{3}$	$(5,8,8)^{4}$	$(5,8,9)^{6}$	$(5,8,10)^{12}$	$(5,8,11)^{1}$
6	$(0,5,9)^{6}$	$(1,5,9)^{4}$	$(2,5,9)^{3}$	$(3,5,9)^{12}$	$(4,5,9)^{2}$	$(5,5,9)^{12}$	$(5,6,9)^{3}$	$(5,7,9)^{4}$	$(5,8,9)^{6}$	$(5,9,9)^{12}$	$(5,9,10)^{1}$	$(5,9,11)^{12}$
7m	$(0,5,10)^{4}$	$(1,5,10)^{3}$	$(2,5,10)^{12}$	$(3,5,10)^{2}$	$(4,5,10)^{12}$	$(5,5,10)^{3}$	$(5,6,10)^{4}$	$(5,7,10)^{6}$	$(5,8,10)^{12}$	$(5,9,10)^{1}$	$(5,10,10)^{12}$	$(5,10,11)^{6}$
7M	$(0,5,11)^{3}$	$(1,5,11)^{12}$	$(2,5,11)^{2}$	$(3,5,11)^{12}$	$(4,5,11)^{3}$	$(5,5,11)^{4}$	$(5,6,11)^{6}$	$(5,7,11)^{12}$	$(5,8,11)^{1}$	$(5,9,11)^{12}$	$(5,10,11)^{6}$	$(5,11,11)^{4}$

Table 43: Ascending-contour normalized operators for source slice $K = 5$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,6)^{2}$	$(0,1,6)^{12}$	$(0,2,6)^{3}$	$(0,3,6)^{4}$	$(0,4,6)^{6}$	$(0,5,6)^{12}$	$(0,6,6)^{1}$	$(0,6,7)^{12}$	$(0,6,8)^{6}$	$(0,6,9)^{4}$	$(0,6,10)^{3}$	$(0,6,11)^{12}$
2m	$(0,1,6)^{12}$	$(1,1,6)^{3}$	$(1,2,6)^{4}$	$(1,3,6)^{6}$	$(1,4,6)^{12}$	$(1,5,6)^{1}$	$(1,6,6)^{12}$	$(1,6,7)^{6}$	$(1,6,8)^{4}$	$(1,6,9)^{3}$	$(1,6,10)^{12}$	$(1,6,11)^{2}$
2M	$(0,2,6)^{3}$	$(1,2,6)^{4}$	$(2,2,6)^{6}$	$(2,3,6)^{12}$	$(2,4,6)^{1}$	$(2,5,6)^{12}$	$(2,6,6)^{6}$	$(2,6,7)^{4}$	$(2,6,8)^{3}$	$(2,6,9)^{12}$	$(2,6,10)^{2}$	$(2,6,11)^{12}$
3m	$(0,3,6)^{4}$	$(1,3,6)^{6}$	$(2,3,6)^{12}$	$(3,3,6)^{1}$	$(3,4,6)^{12}$	$(3,5,6)^{6}$	$(3,6,6)^{4}$	$(3,6,7)^{3}$	$(3,6,8)^{12}$	$(3,6,9)^{2}$	$(3,6,10)^{12}$	$(3,6,11)^{3}$
3M	$(0,4,6)^{6}$	$(1,4,6)^{12}$	$(2,4,6)^{1}$	$(3,4,6)^{12}$	$(4,4,6)^{6}$	$(4,5,6)^{4}$	$(4,6,6)^{3}$	$(4,6,7)^{12}$	$(4,6,8)^{2}$	$(4,6,9)^{12}$	$(4,6,10)^{3}$	$(4,6,11)^{4}$
4	$(0,5,6)^{12}$	$(1,5,6)^{1}$	$(2,5,6)^{12}$	$(3,5,6)^{6}$	$(4,5,6)^{4}$	$(5,5,6)^{3}$	$(5,6,6)^{12}$	$(5,6,7)^{2}$	$(5,6,8)^{12}$	$(5,6,9)^{3}$	$(5,6,10)^{4}$	$(5,6,11)^{6}$
5b	$(0,6,6)^{1}$	$(1,6,6)^{12}$	$(2,6,6)^{6}$	$(3,6,6)^{4}$	$(4,6,6)^{3}$	$(5,6,6)^{12}$	$(6,6,6)^{2}$	$(6,6,7)^{12}$	$(6,6,8)^{3}$	$(6,6,9)^{4}$	$(6,6,10)^{6}$	$(6,6,11)^{12}$
5	$(0,6,7)^{12}$	$(1,6,7)^{6}$	$(2,6,7)^{4}$	$(3,6,7)^{3}$	$(4,6,7)^{12}$	$(5,6,7)^{2}$	$(6,6,7)^{12}$	$(6,7,7)^{3}$	$(6,7,8)^{4}$	$(6,7,9)^{6}$	$(6,7,10)^{12}$	$(6,7,11)^{1}$
5#	$(0,6,8)^{6}$	$(1,6,8)^{4}$	$(2,6,8)^{3}$	$(3,6,8)^{12}$	$(4,6,8)^{2}$	$(5,6,8)^{12}$	$(6,6,8)^{3}$	$(6,7,8)^{4}$	$(6,8,8)^{6}$	$(6,8,9)^{12}$	$(6,8,10)^{1}$	$(6,8,11)^{12}$
6	$(0,6,9)^{4}$	$(1,6,9)^{3}$	$(2,6,9)^{12}$	$(3,6,9)^{2}$	$(4,6,9)^{12}$	$(5,6,9)^{3}$	$(6,6,9)^{4}$	$(6,7,9)^{6}$	$(6,8,9)^{12}$	$(6,9,9)^{1}$	$(6,9,10)^{12}$	$(6,9,11)^{6}$
7m	$(0,6,10)^{3}$	$(1,6,10)^{12}$	$(2,6,10)^{2}$	$(3,6,10)^{12}$	$(4,6,10)^{3}$	$(5,6,10)^{4}$	$(6,6,10)^{6}$	$(6,7,10)^{12}$	$(6,8,10)^{1}$	$(6,9,10)^{12}$	$(6,10,10)^{6}$	$(6,10,11)^{4}$
7M	$(0,6,11)^{12}$	$(1,6,11)^{2}$	$(2,6,11)^{12}$	$(3,6,11)^{3}$	$(4,6,11)^{4}$	$(5,6,11)^{6}$	$(6,6,11)^{12}$	$(6,7,11)^{1}$	$(6,8,11)^{12}$	$(6,9,11)^{6}$	$(6,10,11)^{4}$	$(6,11,11)^{3}$

Table 44: Ascending-contour normalized operators for source slice $K = 6$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,7)^{12}$	$(0,1,7)^{3}$	$(0,2,7)^{4}$	$(0,3,7)^{6}$	$(0,4,7)^{12}$	$(0,5,7)^{1}$	$(0,6,7)^{12}$	$(0,7,7)^{6}$	$(0,7,8)^{4}$	$(0,7,9)^{3}$	$(0,7,10)^{12}$	$(0,7,11)^{2}$
2m	$(0,1,7)^{3}$	$(1,1,7)^{4}$	$(1,2,7)^{6}$	$(1,3,7)^{12}$	$(1,4,7)^{1}$	$(1,5,7)^{12}$	$(1,6,7)^{6}$	$(1,7,7)^{4}$	$(1,7,8)^{3}$	$(1,7,9)^{12}$	$(1,7,10)^{2}$	$(1,7,11)^{12}$
2M	$(0,2,7)^{4}$	$(1,2,7)^{6}$	$(2,2,7)^{12}$	$(2,3,7)^{1}$	$(2,4,7)^{12}$	$(2,5,7)^{6}$	$(2,6,7)^{4}$	$(2,7,7)^{3}$	$(2,7,8)^{12}$	$(2,7,9)^{2}$	$(2,7,10)^{12}$	$(2,7,11)^{3}$
3m	$(0,3,7)^{6}$	$(1,3,7)^{12}$	$(2,3,7)^{1}$	$(3,3,7)^{12}$	$(3,4,7)^{6}$	$(3,5,7)^{4}$	$(3,6,7)^{3}$	$(3,7,7)^{12}$	$(3,7,8)^{2}$	$(3,7,9)^{12}$	$(3,7,10)^{3}$	$(3,7,11)^{4}$
3M	$(0,4,7)^{12}$	$(1,4,7)^{1}$	$(2,4,7)^{12}$	$(3,4,7)^{6}$	$(4,4,7)^{4}$	$(4,5,7)^{3}$	$(4,6,7)^{12}$	$(4,7,7)^{2}$	$(4,7,8)^{12}$	$(4,7,9)^{3}$	$(4,7,10)^{4}$	$(4,7,11)^{6}$
4	$(0,5,7)^{1}$	$(1,5,7)^{12}$	$(2,5,7)^{6}$	$(3,5,7)^{4}$	$(4,5,7)^{3}$	$(5,5,7)^{12}$	$(5,6,7)^{2}$	$(5,7,7)^{12}$	$(5,7,8)^{3}$	$(5,7,9)^{4}$	$(5,7,10)^{6}$	$(5,7,11)^{12}$
5b	$(0,6,7)^{12}$	$(1,6,7)^{6}$	$(2,6,7)^{4}$	$(3,6,7)^{3}$	$(4,6,7)^{12}$	$(5,6,7)^{2}$	$(6,6,7)^{12}$	$(6,7,7)^{3}$	$(6,7,8)^{4}$	$(6,7,9)^{6}$	$(6,7,10)^{12}$	$(6,7,11)^{1}$
5	$(0,7,7)^{6}$	$(1,7,7)^{4}$	$(2,7,7)^{3}$	$(3,7,7)^{12}$	$(4,7,7)^{2}$	$(5,7,7)^{12}$	$(6,7,7)^{3}$	$(7,7,7)^{4}$	$(7,7,8)^{6}$	$(7,7,9)^{12}$	$(7,7,10)^{1}$	$(7,7,11)^{12}$
5#	$(0,7,8)^{4}$	$(1,7,8)^{3}$	$(2,7,8)^{12}$	$(3,7,8)^{2}$	$(4,7,8)^{12}$	$(5,7,8)^{3}$	$(6,7,8)^{4}$	$(7,7,8)^{6}$	$(7,8,8)^{12}$	$(7,8,9)^{1}$	$(7,8,10)^{12}$	$(7,8,11)^{6}$
6	$(0,7,9)^{3}$	$(1,7,9)^{12}$	$(2,7,9)^{2}$	$(3,7,9)^{12}$	$(4,7,9)^{3}$	$(5,7,9)^{4}$	$(6,7,9)^{6}$	$(7,7,9)^{12}$	$(7,8,9)^{1}$	$(7,9,9)^{12}$	$(7,9,10)^{6}$	$(7,9,11)^{4}$
7m	$(0,7,10)^{12}$	$(1,7,10)^{2}$	$(2,7,10)^{12}$	$(3,7,10)^{3}$	$(4,7,10)^{4}$	$(5,7,10)^{6}$	$(6,7,10)^{12}$	$(7,7,10)^{1}$	$(7,8,10)^{12}$	$(7,9,10)^{6}$	$(7,10,10)^{4}$	$(7,10,11)^{3}$
7M	$(0,7,11)^{2}$	$(1,7,11)^{12}$	$(2,7,11)^{3}$	$(3,7,11)^{4}$	$(4,7,11)^{6}$	$(5,7,11)^{12}$	$(6,7,11)^{1}$	$(7,7,11)^{12}$	$(7,8,11)^{6}$	$(7,9,11)^{4}$	$(7,10,11)^{3}$	$(7,11,11)^{12}$

Table 45: Ascending-contour normalized operators for source slice $K = 7$.

