

**Part 4 : New Advanced Study of Magic Squares and Cubes**  
**Chapter 4 : Commentary Articles No.2: Kanji Setsuda:**  
**"Various Arts and Tools for Studying Magic Squares"**  
**Section 6 : Analytical Study of 'Complete Euler Squares'**  
**and Invention of Powerful Method of Reconstruction**

**0. Analytical Study of 'Complete Euler Squares' 5x5 and 7x7**

Let's go on studying 'Complete Euler Squares' analytically, about Simultaneous type and Pan-diagonal one of order 5 and 7. Getting any new knowledge of the layers made of decomposition by Positional Number System of Base 5 or 7, let's invent another powerful way of reconstruction of those objects with our new discovery.

**1. Definition of 'C.E.S.' and Layers of Decomposition by New Number System**

We know those two types of Pan-magic Squares of Order 5 are all 'Complete Euler Squares': (1) 16 Simultaneous squares of both Self-complementary and Pan-diagonal type, and (2) 3600 Pan-diagonal magic ones.

In the case of order 7, although all Pan-diagonal Magic Squares are not always Complete Euler Squares, we know there are some C.E.S. among two types of Pan-magic squares: (1) 3456 Simultaneous Squares of both Self-complementary and Pan-diagonal type, and (2) 38102400 Pan-diagonal Magic Squares.

**\*\* 'Complete Euler Squares' of Pan-Diagonal Magic Type \*\***

of Order 5 /	/N5i	/D5i	H/	L/
1 23 20 12  9	13 00 42 34 21 13	00	2 1 0 4 3 2 1 0 4	1 3 0 2 4 1 3 0 2
15  7  4 21 18	32 24 11 03 40 32	24	4 3 2 1 0 4 3 2 1	0 2 4 1 3 0 2 4 1
24 16 13 10  2	01 43 30 22 14 01	43	1 0 4 3 2 1 0 4 3	4 1 3 0 2 4 1 3 0
8  5 22 19 11	20 12 04 41 33 20	12	3 2 1 0 4 3 2 1 0	3 0 2 4 1 3 0 2 4
17 14  6  3 25	44 31 23 10 02 44	31	0 4 3 2 1 0 4 3 2	2 4 1 3 0 2 4 1 3
[Classical]	[Modern Notation]		[Decomposed Layers]	

$$nC = nH \times 5 + nL$$

$$00+11+22+33+44(N5i) = (0+1+2+3+4) \times 5 + (0+1+2+3+4) = 60(Decimal)$$

$$13+40+22+04+31(N5i) = (0+1+2+3+4) \times 5 + (0+1+2+3+4) = 60(Decimal)$$

When you have those solutions expressed in such forms as shown above, you can easily see and notice some interesting properties about them.

(1) In each layer every row, every column and even every pan-diagonal always consists of {0, 1, 2, 3 and 4(N5i)} using each number strictly once.

Therefore, the sums of every row, every column and even every pan-diagonal are always calculated by the same form of equation as follows:

$$(0+1+2+3+4) \times 5 + (0+1+2+3+4) = 60(Dec)$$

This means each sum always takes the Magic Constant Value.

(2) In each layer any number of {0, 1, 2, 3 and 4} appears five times in all. No more nor less often could it be found. This condition is always true, whenever the condition (1) is true.

(3) Each combination of corresponding numbers picked up from high layer and low must be each of {00, 01, 02, 03, 04, 10, 11, 12, 13, 14, 20, ..., 40, 41, 42, 43,

44(N5i)}. Neither repetition nor drop-off of any value must be found.

This condition is logically equivalent to the one of our classical notation that we must use the series of natural numbers {1, 2, 3, 4, 5, ..., 22, 23, 24, 25(Dec)} taking each strictly once, and we must not use any number twice or more often.

We should accept one of the most basic promises of magic squares right here.

We call "Complete Euler Squares" for such Pan-magic Squares with these properties.

Case of Order 7	1/ /N7i	/D7i	H/	L/
1 24 18 49 41 33  9	00 32 23 66 55 44 11	1 0 3 2 6 5 4 1 0 1	0 1 0 2 3 6 5 4 1 0	
19 44 36 31 11  7 27	24 61 50 42 13 06 35	3 2 6 5 4 1 0 3 2 5	4 1 0 2 3 6 5 4 1 4	
42 34 12  2 22 17 46	56 45 14 01 30 22 63	6 5 4 1 0 3 2 6 5 3	6 5 4 1 0 2 3 6	
10  4 28 20 47 37 29	12 03 36 25 64 51 40	4 1 0 3 2 6 5 4 1 0	2 3 6 5 4 1 0 2	
23 15 45 39 35 13  5	31 20 62 53 46 15 04	0 3 2 6 5 4 1 0 3 4	1 0 2 3 6 5 4 1	
48 40 30  8  3 25 21	65 54 41 10 02 33 26	2 6 5 4 1 0 3 2 6 6	5 4 1 0 2 3 6 5	
32 14  6 26 16 43 38	43 16 05 34 21 60 52	5 4 1 0 3 2 6 5 4 2	3 6 5 4 1 0 2 3	
[Classical Notation]	[Modern Notation]	[Decomposed Layers]		

$$nC = nH \times 7 + nL$$

$$00+61+14+25+46+33+62(N7i) = (0+1+2+3+4+5+6) \times 7 + (0+1+2+3+4+5+6) = 168(Dec)$$

$$11+06+30+25+62+54+43(N7i) = (0+1+2+3+4+5+6) \times 7 + (0+1+2+3+4+5+6) = 168(Dec)$$

## 2. Careful Observation on Layers of Decomposition

Keep your watching as carefully as possible on the decomposed layers of 'C.E.S.', and you may probably notice such interesting properties as these:

- (1) I want you to watch a certain number in each layer and check what numbers are placed around it. Suppose you see '2' in the high layer of order 5 in the list above. You will always find any '2' with the same numbers together around it anywhere in the same layer. The numbers around '0' in the low layer are always the same there.

Suppose you watch '5' in the high layer of order 7, and you will always find the same faces sitting around it. It is also true in the low layer of order 7.

5H		5L		7H		7L	
2 1 0 4 3	2 4 1 3 0	0 3 2 6 5	4 1 0 2 3				
4 3 2 1 0	1 3 0 2 4	2 6 5 4 1	6 5 4 1 0				
1 0 4 3 2	0 2 4 1 3	5 4 1 0 3	2 3 6 5 4				

Please do check if this property is true in every layer of every solution. You can draw the extended square space as shown above, if necessary.

Why do the same faces come to meet with any certain number?

Why don't they sit around it in a different way in that layer?

- (2) Why don't you express your question in other words like this?

"Why doesn't any number sit next to another same one?"

Did you notice that '0' doesn't sit next to '0'? '1' never sits next to '1' in all eight directions. '2' never sits next to '2'. . . anytime anywhere. Any number of {0, 1, 2, 3,

4 (, 5, 6)} appears 5(or 7) times in the same layer, but it refuses to sit next to another same number in all eight directions.

Why?

Because it is illegal for any number to sit next to another same one in the world of 'C.E.S.'

If any two numbers sit adjacent, they always belong to any same row or any same column or even any same pan-diagonal. But in any row, any column and any pan-diagonal of Complete Euler Squares, you must not use any number twice nor more often. You must use each one of {0,1,2,3,4(,5,6)} strictly once there. Any number cannot sit next to another same one.

(3) In the world of C.E.S. every number must be placed so that the same numbers should not be put next to each other. This limitation is so strict that the faces of neighborhood must be different, and they sit in such a regular manner as we have just watched.

(4) How should we place any same numbers in the layers of C.E.S., then?

This might be an easy question to you, if I give you a hint: "Knight's Movement".

[Decomposed Layers]												/D7i				H/				L/															
/D5i				H/				L/																											
0	4	3	2	1	0	4	3	2	2	4	1	3	0	2	4	1	3	1	0	3	2	6	5	4	1	0	1	0	2	3	6	5	4	1	0
2	1	0	4	3	2	1	0	4	1	3	0	2	4	1	3	0	2	3	2	6	5	4	1	0	3	2	5	4	1	0	2	3	6	5	4
4	3	2	1	0	4	3	2	1	0	2	4	1	3	0	2	4	1	6	5	4	1	0	3	2	6	5	3	6	5	4	1	0	2	3	6
1	0	4	3	2	1	0	4	3	4	1	3	0	2	4	1	3	0	4	1	0	3	2	6	5	4	1	0	2	3	6	5	4	1	0	2
3	2	1	0	4	3	2	1	0	3	0	2	4	1	3	0	2	4	0	3	2	6	5	4	1	0	3	4	1	0	2	3	6	5	4	1
0	4	3	2	1	0	4	3	2	2	4	1	3	0	2	4	1	3	2	6	5	4	1	0	3	2	6	6	5	4	1	0	2	3	6	5
2	1	0	4	3	2	1	0	4	1	3	0	2	4	1	3	0	2	5	4	1	0	3	2	6	5	4	2	3	6	5	4	1	0	2	3

Yes. They are placed on a slanting line of 2 steps right horizontally and 1 step up or downward vertically. It resembles the unique movement of Knight in the Chess game.

I want you to check if this property is always true in every layer of every solution.

### 3. How many patterns of the Knight's movement are there for C.E.S.?

Are there any other patterns of Knight's movement for any C.E.S.? How many types are there in all?

There are 4 types in all. I will show you these 4 patterns below:

Type1/																		Type2/																		Type3/																		Type4/																	
1	0	3	4	6	5	2	1	0	1	0	2	3	6	5	4	1	0	1	0	3	4	2	6	5	1	0	1	0	2	4	3	6	5	1	0																																				
5	2	1	0	3	4	6	5	2	2	3	6	5	4	1	0	2	3	4	2	6	5	1	0	3	4	2	3	6	5	1	0	2	4	3	6																																				
4	6	5	2	1	0	3	4	6	6	5	4	1	0	2	3	6	5	5	1	0	3	4	2	6	5	1	0	2	4	3	6	5	1	0	2																																				
0	3	4	6	5	2	1	0	3	4	1	0	2	3	6	5	4	1	3	4	2	6	5	1	0	3	4	6	5	1	0	2	4	3	6	5																																				
2	1	0	3	4	6	5	2	1	0	2	3	6	5	4	1	0	2	6	5	1	0	3	4	2	6	5	2	4	3	6	5	1	0	2	4																																				
6	5	2	1	0	3	4	6	5	3	6	5	4	1	0	2	3	6	0	3	4	2	6	5	1	0	3	5	1	0	2	4	3	6	5	1																																				
3	4	6	5	2	1	0	3	4	5	4	1	0	2	3	6	5	4	2	6	5	1	0	3	4	2	6	4	3	6	5	1	0	2	4	3																																				

As you see, any '0' of any type makes a unique slanting line in the layer. And it

always meets another '0' situated on the first primary diagonal.

Any '1' of any type always meets another '1' on the primary diagonal.

Any '2' of any type always meets another '2' on the primary diagonal.

.....

Any '6' of any type always meets another '6' on the primary diagonal.

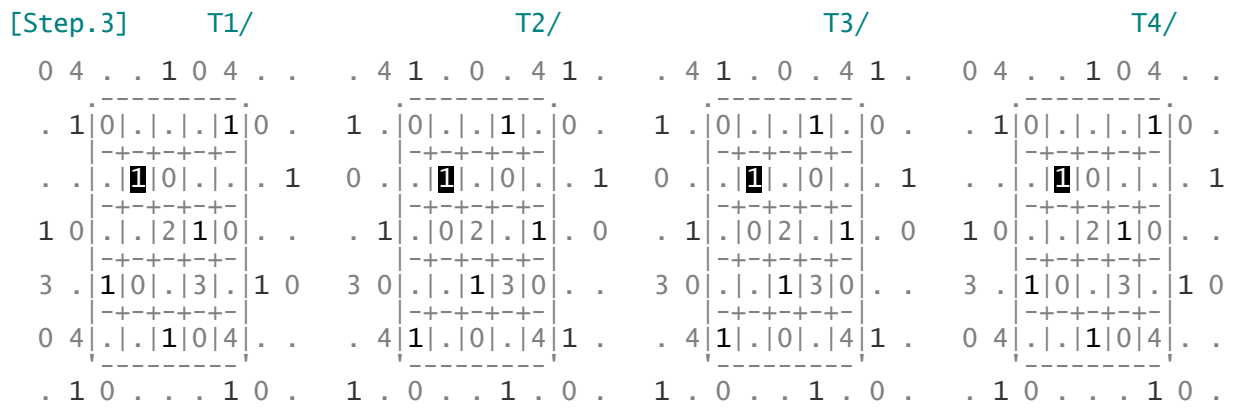
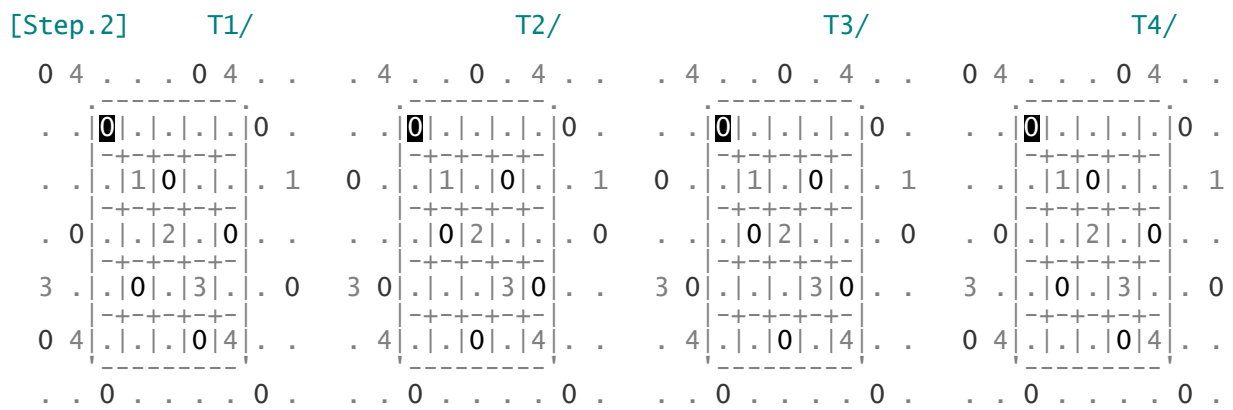
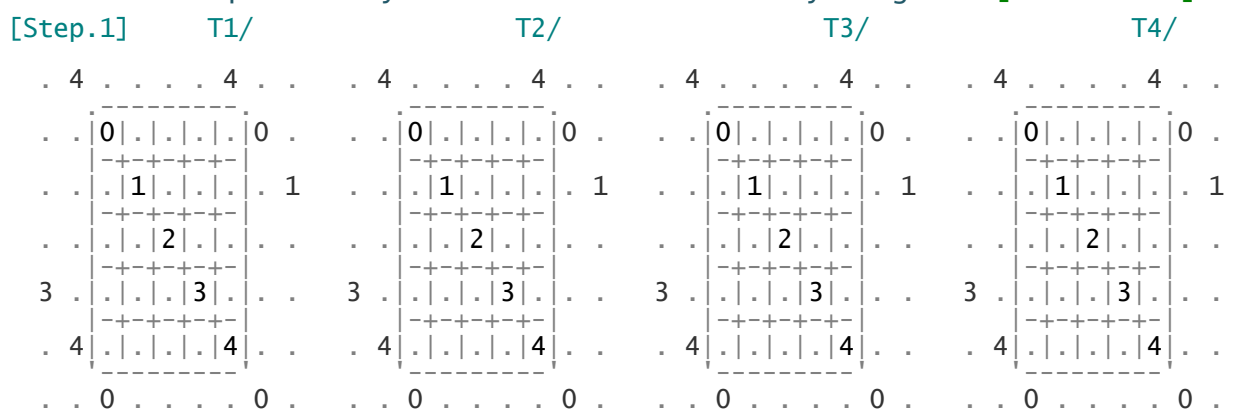
Therefore we can assume this primary diagonal as the starting point of making layers.

We can expect each one of {0,1,2,3,4,5 and 6} on the first primary diagonal to act as the 'representative' of all numbers in the decomposed layer.

I mean, if you determine only the first primary diagonal, then you can always get 4 different layers of the first generation.