Ascending-contour normalization, source slice $K = 2$: 2M

Ascending-contour normalization, source slice $K = 3$: 3m

Ascending-contour normalization, source slice $K = 4$: 3M

Ascending-contour normalization, source slice $K = 5$: 4

Ascending-contour normalization, source slice $K = 6$: 5b

Ascending-contour normalization, source slice $K = 7$: 5

Ascending-contour normalization, source slice $K = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,8)^{3}$	$(0,1,8)^{4}$	$(0,2,8)^{6}$	$(0,3,8)^{12}$	$(0,4,8)^{1}$	$(0,5,8)^{12}$	$(0,6,8)^{6}$	$(0,7,8)^{4}$	$(0,8,8)^{3}$	$(0,8,9)^{12}$	$(0,8,10)^{2}$	$(0,8,11)^{12}$
2m	$(0,1,8)^{4}$	$(1,1,8)^{6}$	$(1,2,8)^{12}$	$(1,3,8)^{1}$	$(1,4,8)^{12}$	$(1,5,8)^{6}$	$(1,6,8)^{4}$	$(1,7,8)^{3}$	$(1,8,8)^{12}$	$(1,8,9)^{2}$	$(1,8,10)^{12}$	$(1,8,11)^{3}$
2M	$(0,2,8)^{6}$	$(1,2,8)^{12}$	$(2,2,8)^{1}$	$(2,3,8)^{12}$	$(2,4,8)^{6}$	$(2,5,8)^{4}$	$(2,6,8)^{3}$	$(2,7,8)^{12}$	$(2,8,8)^{2}$	$(2,8,9)^{12}$	$(2,8,10)^{3}$	$(2,8,11)^{4}$
3m	$(0,3,8)^{12}$	$(1,3,8)^{1}$	$(2,3,8)^{12}$	$(3,3,8)^{6}$	$(3,4,8)^{4}$	$(3,5,8)^{3}$	$(3,6,8)^{12}$	$(3,7,8)^{2}$	$(3,8,8)^{12}$	$(3,8,9)^{3}$	$(3,8,10)^{4}$	$(3,8,11)^{6}$
3M	$(0,4,8)^{1}$	$(1,4,8)^{12}$	$(2,4,8)^{6}$	$(3,4,8)^{4}$	$(4,4,8)^{3}$	$(4,5,8)^{12}$	$(4,6,8)^{2}$	$(4,7,8)^{12}$	$(4,8,8)^{3}$	$(4,8,9)^{4}$	$(4,8,10)^{6}$	$(4,8,11)^{12}$
4	$(0,5,8)^{12}$	$(1,5,8)^{6}$	$(2,5,8)^{4}$	$(3,5,8)^{3}$	$(4,5,8)^{12}$	$(5,5,8)^{2}$	$(5,6,8)^{12}$	$(5,7,8)^{3}$	$(5,8,8)^{4}$	$(5,8,9)^{6}$	$(5,8,10)^{12}$	$(5,8,11)^{1}$
5b	$(0,6,8)^{6}$	$(1,6,8)^{4}$	$(2,6,8)^{3}$	$(3,6,8)^{12}$	$(4,6,8)^{2}$	$(5,6,8)^{12}$	$(6,6,8)^{3}$	$(6,7,8)^{4}$	$(6,8,8)^{6}$	$(6,8,9)^{12}$	$(6,8,10)^{1}$	$(6,8,11)^{12}$
5	$(0,7,8)^{4}$	$(1,7,8)^{3}$	$(2,7,8)^{12}$	$(3,7,8)^{2}$	$(4,7,8)^{12}$	$(5,7,8)^{3}$	$(6,7,8)^{4}$	$(7,7,8)^{6}$	$(7,8,8)^{12}$	$(7,8,9)^{1}$	$(7,8,10)^{12}$	$(7,8,11)^{6}$
5#	$(0,8,8)^{3}$	$(1,8,8)^{12}$	$(2,8,8)^{2}$	$(3,8,8)^{12}$	$(4,8,8)^{3}$	$(5,8,8)^{4}$	$(6,8,8)^{6}$	$(7,8,8)^{12}$	$(8,8,8)^{1}$	$(8,8,9)^{12}$	$(8,8,10)^{6}$	$(8,8,11)^{4}$
6	$(0,8,9)^{12}$	$(1,8,9)^{2}$	$(2,8,9)^{12}$	$(3,8,9)^{3}$	$(4,8,9)^{4}$	$(5,8,9)^{6}$	$(6,8,9)^{12}$	$(7,8,9)^{1}$	$(8,8,9)^{12}$	$(8,9,9)^{6}$	$(8,9,10)^{4}$	$(8,9,11)^{3}$
7m	$(0,8,10)^{2}$	$(1,8,10)^{12}$	$(2,8,10)^{3}$	$(3,8,10)^{4}$	$(4,8,10)^{6}$	$(5,8,10)^{12}$	$(6,8,10)^{1}$	$(7,8,10)^{12}$	$(8,8,10)^{6}$	$(8,9,10)^{4}$	$(8,10,10)^{3}$	$(8,10,11)^{12}$
7M	$(0,8,11)^{12}$	$(1,8,11)^{3}$	$(2,8,11)^{4}$	$(3,8,11)^{6}$	$(4,8,11)^{12}$	$(5,8,11)^{1}$	$(6,8,11)^{12}$	$(7,8,11)^{6}$	$(8,8,11)^{4}$	$(8,9,11)^{3}$	$(8,10,11)^{12}$	$(8,11,11)^{2}$

Table 46: Ascending-contour normalized operators for source slice $K = 8$.

Ascending-contour normalization, source slice $K = 9$: **6**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,9)^{4}$	$(0,1,9)^{6}$	$(0,2,9)^{12}$	$(0,3,9)^{1}$	$(0,4,9)^{12}$	$(0,5,9)^{6}$	$(0,6,9)^{4}$	$(0,7,9)^{3}$	$(0,8,9)^{12}$	$(0,9,9)^{2}$	$(0,9,10)^{12}$	$(0,9,11)^{3}$
2m	$(0,1,9)^{6}$	$(1,1,9)^{12}$	$(1,2,9)^{1}$	$(1,3,9)^{12}$	$(1,4,9)^{6}$	$(1,5,9)^{4}$	$(1,6,9)^{3}$	$(1,7,9)^{12}$	$(1,8,9)^{2}$	$(1,9,9)^{12}$	$(1,9,10)^{3}$	$(1,9,11)^{4}$
2M	$(0,2,9)^{12}$	$(1,2,9)^{1}$	$(2,2,9)^{12}$	$(2,3,9)^{6}$	$(2,4,9)^{4}$	$(2,5,9)^{3}$	$(2,6,9)^{12}$	$(2,7,9)^{2}$	$(2,8,9)^{12}$	$(2,9,9)^{3}$	$(2,9,10)^{4}$	$(2,9,11)^{6}$
3m	$(0,3,9)^{1}$	$(1,3,9)^{12}$	$(2,3,9)^{6}$	$(3,3,9)^{4}$	$(3,4,9)^{3}$	$(3,5,9)^{12}$	$(3,6,9)^{2}$	$(3,7,9)^{12}$	$(3,8,9)^{3}$	$(3,9,9)^{4}$	$(3,9,10)^{6}$	$(3,9,11)^{12}$
3M	$(0,4,9)^{12}$	$(1,4,9)^{6}$	$(2,4,9)^{4}$	$(3,4,9)^{3}$	$(4,4,9)^{12}$	$(4,5,9)^{2}$	$(4,6,9)^{12}$	$(4,7,9)^{3}$	$(4,8,9)^{4}$	$(4,9,9)^{6}$	$(4,9,10)^{12}$	$(4,9,11)^{1}$
4	$(0,5,9)^{6}$	$(1,5,9)^{4}$	$(2,5,9)^{3}$	$(3,5,9)^{12}$	$(4,5,9)^{2}$	$(5,5,9)^{12}$	$(5,6,9)^{3}$	$(5,7,9)^{4}$	$(5,8,9)^{6}$	$(5,9,9)^{12}$	$(5,9,10)^{1}$	$(5,9,11)^{12}$
5b	$(0,6,9)^{4}$	$(1,6,9)^{3}$	$(2,6,9)^{12}$	$(3,6,9)^{2}$	$(4,6,9)^{12}$	$(5,6,9)^{3}$	$(6,6,9)^{4}$	$(6,7,9)^{6}$	$(6,8,9)^{12}$	$(6,9,9)^{1}$	$(6,9,10)^{12}$	$(6,9,11)^{6}$
5	$(0,7,9)^{3}$	$(1,7,9)^{12}$	$(2,7,9)^{2}$	$(3,7,9)^{12}$	$(4,7,9)^{3}$	$(5,7,9)^{4}$	$(6,7,9)^{6}$	$(7,7,9)^{12}$	$(7,8,9)^{1}$	$(7,9,9)^{12}$	$(7,9,10)^{6}$	$(7,9,11)^{4}$
5#	$(0,8,9)^{12}$	$(1,8,9)^{2}$	$(2,8,9)^{12}$	$(3,8,9)^{3}$	$(4,8,9)^{4}$	$(5,8,9)^{6}$	$(6,8,9)^{12}$	$(7,8,9)^{1}$	$(8,8,9)^{12}$	$(8,9,9)^{6}$	$(8,9,10)^{4}$	$(8,9,11)^{3}$
6	$(0,9,9)^{2}$	$(1,9,9)^{12}$	$(2,9,9)^{3}$	$(3,9,9)^{4}$	$(4,9,9)^{6}$	$(5,9,9)^{12}$	$(6,9,9)^{1}$	$(7,9,9)^{12}$	$(8,9,9)^{6}$	$(9,9,9)^{4}$	$(9,9,10)^{3}$	$(9,9,11)^{12}$
7m	$(0,9,10)^{12}$	$(1,9,10)^{3}$	$(2,9,10)^{4}$	$(3,9,10)^{6}$	$(4,9,10)^{12}$	$(5,9,10)^{1}$	$(6,9,10)^{12}$	$(7,9,10)^{6}$	$(8,9,10)^{4}$	$(9,9,10)^{3}$	$(9,10,10)^{12}$	$(9,10,11)^{2}$
7M	$(0,9,11)^{3}$	$(1,9,11)^{4}$	$(2,9,11)^{6}$	$(3,9,11)^{12}$	$(4,9,11)^{1}$	$(5,9,11)^{12}$	$(6,9,11)^{6}$	$(7,9,11)^{4}$	$(8,9,11)^{3}$	$(9,9,11)^{12}$	$(9,10,11)^{2}$	$(9,11,11)^{12}$

Table 47: Ascending-contour normalized operators for source slice $K = 9$.