I will show you how to compose the first 4 layers from the first primary diagonal in the next 'step diagram' as follows:

**\*\* How to Compose 4 Layers from the same Primary Diagonal [of Order 5] \*\***



[Step.4]	T1/	T2/	T3/	T4/
	0 4 . 2 1 0 4 . 2	2 4 1 . 0 2 4 1 .	2 4 1 . 0 2 4 1 .	0 4 . 2 1 0 4 . 2
	2 1   0   .   2   1   0 .	1 .   0   2   .   1   .   0 2	1 .   0   2   .   1   .   0 2	2 1   0   .   2   1   0 .
	. .   2   1   0   .   .   2 1	0 2   .   1   .   0   2   .   1	0 2   .   1   .   0   2   .   1	. .   2   1   0   .   .   2 1
	1 0   .   .   2   1   0   . .	. 1   .   0   2   .   1   .   0	. 1   .   0   2   .   1   .   0	1 0   .   .   2   1   0   . .
	3 2   1   0   .   3   2   1 0	3 0   2   .   1   3   0   2 .	3 0   2   .   1   3   0   2 .	3 2   1   0   .   3   2   1 0
	0 4   .   2   1   0   4   . 2	2 4   1   .   0   2   4   1 .	2 4   1   .   0   2   4   1 .	0 4   .   2   1   0   4   . 2
	2 1 0 . . 2 1 0 .	1 . 0 2 . 1 . 0 2	1 . 0 2 . 1 . 0 2	2 1 0 . . 2 1 0 .

[Step.5]	T1/	T2/	T3/	T4/
	0 4 3 2 1 0 4 3 2	2 4 1 3 0 2 4 1 3	2 4 1 3 0 2 4 1 3	0 4 3 2 1 0 4 3 2
	2 1   0   .   3   2   1   0 .	1 3   0   2   .   1   3   0 2	1 3   0   2   .   1   3   0 2	2 1   0   .   3   2   1   0 .
	. 3   2   1   0   .   3   2 1	0 2   .   1   3   0   2   .   1	0 2   .   1   3   0   2   .   1	. 3   2   1   0   .   3   2 1
	1 0   .   3   2   1   0   . 3	. 1   3   0   2   .   1   3 0	. 1   3   0   2   .   1   3 0	1 0   .   3   2   1   0   . 3
	3 2   1   0   .   3   2   1 0	3 0   2   .   1   3   0   2 .	3 0   2   .   1   3   0   2 .	3 2   1   0   .   3   2   1 0
	0 4   3   2   1   0   4   3 2	2 4   1   3   0   2   4   1 3	2 4   1   3   0   2   4   1 3	0 4   3   2   1   0   4   3 2
	2 1 0 . 3 2 1 0 .	1 3 0 2 . 1 3 0 2	1 3 0 2 . 1 3 0 2	2 1 0 . 3 2 1 0 .

[Step.6]	T1/	T2/	T3/	T4/
	0 4 3 2 1 0 4 3 2	2 4 1 3 0 2 4 1 3	2 4 1 3 0 2 4 1 3	0 4 3 2 1 0 4 3 2
	2 1   0   4   3   2   1   0 4	1 3   0   2   4   1   3   0 2	1 3   0   2   4   1   3   0 2	2 1   0   4   3   2   1   0 4
	4 3   2   1   0   4   3   2 1	0 2   4   1   3   0   2   4 1	0 2   4   1   3   0   2   4 1	4 3   2   1   0   4   3   2 1
	1 0   4   3   2   1   0   4 3	4 1   3   0   2   4   1   3 0	4 1   3   0   2   4   1   3 0	1 0   4   3   2   1   0   4 3
	3 2   1   0   4   3   2   1 0	3 0   2   4   1   3   0   2 4	3 0   2   4   1   3   0   2 4	3 2   1   0   4   3   2   1 0
	0 4   3   2   1   0   4   3 2	2 4   1   3   0   2   4   1 3	2 4   1   3   0   2   4   1 3	0 4   3   2   1   0   4   3 2
	2 1 0 4 3 2 1 0 4	1 3 0 2 4 1 3 0 2	1 3 0 2 4 1 3 0 2	2 1 0 4 3 2 1 0 4

In the case of order 5, Type 1/ always becomes the same with Type 4/, and Type 2/ always becomes the same with Type 3/. As a result you can compose only 2 different layers of order 5 from the same primary diagonal.

#### 4. How to Compose Simultaneous C.E.S. of Order 5 from the Primary Diagonal

I say we have prepared enough to come to the last stage. Let's invent such a new powerful transformation system that could reconstruct all solutions of any C.E.S.

Let me take those 16 simultaneous squares of both self-complementary and pan-diagonal type 5x5 ("Suzuki Squares") for our first object goal.

What we have to do is to:

- (1) Make the first primary diagonals for the layer units of the object.
- (2) Compose the layer units from those diagonals by the two types of "Knight's Movement".
- (3) Select and nominate the appropriate high layers and the low ones from the layer unit candidates.
- (4) Pick up each one of the high layers and of the low layers, and combine one with

another to compose the object solutions calculating by the next equation.

$$nC = nH \times 5 + nL$$

If you want to have the object in a classical style, you have to add 1 to each result.

[1] Every diagonal should be made of {0, 1, 2, 3 and 4} using each number strictly once. How many patterns can we have for the diagonal in all, then?

This is a problem of 'permutation'. There should be 120 (=5x4x3x2x1) patterns without any conditions. But in this case right here, since our object must be one of the self-complementary magic squares, all complementary pairs of 4<sub>(N5i)</sub> must be placed symmetrically with respect to n<sub>13</sub> on the center.

(0, 4), (1, 3) must be placed in (n<sub>1</sub>, n<sub>25</sub>) or (n<sub>7</sub>, n<sub>19</sub>), and n<sub>13</sub>=2 is also determined.

Next 8 patterns are only possible:

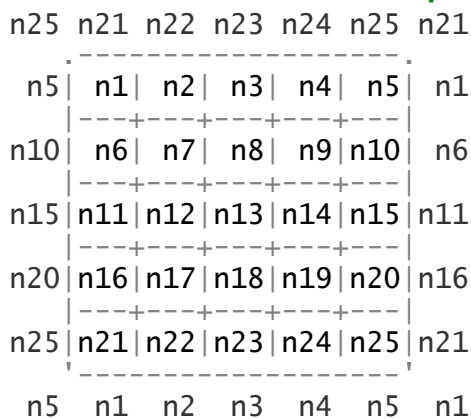
{0, 1, 2, 3, 4}, {0, 3, 2, 1, 4}, {1, 0, 2, 4, 3}, {1, 4, 2, 0, 3},  
 {3, 0, 2, 4, 1}, {3, 4, 2, 0, 1}, {4, 1, 2, 3, 0}, {4, 3, 2, 1, 0}

But when you make high layers, you don't have to get so many diagonals as 8.

Because you should have high layers passed under the next Normalizing Inequality Conditions for the purpose of making the 16 Standard Solutions of our object:

$$n1 < n25; n1 < n5; n1 < n21; n2 > n6;$$

**\*\* Basic Position of 5x5 Square \*\***



Neither any simple reflection nor any rotation of solutions must be double-counted. Whatever low layers might be, high layers always take priority over them to determine the whole thing about the judgment of inequality.

Therefore the next 4 patterns {0, 1, 2, 3, 4}, {0, 3, 2, 1, 4}, {1, 0, 2, 4, 3}, {1, 4, 2, 0, 3} are only possible under n<sub>1</sub><n<sub>25</sub>.

But the last two patterns {1, 0, 2, 4, 3}, {1, 4, 2, 0, 3} are impossible in reality.

The four positions {n<sub>1</sub>, n<sub>5</sub>, n<sub>21</sub>, n<sub>25</sub>} are always sitting next to one another in the extended square space. Each of them should be completely different from the others. Therefore the next five critical points {n<sub>1</sub>, n<sub>5</sub>, n<sub>13</sub>, n<sub>21</sub>, n<sub>25</sub>} must take their values out of {0, 1, 2, 3, 4} using each strictly once, and n<sub>13</sub>=2 is already determined.

If you put n<sub>1</sub>=1<sub>(N5i)</sub>, you cannot but want either of {n<sub>5</sub>, n<sub>21</sub>, n<sub>25</sub>} to take 0<sub>(N5i)</sub>.

This conclusion is contradictory to the first inequality conditions. n<sub>1</sub> must take only 0<sub>(N5i)</sub> anytime.

For high layers the next two diagonals are possible: {0, 1, 2, 3, 4}, {0, 3, 2, 1, 4}. For low layers all the 8 diagonals are possible:

{0, 1, 2, 3, 4}, {0, 3, 2, 1, 4}, {1, 0, 2, 4, 3}, {1, 4, 2, 0, 3},  
 {3, 0, 2, 4, 1}, {3, 4, 2, 0, 1}, {4, 1, 2, 3, 0}, {4, 3, 2, 1, 0};

[2] Let's compose both high layers and low ones from those primary diagonals by the Knight's Movement.

For the case of order 5 only two types of composition are available: Type 1 and 2. The next list shows the result of my first trial.

**\*\* High Layers for Simultaneous C.E.S. 5x5 \*\***

1H1					2H2					3H1					4H2				
0	4	3	2	1	0	2	4	1	3	0	4	1	2	3	0	2	4	3	1
2	1	0	4	3	4	1	3	0	2	2	3	0	4	1	4	3	1	0	2
4	3	2	1	0	3	0	2	4	1	4	1	2	3	0	1	0	2	4	3
1	0	4	3	2	2	4	1	3	0	3	0	4	1	2	2	4	3	1	0
3	2	1	0	4	1	3	0	2	4	1	2	3	0	4	3	1	0	2	4

**\*\* Low Layers for Simultaneous C.E.S. 5x5 \*\***

1L1					2L2					3L1					4L2				
0	4	3	2	1	0	2	4	1	3	0	4	1	2	3	0	2	4	3	1
2	1	0	4	3	4	1	3	0	2	2	3	0	4	1	4	3	1	0	2
4	3	2	1	0	3	0	2	4	1	4	1	2	3	0	1	0	2	4	3
1	0	4	3	2	2	4	1	3	0	3	0	4	1	2	2	4	3	1	0
3	2	1	0	4	1	3	0	2	4	1	2	3	0	4	3	1	0	2	4
5L1					6L2					7L1					8L2				
1	3	4	2	0	1	2	3	0	4	1	3	0	2	4	1	2	3	4	0
2	0	1	3	4	3	0	4	1	2	2	4	1	3	0	3	4	0	1	2
3	4	2	0	1	4	1	2	3	0	3	0	2	4	1	0	1	2	3	4
0	1	3	4	2	2	3	0	4	1	4	1	3	0	2	2	3	4	0	1
4	2	0	1	3	0	4	1	2	3	0	2	4	1	3	4	0	1	2	3
9L1					10L2					11L1					12L2				
3	1	4	2	0	3	2	1	0	4	3	1	0	2	4	3	2	1	4	0
2	0	3	1	4	1	0	4	3	2	2	4	3	1	0	1	4	0	3	2
1	4	2	0	3	4	3	2	1	0	1	0	2	4	3	0	3	2	1	4
0	3	1	4	2	2	1	0	4	3	4	3	1	0	2	2	1	4	0	3
4	2	0	3	1	0	4	3	2	1	0	2	4	3	1	4	0	3	2	1
13L1					14L2					15L1					16L2				
4	0	3	2	1	4	2	0	1	3	4	0	1	2	3	4	2	0	3	1
2	1	4	0	3	0	1	3	4	2	2	3	4	0	1	0	3	1	4	2
0	3	2	1	4	3	4	2	0	1	0	1	2	3	4	1	4	2	0	3
1	4	0	3	2	2	0	1	3	4	3	4	0	1	2	2	0	3	1	4
3	2	1	4	0	1	3	4	2	0	1	2	3	4	0	3	1	4	2	0

Every last number L1 or L2 on the right shoulder of each solution indicates the type of Knight's Movement.

[3] Select the appropriate high layers out of the four candidates by the normalizing inequality conditions:  $n1 < n25$ ;  $n1 < n5$ ;  $n1 < n21$ ;  $n2 > n6$ ;

Only 1H1 and 3H1 could pass to the next stage.

Low layers could pass all, since no further judgment could be made in advance.

[4] Pick up each of two high layers and each of eight low ones, and combine them to compose the whole object solution.

```
//
void cmpstn(void){
short n;
for(n=1;n<26;n++){cn[n]=an[n]*5+bn[n]+1;}
}
```

//

The next list shows the abstract result of my first test run:

[Group 1]

1H1					1L1					C1/					1H1					2L2					C2/1/				
0	4	3	2	1	0	4	3	2	1	1	25	19	13	7	0	4	3	2	1	0	2	4	1	3	1	23	20	12	9
2	1	0	4	3	2	1	0	4	3	13	7	1	25	19	2	1	0	4	3	4	1	3	0	2	15	7	4	21	18
4	3	2	1	0	4	3	2	1	0	25	19	13	7	1	4	3	2	1	0	3	0	2	4	1	24	16	13	10	2
1	0	4	3	2	1	0	4	3	2	7	1	25	19	13	1	0	4	3	2	2	4	1	3	0	8	5	22	19	11
3	2	1	0	4	3	2	1	0	4	19	13	7	1	25	3	2	1	0	4	1	3	0	2	4	17	14	6	3	25

. . . . .

1H1					5L1					C3/					1H1					6L2					C4/5/				
0	4	3	2	1	1	3	4	2	0	2	24	20	13	6	0	4	3	2	1	1	2	3	0	4	2	23	19	11	10
2	1	0	4	3	2	0	1	3	4	13	6	2	24	20	2	1	0	4	3	3	0	4	1	2	14	6	5	22	18
4	3	2	1	0	3	4	2	0	1	24	20	13	6	2	4	3	2	1	0	4	1	2	3	0	25	17	13	9	1
1	0	4	3	2	0	1	3	4	2	6	2	24	20	13	1	0	4	3	2	2	3	0	4	1	8	4	21	20	12
3	2	1	0	4	4	2	0	1	3	20	13	6	2	24	3	2	1	0	4	0	4	1	2	3	16	15	7	3	24

[Group 3]

3H1					1L1					C5/					3H1					2L2					C6/3/				
0	4	1	2	3	0	4	3	2	1	1	25	9	13	17	0	4	1	2	3	0	2	4	1	3	1	23	10	12	19
2	3	0	4	1	2	1	0	4	3	13	17	1	25	9	2	3	0	4	1	4	1	3	0	2	15	17	4	21	8
4	1	2	3	0	4	3	2	1	0	25	9	13	17	1	4	1	2	3	0	3	0	2	4	1	24	6	13	20	2
3	0	4	1	2	1	0	4	3	2	17	1	25	9	13	3	0	4	1	2	2	4	1	3	0	18	5	22	9	11
1	2	3	0	4	3	2	1	0	4	9	13	17	1	25	1	2	3	0	4	1	3	0	2	4	7	14	16	3	25

. . . . .

3H1					7L1					C7/					3H1					8L2					C8/8/				
0	4	1	2	3	1	3	0	2	4	2	24	6	13	20	0	4	1	2	3	1	2	3	4	0	2	23	9	15	16
2	3	0	4	1	2	4	1	3	0	13	20	2	24	6	2	3	0	4	1	3	4	0	1	2	14	20	1	22	8
4	1	2	3	0	3	0	2	4	1	24	6	13	20	2	4	1	2	3	0	0	1	2	3	4	21	7	13	19	5
3	0	4	1	2	4	1	3	0	2	20	2	24	6	13	3	0	4	1	2	2	3	4	0	1	18	4	25	6	12
1	2	3	0	4	0	2	4	1	3	6	13	20	2	24	1	2	3	0	4	4	0	1	2	3	10	11	17	3	24

. . . . .

C2/, C4/, C6/ and C8/ are correct compositions, but C1/, C3/, C5/ and C7/ are wrong. Why?

Because we have some repetitions and drop-offs of a certain value after combining of high and low layers. In C1/ the value 00(N5i) appears five times. There are five numbers '1' in our classical notation. In C3/ the value 01(N5i)[==2(Classic)] appears five times, and 12(N5i)[==6(Classic)] as often. They are against the Definition (3) of C.E.S.

Though every layer unit is correct, the results of some combinations are wrong.

Why were they composed wrong? Because the types of Knight's Movement are the same between high layer and low.

How could we prevent those wrong compositions from coming out?

- (1) We could apply the test of Definition (3) of C.E.S. to every result, and eliminate all the wrong ones afterward.
- (2) We could check the types of Knight's Movement of high layer and low, and avoid the combination of the same types.

Either will do a good job.

The next list shows the reconstruction result of my recent experiment.

\*\* 'Complete Euler Squares' of Order 5 for Simultaneous \*\*  
 \*\* Type: Both Self-Complementary and Pan-Diagonal \*\*



Layer Units for High Position:

1/H1	2/H1
0 4 3 2 1	0 4 1 2 3
2 1 0 4 3	2 3 0 4 1
4 3 2 1 0	4 1 2 3 0
1 0 4 3 2	3 0 4 1 2
3 2 1 0 4	1 2 3 0 4

Layer Units for Low Position:

1/L1	2/L2	3/L1	4/L2
0 4 3 2 1	0 2 4 1 3	0 4 1 2 3	0 2 4 3 1
2 1 0 4 3	4 1 3 0 2	2 3 0 4 1	4 3 1 0 2
4 3 2 1 0	3 0 2 4 1	4 1 2 3 0	1 0 2 4 3
1 0 4 3 2	2 4 1 3 0	3 0 4 1 2	2 4 3 1 0
3 2 1 0 4	1 3 0 2 4	1 2 3 0 4	3 1 0 2 4
5/L1	6/L2	7/L1	8/L2
1 3 4 2 0	1 2 3 0 4	1 3 0 2 4	1 2 3 4 0
2 0 1 3 4	3 0 4 1 2	2 4 1 3 0	3 4 0 1 2
3 4 2 0 1	4 1 2 3 0	3 0 2 4 1	0 1 2 3 4
0 1 3 4 2	2 3 0 4 1	4 1 3 0 2	2 3 4 0 1
4 2 0 1 3	0 4 1 2 3	0 2 4 1 3	4 0 1 2 3
9/L1	10/L2	11/L1	12/L2
3 1 4 2 0	3 2 1 0 4	3 1 0 2 4	3 2 1 4 0
2 0 3 1 4	1 0 4 3 2	2 4 3 1 0	1 4 0 3 2
1 4 2 0 3	4 3 2 1 0	1 0 2 4 3	0 3 2 1 4
0 3 1 4 2	2 1 0 4 3	4 3 1 0 2	2 1 4 0 3
4 2 0 3 1	0 4 3 2 1	0 2 4 3 1	4 0 3 2 1
13/L1	14/L2	15/L1	16/L2
4 0 3 2 1	4 2 0 1 3	4 0 1 2 3	4 2 0 3 1
2 1 4 0 3	0 1 3 4 2	2 3 4 0 1	0 3 1 4 2
0 3 2 1 4	3 4 2 0 1	0 1 2 3 4	1 4 2 0 3
1 4 0 3 2	2 0 1 3 4	3 4 0 1 2	2 0 3 1 4
3 2 1 4 0	1 3 4 2 0	1 2 3 4 0	3 1 4 2 0

\*\* Reconstruct 'Complete Euler Squares' 5x5 of Simultaneous Type \*\*

[Group 1]

1/H1	2/L2	1/	1/H1	4/L2	2/
0 4 3 2 1	0 2 4 1 3	1 23 20 12 9	0 4 3 2 1	0 2 4 3 1	1 23 20 14 7
2 1 0 4 3	4 1 3 0 2	15 7 4 21 18	2 1 0 4 3	4 3 1 0 2	15 9 2 21 18
4 3 2 1 0	3 0 2 4 1	24 16 13 10 2	4 3 2 1 0	1 0 2 4 3	22 16 13 10 4
1 0 4 3 2	2 4 1 3 0	8 5 22 19 11	1 0 4 3 2	2 4 3 1 0	8 5 24 17 11
3 2 1 0 4	1 3 0 2 4	17 14 6 3 25	3 2 1 0 4	3 1 0 2 4	19 12 6 3 25
1/H1	6/L2	5/	1/H1	8/L2	6/
0 4 3 2 1	1 2 3 0 4	2 23 19 11 10	0 4 3 2 1	1 2 3 4 0	2 23 19 15 6
2 1 0 4 3	3 0 4 1 2	14 6 5 22 18	2 1 0 4 3	3 4 0 1 2	14 10 1 22 18
4 3 2 1 0	4 1 2 3 0	25 17 13 9 1	4 3 2 1 0	0 1 2 3 4	21 17 13 9 5
1 0 4 3 2	2 3 0 4 1	8 4 21 20 12	1 0 4 3 2	2 3 4 0 1	8 4 25 16 12
3 2 1 0 4	0 4 1 2 3	16 15 7 3 24	3 2 1 0 4	4 0 1 2 3	20 11 7 3 24
1/H1	10/L2	9/	1/H1	12/L2	10/
0 4 3 2 1	3 2 1 0 4	4 23 17 11 10	0 4 3 2 1	3 2 1 4 0	4 23 17 15 6
2 1 0 4 3	1 0 4 3 2	12 6 5 24 18	2 1 0 4 3	1 4 0 3 2	12 10 1 24 18
4 3 2 1 0	4 3 2 1 0	25 19 13 7 1	4 3 2 1 0	0 3 2 1 4	21 19 13 7 5
1 0 4 3 2	2 1 0 4 3	8 2 21 20 14	1 0 4 3 2	2 1 4 0 3	8 2 25 16 14

3 2 1 0 4	0 4 3 2 1	16 15 9 3 22	3 2 1 0 4	4 0 3 2 1	20 11 9 3 22
1/H1	14/L2	13/	1/H1	16/L2	14/
0 4 3 2 1	4 2 0 1 3	5 23 16 12 9	0 4 3 2 1	4 2 0 3 1	5 23 16 14 7
2 1 0 4 3	0 1 3 4 2	11 7 4 25 18	2 1 0 4 3	0 3 1 4 2	11 9 2 25 18
4 3 2 1 0	3 4 2 0 1	24 20 13 6 2	4 3 2 1 0	1 4 2 0 3	22 20 13 6 4
1 0 4 3 2	2 0 1 3 4	8 1 22 19 15	1 0 4 3 2	2 0 3 1 4	8 1 24 17 15
3 2 1 0 4	1 3 4 2 0	17 14 10 3 21	3 2 1 0 4	3 1 4 2 0	19 12 10 3 21

[Group 2]

2/H1	2/L2	3/	2/H1	4/L2	4/
0 4 1 2 3	0 2 4 1 3	1 23 10 12 19	0 4 1 2 3	0 2 4 3 1	1 23 10 14 17
2 3 0 4 1	4 1 3 0 2	15 17 4 21 8	2 3 0 4 1	4 3 1 0 2	15 19 2 21 8
4 1 2 3 0	3 0 2 4 1	24 6 13 20 2	4 1 2 3 0	1 0 2 4 3	22 6 13 20 4
3 0 4 1 2	2 4 1 3 0	18 5 22 9 11	3 0 4 1 2	2 4 3 1 0	18 5 24 7 11
1 2 3 0 4	1 3 0 2 4	7 14 16 3 25	1 2 3 0 4	3 1 0 2 4	9 12 16 3 25
2/H1	6/L2	7/	2/H1	8/L2	8/
0 4 1 2 3	1 2 3 0 4	2 23 9 11 20	0 4 1 2 3	1 2 3 4 0	2 23 9 15 16
2 3 0 4 1	3 0 4 1 2	14 16 5 22 8	2 3 0 4 1	3 4 0 1 2	14 20 1 22 8
4 1 2 3 0	4 1 2 3 0	25 7 13 19 1	4 1 2 3 0	0 1 2 3 4	21 7 13 19 5
3 0 4 1 2	2 3 0 4 1	18 4 21 10 12	3 0 4 1 2	2 3 4 0 1	18 4 25 6 12
1 2 3 0 4	0 4 1 2 3	6 15 17 3 24	1 2 3 0 4	4 0 1 2 3	10 11 17 3 24
2/H1	10/L2	11/	2/H1	12/L2	12/
0 4 1 2 3	3 2 1 0 4	4 23 7 11 20	0 4 1 2 3	3 2 1 4 0	4 23 7 15 16
2 3 0 4 1	1 0 4 3 2	12 16 5 24 8	2 3 0 4 1	1 4 0 3 2	12 20 1 24 8
4 1 2 3 0	4 3 2 1 0	25 9 13 17 1	4 1 2 3 0	0 3 2 1 4	21 9 13 17 5
3 0 4 1 2	2 1 0 4 3	18 2 21 10 14	3 0 4 1 2	2 1 4 0 3	18 2 25 6 14
1 2 3 0 4	0 4 3 2 1	6 15 19 3 22	1 2 3 0 4	4 0 3 2 1	10 11 19 3 22
2/H1	14/L2	15/	2/H1	16/L2	16/
0 4 1 2 3	4 2 0 1 3	5 23 6 12 19	0 4 1 2 3	4 2 0 3 1	5 23 6 14 17
2 3 0 4 1	0 1 3 4 2	11 17 4 25 8	2 3 0 4 1	0 3 1 4 2	11 19 2 25 8
4 1 2 3 0	3 4 2 0 1	24 10 13 16 2	4 1 2 3 0	1 4 2 0 3	22 10 13 16 4
3 0 4 1 2	2 0 1 3 4	18 1 22 9 15	3 0 4 1 2	2 0 3 1 4	18 1 24 7 15
1 2 3 0 4	1 3 4 2 0	7 14 20 3 21	1 2 3 0 4	3 1 4 2 0	9 12 20 3 21

\*\* Monitor List of Solution Correspondences \*\*

```
?? 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
```

[Count = 16] OK!

I am sure we could completely reconstruct all 16 Suzuki Squares, as you see.

It is amazing that we could do it only by composing the first primary diagonals and the layer units by the method of Knight's Tour Composition.

What does this mean? We now know one of the master keys to open the doors to our advanced study of Complete Euler Squares, don't we?

## 5. How to Compose 'Complete Euler Squares' of Order 5 for Pan-diagonal Type

Let's compose those 3600 Pan-diagonal C.E.S. of order 5 next by the same method, we call "Knight's Tour Composition" of both high and low layers.

- (1) Make the correct set of first primary diagonals for the layer units of the object.
- (2) Compose the layer units from the diagonals by the two types of 'Knight's Movement'.
- (3) Select and nominate the appropriate high layers and the low ones from the layer unit candidates.
- (4) Pick up each of high layers and of low, and combine one with another to calculate

and make the object Simultaneous C.E.S. by the next equation.

$$nC = nH \times 5 + nL$$

If you want to have the object in classical style, then you must add 1 to each result.

(5) Before printing out all the results, examine them by the test of Definition (3) of C.E.S. to eliminate the wrong answers.

[1] Every diagonal should be made of {0,1,2,3 and 4} using each one strictly once. There should be 120 patterns, since our object is no longer any self-complementary magic square now, no conditions must be put to complementary pairs and to n13.

$$5 \times 4 \times 3 \times 2 \times 1 = 120$$

The next list shows these 120 solutions for the first primary diagonal:

[ 1] 0 1 2 3 4	[ 2] 0 1 3 2 4	[ 3] 0 2 1 3 4	[ 4] 0 2 3 1 4
[ 5] 0 3 1 2 4	[ 6] 0 3 2 1 4	[ 7] 0 1 2 4 3	[ 8] 0 1 4 2 3
[ 9] 0 2 1 4 3	[10] 0 2 4 1 3	[11] 0 4 1 2 3	[12] 0 4 2 1 3
[13] 0 1 3 4 2	[14] 0 1 4 3 2	[15] 0 3 1 4 2	[16] 0 3 4 1 2
[17] 0 4 1 3 2	[18] 0 4 3 1 2	[19] 0 2 3 4 1	[20] 0 2 4 3 1
[21] 0 3 2 4 1	[22] 0 3 4 2 1	[23] 0 4 2 3 1	[24] 0 4 3 2 1
[25] 1 0 2 3 4	[26] 1 0 3 2 4	[27] 1 2 0 3 4	[28] 1 2 3 0 4
[29] 1 3 0 2 4	[30] 1 3 2 0 4	[31] 1 0 2 4 3	[32] 1 0 4 2 3
[33] 1 2 0 4 3	[34] 1 2 4 0 3	[35] 1 4 0 2 3	[36] 1 4 2 0 3
[37] 1 0 3 4 2	[38] 1 0 4 3 2	[39] 1 3 0 4 2	[40] 1 3 4 0 2
[41] 1 4 0 3 2	[42] 1 4 3 0 2	[43] 1 2 3 4 0	[44] 1 2 4 3 0
[45] 1 3 2 4 0	[46] 1 3 4 2 0	[47] 1 4 2 3 0	[48] 1 4 3 2 0
[49] 2 0 1 3 4	[50] 2 0 3 1 4	[51] 2 1 0 3 4	[52] 2 1 3 0 4
[53] 2 3 0 1 4	[54] 2 3 1 0 4	[55] 2 0 1 4 3	[56] 2 0 4 1 3
[57] 2 1 0 4 3	[58] 2 1 4 0 3	[59] 2 4 0 1 3	[60] 2 4 1 0 3
[61] 2 0 3 4 1	[62] 2 0 4 3 1	[63] 2 3 0 4 1	[64] 2 3 4 0 1
[65] 2 4 0 3 1	[66] 2 4 3 0 1	[67] 2 1 3 4 0	[68] 2 1 4 3 0
[69] 2 3 1 4 0	[70] 2 3 4 1 0	[71] 2 4 1 3 0	[72] 2 4 3 1 0
[73] 3 0 1 2 4	[74] 3 0 2 1 4	[75] 3 1 0 2 4	[76] 3 1 2 0 4
[77] 3 2 0 1 4	[78] 3 2 1 0 4	[79] 3 0 1 4 2	[80] 3 0 4 1 2
[81] 3 1 0 4 2	[82] 3 1 4 0 2	[83] 3 4 0 1 2	[84] 3 4 1 0 2
[85] 3 0 2 4 1	[86] 3 0 4 2 1	[87] 3 2 0 4 1	[88] 3 2 4 0 1
[89] 3 4 0 2 1	[90] 3 4 2 0 1	[91] 3 1 2 4 0	[92] 3 1 4 2 0
[93] 3 2 1 4 0	[94] 3 2 4 1 0	[95] 3 4 1 2 0	[96] 3 4 2 1 0
[97] 4 0 1 2 3	[98] 4 0 2 1 3	[99] 4 1 0 2 3	[100] 4 1 2 0 3
[101] 4 2 0 1 3	[102] 4 2 1 0 3	[103] 4 0 1 3 2	[104] 4 0 3 1 2
[105] 4 1 0 3 2	[106] 4 1 3 0 2	[107] 4 3 0 1 2	[108] 4 3 1 0 2
[109] 4 0 2 3 1	[110] 4 0 3 2 1	[111] 4 2 0 3 1	[112] 4 2 3 0 1
[113] 4 3 0 2 1	[114] 4 3 2 0 1	[115] 4 1 2 3 0	[116] 4 1 3 2 0
[117] 4 2 1 3 0	[118] 4 2 3 1 0	[119] 4 3 1 2 0	[120] 4 3 2 1 0

[2] But the inequality condition:  $n1 < n25$  is still active for our high layers.

Compose high layers from the first 60 diagonals above by the two types of Knight Tour Composition.