Ascending-contour normalization, source slice $K = 10$: **7m**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,10)^{6}$	$(0,1,10)^{12}$	$(0,2,10)^{1}$	$(0,3,10)^{12}$	$(0,4,10)^{6}$	$(0,5,10)^{4}$	$(0,6,10)^{3}$	$(0,7,10)^{12}$	$(0,8,10)^{2}$	$(0,9,10)^{12}$	$(0,10,10)^{3}$	$(0,10,11)^{4}$
2m	$(0,1,10)^{12}$	$(1,1,10)^{1}$	$(1,2,10)^{12}$	$(1,3,10)^{6}$	$(1,4,10)^{4}$	$(1,5,10)^{3}$	$(1,6,10)^{12}$	$(1,7,10)^{2}$	$(1,8,10)^{12}$	$(1,9,10)^{3}$	$(1,10,10)^{4}$	$(1,10,11)^{6}$
2M	$(0,2,10)^{1}$	$(1,2,10)^{12}$	$(2,2,10)^{6}$	$(2,3,10)^{4}$	$(2,4,10)^{3}$	$(2,5,10)^{12}$	$(2,6,10)^{2}$	$(2,7,10)^{12}$	$(2,8,10)^{3}$	$(2,9,10)^{4}$	$(2,10,10)^{6}$	$(2,10,11)^{12}$
3m	$(0,3,10)^{12}$	$(1,3,10)^{6}$	$(2,3,10)^{4}$	$(3,3,10)^{3}$	$(3,4,10)^{12}$	$(3,5,10)^{2}$	$(3,6,10)^{12}$	$(3,7,10)^{3}$	$(3,8,10)^{4}$	$(3,9,10)^{6}$	$(3,10,10)^{12}$	$(3,10,11)^{1}$
3M	$(0,4,10)^{6}$	$(1,4,10)^{4}$	$(2,4,10)^{3}$	$(3,4,10)^{12}$	$(4,4,10)^{2}$	$(4,5,10)^{12}$	$(4,6,10)^{3}$	$(4,7,10)^{4}$	$(4,8,10)^{6}$	$(4,9,10)^{12}$	$(4,10,10)^{1}$	$(4,10,11)^{12}$
4	$(0,5,10)^{4}$	$(1,5,10)^{3}$	$(2,5,10)^{12}$	$(3,5,10)^{2}$	$(4,5,10)^{12}$	$(5,5,10)^{3}$	$(5,6,10)^{4}$	$(5,7,10)^{6}$	$(5,8,10)^{12}$	$(5,9,10)^{1}$	$(5,10,10)^{12}$	$(5,10,11)^{6}$
5b	$(0,6,10)^{3}$	$(1,6,10)^{12}$	$(2,6,10)^{2}$	$(3,6,10)^{12}$	$(4,6,10)^{3}$	$(5,6,10)^{4}$	$(6,6,10)^{6}$	$(6,7,10)^{12}$	$(6,8,10)^{1}$	$(6,9,10)^{12}$	$(6,10,10)^{6}$	$(6,10,11)^{4}$
5	$(0,7,10)^{12}$	$(1,7,10)^{2}$	$(2,7,10)^{12}$	$(3,7,10)^{3}$	$(4,7,10)^{4}$	$(5,7,10)^{6}$	$(6,7,10)^{12}$	$(7,7,10)^{1}$	$(7,8,10)^{12}$	$(7,9,10)^{6}$	$(7,10,10)^{4}$	$(7,10,11)^{3}$
5#	$(0,8,10)^{2}$	$(1,8,10)^{12}$	$(2,8,10)^{3}$	$(3,8,10)^{4}$	$(4,8,10)^{6}$	$(5,8,10)^{12}$	$(6,8,10)^{1}$	$(7,8,10)^{12}$	$(8,8,10)^{6}$	$(8,9,10)^{4}$	$(8,10,10)^{3}$	$(8,10,11)^{12}$
6	$(0,9,10)^{12}$	$(1,9,10)^{3}$	$(2,9,10)^{4}$	$(3,9,10)^{6}$	$(4,9,10)^{12}$	$(5,9,10)^{1}$	$(6,9,10)^{12}$	$(7,9,10)^{6}$	$(8,9,10)^{4}$	$(9,9,10)^{3}$	$(9,10,10)^{12}$	$(9,10,11)^{2}$
7m	$(0,10,10)^{3}$	$(1,10,10)^{4}$	$(2,10,10)^{6}$	$(3,10,10)^{12}$	$(4,10,10)^{1}$	$(5,10,10)^{12}$	$(6,10,10)^{6}$	$(7,10,10)^{4}$	$(8,10,10)^{3}$	$(9,10,10)^{12}$	$(10,10,10)^{2}$	$(10,10,11)^{12}$
7M	$(0,10,11)^{4}$	$(1,10,11)^{6}$	$(2,10,11)^{12}$	$(3,10,11)^{1}$	$(4,10,11)^{12}$	$(5,10,11)^{6}$	$(6,10,11)^{4}$	$(7,10,11)^{3}$	$(8,10,11)^{12}$	$(9,10,11)^{2}$	$(10,10,11)^{12}$	$(10,11,11)^{3}$

Table 48: Ascending-contour normalized operators for source slice $K = 10$.

Ascending-contour normalization, source slice $K = 11$: **7M**

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,11)^{12}$	$(0,1,11)^{1}$	$(0,2,11)^{12}$	$(0,3,11)^{6}$	$(0,4,11)^{4}$	$(0,5,11)^{3}$	$(0,6,11)^{12}$	$(0,7,11)^{2}$	$(0,8,11)^{12}$	$(0,9,11)^{3}$	$(0,10,11)^{4}$	$(0,11,11)^{6}$
2m	$(0,1,11)^{1}$	$(1,1,11)^{12}$	$(1,2,11)^{6}$	$(1,3,11)^{4}$	$(1,4,11)^{3}$	$(1,5,11)^{12}$	$(1,6,11)^{2}$	$(1,7,11)^{12}$	$(1,8,11)^{3}$	$(1,9,11)^{4}$	$(1,10,11)^{6}$	$(1,11,11)^{12}$
2M	$(0,2,11)^{12}$	$(1,2,11)^{6}$	$(2,2,11)^{4}$	$(2,3,11)^{3}$	$(2,4,11)^{12}$	$(2,5,11)^{2}$	$(2,6,11)^{12}$	$(2,7,11)^{3}$	$(2,8,11)^{4}$	$(2,9,11)^{6}$	$(2,10,11)^{12}$	$(2,11,11)^{1}$
3m	$(0,3,11)^{6}$	$(1,3,11)^{4}$	$(2,3,11)^{3}$	$(3,3,11)^{12}$	$(3,4,11)^{2}$	$(3,5,11)^{12}$	$(3,6,11)^{3}$	$(3,7,11)^{4}$	$(3,8,11)^{6}$	$(3,9,11)^{12}$	$(3,10,11)^{1}$	$(3,11,11)^{12}$
3M	$(0,4,11)^{4}$	$(1,4,11)^{3}$	$(2,4,11)^{12}$	$(3,4,11)^{2}$	$(4,4,11)^{12}$	$(4,5,11)^{3}$	$(4,6,11)^{4}$	$(4,7,11)^{6}$	$(4,8,11)^{12}$	$(4,9,11)^{1}$	$(4,10,11)^{12}$	$(4,11,11)^{6}$
4	$(0,5,11)^{3}$	$(1,5,11)^{12}$	$(2,5,11)^{2}$	$(3,5,11)^{12}$	$(4,5,11)^{3}$	$(5,5,11)^{4}$	$(5,6,11)^{6}$	$(5,7,11)^{12}$	$(5,8,11)^{1}$	$(5,9,11)^{12}$	$(5,10,11)^{6}$	$(5,11,11)^{4}$
5b	$(0,6,11)^{12}$	$(1,6,11)^{2}$	$(2,6,11)^{12}$	$(3,6,11)^{3}$	$(4,6,11)^{4}$	$(5,6,11)^{6}$	$(6,6,11)^{12}$	$(6,7,11)^{1}$	$(6,8,11)^{12}$	$(6,9,11)^{6}$	$(6,10,11)^{4}$	$(6,11,11)^{3}$
5	$(0,7,11)^{2}$	$(1,7,11)^{12}$	$(2,7,11)^{3}$	$(3,7,11)^{4}$	$(4,7,11)^{6}$	$(5,7,11)^{12}$	$(6,7,11)^{1}$	$(7,7,11)^{12}$	$(7,8,11)^{6}$	$(7,9,11)^{4}$	$(7,10,11)^{3}$	$(7,11,11)^{12}$
5#	$(0,8,11)^{12}$	$(1,8,11)^{3}$	$(2,8,11)^{4}$	$(3,8,11)^{6}$	$(4,8,11)^{12}$	$(5,8,11)^{1}$	$(6,8,11)^{12}$	$(7,8,11)^{6}$	$(8,8,11)^{4}$	$(8,9,11)^{3}$	$(8,10,11)^{12}$	$(8,11,11)^{2}$
6	$(0,9,11)^{3}$	$(1,9,11)^{4}$	$(2,9,11)^{6}$	$(3,9,11)^{12}$	$(4,9,11)^{1}$	$(5,9,11)^{12}$	$(6,9,11)^{6}$	$(7,9,11)^{4}$	$(8,9,11)^{3}$	$(9,9,11)^{12}$	$(9,10,11)^{2}$	$(9,11,11)^{12}$
7m	$(0,10,11)^{4}$	$(1,10,11)^{6}$	$(2,10,11)^{12}$	$(3,10,11)^{1}$	$(4,10,11)^{12}$	$(5,10,11)^{6}$	$(6,10,11)^{4}$	$(7,10,11)^{3}$	$(8,10,11)^{12}$	$(9,10,11)^{2}$	$(10,10,11)^{12}$	$(10,11,11)^{3}$
7M	$(0,11,11)^{6}$	$(1,11,11)^{12}$	$(2,11,11)^{1}$	$(3,11,11)^{12}$	$(4,11,11)^{6}$	$(5,11,11)^{4}$	$(6,11,11)^{3}$	$(7,11,11)^{12}$	$(8,11,11)^{2}$	$(9,11,11)^{12}$	$(10,11,11)^{3}$	$(11,11,11)^{4}$

Table 49: Ascending-contour normalized operators for source slice $K = 11$.

Internal Rotation Matrices

The following matrices apply the first cyclic rotation of the triplet:

$$(I, J, K) \mapsto (J, K, I).$$

The global displacement and cyclic order remain unchanged, but the local melodic trajectory changes.

Internal rotation, source slice $K = 0$: unison

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,0,0)^{1}$	$(1,0,0)^{12}$	$(2,0,0)^{6}$	$(3,0,0)^{4}$	$(4,0,0)^{3}$	$(5,0,0)^{12}$	$(6,0,0)^{2}$	$(7,0,0)^{12}$	$(8,0,0)^{3}$	$(9,0,0)^{4}$	$(10,0,0)^{6}$	$(11,0,0)^{12}$
2m	$(0,0,1)^{12}$	$(1,0,1)^{6}$	$(2,0,1)^{4}$	$(3,0,1)^{3}$	$(4,0,1)^{12}$	$(5,0,1)^{2}$	$(6,0,1)^{12}$	$(7,0,1)^{3}$	$(8,0,1)^{4}$	$(9,0,1)^{6}$	$(10,0,1)^{12}$	$(11,0,1)^{1}$
2M	$(0,0,2)^{6}$	$(1,0,2)^{4}$	$(2,0,2)^{3}$	$(3,0,2)^{12}$	$(4,0,2)^{2}$	$(5,0,2)^{12}$	$(6,0,2)^{3}$	$(7,0,2)^{4}$	$(8,0,2)^{6}$	$(9,0,2)^{12}$	$(10,0,2)^{1}$	$(11,0,2)^{12}$
3m	$(0,0,3)^{4}$	$(1,0,3)^{3}$	$(2,0,3)^{12}$	$(3,0,3)^{2}$	$(4,0,3)^{12}$	$(5,0,3)^{3}$	$(6,0,3)^{4}$	$(7,0,3)^{6}$	$(8,0,3)^{12}$	$(9,0,3)^{1}$	$(10,0,3)^{12}$	$(11,0,3)^{6}$
3M	$(0,0,4)^{3}$	$(1,0,4)^{12}$	$(2,0,4)^{2}$	$(3,0,4)^{12}$	$(4,0,4)^{3}$	$(5,0,4)^{4}$	$(6,0,4)^{6}$	$(7,0,4)^{12}$	$(8,0,4)^{1}$	$(9,0,4)^{12}$	$(10,0,4)^{6}$	$(11,0,4)^{4}$
4	$(0,0,5)^{12}$	$(1,0,5)^{2}$	$(2,0,5)^{12}$	$(3,0,5)^{3}$	$(4,0,5)^{4}$	$(5,0,5)^{6}$	$(6,0,5)^{12}$	$(7,0,5)^{1}$	$(8,0,5)^{12}$	$(9,0,5)^{6}$	$(10,0,5)^{4}$	$(11,0,5)^{3}$
5b	$(0,0,6)^{2}$	$(1,0,6)^{12}$	$(2,0,6)^{3}$	$(3,0,6)^{4}$	$(4,0,6)^{6}$	$(5,0,6)^{12}$	$(6,0,6)^{1}$	$(7,0,6)^{12}$	$(8,0,6)^{6}$	$(9,0,6)^{4}$	$(10,0,6)^{3}$	$(11,0,6)^{12}$
5	$(0,0,7)^{12}$	$(1,0,7)^{3}$	$(2,0,7)^{4}$	$(3,0,7)^{6}$	$(4,0,7)^{12}$	$(5,0,7)^{1}$	$(6,0,7)^{12}$	$(7,0,7)^{6}$	$(8,0,7)^{4}$	$(9,0,7)^{3}$	$(10,0,7)^{12}$	$(11,0,7)^{2}$
5#	$(0,0,8)^{3}$	$(1,0,8)^{4}$	$(2,0,8)^{6}$	$(3,0,8)^{12}$	$(4,0,8)^{1}$	$(5,0,8)^{12}$	$(6,0,8)^{6}$	$(7,0,8)^{4}$	$(8,0,8)^{3}$	$(9,0,8)^{12}$	$(10,0,8)^{2}$	$(11,0,8)^{12}$
6	$(0,0,9)^{4}$	$(1,0,9)^{6}$	$(2,0,9)^{12}$	$(3,0,9)^{1}$	$(4,0,9)^{12}$	$(5,0,9)^{6}$	$(6,0,9)^{4}$	$(7,0,9)^{3}$	$(8,0,9)^{12}$	$(9,0,9)^{2}$	$(10,0,9)^{12}$	$(11,0,9)^{3}$
7m	$(0,0,10)^{6}$	$(1,0,10)^{12}$	$(2,0,10)^{1}$	$(3,0,10)^{12}$	$(4,0,10)^{6}$	$(5,0,10)^{4}$	$(6,0,10)^{3}$	$(7,0,10)^{12}$	$(8,0,10)^{2}$	$(9,0,10)^{12}$	$(10,0,10)^{3}$	$(11,0,10)^{4}$
7M	$(0,0,11)^{12}$	$(1,0,11)^{1}$	$(2,0,11)^{12}$	$(3,0,11)^{6}$	$(4,0,11)^{4}$	$(5,0,11)^{3}$	$(6,0,11)^{12}$	$(7,0,11)^{2}$	$(8,0,11)^{12}$	$(9,0,11)^{3}$	$(10,0,11)^{4}$	$(11,0,11)^{6}$

Table 50: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 0$.

Internal rotation, source slice $K = 1$: 2m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,1,0)^{12}$	$(1,1,0)^{6}$	$(2,1,0)^{4}$	$(3,1,0)^{3}$	$(4,1,0)^{12}$	$(5,1,0)^{2}$	$(6,1,0)^{12}$	$(7,1,0)^{3}$	$(8,1,0)^{4}$	$(9,1,0)^{6}$	$(10,1,0)^{12}$	$(11,1,0)^{1}$
2m	$(0,1,1)^{6}$	$(1,1,1)^{4}$	$(2,1,1)^{3}$	$(3,1,1)^{12}$	$(4,1,1)^{2}$	$(5,1,1)^{12}$	$(6,1,1)^{3}$	$(7,1,1)^{4}$	$(8,1,1)^{6}$	$(9,1,1)^{12}$	$(10,1,1)^{1}$	$(11,1,1)^{12}$
2M	$(0,1,2)^{4}$	$(1,1,2)^{3}$	$(2,1,2)^{12}$	$(3,1,2)^{2}$	$(4,1,2)^{12}$	$(5,1,2)^{3}$	$(6,1,2)^{4}$	$(7,1,2)^{6}$	$(8,1,2)^{12}$	$(9,1,2)^{1}$	$(10,1,2)^{12}$	$(11,1,2)^{6}$
3m	$(0,1,3)^{3}$	$(1,1,3)^{12}$	$(2,1,3)^{2}$	$(3,1,3)^{12}$	$(4,1,3)^{3}$	$(5,1,3)^{4}$	$(6,1,3)^{6}$	$(7,1,3)^{12}$	$(8,1,3)^{1}$	$(9,1,3)^{12}$	$(10,1,3)^{6}$	$(11,1,3)^{4}$
3M	$(0,1,4)^{12}$	$(1,1,4)^{2}$	$(2,1,4)^{12}$	$(3,1,4)^{3}$	$(4,1,4)^{4}$	$(5,1,4)^{6}$	$(6,1,4)^{12}$	$(7,1,4)^{1}$	$(8,1,4)^{12}$	$(9,1,4)^{6}$	$(10,1,4)^{4}$	$(11,1,4)^{3}$
4	$(0,1,5)^{2}$	$(1,1,5)^{12}$	$(2,1,5)^{3}$	$(3,1,5)^{4}$	$(4,1,5)^{6}$	$(5,1,5)^{12}$	$(6,1,5)^{1}$	$(7,1,5)^{12}$	$(8,1,5)^{6}$	$(9,1,5)^{4}$	$(10,1,5)^{3}$	$(11,1,5)^{12}$
5b	$(0,1,6)^{12}$	$(1,1,6)^{3}$	$(2,1,6)^{4}$	$(3,1,6)^{6}$	$(4,1,6)^{12}$	$(5,1,6)^{1}$	$(6,1,6)^{12}$	$(7,1,6)^{6}$	$(8,1,6)^{4}$	$(9,1,6)^{3}$	$(10,1,6)^{12}$	$(11,1,6)^{2}$
5	$(0,1,7)^{3}$	$(1,1,7)^{4}$	$(2,1,7)^{6}$	$(3,1,7)^{12}$	$(4,1,7)^{1}$	$(5,1,7)^{12}$	$(6,1,7)^{6}$	$(7,1,7)^{4}$	$(8,1,7)^{3}$	$(9,1,7)^{12}$	$(10,1,7)^{2}$	$(11,1,7)^{12}$
5#	$(0,1,8)^{4}$	$(1,1,8)^{6}$	$(2,1,8)^{12}$	$(3,1,8)^{1}$	$(4,1,8)^{12}$	$(5,1,8)^{6}$	$(6,1,8)^{4}$	$(7,1,8)^{3}$	$(8,1,8)^{12}$	$(9,1,8)^{2}$	$(10,1,8)^{12}$	$(11,1,8)^{3}$
6	$(0,1,9)^{6}$	$(1,1,9)^{12}$	$(2,1,9)^{1}$	$(3,1,9)^{12}$	$(4,1,9)^{6}$	$(5,1,9)^{4}$	$(6,1,9)^{3}$	$(7,1,9)^{12}$	$(8,1,9)^{2}$	$(9,1,9)^{12}$	$(10,1,9)^{3}$	$(11,1,9)^{4}$
7m	$(0,1,10)^{12}$	$(1,1,10)^{1}$	$(2,1,10)^{12}$	$(3,1,10)^{6}$	$(4,1,10)^{4}$	$(5,1,10)^{3}$	$(6,1,10)^{12}$	$(7,1,10)^{2}$	$(8,1,10)^{12}$	$(9,1,10)^{3}$	$(10,1,10)^{4}$	$(11,1,10)^{6}$
7M	$(0,1,11)^{1}$	$(1,1,11)^{12}$	$(2,1,11)^{6}$	$(3,1,11)^{4}$	$(4,1,11)^{3}$	$(5,1,11)^{12}$	$(6,1,11)^{2}$	$(7,1,11)^{12}$	$(8,1,11)^{3}$	$(9,1,11)^{4}$	$(10,1,11)^{6}$	$(11,1,11)^{12}$

Table 51: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 1$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,2,0)^{6}$	$(1,2,0)^{4}$	$(2,2,0)^{3}$	$(3,2,0)^{12}$	$(4,2,0)^{2}$	$(5,2,0)^{12}$	$(6,2,0)^{3}$	$(7,2,0)^{4}$	$(8,2,0)^{6}$	$(9,2,0)^{12}$	$(10,2,0)^{1}$	$(11,2,0)^{12}$
2m	$(0,2,1)^{4}$	$(1,2,1)^{3}$	$(2,2,1)^{12}$	$(3,2,1)^{2}$	$(4,2,1)^{12}$	$(5,2,1)^{3}$	$(6,2,1)^{4}$	$(7,2,1)^{6}$	$(8,2,1)^{12}$	$(9,2,1)^{1}$	$(10,2,1)^{12}$	$(11,2,1)^{6}$
2M	$(0,2,2)^{3}$	$(1,2,2)^{12}$	$(2,2,2)^{2}$	$(3,2,2)^{12}$	$(4,2,2)^{3}$	$(5,2,2)^{4}$	$(6,2,2)^{6}$	$(7,2,2)^{12}$	$(8,2,2)^{1}$	$(9,2,2)^{12}$	$(10,2,2)^{6}$	$(11,2,2)^{4}$
3m	$(0,2,3)^{12}$	$(1,2,3)^{2}$	$(2,2,3)^{12}$	$(3,2,3)^{3}$	$(4,2,3)^{4}$	$(5,2,3)^{6}$	$(6,2,3)^{12}$	$(7,2,3)^{1}$	$(8,2,3)^{12}$	$(9,2,3)^{6}$	$(10,2,3)^{4}$	$(11,2,3)^{3}$
3M	$(0,2,4)^{2}$	$(1,2,4)^{12}$	$(2,2,4)^{3}$	$(3,2,4)^{4}$	$(4,2,4)^{6}$	$(5,2,4)^{12}$	$(6,2,4)^{1}$	$(7,2,4)^{12}$	$(8,2,4)^{6}$	$(9,2,4)^{4}$	$(10,2,4)^{3}$	$(11,2,4)^{12}$
4	$(0,2,5)^{12}$	$(1,2,5)^{3}$	$(2,2,5)^{4}$	$(3,2,5)^{6}$	$(4,2,5)^{12}$	$(5,2,5)^{1}$	$(6,2,5)^{12}$	$(7,2,5)^{6}$	$(8,2,5)^{4}$	$(9,2,5)^{3}$	$(10,2,5)^{12}$	$(11,2,5)^{2}$
5b	$(0,2,6)^{3}$	$(1,2,6)^{4}$	$(2,2,6)^{6}$	$(3,2,6)^{12}$	$(4,2,6)^{1}$	$(5,2,6)^{12}$	$(6,2,6)^{6}$	$(7,2,6)^{4}$	$(8,2,6)^{3}$	$(9,2,6)^{12}$	$(10,2,6)^{2}$	$(11,2,6)^{12}$
5	$(0,2,7)^{4}$	$(1,2,7)^{6}$	$(2,2,7)^{12}$	$(3,2,7)^{1}$	$(4,2,7)^{12}$	$(5,2,7)^{6}$	$(6,2,7)^{4}$	$(7,2,7)^{3}$	$(8,2,7)^{12}$	$(9,2,7)^{2}$	$(10,2,7)^{12}$	$(11,2,7)^{3}$
5#	$(0,2,8)^{6}$	$(1,2,8)^{12}$	$(2,2,8)^{1}$	$(3,2,8)^{12}$	$(4,2,8)^{6}$	$(5,2,8)^{4}$	$(6,2,8)^{3}$	$(7,2,8)^{12}$	$(8,2,8)^{2}$	$(9,2,8)^{12}$	$(10,2,8)^{3}$	$(11,2,8)^{4}$
6	$(0,2,9)^{12}$	$(1,2,9)^{1}$	$(2,2,9)^{12}$	$(3,2,9)^{6}$	$(4,2,9)^{4}$	$(5,2,9)^{3}$	$(6,2,9)^{12}$	$(7,2,9)^{2}$	$(8,2,9)^{12}$	$(9,2,9)^{3}$	$(10,2,9)^{4}$	$(11,2,9)^{6}$
7m	$(0,2,10)^{1}$	$(1,2,10)^{12}$	$(2,2,10)^{6}$	$(3,2,10)^{4}$	$(4,2,10)^{3}$	$(5,2,10)^{12}$	$(6,2,10)^{2}$	$(7,2,10)^{12}$	$(8,2,10)^{3}$	$(9,2,10)^{4}$	$(10,2,10)^{6}$	$(11,2,10)^{12}$
7M	$(0,2,11)^{12}$	$(1,2,11)^{6}$	$(2,2,11)^{4}$	$(3,2,11)^{3}$	$(4,2,11)^{12}$	$(5,2,11)^{2}$	$(6,2,11)^{12}$	$(7,2,11)^{3}$	$(8,2,11)^{4}$	$(9,2,11)^{6}$	$(10,2,11)^{12}$	$(11,2,11)^{1}$