[3] Examine the results by the other normalizing inequality conditions:  $n1 < n5$ ,  $n1 < n21$  and  $n2 > n6$ ; and we will have the next 30 appropriate high layers

Layer Units for High Position:

1H1	2H1	3H1	4H1	5H1	6H1	7H1	8H2	9H1	10H2
04321	04231	04312	04132	04213	04123	03421	04312	03412	04321
21043	31042	12043	32041	13042	23041	21034	31204	12034	32104
43210	42310	43120	41320	42130	41230	34210	20431	34120	10432
10432	10423	20431	20413	30421	30412	10342	43120	20341	43210
32104	23104	31204	13204	21304	12304	42103	12043	41203	21043

11H1	12H1	13H2	14H2	15H1	16H2	17H1	18H2	19H2	20H2
03214	03124	03214	04213	02413	04231	02314	03241	03124	04123
14032	24031	21403	21304	13024	23104	14023	24103	12403	12304
32140	31240	40321	30421	24130	10423	23140	10324	40312	30412
40321	40312	32140	42130	30241	42310	40231	32410	31240	41230
21403	12403	14032	13042	41302	31042	31402	41032	24031	23041
21H2	22H2	23H2	24H2	25H1	26H1	27H1	28H1	29H1	30H1
02134	04132	02143	03142	14302	14203	13402	13204	12403	12304
13402	13204	14302	14203	02143	03142	02134	04132	03124	04123
40213	20413	30214	20314	43021	42031	34021	32041	24031	23041
21340	41320	21430	31420	21430	31420	21340	41320	31240	41230
34021	32041	43021	42031	30214	20314	40213	20413	40312	30412

Layer Units for Low Position:

1L1	2L2	3L1	4L2	5L1	6L2	7L1	8L2	9L1	10L2
04321	02413	04231	03412	04312	01423	04132	03421	04213	01432
21043	41302	31042	41203	12043	42301	32041	42103	13042	43201
43210	30241	42310	20341	43120	30142	41320	10342	42130	20143
10432	24130	10423	34120	20431	14230	20413	34210	30421	14320
32104	13024	23104	12034	31204	23014	13204	21034	21304	32014
11L1	12L2	13L1	14L2	15L1	16L2	17L1	18L2	19L1	20L2
04123	02431	03421	02314	03241	04312	03412	01324	03142	04321
23041	43102	21034	31402	41032	31204	12034	32401	42031	32104
41230	10243	34210	40231	32410	20431	34120	40132	31420	10432
30412	24310	10342	23140	10324	43120	20341	13240	20314	43210
12304	31024	42103	14023	24103	12043	41203	24013	14203	21043
21L1	22L2	23L1	24L2	25L1	26L2	27L1	28L2	29L1	30L2
03214	01342	03124	02341	02431	03214	02341	04213	02413	01234
14032	34201	24031	34102	31024	21403	41023	21304	13024	23401
32140	20134	31240	10234	24310	40321	23410	30421	24130	40123
40321	13420	40312	23410	10243	32140	10234	42130	30241	12340
21403	42013	12403	41023	43102	14032	34102	13042	41302	34012
31L1	32L2	33L1	34L2	35L1	36L2	37L1	38L2	39L1	40L2
02143	04231	02314	01243	02134	03241	01432	03124	01342	04123
43021	23104	14023	24301	34021	24103	32014	12403	42013	12304
21430	10423	23140	30124	21340	10324	14320	40312	13420	30412
30214	42310	40231	12430	40213	32410	20143	31240	20134	41230
14302	31042	31402	43012	13402	41032	43201	24031	34201	23041
41L1	42L2	43L1	44L2	45L1	46L2	47L1	48L2	49L1	50L2
01423	02134	01243	04132	01324	02143	01234	03142	14320	12403
23014	13402	43012	13204	24013	14302	34012	14203	20143	40312
14230	40213	12430	20413	13240	30214	12340	20314	43201	31240
30142	21340	30124	41320	40132	21430	40123	31420	01432	24031
42301	34021	24301	32041	32401	43021	23401	42031	32014	03124
51L1	52L2	53L1	54L2	55L1	56L2	57L1	58L2	59L1	60L2
14230	13402	14302	10423	14032	13420	14203	10432	14023	12430
30142	40213	02143	42310	32140	42013	03142	43210	23140	43012
42301	21340	43021	31042	40321	01342	42031	21043	40231	01243
01423	34021	21430	04231	21403	34201	31420	04321	31402	24301
23014	02134	30214	23104	03214	20134	20314	32104	02314	30124
61L1	62L2	63L1	64L2	65L1	66L2	67L1	68L2	69L1	70L2
13420	12304	13240	14302	13402	10324	13042	14320	13204	10342
20134	30412	40132	30214	02134	32410	42130	32014	04132	34210
34201	41230	32401	21430	34021	41032	30421	01432	32041	21034
01342	23041	01324	43021	21340	03241	21304	43201	41320	03421
42013	04123	24013	02143	40213	24103	04213	20143	20413	42103

71L1	72L2	73L1	74L2	75L1	76L2	77L1	78L2	79L1	80L2
13024	12340	12430	13204	12340	14203	12403	10234	12043	14230
24130	34012	30124	20413	40123	20314	03124	23410	43120	23014
30241	01234	24301	41320	23401	31420	24031	41023	20431	01423
41302	23401	01243	32041	01234	42031	31240	02341	31204	42301
02413	40123	43012	04132	34012	03142	40312	34102	04312	30142

. . . . .

111L1	112L2	113L1	114L2	115L1	116L2	117L1	118L2	119L1	120L2
23140	24301	23401	20314	23041	24310	23104	20341	23014	21340
40231	30124	01234	31420	41230	31024	04231	34120	14230	34021
31402	12430	34012	42031	30412	02431	31042	12034	30142	02134
02314	43012	12340	03142	12304	43102	42310	03412	42301	13402
14023	01243	40123	14203	04123	10243	10423	41203	01423	40213

121L1	122L2	123L1	124L2	125L1	126L2	127L1	128L2	129L1	130L2
21430	23104	21340	24103	21403	20134	21043	24130	21304	20143
30214	10423	40213	10324	03214	13420	43210	13024	04213	14320
14302	42310	13402	32410	14032	42013	10432	02413	13042	32014
02143	31042	02134	41032	32140	01342	32104	41302	42130	01432
43021	04231	34021	03241	40321	34201	04321	30241	30421	43201

. . . . .

221L1	222L2	223L1	224L2	225L1	226L2	227L1	228L2	229L1	230L2
41302	40123	41032	43120	41203	40132	41023	42130	40321	42013
02413	12340	32410	12043	03412	13240	23410	13042	21403	01342
13024	34012	10324	04312	12034	24013	10234	04213	03214	34201
24130	01234	24103	31204	34120	01324	34102	21304	14032	20134
30241	23401	03241	20431	20341	32401	02341	30421	32140	13420

231L1	232L2	233L1	234L2	235L1	236L2	237L1	238L2	239L1	240L2
40231	43012	40312	41023	40132	43021	40213	41032	40123	42031
31402	01243	12403	02341	32401	02143	13402	03241	23401	03142
02314	24301	03124	34102	01324	14302	02134	24103	01234	14203
14023	30124	24031	10234	24013	30214	34021	10324	34012	20314
23140	12430	31240	23410	13240	21430	21340	32410	12340	31420

No test is needed for low layers.  
 All 240(= 120 x 2) layers composed can pass as they are.

- [4] Pick up each of high layers and of low, and combine one with another to calculate and compose the object Pan-diagonal C.E.S. by the next equation:

$$nC = nH \times 5 + nL$$

If you want to have the result in classical style, you have to add 1 to each value.

- [5] Before listing out 7200 compositions, examine each of them by the Definition (3) of C.E.S. to eliminate the wrong answers (a half of compositions).

The next list below demonstrates a part of my recent reconstruction:

\*\* Compose the 'Complete Euler Squares' of \*\*  
 \*\*\* Order 5 for Pan-Diagonal Magic Type \*\*\*  
 \*\* Abstract List of 3600 Standard Solutions \*\*

[Group 1]

1/H1	2/L2	1/	1/H1	4/L2	2/
0 4 3 2 1	0 2 4 1 3	1 23 20 12 9	0 4 3 2 1	0 3 4 1 2	1 24 20 12 8
2 1 0 4 3	4 1 3 0 2	15 7 4 21 18	2 1 0 4 3	4 1 2 0 3	15 7 3 21 19
4 3 2 1 0	3 0 2 4 1	24 16 13 10 2	4 3 2 1 0	2 0 3 4 1	23 16 14 10 2
1 0 4 3 2	2 4 1 3 0	8 5 22 19 11	1 0 4 3 2	3 4 1 2 0	9 5 22 18 11
3 2 1 0 4	1 3 0 2 4	17 14 6 3 25	3 2 1 0 4	1 2 0 3 4	17 13 6 4 25

1/H1	6/L2	5/	1/H1	8/L2	6/
0 4 3 2 1	0 1 4 2 3	1 22 20 13 9	0 4 3 2 1	0 3 4 2 1	1 24 20 13 7
2 1 0 4 3	4 2 3 0 1	15 8 4 21 17	2 1 0 4 3	4 2 1 0 3	15 8 2 21 19
4 3 2 1 0	3 0 1 4 2	24 16 12 10 3	4 3 2 1 0	1 0 3 4 2	22 16 14 10 3
1 0 4 3 2	1 4 2 3 0	7 5 23 19 11	1 0 4 3 2	3 4 2 1 0	9 5 23 17 11
3 2 1 0 4	2 3 0 1 4	18 14 6 2 25	3 2 1 0 4	2 1 0 3 4	18 12 6 4 25
1/H1	10/L2	9/	1/H1	12/L2	10/
0 4 3 2 1	0 1 4 3 2	1 22 20 14 8	0 4 3 2 1	0 2 4 3 1	1 23 20 14 7
2 1 0 4 3	4 3 2 0 1	15 9 3 21 17	2 1 0 4 3	4 3 1 0 2	15 9 2 21 18
4 3 2 1 0	2 0 1 4 3	23 16 12 10 4	4 3 2 1 0	1 0 2 4 3	22 16 13 10 4
1 0 4 3 2	1 4 3 2 0	7 5 24 18 11	1 0 4 3 2	2 4 3 1 0	8 5 24 17 11
3 2 1 0 4	3 2 0 1 4	19 13 6 2 25	3 2 1 0 4	3 1 0 2 4	19 12 6 3 25
1/H1	14/L2	37/	1/H1	16/L2	38/
0 4 3 2 1	0 2 3 1 4	1 23 19 12 10	0 4 3 2 1	0 4 3 1 2	1 25 19 12 8
2 1 0 4 3	3 1 4 0 2	14 7 5 21 18	2 1 0 4 3	3 1 2 0 4	14 7 3 21 20
4 3 2 1 0	4 0 2 3 1	25 16 13 9 2	4 3 2 1 0	2 0 4 3 1	23 16 15 9 2
1 0 4 3 2	2 3 1 4 0	8 4 22 20 11	1 0 4 3 2	4 3 1 2 0	10 4 22 18 11
3 2 1 0 4	1 4 0 2 3	17 15 6 3 24	3 2 1 0 4	1 2 0 4 3	17 13 6 5 24
1/H1	18/L2	41/	1/H1	20/L2	42/
0 4 3 2 1	0 1 3 2 4	1 22 19 13 10	0 4 3 2 1	0 4 3 2 1	1 25 19 13 7
2 1 0 4 3	3 2 4 0 1	14 8 5 21 17	2 1 0 4 3	3 2 1 0 4	14 8 2 21 20
4 3 2 1 0	4 0 1 3 2	25 16 12 9 3	4 3 2 1 0	1 0 4 3 2	22 16 15 9 3
1 0 4 3 2	1 3 2 4 0	7 4 23 20 11	1 0 4 3 2	4 3 2 1 0	10 4 23 17 11
3 2 1 0 4	2 4 0 1 3	18 15 6 2 24	3 2 1 0 4	2 1 0 4 3	18 12 6 5 24
1/H1	22/L2	45/	1/H1	24/L2	46/
0 4 3 2 1	0 1 3 4 2	1 22 19 15 8	0 4 3 2 1	0 2 3 4 1	1 23 19 15 7
2 1 0 4 3	3 4 2 0 1	14 10 3 21 17	2 1 0 4 3	3 4 1 0 2	14 10 2 21 18
4 3 2 1 0	2 0 1 3 4	23 16 12 9 5	4 3 2 1 0	1 0 2 3 4	22 16 13 9 5
1 0 4 3 2	1 3 4 2 0	7 4 25 18 11	1 0 4 3 2	2 3 4 1 0	8 4 25 17 11
3 2 1 0 4	4 2 0 1 3	20 13 6 2 24	3 2 1 0 4	4 1 0 2 3	20 12 6 3 24
1/H1	26/L2	73/	1/H1	28/L2	74/
0 4 3 2 1	0 3 2 1 4	1 24 18 12 10	0 4 3 2 1	0 4 2 1 3	1 25 18 12 9
2 1 0 4 3	2 1 4 0 3	13 7 5 21 19	2 1 0 4 3	2 1 3 0 4	13 7 4 21 20
4 3 2 1 0	4 0 3 2 1	25 16 14 8 2	4 3 2 1 0	3 0 4 2 1	24 16 15 8 2
1 0 4 3 2	3 2 1 4 0	9 3 22 20 11	1 0 4 3 2	4 2 1 3 0	10 3 22 19 11
3 2 1 0 4	1 4 0 3 2	17 15 6 4 23	3 2 1 0 4	1 3 0 4 2	17 14 6 5 23

[Group 2]

2/H1	2/L2	3/	2/H1	4/L2	4/
0 4 2 3 1	0 2 4 1 3	1 23 15 17 9	0 4 2 3 1	0 3 4 1 2	1 24 15 17 8
3 1 0 4 2	4 1 3 0 2	20 7 4 21 13	3 1 0 4 2	4 1 2 0 3	20 7 3 21 14
4 2 3 1 0	3 0 2 4 1	24 11 18 10 2	4 2 3 1 0	2 0 3 4 1	23 11 19 10 2
1 0 4 2 3	2 4 1 3 0	8 5 22 14 16	1 0 4 2 3	3 4 1 2 0	9 5 22 13 16
2 3 1 0 4	1 3 0 2 4	12 19 6 3 25	2 3 1 0 4	1 2 0 3 4	12 18 6 4 25
2/H1	6/L2	7/	2/H1	8/L2	8/
0 4 2 3 1	0 1 4 2 3	1 22 15 18 9	0 4 2 3 1	0 3 4 2 1	1 24 15 18 7
3 1 0 4 2	4 2 3 0 1	20 8 4 21 12	3 1 0 4 2	4 2 1 0 3	20 8 2 21 14
4 2 3 1 0	3 0 1 4 2	24 11 17 10 3	4 2 3 1 0	1 0 3 4 2	22 11 19 10 3
1 0 4 2 3	1 4 2 3 0	7 5 23 14 16	1 0 4 2 3	3 4 2 1 0	9 5 23 12 16
2 3 1 0 4	2 3 0 1 4	13 19 6 2 25	2 3 1 0 4	2 1 0 3 4	13 17 6 4 25
2/H1	10/L2	11/	2/H1	12/L2	12/
0 4 2 3 1	0 1 4 3 2	1 22 15 19 8	0 4 2 3 1	0 2 4 3 1	1 23 15 19 7
3 1 0 4 2	4 3 2 0 1	20 9 3 21 12	3 1 0 4 2	4 3 1 0 2	20 9 2 21 13
4 2 3 1 0	2 0 1 4 3	23 11 17 10 4	4 2 3 1 0	1 0 2 4 3	22 11 18 10 4
1 0 4 2 3	1 4 3 2 0	7 5 24 13 16	1 0 4 2 3	2 4 3 1 0	8 5 24 12 16
2 3 1 0 4	3 2 0 1 4	14 18 6 2 25	2 3 1 0 4	3 1 0 2 4	14 17 6 3 25

2/H1	14/L2	39/	2/H1	16/L2	40/
0 4 2 3 1	0 2 3 1 4	1 23 14 17 10	0 4 2 3 1	0 4 3 1 2	1 25 14 17 8
3 1 0 4 2	3 1 4 0 2	19 7 5 21 13	3 1 0 4 2	3 1 2 0 4	19 7 3 21 15
4 2 3 1 0	4 0 2 3 1	25 11 18 9 2	4 2 3 1 0	2 0 4 3 1	23 11 20 9 2
1 0 4 2 3	2 3 1 4 0	8 4 22 15 16	1 0 4 2 3	4 3 1 2 0	10 4 22 13 16
2 3 1 0 4	1 4 0 2 3	12 20 6 3 24	2 3 1 0 4	1 2 0 4 3	12 18 6 5 24
2/H1	18/L2	43/	2/H1	20/L2	44/
0 4 2 3 1	0 1 3 2 4	1 22 14 18 10	0 4 2 3 1	0 4 3 2 1	1 25 14 18 7
3 1 0 4 2	3 2 4 0 1	19 8 5 21 12	3 1 0 4 2	3 2 1 0 4	19 8 2 21 15
4 2 3 1 0	4 0 1 3 2	25 11 17 9 3	4 2 3 1 0	1 0 4 3 2	22 11 20 9 3
1 0 4 2 3	1 3 2 4 0	7 4 23 15 16	1 0 4 2 3	4 3 2 1 0	10 4 23 12 16
2 3 1 0 4	2 4 0 1 3	13 20 6 2 24	2 3 1 0 4	2 1 0 4 3	13 17 6 5 24

[Group 3]