Table 52: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 2$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,3,0)^{4}$	$(1,3,0)^{3}$	$(2,3,0)^{12}$	$(3,3,0)^{2}$	$(4,3,0)^{12}$	$(5,3,0)^{3}$	$(6,3,0)^{4}$	$(7,3,0)^{6}$	$(8,3,0)^{12}$	$(9,3,0)^{1}$	$(10,3,0)^{12}$	$(11,3,0)^{6}$
2m	$(0,3,1)^{3}$	$(1,3,1)^{12}$	$(2,3,1)^{2}$	$(3,3,1)^{12}$	$(4,3,1)^{3}$	$(5,3,1)^{4}$	$(6,3,1)^{6}$	$(7,3,1)^{12}$	$(8,3,1)^{1}$	$(9,3,1)^{12}$	$(10,3,1)^{6}$	$(11,3,1)^{4}$
2M	$(0,3,2)^{12}$	$(1,3,2)^{2}$	$(2,3,2)^{12}$	$(3,3,2)^{3}$	$(4,3,2)^{4}$	$(5,3,2)^{6}$	$(6,3,2)^{12}$	$(7,3,2)^{1}$	$(8,3,2)^{12}$	$(9,3,2)^{6}$	$(10,3,2)^{4}$	$(11,3,2)^{3}$
3m	$(0,3,3)^{2}$	$(1,3,3)^{12}$	$(2,3,3)^{3}$	$(3,3,3)^{4}$	$(4,3,3)^{6}$	$(5,3,3)^{12}$	$(6,3,3)^{1}$	$(7,3,3)^{12}$	$(8,3,3)^{6}$	$(9,3,3)^{4}$	$(10,3,3)^{3}$	$(11,3,3)^{12}$
3M	$(0,3,4)^{12}$	$(1,3,4)^{3}$	$(2,3,4)^{4}$	$(3,3,4)^{6}$	$(4,3,4)^{12}$	$(5,3,4)^{1}$	$(6,3,4)^{12}$	$(7,3,4)^{6}$	$(8,3,4)^{4}$	$(9,3,4)^{3}$	$(10,3,4)^{12}$	$(11,3,4)^{2}$
4	$(0,3,5)^{3}$	$(1,3,5)^{4}$	$(2,3,5)^{6}$	$(3,3,5)^{12}$	$(4,3,5)^{1}$	$(5,3,5)^{12}$	$(6,3,5)^{6}$	$(7,3,5)^{4}$	$(8,3,5)^{3}$	$(9,3,5)^{12}$	$(10,3,5)^{2}$	$(11,3,5)^{12}$
5b	$(0,3,6)^{4}$	$(1,3,6)^{6}$	$(2,3,6)^{12}$	$(3,3,6)^{1}$	$(4,3,6)^{12}$	$(5,3,6)^{6}$	$(6,3,6)^{4}$	$(7,3,6)^{3}$	$(8,3,6)^{12}$	$(9,3,6)^{2}$	$(10,3,6)^{12}$	$(11,3,6)^{3}$
5	$(0,3,7)^{6}$	$(1,3,7)^{12}$	$(2,3,7)^{1}$	$(3,3,7)^{12}$	$(4,3,7)^{6}$	$(5,3,7)^{4}$	$(6,3,7)^{3}$	$(7,3,7)^{12}$	$(8,3,7)^{2}$	$(9,3,7)^{12}$	$(10,3,7)^{3}$	$(11,3,7)^{4}$
5#	$(0,3,8)^{12}$	$(1,3,8)^{1}$	$(2,3,8)^{12}$	$(3,3,8)^{6}$	$(4,3,8)^{4}$	$(5,3,8)^{3}$	$(6,3,8)^{12}$	$(7,3,8)^{2}$	$(8,3,8)^{12}$	$(9,3,8)^{3}$	$(10,3,8)^{4}$	$(11,3,8)^{6}$
6	$(0,3,9)^{1}$	$(1,3,9)^{12}$	$(2,3,9)^{6}$	$(3,3,9)^{4}$	$(4,3,9)^{3}$	$(5,3,9)^{12}$	$(6,3,9)^{2}$	$(7,3,9)^{12}$	$(8,3,9)^{3}$	$(9,3,9)^{4}$	$(10,3,9)^{6}$	$(11,3,9)^{12}$
7m	$(0,3,10)^{12}$	$(1,3,10)^{6}$	$(2,3,10)^{4}$	$(3,3,10)^{3}$	$(4,3,10)^{12}$	$(5,3,10)^{2}$	$(6,3,10)^{12}$	$(7,3,10)^{3}$	$(8,3,10)^{4}$	$(9,3,10)^{6}$	$(10,3,10)^{12}$	$(11,3,10)^{1}$
7M	$(0,3,11)^{6}$	$(1,3,11)^{4}$	$(2,3,11)^{3}$	$(3,3,11)^{12}$	$(4,3,11)^{2}$	$(5,3,11)^{12}$	$(6,3,11)^{3}$	$(7,3,11)^{4}$	$(8,3,11)^{6}$	$(9,3,11)^{12}$	$(10,3,11)^{1}$	$(11,3,11)^{12}$

Table 53: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 3$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,4,0)^{3}$	$(1,4,0)^{12}$	$(2,4,0)^{2}$	$(3,4,0)^{12}$	$(4,4,0)^{3}$	$(5,4,0)^{4}$	$(6,4,0)^{6}$	$(7,4,0)^{12}$	$(8,4,0)^{1}$	$(9,4,0)^{12}$	$(10,4,0)^{6}$	$(11,4,0)^{4}$
2m	$(0,4,1)^{12}$	$(1,4,1)^{2}$	$(2,4,1)^{12}$	$(3,4,1)^{3}$	$(4,4,1)^{4}$	$(5,4,1)^{6}$	$(6,4,1)^{12}$	$(7,4,1)^{1}$	$(8,4,1)^{12}$	$(9,4,1)^{6}$	$(10,4,1)^{4}$	$(11,4,1)^{3}$
2M	$(0,4,2)^{2}$	$(1,4,2)^{12}$	$(2,4,2)^{3}$	$(3,4,2)^{4}$	$(4,4,2)^{6}$	$(5,4,2)^{12}$	$(6,4,2)^{1}$	$(7,4,2)^{12}$	$(8,4,2)^{6}$	$(9,4,2)^{4}$	$(10,4,2)^{3}$	$(11,4,2)^{12}$
3m	$(0,4,3)^{12}$	$(1,4,3)^{3}$	$(2,4,3)^{4}$	$(3,4,3)^{6}$	$(4,4,3)^{12}$	$(5,4,3)^{1}$	$(6,4,3)^{12}$	$(7,4,3)^{6}$	$(8,4,3)^{4}$	$(9,4,3)^{3}$	$(10,4,3)^{12}$	$(11,4,3)^{2}$
3M	$(0,4,4)^{3}$	$(1,4,4)^{4}$	$(2,4,4)^{6}$	$(3,4,4)^{12}$	$(4,4,4)^{1}$	$(5,4,4)^{12}$	$(6,4,4)^{6}$	$(7,4,4)^{4}$	$(8,4,4)^{3}$	$(9,4,4)^{12}$	$(10,4,4)^{2}$	$(11,4,4)^{12}$
4	$(0,4,5)^{4}$	$(1,4,5)^{6}$	$(2,4,5)^{12}$	$(3,4,5)^{1}$	$(4,4,5)^{12}$	$(5,4,5)^{6}$	$(6,4,5)^{4}$	$(7,4,5)^{3}$	$(8,4,5)^{12}$	$(9,4,5)^{2}$	$(10,4,5)^{12}$	$(11,4,5)^{3}$
5b	$(0,4,6)^{6}$	$(1,4,6)^{12}$	$(2,4,6)^{1}$	$(3,4,6)^{12}$	$(4,4,6)^{6}$	$(5,4,6)^{4}$	$(6,4,6)^{3}$	$(7,4,6)^{12}$	$(8,4,6)^{2}$	$(9,4,6)^{12}$	$(10,4,6)^{3}$	$(11,4,6)^{4}$
5	$(0,4,7)^{12}$	$(1,4,7)^{1}$	$(2,4,7)^{12}$	$(3,4,7)^{6}$	$(4,4,7)^{4}$	$(5,4,7)^{3}$	$(6,4,7)^{12}$	$(7,4,7)^{2}$	$(8,4,7)^{12}$	$(9,4,7)^{3}$	$(10,4,7)^{4}$	$(11,4,7)^{6}$
5#	$(0,4,8)^{1}$	$(1,4,8)^{12}$	$(2,4,8)^{6}$	$(3,4,8)^{4}$	$(4,4,8)^{3}$	$(5,4,8)^{12}$	$(6,4,8)^{2}$	$(7,4,8)^{12}$	$(8,4,8)^{3}$	$(9,4,8)^{4}$	$(10,4,8)^{6}$	$(11,4,8)^{12}$
6	$(0,4,9)^{12}$	$(1,4,9)^{6}$	$(2,4,9)^{4}$	$(3,4,9)^{3}$	$(4,4,9)^{12}$	$(5,4,9)^{2}$	$(6,4,9)^{12}$	$(7,4,9)^{3}$	$(8,4,9)^{4}$	$(9,4,9)^{6}$	$(10,4,9)^{12}$	$(11,4,9)^{1}$
7m	$(0,4,10)^{6}$	$(1,4,10)^{4}$	$(2,4,10)^{3}$	$(3,4,10)^{12}$	$(4,4,10)^{2}$	$(5,4,10)^{12}$	$(6,4,10)^{3}$	$(7,4,10)^{4}$	$(8,4,10)^{6}$	$(9,4,10)^{12}$	$(10,4,10)^{1}$	$(11,4,10)^{12}$
7M	$(0,4,11)^{4}$	$(1,4,11)^{3}$	$(2,4,11)^{12}$	$(3,4,11)^{2}$	$(4,4,11)^{12}$	$(5,4,11)^{3}$	$(6,4,11)^{4}$	$(7,4,11)^{6}$	$(8,4,11)^{12}$	$(9,4,11)^{1}$	$(10,4,11)^{12}$	$(11,4,11)^{6}$

Table 54: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 4$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,5,0)^{12}$	$(1,5,0)^{2}$	$(2,5,0)^{12}$	$(3,5,0)^{3}$	$(4,5,0)^{4}$	$(5,5,0)^{6}$	$(6,5,0)^{12}$	$(7,5,0)^{1}$	$(8,5,0)^{12}$	$(9,5,0)^{6}$	$(10,5,0)^{4}$	$(11,5,0)^{3}$
2m	$(0,5,1)^{2}$	$(1,5,1)^{12}$	$(2,5,1)^{3}$	$(3,5,1)^{4}$	$(4,5,1)^{6}$	$(5,5,1)^{12}$	$(6,5,1)^{1}$	$(7,5,1)^{12}$	$(8,5,1)^{6}$	$(9,5,1)^{4}$	$(10,5,1)^{3}$	$(11,5,1)^{12}$
2M	$(0,5,2)^{12}$	$(1,5,2)^{3}$	$(2,5,2)^{4}$	$(3,5,2)^{6}$	$(4,5,2)^{12}$	$(5,5,2)^{1}$	$(6,5,2)^{12}$	$(7,5,2)^{6}$	$(8,5,2)^{4}$	$(9,5,2)^{3}$	$(10,5,2)^{12}$	$(11,5,2)^{2}$
3m	$(0,5,3)^{3}$	$(1,5,3)^{4}$	$(2,5,3)^{6}$	$(3,5,3)^{12}$	$(4,5,3)^{1}$	$(5,5,3)^{12}$	$(6,5,3)^{6}$	$(7,5,3)^{4}$	$(8,5,3)^{3}$	$(9,5,3)^{12}$	$(10,5,3)^{2}$	$(11,5,3)^{12}$
3M	$(0,5,4)^{4}$	$(1,5,4)^{6}$	$(2,5,4)^{12}$	$(3,5,4)^{1}$	$(4,5,4)^{12}$	$(5,5,4)^{6}$	$(6,5,4)^{4}$	$(7,5,4)^{3}$	$(8,5,4)^{12}$	$(9,5,4)^{2}$	$(10,5,4)^{12}$	$(11,5,4)^{3}$
4	$(0,5,5)^{6}$	$(1,5,5)^{12}$	$(2,5,5)^{1}$	$(3,5,5)^{12}$	$(4,5,5)^{6}$	$(5,5,5)^{4}$	$(6,5,5)^{3}$	$(7,5,5)^{12}$	$(8,5,5)^{2}$	$(9,5,5)^{12}$	$(10,5,5)^{3}$	$(11,5,5)^{4}$
5b	$(0,5,6)^{12}$	$(1,5,6)^{1}$	$(2,5,6)^{12}$	$(3,5,6)^{6}$	$(4,5,6)^{4}$	$(5,5,6)^{3}$	$(6,5,6)^{12}$	$(7,5,6)^{2}$	$(8,5,6)^{12}$	$(9,5,6)^{3}$	$(10,5,6)^{4}$	$(11,5,6)^{6}$
5	$(0,5,7)^{1}$	$(1,5,7)^{12}$	$(2,5,7)^{6}$	$(3,5,7)^{4}$	$(4,5,7)^{3}$	$(5,5,7)^{12}$	$(6,5,7)^{2}$	$(7,5,7)^{12}$	$(8,5,7)^{3}$	$(9,5,7)^{4}$	$(10,5,7)^{6}$	$(11,5,7)^{12}$
5#	$(0,5,8)^{12}$	$(1,5,8)^{6}$	$(2,5,8)^{4}$	$(3,5,8)^{3}$	$(4,5,8)^{12}$	$(5,5,8)^{2}$	$(6,5,8)^{12}$	$(7,5,8)^{3}$	$(8,5,8)^{4}$	$(9,5,8)^{6}$	$(10,5,8)^{12}$	$(11,5,8)^{1}$
6	$(0,5,9)^{6}$	$(1,5,9)^{4}$	$(2,5,9)^{3}$	$(3,5,9)^{12}$	$(4,5,9)^{2}$	$(5,5,9)^{12}$	$(6,5,9)^{3}$	$(7,5,9)^{4}$	$(8,5,9)^{6}$	$(9,5,9)^{12}$	$(10,5,9)^{1}$	$(11,5,9)^{12}$
7m	$(0,5,10)^{4}$	$(1,5,10)^{3}$	$(2,5,10)^{12}$	$(3,5,10)^{2}$	$(4,5,10)^{12}$	$(5,5,10)^{3}$	$(6,5,10)^{4}$	$(7,5,10)^{6}$	$(8,5,10)^{12}$	$(9,5,10)^{1}$	$(10,5,10)^{12}$	$(11,5,10)^{6}$
7M	$(0,5,11)^{3}$	$(1,5,11)^{12}$	$(2,5,11)^{2}$	$(3,5,11)^{12}$	$(4,5,11)^{3}$	$(5,5,11)^{4}$	$(6,5,11)^{6}$	$(7,5,11)^{12}$	$(8,5,11)^{1}$	$(9,5,11)^{12}$	$(10,5,11)^{6}$	$(11,5,11)^{4}$

Table 55: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 5$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,6,0)^{2}$	$(1,6,0)^{12}$	$(2,6,0)^{3}$	$(3,6,0)^{4}$	$(4,6,0)^{6}$	$(5,6,0)^{12}$	$(6,6,0)^{1}$	$(7,6,0)^{12}$	$(8,6,0)^{6}$	$(9,6,0)^{4}$	$(10,6,0)^{3}$	$(11,6,0)^{12}$
2m	$(0,6,1)^{12}$	$(1,6,1)^{3}$	$(2,6,1)^{4}$	$(3,6,1)^{6}$	$(4,6,1)^{12}$	$(5,6,1)^{1}$	$(6,6,1)^{12}$	$(7,6,1)^{6}$	$(8,6,1)^{4}$	$(9,6,1)^{3}$	$(10,6,1)^{12}$	$(11,6,1)^{2}$
2M	$(0,6,2)^{3}$	$(1,6,2)^{4}$	$(2,6,2)^{6}$	$(3,6,2)^{12}$	$(4,6,2)^{1}$	$(5,6,2)^{12}$	$(6,6,2)^{6}$	$(7,6,2)^{4}$	$(8,6,2)^{3}$	$(9,6,2)^{12}$	$(10,6,2)^{2}$	$(11,6,2)^{12}$
3m	$(0,6,3)^{4}$	$(1,6,3)^{6}$	$(2,6,3)^{12}$	$(3,6,3)^{1}$	$(4,6,3)^{12}$	$(5,6,3)^{6}$	$(6,6,3)^{4}$	$(7,6,3)^{3}$	$(8,6,3)^{12}$	$(9,6,3)^{2}$	$(10,6,3)^{12}$	$(11,6,3)^{3}$
3M	$(0,6,4)^{6}$	$(1,6,4)^{12}$	$(2,6,4)^{1}$	$(3,6,4)^{12}$	$(4,6,4)^{6}$	$(5,6,4)^{4}$	$(6,6,4)^{3}$	$(7,6,4)^{12}$	$(8,6,4)^{2}$	$(9,6,4)^{12}$	$(10,6,4)^{3}$	$(11,6,4)^{4}$
4	$(0,6,5)^{12}$	$(1,6,5)^{1}$	$(2,6,5)^{12}$	$(3,6,5)^{6}$	$(4,6,5)^{4}$	$(5,6,5)^{3}$	$(6,6,5)^{12}$	$(7,6,5)^{2}$	$(8,6,5)^{12}$	$(9,6,5)^{3}$	$(10,6,5)^{4}$	$(11,6,5)^{6}$
5b	$(0,6,6)^{1}$	$(1,6,6)^{12}$	$(2,6,6)^{6}$	$(3,6,6)^{4}$	$(4,6,6)^{3}$	$(5,6,6)^{12}$	$(6,6,6)^{2}$	$(7,6,6)^{12}$	$(8,6,6)^{3}$	$(9,6,6)^{4}$	$(10,6,6)^{6}$	$(11,6,6)^{12}$
5	$(0,6,7)^{12}$	$(1,6,7)^{6}$	$(2,6,7)^{4}$	$(3,6,7)^{3}$	$(4,6,7)^{12}$	$(5,6,7)^{2}$	$(6,6,7)^{12}$	$(7,6,7)^{3}$	$(8,6,7)^{4}$	$(9,6,7)^{6}$	$(10,6,7)^{12}$	$(11,6,7)^{1}$
5#	$(0,6,8)^{6}$	$(1,6,8)^{4}$	$(2,6,8)^{3}$	$(3,6,8)^{12}$	$(4,6,8)^{2}$	$(5,6,8)^{12}$	$(6,6,8)^{3}$	$(7,6,8)^{4}$	$(8,6,8)^{6}$	$(9,6,8)^{12}$	$(10,6,8)^{1}$	$(11,6,8)^{12}$
6	$(0,6,9)^{4}$	$(1,6,9)^{3}$	$(2,6,9)^{12}$	$(3,6,9)^{2}$	$(4,6,9)^{12}$	$(5,6,9)^{3}$	$(6,6,9)^{4}$	$(7,6,9)^{6}$	$(8,6,9)^{12}$	$(9,6,9)^{1}$	$(10,6,9)^{12}$	$(11,6,9)^{6}$
7m	$(0,6,10)^{3}$	$(1,6,10)^{12}$	$(2,6,10)^{2}$	$(3,6,10)^{12}$	$(4,6,10)^{3}$	$(5,6,10)^{4}$	$(6,6,10)^{6}$	$(7,6,10)^{12}$	$(8,6,10)^{1}$	$(9,6,10)^{12}$	$(10,6,10)^{6}$	$(11,6,10)^{4}$
7M	$(0,6,11)^{12}$	$(1,6,11)^{2}$	$(2,6,11)^{12}$	$(3,6,11)^{3}$	$(4,6,11)^{4}$	$(5,6,11)^{6}$	$(6,6,11)^{12}$	$(7,6,11)^{1}$	$(8,6,11)^{12}$	$(9,6,11)^{6}$	$(10,6,11)^{4}$	$(11,6,11)^{3}$

Table 56: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 6$.