3/H1	2/L2	13/	3/H1	4/L2	14/
0 4 3 1 2	0 2 4 1 3	1 23 20 7 14	0 4 3 1 2	0 3 4 1 2	1 24 20 7 13
1 2 0 4 3	4 1 3 0 2	10 12 4 21 18	1 2 0 4 3	4 1 2 0 3	10 12 3 21 19
4 3 1 2 0	3 0 2 4 1	24 16 8 15 2	4 3 1 2 0	2 0 3 4 1	23 16 9 15 2
2 0 4 3 1	2 4 1 3 0	13 5 22 19 6	2 0 4 3 1	3 4 1 2 0	14 5 22 18 6
3 1 2 0 4	1 3 0 2 4	17 9 11 3 25	3 1 2 0 4	1 2 0 3 4	17 8 11 4 25
3/H1	6/L2	17/	3/H1	8/L2	18/
0 4 3 1 2	0 1 4 2 3	1 22 20 8 14	0 4 3 1 2	0 3 4 2 1	1 24 20 8 12
1 2 0 4 3	4 2 3 0 1	10 13 4 21 17	1 2 0 4 3	4 2 1 0 3	10 13 2 21 19
4 3 1 2 0	3 0 1 4 2	24 16 7 15 3	4 3 1 2 0	1 0 3 4 2	22 16 9 15 3
2 0 4 3 1	1 4 2 3 0	12 5 23 19 6	2 0 4 3 1	3 4 2 1 0	14 5 23 17 6
3 1 2 0 4	2 3 0 1 4	18 9 11 2 25	3 1 2 0 4	2 1 0 3 4	18 7 11 4 25
3/H1	10/L2	21/	3/H1	12/L2	22/
0 4 3 1 2	0 1 4 3 2	1 22 20 9 13	0 4 3 1 2	0 2 4 3 1	1 23 20 9 12
1 2 0 4 3	4 3 2 0 1	10 14 3 21 17	1 2 0 4 3	4 3 1 0 2	10 14 2 21 18
4 3 1 2 0	2 0 1 4 3	23 16 7 15 4	4 3 1 2 0	1 0 2 4 3	22 16 8 15 4
2 0 4 3 1	1 4 3 2 0	12 5 24 18 6	2 0 4 3 1	2 4 3 1 0	13 5 24 17 6
3 1 2 0 4	3 2 0 1 4	19 8 11 2 25	3 1 2 0 4	3 1 0 2 4	19 7 11 3 25

[Group 4]

4/H1	2/L2	15/	4/H1	4/L2	16/
0 4 1 3 2	0 2 4 1 3	1 23 10 17 14	0 4 1 3 2	0 3 4 1 2	1 24 10 17 13
3 2 0 4 1	4 1 3 0 2	20 12 4 21 8	3 2 0 4 1	4 1 2 0 3	20 12 3 21 9
4 1 3 2 0	3 0 2 4 1	24 6 18 15 2	4 1 3 2 0	2 0 3 4 1	23 6 19 15 2
2 0 4 1 3	2 4 1 3 0	13 5 22 9 16	2 0 4 1 3	3 4 1 2 0	14 5 22 8 16
1 3 2 0 4	1 3 0 2 4	7 19 11 3 25	1 3 2 0 4	1 2 0 3 4	7 18 11 4 25
4/H1	6/L2	19/	4/H1	8/L2	20/
0 4 1 3 2	0 1 4 2 3	1 22 10 18 14	0 4 1 3 2	0 3 4 2 1	1 24 10 18 12
3 2 0 4 1	4 2 3 0 1	20 13 4 21 7	3 2 0 4 1	4 2 1 0 3	20 13 2 21 9
4 1 3 2 0	3 0 1 4 2	24 6 17 15 3	4 1 3 2 0	1 0 3 4 2	22 6 19 15 3
2 0 4 1 3	1 4 2 3 0	12 5 23 9 16	2 0 4 1 3	3 4 2 1 0	14 5 23 7 16
1 3 2 0 4	2 3 0 1 4	8 19 11 2 25	1 3 2 0 4	2 1 0 3 4	8 17 11 4 25
4/H1	10/L2	23/	4/H1	12/L2	24/
0 4 1 3 2	0 1 4 3 2	1 22 10 19 13	0 4 1 3 2	0 2 4 3 1	1 23 10 19 12
3 2 0 4 1	4 3 2 0 1	20 14 3 21 7	3 2 0 4 1	4 3 1 0 2	20 14 2 21 8
4 1 3 2 0	2 0 1 4 3	23 6 17 15 4	4 1 3 2 0	1 0 2 4 3	22 6 18 15 4
2 0 4 1 3	1 4 3 2 0	12 5 24 8 16	2 0 4 1 3	2 4 3 1 0	13 5 24 7 16
1 3 2 0 4	3 2 0 1 4	9 18 11 2 25	1 3 2 0 4	3 1 0 2 4	9 17 11 3 25

[Group 5]

5/H1	2/L2	25/	5/H1	4/L2	26/
0 4 2 1 3	0 2 4 1 3	1 23 15 7 19	0 4 2 1 3	0 3 4 1 2	1 24 15 7 18
1 3 0 4 2	4 1 3 0 2	10 17 4 21 13	1 3 0 4 2	4 1 2 0 3	10 17 3 21 14
4 2 1 3 0	3 0 2 4 1	24 11 8 20 2	4 2 1 3 0	2 0 3 4 1	23 11 9 20 2
3 0 4 2 1	2 4 1 3 0	18 5 22 14 6	3 0 4 2 1	3 4 1 2 0	19 5 22 13 6
2 1 3 0 4	1 3 0 2 4	12 9 16 3 25	2 1 3 0 4	1 2 0 3 4	12 8 16 4 25

5/H1	6/L2	29/	5/H1	8/L2	30/
0 4 2 1 3	0 1 4 2 3	1 22 15 8 19	0 4 2 1 3	0 3 4 2 1	1 24 15 8 17
1 3 0 4 2	4 2 3 0 1	10 18 4 21 12	1 3 0 4 2	4 2 1 0 3	10 18 2 21 14
4 2 1 3 0	3 0 1 4 2	24 11 7 20 3	4 2 1 3 0	1 0 3 4 2	22 11 9 20 3
3 0 4 2 1	1 4 2 3 0	17 5 23 14 6	3 0 4 2 1	3 4 2 1 0	19 5 23 12 6
2 1 3 0 4	2 3 0 1 4	13 9 16 2 25	2 1 3 0 4	2 1 0 3 4	13 7 16 4 25
5/H1	10/L2	33/	5/H1	12/L2	34/
0 4 2 1 3	0 1 4 3 2	1 22 15 9 18	0 4 2 1 3	0 2 4 3 1	1 23 15 9 17
1 3 0 4 2	4 3 2 0 1	10 19 3 21 12	1 3 0 4 2	4 3 1 0 2	10 19 2 21 13
4 2 1 3 0	2 0 1 4 3	23 11 7 20 4	4 2 1 3 0	1 0 2 4 3	22 11 8 20 4
3 0 4 2 1	1 4 3 2 0	17 5 24 13 6	3 0 4 2 1	2 4 3 1 0	18 5 24 12 6
2 1 3 0 4	3 2 0 1 4	14 8 16 2 25	2 1 3 0 4	3 1 0 2 4	14 7 16 3 25

[Group 6]

6/H1	2/L2	27/	6/H1	4/L2	28/
0 4 1 2 3	0 2 4 1 3	1 23 10 12 19	0 4 1 2 3	0 3 4 1 2	1 24 10 12 18
2 3 0 4 1	4 1 3 0 2	15 17 4 21 8	2 3 0 4 1	4 1 2 0 3	15 17 3 21 9
4 1 2 3 0	3 0 2 4 1	24 6 13 20 2	4 1 2 3 0	2 0 3 4 1	23 6 14 20 2
3 0 4 1 2	2 4 1 3 0	18 5 22 9 11	3 0 4 1 2	3 4 1 2 0	19 5 22 8 11
1 2 3 0 4	1 3 0 2 4	7 14 16 3 25	1 2 3 0 4	1 2 0 3 4	7 13 16 4 25
6/H1	6/L2	31/	6/H1	8/L2	32/
0 4 1 2 3	0 1 4 2 3	1 22 10 13 19	0 4 1 2 3	0 3 4 2 1	1 24 10 13 17
2 3 0 4 1	4 2 3 0 1	15 18 4 21 7	2 3 0 4 1	4 2 1 0 3	15 18 2 21 9
4 1 2 3 0	3 0 1 4 2	24 6 12 20 3	4 1 2 3 0	1 0 3 4 2	22 6 14 20 3
3 0 4 1 2	1 4 2 3 0	17 5 23 9 11	3 0 4 1 2	3 4 2 1 0	19 5 23 7 11
1 2 3 0 4	2 3 0 1 4	8 14 16 2 25	1 2 3 0 4	2 1 0 3 4	8 12 16 4 25
6/H1	10/L2	35/	6/H1	12/L2	36/
0 4 1 2 3	0 1 4 3 2	1 22 10 14 18	0 4 1 2 3	0 2 4 3 1	1 23 10 14 17
2 3 0 4 1	4 3 2 0 1	15 19 3 21 7	2 3 0 4 1	4 3 1 0 2	15 19 2 21 8
4 1 2 3 0	2 0 1 4 3	23 6 12 20 4	4 1 2 3 0	1 0 2 4 3	22 6 13 20 4
3 0 4 1 2	1 4 3 2 0	17 5 24 8 11	3 0 4 1 2	2 4 3 1 0	18 5 24 7 11
1 2 3 0 4	3 2 0 1 4	9 13 16 2 25	1 2 3 0 4	3 1 0 2 4	9 12 16 3 25

[Group 7]

7/H1	2/L2	145/	7/H1	4/L2	146/
0 3 4 2 1	0 2 4 1 3	1 18 25 12 9	0 3 4 2 1	0 3 4 1 2	1 19 25 12 8
2 1 0 3 4	4 1 3 0 2	15 7 4 16 23	2 1 0 3 4	4 1 2 0 3	15 7 3 16 24
3 4 2 1 0	3 0 2 4 1	19 21 13 10 2	3 4 2 1 0	2 0 3 4 1	18 21 14 10 2
1 0 3 4 2	2 4 1 3 0	8 5 17 24 11	1 0 3 4 2	3 4 1 2 0	9 5 17 23 11
4 2 1 0 3	1 3 0 2 4	22 14 6 3 20	4 2 1 0 3	1 2 0 3 4	22 13 6 4 20
7/H1	6/L2	149/	7/H1	8/L2	150/
0 3 4 2 1	0 1 4 2 3	1 17 25 13 9	0 3 4 2 1	0 3 4 2 1	1 19 25 13 7
2 1 0 3 4	4 2 3 0 1	15 8 4 16 22	2 1 0 3 4	4 2 1 0 3	15 8 2 16 24
3 4 2 1 0	3 0 1 4 2	19 21 12 10 3	3 4 2 1 0	1 0 3 4 2	17 21 14 10 3
1 0 3 4 2	1 4 2 3 0	7 5 18 24 11	1 0 3 4 2	3 4 2 1 0	9 5 18 22 11
4 2 1 0 3	2 3 0 1 4	23 14 6 2 20	4 2 1 0 3	2 1 0 3 4	23 12 6 4 20
7/H1	10/L2	153/	7/H1	12/L2	154/
0 3 4 2 1	0 1 4 3 2	1 17 25 14 8	0 3 4 2 1	0 2 4 3 1	1 18 25 14 7
2 1 0 3 4	4 3 2 0 1	15 9 3 16 22	2 1 0 3 4	4 3 1 0 2	15 9 2 16 23
3 4 2 1 0	2 0 1 4 3	18 21 12 10 4	3 4 2 1 0	1 0 2 4 3	17 21 13 10 4
1 0 3 4 2	1 4 3 2 0	7 5 19 23 11	1 0 3 4 2	2 4 3 1 0	8 5 19 22 11
4 2 1 0 3	3 2 0 1 4	24 13 6 2 20	4 2 1 0 3	3 1 0 2 4	24 12 6 3 20

[Group 8]

8/H2	1/L1	147/	8/H2	3/L1	148/
0 4 3 1 2	0 4 3 2 1	1 25 19 8 12	0 4 3 1 2	0 4 2 3 1	1 25 18 9 12
3 1 2 0 4	2 1 0 4 3	18 7 11 5 24	3 1 2 0 4	3 1 0 4 2	19 7 11 5 23
2 0 4 3 1	4 3 2 1 0	15 4 23 17 6	2 0 4 3 1	4 2 3 1 0	15 3 24 17 6
4 3 1 2 0	1 0 4 3 2	22 16 10 14 3	4 3 1 2 0	1 0 4 2 3	22 16 10 13 4
1 2 0 4 3	3 2 1 0 4	9 13 2 21 20	1 2 0 4 3	2 3 1 0 4	8 14 2 21 20



8/H2	5/L1	151/	8/H2	7/L1	152/
0 4 3 1 2	0 4 3 1 2	1 25 19 7 13	0 4 3 1 2	0 4 1 3 2	1 25 17 9 13
3 1 2 0 4	1 2 0 4 3	17 8 11 5 24	3 1 2 0 4	3 2 0 4 1	19 8 11 5 22
2 0 4 3 1	4 3 1 2 0	15 4 22 18 6	2 0 4 3 1	4 1 3 2 0	15 2 24 18 6
4 3 1 2 0	2 0 4 3 1	23 16 10 14 2	4 3 1 2 0	2 0 4 1 3	23 16 10 12 4
1 2 0 4 3	3 1 2 0 4	9 12 3 21 20	1 2 0 4 3	1 3 2 0 4	7 14 3 21 20
8/H2	9/L1	155/	8/H2	11/L1	156/
0 4 3 1 2	0 4 2 1 3	1 25 18 7 14	0 4 3 1 2	0 4 1 2 3	1 25 17 8 14
3 1 2 0 4	1 3 0 4 2	17 9 11 5 23	3 1 2 0 4	2 3 0 4 1	18 9 11 5 22
2 0 4 3 1	4 2 1 3 0	15 3 22 19 6	2 0 4 3 1	4 1 2 3 0	15 2 23 19 6
4 3 1 2 0	3 0 4 2 1	24 16 10 13 2	4 3 1 2 0	3 0 4 1 2	24 16 10 12 3
1 2 0 4 3	2 1 3 0 4	8 12 4 21 20	1 2 0 4 3	1 2 3 0 4	7 13 4 21 20

[Group 9]

9/H1	2/L2	157/	9/H1	4/L2	158/
0 3 4 1 2	0 2 4 1 3	1 18 25 7 14	0 3 4 1 2	0 3 4 1 2	1 19 25 7 13
1 2 0 3 4	4 1 3 0 2	10 12 4 16 23	1 2 0 3 4	4 1 2 0 3	10 12 3 16 24
3 4 1 2 0	3 0 2 4 1	19 21 8 15 2	3 4 1 2 0	2 0 3 4 1	18 21 9 15 2
2 0 3 4 1	2 4 1 3 0	13 5 17 24 6	2 0 3 4 1	3 4 1 2 0	14 5 17 23 6
4 1 2 0 3	1 3 0 2 4	22 9 11 3 20	4 1 2 0 3	1 2 0 3 4	22 8 11 4 20
9/H1	6/L2	161/	9/H1	8/L2	162/
0 3 4 1 2	0 1 4 2 3	1 17 25 8 14	0 3 4 1 2	0 3 4 2 1	1 19 25 8 12
1 2 0 3 4	4 2 3 0 1	10 13 4 16 22	1 2 0 3 4	4 2 1 0 3	10 13 2 16 24
3 4 1 2 0	3 0 1 4 2	19 21 7 15 3	3 4 1 2 0	1 0 3 4 2	17 21 9 15 3
2 0 3 4 1	1 4 2 3 0	12 5 18 24 6	2 0 3 4 1	3 4 2 1 0	14 5 18 22 6
4 1 2 0 3	2 3 0 1 4	23 9 11 2 20	4 1 2 0 3	2 1 0 3 4	23 7 11 4 20
9/H1	10/L2	165/	9/H1	12/L2	166/
0 3 4 1 2	0 1 4 3 2	1 17 25 9 13	0 3 4 1 2	0 2 4 3 1	1 18 25 9 12
1 2 0 3 4	4 3 2 0 1	10 14 3 16 22	1 2 0 3 4	4 3 1 0 2	10 14 2 16 23
3 4 1 2 0	2 0 1 4 3	18 21 7 15 4	3 4 1 2 0	1 0 2 4 3	17 21 8 15 4
2 0 3 4 1	1 4 3 2 0	12 5 19 23 6	2 0 3 4 1	2 4 3 1 0	13 5 19 22 6
4 1 2 0 3	3 2 0 1 4	24 8 11 2 20	4 1 2 0 3	3 1 0 2 4	24 7 11 3 20

[Group10]

10/H2	1/L1	159/	10/H2	3/L1	160/
0 4 3 2 1	0 4 3 2 1	1 25 19 13 7	0 4 3 2 1	0 4 2 3 1	1 25 18 14 7
3 2 1 0 4	2 1 0 4 3	18 12 6 5 24	3 2 1 0 4	3 1 0 4 2	19 12 6 5 23
1 0 4 3 2	4 3 2 1 0	10 4 23 17 11	1 0 4 3 2	4 2 3 1 0	10 3 24 17 11
4 3 2 1 0	1 0 4 3 2	22 16 15 9 3	4 3 2 1 0	1 0 4 2 3	22 16 15 8 4
2 1 0 4 3	3 2 1 0 4	14 8 2 21 20	2 1 0 4 3	2 3 1 0 4	13 9 2 21 20
10/H2	5/L1	163/	10/H2	7/L1	164/
0 4 3 2 1	0 4 3 1 2	1 25 19 12 8	0 4 3 2 1	0 4 1 3 2	1 25 17 14 8
3 2 1 0 4	1 2 0 4 3	17 13 6 5 24	3 2 1 0 4	3 2 0 4 1	19 13 6 5 22
1 0 4 3 2	4 3 1 2 0	10 4 22 18 11	1 0 4 3 2	4 1 3 2 0	10 2 24 18 11
4 3 2 1 0	2 0 4 3 1	23 16 15 9 2	4 3 2 1 0	2 0 4 1 3	23 16 15 7 4
2 1 0 4 3	3 1 2 0 4	14 7 3 21 20	2 1 0 4 3	1 3 2 0 4	12 9 3 21 20

[Group11]

11/H1	2/L2	169/	11/H1	4/L2	170/
0 3 2 1 4	0 2 4 1 3	1 18 15 7 24	0 3 2 1 4	0 3 4 1 2	1 19 15 7 23
1 4 0 3 2	4 1 3 0 2	10 22 4 16 13	1 4 0 3 2	4 1 2 0 3	10 22 3 16 14
3 2 1 4 0	3 0 2 4 1	19 11 8 25 2	3 2 1 4 0	2 0 3 4 1	18 11 9 25 2
4 0 3 2 1	2 4 1 3 0	23 5 17 14 6	4 0 3 2 1	3 4 1 2 0	24 5 17 13 6
2 1 4 0 3	1 3 0 2 4	12 9 21 3 20	2 1 4 0 3	1 2 0 3 4	12 8 21 4 20
11/H1	6/L2	173/	11/H1	8/L2	174/
0 3 2 1 4	0 1 4 2 3	1 17 15 8 24	0 3 2 1 4	0 3 4 2 1	1 19 15 8 22
1 4 0 3 2	4 2 3 0 1	10 23 4 16 12	1 4 0 3 2	4 2 1 0 3	10 23 2 16 14
3 2 1 4 0	3 0 1 4 2	19 11 7 25 3	3 2 1 4 0	1 0 3 4 2	17 11 9 25 3
4 0 3 2 1	1 4 2 3 0	22 5 18 14 6	4 0 3 2 1	3 4 2 1 0	24 5 18 12 6
2 1 4 0 3	2 3 0 1 4	13 9 21 2 20	2 1 4 0 3	2 1 0 3 4	13 7 21 4 20

[Group12]

12/H1	2/L2	171/	12/H1	4/L2	172/
0 3 1 2 4	0 2 4 1 3	1 18 10 12 24	0 3 1 2 4	0 3 4 1 2	1 19 10 12 23
2 4 0 3 1	4 1 3 0 2	15 22 4 16 8	2 4 0 3 1	4 1 2 0 3	15 22 3 16 9
3 1 2 4 0	3 0 2 4 1	19 6 13 25 2	3 1 2 4 0	2 0 3 4 1	18 6 14 25 2
4 0 3 1 2	2 4 1 3 0	23 5 17 9 11	4 0 3 1 2	3 4 1 2 0	24 5 17 8 11
1 2 4 0 3	1 3 0 2 4	7 14 21 3 20	1 2 4 0 3	1 2 0 3 4	7 13 21 4 20
12/H1	6/L2	175/	12/H1	8/L2	176/
0 3 1 2 4	0 1 4 2 3	1 17 10 13 24	0 3 1 2 4	0 3 4 2 1	1 19 10 13 22
2 4 0 3 1	4 2 3 0 1	15 23 4 16 7	2 4 0 3 1	4 2 1 0 3	15 23 2 16 9
3 1 2 4 0	3 0 1 4 2	19 6 12 25 3	3 1 2 4 0	1 0 3 4 2	17 6 14 25 3
4 0 3 1 2	1 4 2 3 0	22 5 18 9 11	4 0 3 1 2	3 4 2 1 0	24 5 18 7 11
1 2 4 0 3	2 3 0 1 4	8 14 21 2 20	1 2 4 0 3	2 1 0 3 4	8 12 21 4 20

[Group13]

13/H2	1/L1	289/	13/H2	3/L1	290/
0 3 2 1 4	0 4 3 2 1	1 20 14 8 22	0 3 2 1 4	0 4 2 3 1	1 20 13 9 22
2 1 4 0 3	2 1 0 4 3	13 7 21 5 19	2 1 4 0 3	3 1 0 4 2	14 7 21 5 18
4 0 3 2 1	4 3 2 1 0	25 4 18 12 6	4 0 3 2 1	4 2 3 1 0	25 3 19 12 6
3 2 1 4 0	1 0 4 3 2	17 11 10 24 3	3 2 1 4 0	1 0 4 2 3	17 11 10 23 4
1 4 0 3 2	3 2 1 0 4	9 23 2 16 15	1 4 0 3 2	2 3 1 0 4	8 24 2 16 15

[Group14]

14/H2	1/L1	291/	14/H2	3/L1	292/
0 4 2 1 3	0 4 3 2 1	1 25 14 8 17	0 4 2 1 3	0 4 2 3 1	1 25 13 9 17
2 1 3 0 4	2 1 0 4 3	13 7 16 5 24	2 1 3 0 4	3 1 0 4 2	14 7 16 5 23
3 0 4 2 1	4 3 2 1 0	20 4 23 12 6	3 0 4 2 1	4 2 3 1 0	20 3 24 12 6
4 2 1 3 0	1 0 4 3 2	22 11 10 19 3	4 2 1 3 0	1 0 4 2 3	22 11 10 18 4
1 3 0 4 2	3 2 1 0 4	9 18 2 21 15	1 3 0 4 2	2 3 1 0 4	8 19 2 21 15

[Group15]

15/H1	2/L2	301/	15/H1	4/L2	302/
0 2 4 1 3	0 2 4 1 3	1 13 25 7 19	0 2 4 1 3	0 3 4 1 2	1 14 25 7 18
1 3 0 2 4	4 1 3 0 2	10 17 4 11 23	1 3 0 2 4	4 1 2 0 3	10 17 3 11 24
2 4 1 3 0	3 0 2 4 1	14 21 8 20 2	2 4 1 3 0	2 0 3 4 1	13 21 9 20 2
3 0 2 4 1	2 4 1 3 0	18 5 12 24 6	3 0 2 4 1	3 4 1 2 0	19 5 12 23 6
4 1 3 0 2	1 3 0 2 4	22 9 16 3 15	4 1 3 0 2	1 2 0 3 4	22 8 16 4 15

[Group16]

16/H2	1/L1	303/	16/H2	3/L1	304/
0 4 2 3 1	0 4 3 2 1	1 25 14 18 7	0 4 2 3 1	0 4 2 3 1	1 25 13 19 7
2 3 1 0 4	2 1 0 4 3	13 17 6 5 24	2 3 1 0 4	3 1 0 4 2	14 17 6 5 23
1 0 4 2 3	4 3 2 1 0	10 4 23 12 16	1 0 4 2 3	4 2 3 1 0	10 3 24 12 16
4 2 3 1 0	1 0 4 3 2	22 11 20 9 3	4 2 3 1 0	1 0 4 2 3	22 11 20 8 4
3 1 0 4 2	3 2 1 0 4	19 8 2 21 15	3 1 0 4 2	2 3 1 0 4	18 9 2 21 15

.....

[Group28]

28/H1	2/L2	2935/	28/H1	4/L2	2936/
1 3 2 0 4	0 2 4 1 3	6 18 15 2 24	1 3 2 0 4	0 3 4 1 2	6 19 15 2 23
0 4 1 3 2	4 1 3 0 2	5 22 9 16 13	0 4 1 3 2	4 1 2 0 3	5 22 8 16 14
3 2 0 4 1	3 0 2 4 1	19 11 3 25 7	3 2 0 4 1	2 0 3 4 1	18 11 4 25 7
4 1 3 2 0	2 4 1 3 0	23 10 17 14 1	4 1 3 2 0	3 4 1 2 0	24 10 17 13 1
2 0 4 1 3	1 3 0 2 4	12 4 21 8 20	2 0 4 1 3	1 2 0 3 4	12 3 21 9 20

[Group29]

29/H1	2/L2	2977/	29/H1	4/L2	2978/
1 2 4 0 3	0 2 4 1 3	6 13 25 2 19	1 2 4 0 3	0 3 4 1 2	6 14 25 2 18
0 3 1 2 4	4 1 3 0 2	5 17 9 11 23	0 3 1 2 4	4 1 2 0 3	5 17 8 11 24
2 4 0 3 1	3 0 2 4 1	14 21 3 20 7	2 4 0 3 1	2 0 3 4 1	13 21 4 20 7
3 1 2 4 0	2 4 1 3 0	18 10 12 24 1	3 1 2 4 0	3 4 1 2 0	19 10 12 23 1
4 0 3 1 2	1 3 0 2 4	22 4 16 8 15	4 0 3 1 2	1 2 0 3 4	22 3 16 9 15





**[Step.4]**      T1/                      T2/                      T3/                      T4/

6 . . . 2 1 0 6 .	6 1 . . 0 2 . 6 1	6 . 2 0 . . 1 6 .	6 2 . 1 . 0 . 6 2
1 0 . . . . .2 1 0	. 0 2 . . .1 . . .0	2 0 . . .1 . . .2 0	. 0 . . .2 . . .1 . . .0
. 2 1 0 . . . . . . .2	. . . .1 . . .0 2 . .	. . . .1 . . .2 0 . .	2 . . .1 . . .0 . . .2 . .
. . . .2 1 0 . . . .	. . . .0 2 . . . . .1 . .	1 . . .2 0 . . . . .1 . .	0 . . .2 . . .1 . . .0 . .
0 . . . . .3 2 1 0.	2 . . .1 3 . . .0 2.	. 2 0 . . .3 1 . . . . .2	. . . .1 0 3 . . .2 . . .1
2 1 0 . . .4 . . .2 1	1 . . .0 2 4 . . .1 . .	0 . . .1 . . .4 2 0.	. . . .2 . . .1 4 0 . .
. . . .2 1 0 . . .5 . .	0 2 . . .1 . . .5 0 2	. . . .1 . . .2 0 5 . . .1	1 . . .0 . . .2 5 1 . .
6 . . . . .2 1 0 6.	6 1 . . .0 2 . . .6 1	6 . . .2 0 . . . . .1 6.	6 2 . . .1 . . .0 . . .6 2
1 0 . . . . 2 1 0	. 0 2 . . . 1 . . 0	2 0 . . . 1 . . 2 0	. 0 . . . 2 . 1 . 0

**[Step.5]**      T1/                      T2/                      T3/                      T4/

6 . . 3 2 1 0 6 .	6 1 3 . 0 2 . 6 1	6 . 2 0 . 3 1 6 .	6 2 . 1 . 0 3 6 2
1 0 . . . . .3 2 1 0	. 0 2 . . . . .1 3 . . .0	2 0 . . .3 1 . . . . .2 0	. 0 3 . . .2 . . .1 . . .0
3 2 1 0 . . . . . . .3 2	. . . .1 3 . . .0 2 . .	. 3 1 . . . . .2 0 . . .3	2 . . .1 . . .0 3 . . .2 . .
. . . .3 2 1 0 . . . .	3 . . .0 2 . . . . .1 3 . .	1 . . .2 0 . . . . .3 1 . .	0 3 . . .2 . . .1 . . .0 3 . .
0 . . . . .3 2 1 0.	2 . . .1 . . .3 . . .0 2.	. 2 0 . . .3 1 . . . . .2	. . . .1 . . .0 3 . . .2 . . .1
2 1 0 . . .4 3 2 1	1 3 . . .0 2 4 . . .1 3	0 . . .3 1 . . .4 2 0.	3 . . .2 . . .1 4 0 3 . .
. . . .3 2 1 0 . . .5 . .3	0 2 . . .1 . . .3 5 0 2	3 1 . . .2 0 5 3 1	1 . . .0 3 . . .2 5 1 . .
6 . . .3 2 1 0 6.	6 1 3 . . .0 2 . . .6 1	6 . . .2 0 . . .3 1 6.	6 2 . . .1 . . .0 3 6 2
1 0 . . . 3 2 1 0	. 0 2 . . . 1 3 . 0	2 0 . 3 1 . . 2 0	. 0 3 . 2 . 1 . 0

**[Step.6]**      T1/                      T2/                      T3/                      T4/

6 . 4 3 2 1 0 6 .	6 1 3 . 0 2 4 6 1	6 4 2 0 . 3 1 6 4	6 2 . 1 4 0 3 6 2
1 0 . . .4 3 2 1 0	. 0 2 4 . . .1 3 . . .0	2 0 . . .3 1 . . .4 2 0	4 0 3 . . .2 . . .1 4 0
3 2 1 0 . . . . .4 3 2	4 . . .1 3 . . .0 2 4.	. 3 1 . . .4 2 0 . . .3	2 . . .1 4 0 3 . . .2 . .
. . . .4 3 2 1 0 . . .4	3 . . .0 2 4 . . .1 3 . .	1 . . .4 2 0 . . .3 1 . .	0 3 . . .2 . . .1 4 0 3 . .
0 . . .4 3 2 1 0.	2 4 . . .1 3 . . .0 2 4.	4 2 0 . . .3 1 . . .4 2	. . . .1 4 0 3 . . .2 . . .1
2 1 0 . . .4 3 2 1	1 3 . . .0 2 4 . . .1 3	0 . . .3 1 . . .4 2 0.	3 . . .2 . . .1 4 0 3 . .
4 3 2 1 0 . . .5 4 3	0 2 4 . . .1 3 5 0 2	3 1 . . .4 2 0 5 3 1	1 4 0 3 . . .2 5 1 4
6 . . .4 3 2 1 0 6.	6 1 3 . . .0 2 4 6 1	6 4 2 0 . . .3 1 6 4	6 2 . . .1 4 0 3 6 2
1 0 . . 4 3 2 1 0	. 0 2 4 . . 1 3 . 0	2 0 . 3 1 . . 4 2 0	4 0 3 . 2 . 1 4 0

**[Step.7]**      T1/                      T2/                      T3/                      T4/

6 5 4 3 2 1 0 6 5	6 1 3 5 0 2 4 6 1	6 4 2 0 5 3 1 6 4	6 2 5 1 4 0 3 6 2
1 0 . . .5 4 3 2 1 0	5 0 2 4 . . .1 3 5 0	2 0 5 3 1 . . .4 2 0	4 0 3 . . .2 5 1 4 0
3 2 1 0 . . .5 4 3 2	4 . . .1 3 5 0 2 4.	5 3 1 . . .4 2 0 5 3	2 5 1 4 0 3 . . .2 5
. . . .5 4 3 2 1 0 . . .5	3 5 0 2 4 . . .1 3 5	1 . . .4 2 0 5 3 1.	0 3 . . .2 5 1 4 0 3 . .
0 . . .5 4 3 2 1 0.	2 4 . . .1 3 5 0 2 4.	4 2 0 5 3 1 . . .4 2	5 1 4 0 3 . . .2 5 1
2 1 0 . . .5 4 3 2 1	1 3 5 0 2 4 . . .1 3	0 5 3 1 . . .4 2 0 5	3 . . .2 5 1 4 0 3 . .
4 3 2 1 0 . . .5 4 3	0 2 4 . . .1 3 5 0 2	3 1 . . .4 2 0 5 3 1	1 4 0 3 . . .2 5 1 4
6 5 4 3 2 1 0 6 5	6 1 3 5 0 2 4 6 1	6 4 2 0 5 3 1 6 4	6 2 5 1 4 0 3 6 2
1 0 . 5 4 3 2 1 0	5 0 2 4 . 1 3 5 0	2 0 5 3 1 . 4 2 0	4 0 3 . 2 5 1 4 0

[Step.8]	T1/	T2/	T3/	T4/
6 5 4 3 2 1 0 6 5	6 1 3 5 0 2 4 6 1	6 4 2 0 5 3 1 6 4	6 2 5 1 4 0 3 6 2	
1 0 6 5 4 3 2 1 0	5 0 2 4 6 1 3 5 0	2 0 5 3 1 6 4 2 0	4 0 3 6 2 5 1 4 0	
3 2 1 0 6 5 4 3 2	4 6 1 3 5 0 2 4 6	5 3 1 6 4 2 0 5 3	2 5 1 4 0 3 6 2 5	
5 4 3 2 1 0 6 5 4	3 5 0 2 4 6 1 3 5	1 6 4 2 0 5 3 1 6	0 3 6 2 5 1 4 0 3	
0 6 5 4 3 2 1 0 6	2 4 6 1 3 5 0 2 4	4 2 0 5 3 1 6 4 2	5 1 4 0 3 6 2 5 1	
2 1 0 6 5 4 3 2 1	1 3 5 0 2 4 6 1 3	0 5 3 1 6 4 2 0 5	3 6 2 5 1 4 0 3 6	
4 3 2 1 0 6 5 4 3	0 2 4 6 1 3 5 0 2	3 1 6 4 2 0 5 3 1	1 4 0 3 6 2 5 1 4	
6 5 4 3 2 1 0 6 5	6 1 3 5 0 2 4 6 1	6 4 2 0 5 3 1 6 4	6 2 5 1 4 0 3 6 2	
1 0 6 5 4 3 2 1 0	5 0 2 4 6 1 3 5 0	2 0 5 3 1 6 4 2 0	4 0 3 6 2 5 1 4 0	

But we must know very well about how to make layer units of order 7 by Knight's Movement. See the step diagrams above. They demonstrate how to make 4 types of layer units from the same primary diagonal. Are you ready enough to deal with them?