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,7,0)^{12}$	$(1,7,0)^{3}$	$(2,7,0)^{4}$	$(3,7,0)^{6}$	$(4,7,0)^{12}$	$(5,7,0)^{1}$	$(6,7,0)^{12}$	$(7,7,0)^{6}$	$(8,7,0)^{4}$	$(9,7,0)^{3}$	$(10,7,0)^{12}$	$(11,7,0)^{2}$
2m	$(0,7,1)^{3}$	$(1,7,1)^{4}$	$(2,7,1)^{6}$	$(3,7,1)^{12}$	$(4,7,1)^{1}$	$(5,7,1)^{12}$	$(6,7,1)^{6}$	$(7,7,1)^{4}$	$(8,7,1)^{3}$	$(9,7,1)^{12}$	$(10,7,1)^{2}$	$(11,7,1)^{12}$
2M	$(0,7,2)^{4}$	$(1,7,2)^{6}$	$(2,7,2)^{12}$	$(3,7,2)^{1}$	$(4,7,2)^{12}$	$(5,7,2)^{6}$	$(6,7,2)^{4}$	$(7,7,2)^{3}$	$(8,7,2)^{12}$	$(9,7,2)^{2}$	$(10,7,2)^{12}$	$(11,7,2)^{3}$
3m	$(0,7,3)^{6}$	$(1,7,3)^{12}$	$(2,7,3)^{1}$	$(3,7,3)^{12}$	$(4,7,3)^{6}$	$(5,7,3)^{4}$	$(6,7,3)^{3}$	$(7,7,3)^{12}$	$(8,7,3)^{2}$	$(9,7,3)^{12}$	$(10,7,3)^{3}$	$(11,7,3)^{4}$
3M	$(0,7,4)^{12}$	$(1,7,4)^{1}$	$(2,7,4)^{12}$	$(3,7,4)^{6}$	$(4,7,4)^{4}$	$(5,7,4)^{3}$	$(6,7,4)^{12}$	$(7,7,4)^{2}$	$(8,7,4)^{12}$	$(9,7,4)^{3}$	$(10,7,4)^{4}$	$(11,7,4)^{6}$
4	$(0,7,5)^{1}$	$(1,7,5)^{12}$	$(2,7,5)^{6}$	$(3,7,5)^{4}$	$(4,7,5)^{3}$	$(5,7,5)^{12}$	$(6,7,5)^{2}$	$(7,7,5)^{12}$	$(8,7,5)^{3}$	$(9,7,5)^{4}$	$(10,7,5)^{6}$	$(11,7,5)^{12}$
5b	$(0,7,6)^{12}$	$(1,7,6)^{6}$	$(2,7,6)^{4}$	$(3,7,6)^{3}$	$(4,7,6)^{12}$	$(5,7,6)^{2}$	$(6,7,6)^{12}$	$(7,7,6)^{3}$	$(8,7,6)^{4}$	$(9,7,6)^{6}$	$(10,7,6)^{12}$	$(11,7,6)^{1}$
5	$(0,7,7)^{6}$	$(1,7,7)^{4}$	$(2,7,7)^{3}$	$(3,7,7)^{12}$	$(4,7,7)^{2}$	$(5,7,7)^{12}$	$(6,7,7)^{3}$	$(7,7,7)^{4}$	$(8,7,7)^{6}$	$(9,7,7)^{12}$	$(10,7,7)^{1}$	$(11,7,7)^{12}$
5#	$(0,7,8)^{4}$	$(1,7,8)^{3}$	$(2,7,8)^{12}$	$(3,7,8)^{2}$	$(4,7,8)^{12}$	$(5,7,8)^{3}$	$(6,7,8)^{4}$	$(7,7,8)^{6}$	$(8,7,8)^{12}$	$(9,7,8)^{1}$	$(10,7,8)^{12}$	$(11,7,8)^{6}$
6	$(0,7,9)^{3}$	$(1,7,9)^{12}$	$(2,7,9)^{2}$	$(3,7,9)^{12}$	$(4,7,9)^{3}$	$(5,7,9)^{4}$	$(6,7,9)^{6}$	$(7,7,9)^{12}$	$(8,7,9)^{1}$	$(9,7,9)^{12}$	$(10,7,9)^{6}$	$(11,7,9)^{4}$
7m	$(0,7,10)^{12}$	$(1,7,10)^{2}$	$(2,7,10)^{12}$	$(3,7,10)^{3}$	$(4,7,10)^{4}$	$(5,7,10)^{6}$	$(6,7,10)^{12}$	$(7,7,10)^{1}$	$(8,7,10)^{12}$	$(9,7,10)^{6}$	$(10,7,10)^{4}$	$(11,7,10)^{3}$
7M	$(0,7,11)^{2}$	$(1,7,11)^{12}$	$(2,7,11)^{3}$	$(3,7,11)^{4}$	$(4,7,11)^{6}$	$(5,7,11)^{12}$	$(6,7,11)^{1}$	$(7,7,11)^{12}$	$(8,7,11)^{6}$	$(9,7,11)^{4}$	$(10,7,11)^{3}$	$(11,7,11)^{12}$

Table 57: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 7$.

Internal rotation, source slice $K = 2$: 2M

Internal rotation, source slice $K = 3$: 3m

Internal rotation, source slice $K = 4$: 3M

Internal rotation, source slice $K = 5$: 4

Internal rotation, source slice $K = 6$: 5b

Internal rotation, source slice $K = 7$: 5

Internal rotation, source slice $K = 8$: 5#

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,8,0)^{3}$	$(1,8,0)^{4}$	$(2,8,0)^{6}$	$(3,8,0)^{12}$	$(4,8,0)^{1}$	$(5,8,0)^{12}$	$(6,8,0)^{6}$	$(7,8,0)^{4}$	$(8,8,0)^{3}$	$(9,8,0)^{12}$	$(10,8,0)^{2}$	$(11,8,0)^{12}$
2m	$(0,8,1)^{4}$	$(1,8,1)^{6}$	$(2,8,1)^{12}$	$(3,8,1)^{1}$	$(4,8,1)^{12}$	$(5,8,1)^{6}$	$(6,8,1)^{4}$	$(7,8,1)^{3}$	$(8,8,1)^{12}$	$(9,8,1)^{2}$	$(10,8,1)^{12}$	$(11,8,1)^{3}$
2M	$(0,8,2)^{6}$	$(1,8,2)^{12}$	$(2,8,2)^{1}$	$(3,8,2)^{12}$	$(4,8,2)^{6}$	$(5,8,2)^{4}$	$(6,8,2)^{3}$	$(7,8,2)^{12}$	$(8,8,2)^{2}$	$(9,8,2)^{12}$	$(10,8,2)^{3}$	$(11,8,2)^{4}$
3m	$(0,8,3)^{12}$	$(1,8,3)^{1}$	$(2,8,3)^{12}$	$(3,8,3)^{6}$	$(4,8,3)^{4}$	$(5,8,3)^{3}$	$(6,8,3)^{12}$	$(7,8,3)^{2}$	$(8,8,3)^{12}$	$(9,8,3)^{3}$	$(10,8,3)^{4}$	$(11,8,3)^{6}$
3M	$(0,8,4)^{1}$	$(1,8,4)^{12}$	$(2,8,4)^{6}$	$(3,8,4)^{4}$	$(4,8,4)^{3}$	$(5,8,4)^{12}$	$(6,8,4)^{2}$	$(7,8,4)^{12}$	$(8,8,4)^{3}$	$(9,8,4)^{4}$	$(10,8,4)^{6}$	$(11,8,4)^{12}$
4	$(0,8,5)^{12}$	$(1,8,5)^{6}$	$(2,8,5)^{4}$	$(3,8,5)^{3}$	$(4,8,5)^{12}$	$(5,8,5)^{2}$	$(6,8,5)^{12}$	$(7,8,5)^{3}$	$(8,8,5)^{4}$	$(9,8,5)^{6}$	$(10,8,5)^{12}$	$(11,8,5)^{1}$
5b	$(0,8,6)^{6}$	$(1,8,6)^{4}$	$(2,8,6)^{3}$	$(3,8,6)^{12}$	$(4,8,6)^{2}$	$(5,8,6)^{12}$	$(6,8,6)^{3}$	$(7,8,6)^{4}$	$(8,8,6)^{6}$	$(9,8,6)^{12}$	$(10,8,6)^{1}$	$(11,8,6)^{12}$
5	$(0,8,7)^{4}$	$(1,8,7)^{3}$	$(2,8,7)^{12}$	$(3,8,7)^{2}$	$(4,8,7)^{12}$	$(5,8,7)^{3}$	$(6,8,7)^{4}$	$(7,8,7)^{6}$	$(8,8,7)^{12}$	$(9,8,7)^{1}$	$(10,8,7)^{12}$	$(11,8,7)^{6}$
5#	$(0,8,8)^{3}$	$(1,8,8)^{12}$	$(2,8,8)^{2}$	$(3,8,8)^{12}$	$(4,8,8)^{3}$	$(5,8,8)^{4}$	$(6,8,8)^{6}$	$(7,8,8)^{12}$	$(8,8,8)^{1}$	$(9,8,8)^{12}$	$(10,8,8)^{6}$	$(11,8,8)^{4}$
6	$(0,8,9)^{12}$	$(1,8,9)^{2}$	$(2,8,9)^{12}$	$(3,8,9)^{3}$	$(4,8,9)^{4}$	$(5,8,9)^{6}$	$(6,8,9)^{12}$	$(7,8,9)^{1}$	$(8,8,9)^{12}$	$(9,8,9)^{6}$	$(10,8,9)^{4}$	$(11,8,9)^{3}$
7m	$(0,8,10)^{2}$	$(1,8,10)^{12}$	$(2,8,10)^{3}$	$(3,8,10)^{4}$	$(4,8,10)^{6}$	$(5,8,10)^{12}$	$(6,8,10)^{1}$	$(7,8,10)^{12}$	$(8,8,10)^{6}$	$(9,8,10)^{4}$	$(10,8,10)^{3}$	$(11,8,10)^{12}$
7M	$(0,8,11)^{12}$	$(1,8,11)^{3}$	$(2,8,11)^{4}$	$(3,8,11)^{6}$	$(4,8,11)^{12}$	$(5,8,11)^{1}$	$(6,8,11)^{12}$	$(7,8,11)^{6}$	$(8,8,11)^{4}$	$(9,8,11)^{3}$	$(10,8,11)^{12}$	$(11,8,11)^{2}$

Table 58: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 8$.

Internal rotation, source slice $K = 9$: 6

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,9,0)^{4}$	$(1,9,0)^{6}$	$(2,9,0)^{12}$	$(3,9,0)^{1}$	$(4,9,0)^{12}$	$(5,9,0)^{6}$	$(6,9,0)^{4}$	$(7,9,0)^{3}$	$(8,9,0)^{12}$	$(9,9,0)^{2}$	$(10,9,0)^{12}$	$(11,9,0)^{3}$
2m	$(0,9,1)^{6}$	$(1,9,1)^{12}$	$(2,9,1)^{1}$	$(3,9,1)^{12}$	$(4,9,1)^{6}$	$(5,9,1)^{4}$	$(6,9,1)^{3}$	$(7,9,1)^{12}$	$(8,9,1)^{2}$	$(9,9,1)^{12}$	$(10,9,1)^{3}$	$(11,9,1)^{4}$
2M	$(0,9,2)^{12}$	$(1,9,2)^{1}$	$(2,9,2)^{12}$	$(3,9,2)^{6}$	$(4,9,2)^{4}$	$(5,9,2)^{3}$	$(6,9,2)^{12}$	$(7,9,2)^{2}$	$(8,9,2)^{12}$	$(9,9,2)^{3}$	$(10,9,2)^{4}$	$(11,9,2)^{6}$
3m	$(0,9,3)^{1}$	$(1,9,3)^{12}$	$(2,9,3)^{6}$	$(3,9,3)^{4}$	$(4,9,3)^{3}$	$(5,9,3)^{12}$	$(6,9,3)^{2}$	$(7,9,3)^{12}$	$(8,9,3)^{3}$	$(9,9,3)^{4}$	$(10,9,3)^{6}$	$(11,9,3)^{12}$
3M	$(0,9,4)^{12}$	$(1,9,4)^{6}$	$(2,9,4)^{4}$	$(3,9,4)^{3}$	$(4,9,4)^{12}$	$(5,9,4)^{2}$	$(6,9,4)^{12}$	$(7,9,4)^{3}$	$(8,9,4)^{4}$	$(9,9,4)^{6}$	$(10,9,4)^{12}$	$(11,9,4)^{1}$
4	$(0,9,5)^{6}$	$(1,9,5)^{4}$	$(2,9,5)^{3}$	$(3,9,5)^{12}$	$(4,9,5)^{2}$	$(5,9,5)^{12}$	$(6,9,5)^{3}$	$(7,9,5)^{4}$	$(8,9,5)^{6}$	$(9,9,5)^{12}$	$(10,9,5)^{1}$	$(11,9,5)^{12}$
5b	$(0,9,6)^{4}$	$(1,9,6)^{3}$	$(2,9,6)^{12}$	$(3,9,6)^{2}$	$(4,9,6)^{12}$	$(5,9,6)^{3}$	$(6,9,6)^{4}$	$(7,9,6)^{6}$	$(8,9,6)^{12}$	$(9,9,6)^{1}$	$(10,9,6)^{12}$	$(11,9,6)^{6}$
5	$(0,9,7)^{3}$	$(1,9,7)^{12}$	$(2,9,7)^{2}$	$(3,9,7)^{12}$	$(4,9,7)^{3}$	$(5,9,7)^{4}$	$(6,9,7)^{6}$	$(7,9,7)^{12}$	$(8,9,7)^{1}$	$(9,9,7)^{12}$	$(10,9,7)^{6}$	$(11,9,7)^{4}$
5#	$(0,9,8)^{12}$	$(1,9,8)^{2}$	$(2,9,8)^{12}$	$(3,9,8)^{3}$	$(4,9,8)^{4}$	$(5,9,8)^{6}$	$(6,9,8)^{12}$	$(7,9,8)^{1}$	$(8,9,8)^{12}$	$(9,9,8)^{6}$	$(10,9,8)^{4}$	$(11,9,8)^{3}$
6	$(0,9,9)^{2}$	$(1,9,9)^{12}$	$(2,9,9)^{3}$	$(3,9,9)^{4}$	$(4,9,9)^{6}$	$(5,9,9)^{12}$	$(6,9,9)^{1}$	$(7,9,9)^{12}$	$(8,9,9)^{6}$	$(9,9,9)^{4}$	$(10,9,9)^{3}$	$(11,9,9)^{12}$
7m	$(0,9,10)^{12}$	$(1,9,10)^{3}$	$(2,9,10)^{4}$	$(3,9,10)^{6}$	$(4,9,10)^{12}$	$(5,9,10)^{1}$	$(6,9,10)^{12}$	$(7,9,10)^{6}$	$(8,9,10)^{4}$	$(9,9,10)^{3}$	$(10,9,10)^{12}$	$(11,9,10)^{2}$
7M	$(0,9,11)^{3}$	$(1,9,11)^{4}$	$(2,9,11)^{6}$	$(3,9,11)^{12}$	$(4,9,11)^{1}$	$(5,9,11)^{12}$	$(6,9,11)^{6}$	$(7,9,11)^{4}$	$(8,9,11)^{3}$	$(9,9,11)^{12}$	$(10,9,11)^{2}$	$(11,9,11)^{12}$

Table 59: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 9$.