What we have to do here is to:

- (1) Make the first primary diagonals of the layer unit of the object.
- (2) Compose the layer units from the first primary diagonal by the 4 types of Knight's Movement.
- (3) Select and nominate the appropriate high layers and the low ones from the layer unit candidates.
- (4) Pick up each of high layers and low, and combine one with another to calculate and compose the object C.E.S. of order 7 by the next equation.

$$nC = nH \times 7 + nL$$

If you want to have the object in classical style, then you must add 1 to each result.

- (5) Before listing out all the results, examine them by the test of Definition (3) of C.E.S. to eliminate the wrong answers.

[1] Any diagonal should be made of {0,1,2,3,4,5 and 6} using each one strictly once.

$$7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$$

There should be 5040 patterns without any conditions, but since our object is already the self-complementary magic square now, all complementary pairs of 6 must be placed symmetrically with respect to n25, and n25=3 is already determined.

$$\{(0, 6), (1, 5), (2, 4), 3\} = \{(n1, n49), (n9, n41), (n17, n33), n25\}$$

The permutation of the three pairs is equal to 6(= 3 x 2 x 1)

{(0, 6), (6, 0)}, {(1, 5), (5, 1)}, {(2, 4), (4, 2)} makes 8(= 2 x 2 x 2) patterns of order, and the possible primary diagonals are 48(= 6 x 8) pieces as follows.

[ 1] 0 1 2 3 4 5 6,	[ 2] 0 1 4 3 2 5 6,	[ 3] 0 2 1 3 5 4 6,
[ 4] 0 2 5 3 1 4 6,	[ 5] 0 4 1 3 5 2 6,	[ 6] 0 4 5 3 1 2 6,
[ 7] 0 5 2 3 4 1 6,	[ 8] 0 5 4 3 2 1 6,	[ 9] 1 0 2 3 4 6 5,
[10] 1 0 4 3 2 6 5,	[11] 1 2 0 3 6 4 5,	[12] 1 2 6 3 0 4 5,
[13] 1 4 0 3 6 2 5,	[14] 1 4 6 3 0 2 5,	[15] 1 6 2 3 4 0 5,
[16] 1 6 4 3 2 0 5,	[17] 2 0 1 3 5 6 4,	[18] 2 0 5 3 1 6 4,
[19] 2 1 0 3 6 5 4,	[20] 2 1 6 3 0 5 4,	[21] 2 5 0 3 6 1 4,
[22] 2 5 6 3 0 1 4,	[23] 2 6 1 3 5 0 4,	[24] 2 6 5 3 1 0 4,
[25] 4 0 1 3 5 6 2,	[26] 4 0 5 3 1 6 2,	[27] 4 1 0 3 6 5 2,
[28] 4 1 6 3 0 5 2,	[29] 4 5 0 3 6 1 2,	[30] 4 5 6 3 0 1 2,
[31] 4 6 1 3 5 0 2,	[32] 4 6 5 3 1 0 2,	[33] 5 0 2 3 4 6 1,
[34] 5 0 4 3 2 6 1,	[35] 5 2 0 3 6 4 1,	[36] 5 2 6 3 0 4 1,
[37] 5 4 0 3 6 2 1,	[38] 5 4 6 3 0 2 1,	[39] 5 6 2 3 4 0 1,
[40] 5 6 4 3 2 0 1,	[41] 6 1 2 3 4 5 0,	[42] 6 1 4 3 2 5 0,

[43] 6 2 1 3 5 4 0, [44] 6 2 5 3 1 4 0, [45] 6 4 1 3 5 2 0,  
 [46] 6 4 5 3 1 2 0, [47] 6 5 2 3 4 1 0, [48] 6 5 4 3 2 1 0

[2] Before composing layer units by Knight's Movement, diagonals for high layers must be tested under  $n1 < n49$  and only the first 24 diagonals can pass to the next step.

[3] After composing layer units by Knight's Movement, high layers themselves must be also tested under the other Normalizing Inequality Conditions:  $n1 < n7$ ;  $n1 < n43$ ; and  $n2 > n8$ ;

The next 24 high layers can pass to the next step:

Layer Units for High Position:

1/H1	2/H3	3/H1	4/H3	5/H1	6/H3	7/H1	8/H3
0654321	0531642	0652341	0531624	0645312	0432651	0641352	0432615
2106543	3164205	4106523	3162405	1206453	3265104	5206413	3261504
4321065	6420531	2341065	6240531	5312064	6510432	1352064	6150432
6543210	2053164	6523410	4053162	6453120	1043265	6413520	5043261
1065432	5316420	1065234	5316240	2064531	4326510	2064135	4326150
3210654	1642053	3410652	1624053	3120645	2651043	3520641	2615043
5432106	4205316	5234106	2405316	4531206	5104326	4135206	1504326
9/H1	10/H4	11/H1	12/H4	13/H1	14/H4	15/H1	16/H4
0625314	0361245	0621354	0365241	0614325	0362154	0612345	0364152
1406253	2450361	5406213	2410365	2506143	1540362	4506123	1520364
5314062	3612450	1354062	3652410	4325061	3621540	2345061	3641520
6253140	4503612	6213540	4103652	6143250	5403621	6123450	5203641
4062531	6124503	4062135	6524103	5061432	6215403	5061234	6415203
3140625	5036124	3540621	1036524	3250614	4036215	3450612	2036415
2531406	1245036	2135406	5241036	1432506	2154036	1234506	4152036
17/H3	18/H3	19/H1	20/H2	21/H1	22/H2	23/H4	24/H4
1630542	1630524	1546302	1605234	1526304	1605432	1352064	1354062
3054216	3052416	0215463	5234160	0415263	5432160	0641352	0621354
5421630	5241630	6302154	4160523	6304152	2160543	3520641	3540621
2163054	4163052	5463021	0523416	5263041	0543216	6413520	6213540
6305421	6305241	2154630	3416052	4152630	3216054	5206413	5406213
0542163	0524163	3021546	6052341	3041526	6054321	4135206	2135406
4216305	2416305	4630215	2341605	2630415	4321605	2064135	4062135

Layer Units for Low Position:

1/L1	2/L3	3/L2	4/L4	5/L1	6/L3	7/L2	8/L4
0654321	0531642	0246135	0362514	0652341	0531624	0426135	0364512
2106543	3164205	6135024	5140362	4106523	3162405	6135042	5120364
4321065	6420531	5024613	3625140	2341065	6240531	5042613	3645120
6543210	2053164	4613502	1403625	6523410	4053162	2613504	1203645
1065432	5316420	3502461	6251403	1065234	5316240	3504261	6451203
3210654	1642053	2461350	4036251	3410652	1624053	4261350	2036451
5432106	4205316	1350246	2514036	5234106	2405316	1350426	4512036
9/L1	10/L3	11/L2	12/L4	13/L1	14/L3	15/L2	16/L4
0645312	0432651	0156234	0361425	0641352	0432615	0516234	0365421
1206453	3265104	6234015	4250361	5206413	3261504	6234051	4210365
5312064	6510432	4015623	3614250	1352064	6150432	4051623	3654210
6453120	1043265	5623401	2503614	6413520	5043261	1623405	2103654
2064531	4326510	3401562	6142503	2064135	4326150	3405162	6542103
3120645	2651043	1562340	5036142	3520641	2615043	5162340	1036542
4531206	5104326	2340156	1425036	4135206	1504326	2340516	5421036

17/L1	18/L3	19/L2	20/L4	21/L1	22/L3	23/L2	24/L4
0625314	0234651	0156432	0361245	0621354	0234615	0516432	0365241
1406253	3465102	6432015	2450361	5406213	3461502	6432051	2410365
5314062	6510234	2015643	3612450	1354062	6150234	2051643	3652410
6253140	1023465	5643201	4503612	6213540	5023461	1643205	4103652
4062531	2346510	3201564	6124503	4062135	2346150	3205164	6524103
3140625	4651023	1564320	5036124	3540621	4615023	5164320	1036524
2531406	5102346	4320156	1245036	2135406	1502346	4320516	5241036
25/L1	26/L3	27/L2	28/L4	29/L1	30/L3	31/L2	32/L4
0614325	0135642	0246531	0362154	0612345	0135624	0426531	0364152
2506143	3564201	6531024	1540362	4506123	3562401	6531042	1520364
4325061	6420135	1024653	3621540	2345061	6240135	1042653	3641520
6143250	2013564	4653102	5403621	6123450	4013562	2653104	5203641
5061432	1356420	3102465	6215403	5061234	1356240	3104265	6415203
3250614	5642013	2465310	4036215	3450612	5624013	4265310	2036415
1432506	4201356	5310246	2154036	1234506	2401356	5310426	4152036
33/L1	34/L3	35/L2	36/L4	37/L1	38/L3	39/L2	40/L4
1564320	1630542	1245036	1352604	1562340	1630524	1425036	1354602
2015643	3054216	5036124	6041352	4015623	3052416	5036142	6021354
4320156	5421630	6124503	3526041	2340156	5241630	6142503	3546021
5643201	2163054	4503612	0413526	5623401	4163052	2503614	0213546
0156432	6305421	3612450	5260413	0156234	6305241	3614250	5460213
3201564	0542163	2450361	4135260	3401562	0524163	4250361	2135460
6432015	4216305	0361245	2604135	6234015	2416305	0361425	4602135
41/L1	42/L3	43/L2	44/L4	45/L1	46/L3	47/L2	48/L4
1546302	1432560	1065234	1350426	1540362	1432506	1605234	1356420
0215463	3256014	5234106	4261350	6215403	3250614	5234160	4201356
6302154	5601432	4106523	3504261	0362154	5061432	4160523	3564201
5463021	0143256	6523410	2613504	5403621	6143250	0523416	2013564
2154630	4325601	3410652	5042613	2154036	4325061	3416052	5642013
3021546	2560143	0652341	6135042	3621540	2506143	6052341	0135642
4630215	6014325	2341065	0426135	4036215	0614325	2341605	6420135
49/L1	50/L3	51/L2	52/L4	53/L1	54/L3	55/L2	56/L4
1526304	1234560	1065432	1350246	1520364	1234506	1605432	1356240
0415263	3456012	5432106	2461350	6415203	3450612	5432160	2401356
6304152	5601234	2106543	3502461	0364152	5061234	2160543	3562401
5263041	0123456	6543210	4613502	5203641	6123450	0543216	4013562
4152630	2345601	3210654	5024613	4152036	2345061	3216054	5624013
3041526	4560123	0654321	6135024	3641520	4506123	6054321	0135624
2630415	6012345	4321065	0246135	2036415	0612345	4321605	6240135
57/L1	58/L3	59/L2	60/L4	61/L1	62/L3	63/L2	64/L4
1504326	1036542	1245630	1352064	1502346	1036524	1425630	1354062
2615043	3654210	5630124	0641352	4615023	3652410	5630142	0621354
4326150	5421036	0124563	3520641	2346150	5241036	0142563	3540621
5043261	2103654	4563012	6413520	5023461	4103652	2563014	6213540
6150432	0365421	3012456	5206413	6150234	0365241	3014256	5406213
3261504	6542103	2456301	4135206	3461502	6524103	4256301	2135406
0432615	4210365	6301245	2064135	0234615	2410365	6301425	4062135
81/L1	82/L3	83/L2	84/L4	85/L1	86/L3	87/L2	88/L4
2416305	2135460	2064531	2340156	2410365	2135406	2604531	2346150
0524163	3546021	4531206	1562340	6524103	3540621	4531260	1502346
6305241	4602135	1206453	3401562	0365241	4062135	1260453	3461502
4163052	0213546	6453120	5623401	4103652	6213540	0453126	5023461
5241630	1354602	3120645	4015623	5241036	1354062	3126045	4615023
3052416	5460213	0645312	6234015	3652410	5406213	6045312	0234615
1630524	6021354	5312064	0156234	1036524	0621354	5312604	6150234





1/H1	7/L2						9/	1/H1	8/L4							7/	
0654321	0426135	1	47	38	35	23	18	13	0654321	0364512	1	46	42	33	27	16	10
2106543	6135042	21	9	4	48	36	33	24	2106543	5120364	20	9	3	43	39	35	26
4321065	5042613	34	22	19	10	7	44	39	4321065	3645120	32	28	19	13	2	45	36
6543210	2613504	45	42	30	25	20	8	5	6543210	1203645	44	38	29	25	21	12	6
1065432	3504261	11	6	43	40	31	28	16	1065432	6451203	14	5	48	37	31	22	18
3210654	4261350	26	17	14	2	46	41	29	3210654	2036451	24	15	11	7	47	41	30
5432106	1350426	37	32	27	15	12	3	49	5432106	4512036	40	34	23	17	8	4	49
1/H1	10/L3							25/	1/H1	11/L2							26/
0654321	0432651	1	47	39	31	28	20	9	0654321	0156234	1	44	41	35	24	18	12
2106543	3265104	18	10	7	48	37	29	26	2106543	6234015	21	10	4	47	36	30	27
4321065	6510432	35	27	16	8	5	46	38	4321065	4015623	33	22	16	13	7	45	39
6543210	1043265	44	36	33	25	17	14	6	6543210	5623401	48	42	31	25	19	8	2
1065432	4326510	12	4	45	42	34	23	15	1065432	3401562	11	5	43	37	34	28	17
3210654	2651043	24	21	13	2	43	40	32	3210654	1562340	23	20	14	3	46	40	29
5432106	5104326	41	30	22	19	11	3	49	5432106	2340156	38	32	26	15	9	6	49
1/H1	12/L4							27/	1/H1	14/L3							33/
0654321	0361425	1	46	42	30	26	17	13	0654321	0432615	1	47	39	31	28	16	13
2106543	4250361	19	10	6	43	39	35	23	2106543	3261504	18	10	7	44	41	29	26
4321065	3614250	32	28	16	12	3	48	36	4321065	6150432	35	23	20	8	5	46	38
6543210	2503614	45	41	29	25	21	9	5	6543210	5043261	48	36	33	25	17	14	2
1065432	6142503	14	2	47	38	34	22	18	1065432	4326150	12	4	45	42	30	27	15
3210654	5036142	27	15	11	7	44	40	31	3210654	2615043	24	21	9	6	43	40	32
5432106	1425036	37	33	24	20	8	4	49	5432106	1504326	37	34	22	19	11	3	49

[Group 2]