Internal rotation, source slice $K = 10$: 7m

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,10,0)^{6}$	$(1,10,0)^{12}$	$(2,10,0)^{1}$	$(3,10,0)^{12}$	$(4,10,0)^{6}$	$(5,10,0)^{4}$	$(6,10,0)^{3}$	$(7,10,0)^{12}$	$(8,10,0)^{2}$	$(9,10,0)^{12}$	$(10,10,0)^{3}$	$(11,10,0)^{4}$
2m	$(0,10,1)^{12}$	$(1,10,1)^{1}$	$(2,10,1)^{12}$	$(3,10,1)^{6}$	$(4,10,1)^{4}$	$(5,10,1)^{3}$	$(6,10,1)^{12}$	$(7,10,1)^{2}$	$(8,10,1)^{12}$	$(9,10,1)^{3}$	$(10,10,1)^{4}$	$(11,10,1)^{6}$
2M	$(0,10,2)^{1}$	$(1,10,2)^{12}$	$(2,10,2)^{6}$	$(3,10,2)^{4}$	$(4,10,2)^{3}$	$(5,10,2)^{12}$	$(6,10,2)^{2}$	$(7,10,2)^{12}$	$(8,10,2)^{3}$	$(9,10,2)^{4}$	$(10,10,2)^{6}$	$(11,10,2)^{12}$
3m	$(0,10,3)^{12}$	$(1,10,3)^{6}$	$(2,10,3)^{4}$	$(3,10,3)^{3}$	$(4,10,3)^{12}$	$(5,10,3)^{2}$	$(6,10,3)^{12}$	$(7,10,3)^{3}$	$(8,10,3)^{4}$	$(9,10,3)^{6}$	$(10,10,3)^{12}$	$(11,10,3)^{1}$
3M	$(0,10,4)^{6}$	$(1,10,4)^{4}$	$(2,10,4)^{3}$	$(3,10,4)^{12}$	$(4,10,4)^{2}$	$(5,10,4)^{12}$	$(6,10,4)^{3}$	$(7,10,4)^{4}$	$(8,10,4)^{6}$	$(9,10,4)^{12}$	$(10,10,4)^{1}$	$(11,10,4)^{12}$
4	$(0,10,5)^{4}$	$(1,10,5)^{3}$	$(2,10,5)^{12}$	$(3,10,5)^{2}$	$(4,10,5)^{12}$	$(5,10,5)^{3}$	$(6,10,5)^{4}$	$(7,10,5)^{6}$	$(8,10,5)^{12}$	$(9,10,5)^{1}$	$(10,10,5)^{12}$	$(11,10,5)^{6}$
5b	$(0,10,6)^{3}$	$(1,10,6)^{12}$	$(2,10,6)^{2}$	$(3,10,6)^{12}$	$(4,10,6)^{3}$	$(5,10,6)^{4}$	$(6,10,6)^{6}$	$(7,10,6)^{12}$	$(8,10,6)^{1}$	$(9,10,6)^{12}$	$(10,10,6)^{6}$	$(11,10,6)^{4}$
5	$(0,10,7)^{12}$	$(1,10,7)^{2}$	$(2,10,7)^{12}$	$(3,10,7)^{3}$	$(4,10,7)^{4}$	$(5,10,7)^{6}$	$(6,10,7)^{12}$	$(7,10,7)^{1}$	$(8,10,7)^{12}$	$(9,10,7)^{6}$	$(10,10,7)^{4}$	$(11,10,7)^{3}$
5#	$(0,10,8)^{2}$	$(1,10,8)^{12}$	$(2,10,8)^{3}$	$(3,10,8)^{4}$	$(4,10,8)^{6}$	$(5,10,8)^{12}$	$(6,10,8)^{1}$	$(7,10,8)^{12}$	$(8,10,8)^{6}$	$(9,10,8)^{4}$	$(10,10,8)^{3}$	$(11,10,8)^{12}$
6	$(0,10,9)^{12}$	$(1,10,9)^{3}$	$(2,10,9)^{4}$	$(3,10,9)^{6}$	$(4,10,9)^{12}$	$(5,10,9)^{1}$	$(6,10,9)^{12}$	$(7,10,9)^{6}$	$(8,10,9)^{4}$	$(9,10,9)^{3}$	$(10,10,9)^{12}$	$(11,10,9)^{2}$
7m	$(0,10,10)^{3}$	$(1,10,10)^{4}$	$(2,10,10)^{6}$	$(3,10,10)^{12}$	$(4,10,10)^{1}$	$(5,10,10)^{12}$	$(6,10,10)^{6}$	$(7,10,10)^{4}$	$(8,10,10)^{3}$	$(9,10,10)^{12}$	$(10,10,10)^{2}$	$(11,10,10)^{12}$
7M	$(0,10,11)^{4}$	$(1,10,11)^{6}$	$(2,10,11)^{12}$	$(3,10,11)^{1}$	$(4,10,11)^{12}$	$(5,10,11)^{6}$	$(6,10,11)^{4}$	$(7,10,11)^{3}$	$(8,10,11)^{12}$	$(9,10,11)^{2}$	$(10,10,11)^{12}$	$(11,10,11)^{3}$

Table 60: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 10$.

Internal rotation, source slice $K = 11$: 7M

$I \setminus J$	unison	2m	2M	3m	3M	4	5b	5	5#	6	7m	7M
unison	$(0,11,0)^{12}$	$(1,11,0)^{1}$	$(2,11,0)^{12}$	$(3,11,0)^{6}$	$(4,11,0)^{4}$	$(5,11,0)^{3}$	$(6,11,0)^{12}$	$(7,11,0)^{2}$	$(8,11,0)^{12}$	$(9,11,0)^{3}$	$(10,11,0)^{4}$	$(11,11,0)^{6}$
2m	$(0,11,1)^{1}$	$(1,11,1)^{12}$	$(2,11,1)^{6}$	$(3,11,1)^{4}$	$(4,11,1)^{3}$	$(5,11,1)^{12}$	$(6,11,1)^{2}$	$(7,11,1)^{12}$	$(8,11,1)^{3}$	$(9,11,1)^{4}$	$(10,11,1)^{6}$	$(11,11,1)^{12}$
2M	$(0,11,2)^{12}$	$(1,11,2)^{6}$	$(2,11,2)^{4}$	$(3,11,2)^{3}$	$(4,11,2)^{12}$	$(5,11,2)^{2}$	$(6,11,2)^{12}$	$(7,11,2)^{3}$	$(8,11,2)^{4}$	$(9,11,2)^{6}$	$(10,11,2)^{12}$	$(11,11,2)^{1}$
3m	$(0,11,3)^{6}$	$(1,11,3)^{4}$	$(2,11,3)^{3}$	$(3,11,3)^{12}$	$(4,11,3)^{2}$	$(5,11,3)^{12}$	$(6,11,3)^{3}$	$(7,11,3)^{4}$	$(8,11,3)^{6}$	$(9,11,3)^{12}$	$(10,11,3)^{1}$	$(11,11,3)^{12}$
3M	$(0,11,4)^{4}$	$(1,11,4)^{3}$	$(2,11,4)^{12}$	$(3,11,4)^{2}$	$(4,11,4)^{12}$	$(5,11,4)^{3}$	$(6,11,4)^{4}$	$(7,11,4)^{6}$	$(8,11,4)^{12}$	$(9,11,4)^{1}$	$(10,11,4)^{12}$	$(11,11,4)^{6}$
4	$(0,11,5)^{3}$	$(1,11,5)^{12}$	$(2,11,5)^{2}$	$(3,11,5)^{12}$	$(4,11,5)^{3}$	$(5,11,5)^{4}$	$(6,11,5)^{6}$	$(7,11,5)^{12}$	$(8,11,5)^{1}$	$(9,11,5)^{12}$	$(10,11,5)^{6}$	$(11,11,5)^{4}$
5b	$(0,11,6)^{12}$	$(1,11,6)^{2}$	$(2,11,6)^{12}$	$(3,11,6)^{3}$	$(4,11,6)^{4}$	$(5,11,6)^{6}$	$(6,11,6)^{12}$	$(7,11,6)^{1}$	$(8,11,6)^{12}$	$(9,11,6)^{6}$	$(10,11,6)^{4}$	$(11,11,6)^{3}$
5	$(0,11,7)^{2}$	$(1,11,7)^{12}$	$(2,11,7)^{3}$	$(3,11,7)^{4}$	$(4,11,7)^{6}$	$(5,11,7)^{12}$	$(6,11,7)^{1}$	$(7,11,7)^{12}$	$(8,11,7)^{6}$	$(9,11,7)^{4}$	$(10,11,7)^{3}$	$(11,11,7)^{12}$
5#	$(0,11,8)^{12}$	$(1,11,8)^{3}$	$(2,11,8)^{4}$	$(3,11,8)^{6}$	$(4,11,8)^{12}$	$(5,11,8)^{1}$	$(6,11,8)^{12}$	$(7,11,8)^{6}$	$(8,11,8)^{4}$	$(9,11,8)^{3}$	$(10,11,8)^{12}$	$(11,11,8)^{2}$
6	$(0,11,9)^{3}$	$(1,11,9)^{4}$	$(2,11,9)^{6}$	$(3,11,9)^{12}$	$(4,11,9)^{1}$	$(5,11,9)^{12}$	$(6,11,9)^{6}$	$(7,11,9)^{4}$	$(8,11,9)^{3}$	$(9,11,9)^{12}$	$(10,11,9)^{2}$	$(11,11,9)^{12}$
7m	$(0,11,10)^{4}$	$(1,11,10)^{6}$	$(2,11,10)^{12}$	$(3,11,10)^{1}$	$(4,11,10)^{12}$	$(5,11,10)^{6}$	$(6,11,10)^{4}$	$(7,11,10)^{3}$	$(8,11,10)^{12}$	$(9,11,10)^{2}$	$(10,11,10)^{12}$	$(11,11,10)^{3}$
7M	$(0,11,11)^{6}$	$(1,11,11)^{12}$	$(2,11,11)^{1}$	$(3,11,11)^{12}$	$(4,11,11)^{6}$	$(5,11,11)^{4}$	$(6,11,11)^{3}$	$(7,11,11)^{12}$	$(8,11,11)^{2}$	$(9,11,11)^{12}$	$(10,11,11)^{3}$	$(11,11,11)^{4}$

Table 61: Internal rotation $(I, J, K) \mapsto (J, K, I)$ for source slice $K = 11$.