2/H3	1/L1							4/	2/H3	3/L2							6/
0531642	0654321	1	42	27	12	46	31	16	0531642	0246135	1	38	26	14	44	32	20
3164205	2106543	24	9	43	35	20	5	39	3164205	6135024	28	9	46	34	15	3	40
6420531	4321065	47	32	17	2	36	28	13	6420531	5024613	48	29	17	5	42	23	11
2053164	6543210	21	6	40	25	10	44	29	2053164	4613502	19	7	37	25	13	43	31
5316420	1065432	37	22	14	48	33	18	3	5316420	3502461	39	27	8	45	33	21	2
1642053	3210654	11	45	30	15	7	41	26	1642053	2461350	10	47	35	16	4	41	22
4205316	5432106	34	19	4	38	23	8	49	4205316	1350246	30	18	6	36	24	12	49
2/H3	4/L4							5/	2/H3	5/L1							10/
0531642	0362514	1	39	28	10	48	30	19	0531642	0652341	1	42	27	10	46	33	16
3164205	5140362	27	9	47	29	18	7	38	3164205	4106523	26	9	43	35	20	3	39
6420531	3625140	46	35	17	6	37	26	8	6420531	2341065	45	32	19	2	36	28	13
2053164	1403625	16	5	36	25	14	45	34	2053164	6523410	21	6	38	25	12	44	29
5316420	6251403	42	24	13	44	33	15	4	5316420	1065234	37	22	14	48	31	18	5
1642053	4036251	12	43	32	21	3	41	23	1642053	3410652	11	47	30	15	7	41	24
4205316	2514036	31	20	2	40	22	11	49	4205316	5234106	34	17	4	40	23	8	49
2/H3	7/L2							12/	2/H3	8/L4							11/
0531642	0426135	1	40	24	14	44	32	20	0531642	0364512	1	39	28	12	48	30	17
3164205	6135042	28	9	46	34	15	5	38	3164205	5120364	27	9	45	29	18	7	40
6420531	5042613	48	29	19	3	42	23	11	6420531	3645120	46	35	19	6	37	24	8
2053164	2613504	17	7	37	25	13	43	33	2053164	1203645	16	3	36	25	14	47	34
5316420	3504261	39	27	8	47	31	21	2	5316420	6451203	42	26	13	44	31	15	4
1642053	4261350	12	45	35	16	4	41	22	1642053	2036451	10	43	32	21	5	41	23
4205316	1350426	30	18	6	36	26	10	49	4205316	4512036	33	20	2	38	22	11	49
2/H3	9/L1							28/	2/H3	11/L2							29/
0531642	0645312	1	42	26	13	46	30	17	0531642	0156234	1	37	27	14	45	32	19
3164205	1206453	23	10	43	35	19	6	39	3164205	6234015	28	10	46	33	15	2	41
6420531	5312064	48	32	16	3	36	28	12	6420531	4015623	47	29	16	6	42	24	11
2053164	6453120	21	5	41	25	9	45	29	2053164	5623401	20	7	38	25	12	43	30
5316420	2064531	38	22	14	47	34	18	2	5316420	3401562	39	26	8	44	34	21	3
1642053	3120645	11	44	31	15	7	40	27	1642053	1562340	9	48	35	17	4	40	22
4205316	4531206	33	20	4	37	24	8	49	4205316	2340156	31	18	5	36	23	13	49

2/H3	12/L4					30/	2/H3	13/L1					35/				
0531642	0361425	1	39	28	9	47	31	20	0531642	0641352	1	42	26	9	46	34	17
3164205	4250361	26	10	48	29	18	7	37	3164205	5206413	27	10	43	35	19	2	39
6420531	3614250	46	35	16	5	38	27	8	6420531	1352064	44	32	20	3	36	28	12
2053164	2503614	17	6	36	25	14	44	33	2053164	6413520	21	5	37	25	13	45	29
5316420	6142503	42	23	12	45	34	15	4	5316420	2064135	38	22	14	47	30	18	6
1642053	5036142	13	43	32	21	2	40	24	1642053	3520641	11	48	31	15	7	40	23
4205316	1425036	30	19	3	41	22	11	49	4205316	4135206	33	16	4	41	24	8	49

[Group 3]

3/H1	2/L3					13/	3/H1	3/L2					15/				
0652341	0531642	1	48	39	16	28	33	10	0652341	0246135	1	45	40	21	23	32	13
4106523	3164205	32	9	7	47	38	15	27	4106523	6135024	35	9	4	48	36	17	26
2341065	6420531	21	26	31	8	6	46	37	2341065	5024613	20	22	31	12	7	44	39
6523410	2053164	45	36	20	25	30	14	5	6523410	4613502	47	42	16	25	34	8	3
1065234	5316420	13	4	44	42	19	24	29	1065234	3502461	11	6	43	38	19	28	30
3410652	1642053	23	35	12	3	43	41	18	3410652	2461350	24	33	14	2	46	41	15
5234106	4205316	40	17	22	34	11	2	49	5234106	1350246	37	18	27	29	10	5	49

3/H1	4/L4					14/	3/H1	6/L3					20/				
0652341	0362514	1	46	42	17	27	30	12	0652341	0531624	1	48	39	16	28	31	12
4106523	5140362	34	9	5	43	39	21	24	4106523	3162405	32	9	7	45	40	15	27
2341065	3625140	18	28	31	13	2	47	36	2341065	6240531	21	24	33	8	6	46	37
6523410	1403625	44	40	15	25	35	10	6	6523410	4053162	47	36	20	25	30	14	3
1065234	6251403	14	3	48	37	19	22	32	1065234	5316240	13	4	44	42	17	26	29
3410652	4036251	26	29	11	7	45	41	16	3410652	1624053	23	35	10	5	43	41	18
5234106	2514036	38	20	23	33	8	4	49	5234106	2405316	38	19	22	34	11	2	49

3/H1	7/L2					21/	3/H1	8/L4					19/				
0652341	0426135	1	47	38	21	23	32	13	0652341	0364512	1	46	42	19	27	30	10
4106523	6135042	35	9	4	48	36	19	24	4106523	5120364	34	9	3	43	39	21	26
2341065	5042613	20	22	33	10	7	44	39	2341065	3645120	18	28	33	13	2	45	36
6523410	2613504	45	42	16	25	34	8	5	6523410	1203645	44	38	15	25	35	12	6
1065234	3504261	11	6	43	40	17	28	30	1065234	6451203	14	5	48	37	17	22	32
3410652	4261350	26	31	14	2	46	41	15	3410652	2036451	24	29	11	7	47	41	16
5234106	1350426	37	18	27	29	12	3	49	5234106	4512036	40	20	23	31	8	4	49

3/H1	10/L3					37/	3/H1	11/L2					38/				
0652341	0432651	1	47	39	17	28	34	9	0652341	0156234	1	44	41	21	24	32	12
4106523	3265104	32	10	7	48	37	15	26	4106523	6234015	35	10	4	47	36	16	27
2341065	6510432	21	27	30	8	5	46	38	2341065	4015623	19	22	30	13	7	45	39
6523410	1043265	44	36	19	25	31	14	6	6523410	5623401	48	42	17	25	33	8	2
1065234	4326510	12	4	45	42	20	23	29	1065234	3401562	11	5	43	37	20	28	31
3410652	2651043	24	35	13	2	43	40	18	3410652	1562340	23	34	14	3	46	40	15
5234106	5104326	41	16	22	33	11	3	49	5234106	2340156	38	18	26	29	9	6	49

3/H1	12/L4					39/	3/H1	14/L3					45/				
0652341	0361425	1	46	42	16	26	31	13	0652341	0432615	1	47	39	17	28	30	13
4106523	4250361	33	10	6	43	39	21	23	4106523	3261504	32	10	7	44	41	15	26
2341065	3614250	18	28	30	12	3	48	36	2341065	6150432	21	23	34	8	5	46	38
6523410	2503614	45	41	15	25	35	9	5	6523410	5043261	48	36	19	25	31	14	2
1065234	6142503	14	2	47	38	20	22	32	1065234	4326150	12	4	45	42	16	27	29
3410652	5036142	27	29	11	7	44	40	17	3410652	2615043	24	35	9	6	43	40	18
5234106	1425036	37	19	24	34	8	4	49	5234106	1504326	37	20	22	33	11	3	49

[Group 4]

4/H3	1/L1					16/	4/H3	3/L2					18/				
0531624	0654321	1	42	27	12	46	17	30	0531624	0246135	1	38	26	14	44	18	34
3162405	2106543	24	9	43	21	34	5	39	3162405	6135024	28	9	46	20	29	3	40
6240531	4321065	47	18	31	2	36	28	13	6240531	5024613	48	15	31	5	42	23	11
4053162	6543210	35	6	40	25	10	44	15	4053162	4613502	33	7	37	25	13	43	17
5316240	1065432	37	22	14	48	19	32	3	5316240	3502461	39	27	8	45	19	35	2
1624053	3210654	11	45	16	29	7	41	26	1624053	2461350	10	47	21	30	4	41	22
2405316	5432106	20	33	4	38	23	8	49	2405316	1350246	16	32	6	36	24	12	49

4/H3	4/L4							17/	4/H3	5/L1							22/
0531624	0362514	1	39	28	10	48	16	33	0531624	0652341	1	42	27	10	46	19	30
3162405	5140362	27	9	47	15	32	7	38	3162405	4106523	26	9	43	21	34	3	39
6240531	3625140	46	21	31	6	37	26	8	6240531	2341065	45	18	33	2	36	28	13
4053162	1403625	30	5	36	25	14	45	20	4053162	6523410	35	6	38	25	12	44	15
5316240	6251403	42	24	13	44	19	29	4	5316240	1065234	37	22	14	48	17	32	5
1624053	4036251	12	43	18	35	3	41	23	1624053	3410652	11	47	16	29	7	41	24
2405316	2514036	17	34	2	40	22	11	49	2405316	5234106	20	31	4	40	23	8	49

[Group 5]

4/H3	7/L2							24/	4/H3	8/L4							23/
0531624	0426135	1	40	24	14	44	18	34	0531624	0364512	1	39	28	12	48	16	31
3162405	6135042	28	9	46	20	29	5	38	3162405	5120364	27	9	45	15	32	7	40
6240531	5042613	48	15	33	3	42	23	11	6240531	3645120	46	21	33	6	37	24	8
4053162	2613504	31	7	37	25	13	43	19	4053162	1203645	30	3	36	25	14	47	20
5316240	3504261	39	27	8	47	17	35	2	5316240	6451203	42	26	13	44	17	29	4
1624053	4261350	12	45	21	30	4	41	22	1624053	2036451	10	43	18	35	5	41	23
2405316	1350426	16	32	6	36	26	10	49	2405316	4512036	19	34	2	38	22	11	49

[Group 6]

5/H1	2/L3							100/	5/H1	3/L2							102/
0645312	0531642	1	48	32	37	28	12	17	0645312	0246135	1	45	33	42	23	11	20
1206453	3164205	11	16	7	47	31	36	27	1206453	6135024	14	16	4	48	29	38	26
5312064	6420531	42	26	10	15	6	46	30	5312064	5024613	41	22	10	19	7	44	32
6453120	2053164	45	29	41	25	9	21	5	6453120	4613502	47	35	37	25	13	15	3
2064531	5316420	20	4	44	35	40	24	8	2064531	3502461	18	6	43	31	40	28	9
3120645	1642053	23	14	19	3	43	34	39	3120645	2461350	24	12	21	2	46	34	36
4531206	4205316	33	38	22	13	18	2	49	4531206	1350246	30	39	27	8	17	5	49

[Group 7]

5/H1	4/L4							101/	5/H1	6/L3							107/
0645312	0362514	1	46	35	38	27	9	19	0645312	0531624	1	48	32	37	28	10	19
1206453	5140362	13	16	5	43	32	42	24	1206453	3162405	11	16	7	45	33	36	27
5312064	3625140	39	28	10	20	2	47	29	5312064	6240531	42	24	12	15	6	46	30
6453120	1403625	44	33	36	25	14	17	6	6453120	4053162	47	29	41	25	9	21	3
2064531	6251403	21	3	48	30	40	22	11	2064531	5316240	20	4	44	35	38	26	8
3120645	4036251	26	8	18	7	45	34	37	3120645	1624053	23	14	17	5	43	34	39
4531206	2514036	31	41	23	12	15	4	49	4531206	2405316	31	40	22	13	18	2	49

[Group 7]

6/H3	1/L1							97/	6/H3	3/L2							99/
0432651	0654321	1	35	27	19	46	38	9	0432651	0246135	1	31	26	21	44	39	13
3265104	2106543	24	16	43	42	13	5	32	3265104	6135024	28	16	46	41	8	3	33
6510432	4321065	47	39	10	2	29	28	20	6510432	5024613	48	36	10	5	35	23	18
1043265	6543210	14	6	33	25	17	44	36	1043265	4613502	12	7	30	25	20	43	38
4326510	1065432	30	22	21	48	40	11	3	4326510	3502461	32	27	15	45	40	14	2
2651043	3210654	18	45	37	8	7	34	26	2651043	2461350	17	47	42	9	4	34	22
5104326	5432106	41	12	4	31	23	15	49	5104326	1350246	37	11	6	29	24	19	49

[Group 7]

6/H3	4/L4							98/	6/H3	5/L1							103/
0432651	0362514	1	32	28	17	48	37	12	0432651	0652341	1	35	27	17	46	40	9
3265104	5140362	27	16	47	36	11	7	31	3265104	4106523	26	16	43	42	13	3	32
6510432	3625140	46	42	10	6	30	26	15	6510432	2341065	45	39	12	2	29	28	20
1043265	1403625	9	5	29	25	21	45	41	1043265	6523410	14	6	31	25	19	44	36
4326510	6251403	35	24	20	44	40	8	4	4326510	1065234	30	22	21	48	38	11	5
2651043	4036251	19	43	39	14	3	34	23	2651043	3410652	18	47	37	8	7	34	24
5104326	2514036	38	13	2	33	22	18	49	5104326	5234106	41	10	4	33	23	15	49

7/H1	4/L4						110/	7/H1	6/L3						116/		
0641352	0362514	1	46	35	10	27	37	19	0641352	0531624	1	48	32	9	28	38	19
5206413	5140362	41	16	5	43	32	14	24	5206413	3162405	39	16	7	45	33	8	27
1352064	3625140	11	28	38	20	2	47	29	1352064	6240531	14	24	40	15	6	46	30
6413520	1403625	44	33	8	25	42	17	6	6413520	4053162	47	29	13	25	37	21	3
2064135	6251403	21	3	48	30	12	22	39	2064135	5316240	20	4	44	35	10	26	36
3520641	4036251	26	36	18	7	45	34	9	3520641	1624053	23	42	17	5	43	34	11
4135206	2514036	31	13	23	40	15	4	49	4135206	2405316	31	12	22	41	18	2	49

[Group 8]

8/H3	1/L1						112/	8/H3	3/L2						114/		
0432615	0654321	1	35	27	19	46	10	37	0432615	0246135	1	31	26	21	44	11	41
3261504	2106543	24	16	43	14	41	5	32	3261504	6135024	28	16	46	13	36	3	33
6150432	4321065	47	11	38	2	29	28	20	6150432	5024613	48	8	38	5	35	23	18
5043261	6543210	42	6	33	25	17	44	8	5043261	4613502	40	7	30	25	20	43	10
4326150	1065432	30	22	21	48	12	39	3	4326150	3502461	32	27	15	45	12	42	2
2615043	3210654	18	45	9	36	7	34	26	2615043	2461350	17	47	14	37	4	34	22
1504326	5432106	13	40	4	31	23	15	49	1504326	1350246	9	39	6	29	24	19	49

8/H3	4/L4						113/	8/H3	5/L1						118/		
0432615	0362514	1	32	28	17	48	9	40	0432615	0652341	1	35	27	17	46	12	37
3261504	5140362	27	16	47	8	39	7	31	3261504	4106523	26	16	43	14	41	3	32
6150432	3625140	46	14	38	6	30	26	15	6150432	2341065	45	11	40	2	29	28	20
5043261	1403625	37	5	29	25	21	45	13	5043261	6523410	42	6	31	25	19	44	8
4326150	6251403	35	24	20	44	12	36	4	4326150	1065234	30	22	21	48	10	39	5
2615043	4036251	19	43	11	42	3	34	23	2615043	3410652	18	47	9	36	7	34	24
1504326	2514036	10	41	2	33	22	18	49	1504326	5234106	13	38	4	33	23	15	49

[Group 9]

9/H1	2/L3						193/	9/H1	3/L2						195/		
0625314	0531642	1	48	18	37	28	12	31	0625314	0246135	1	45	19	42	23	11	34
1406253	3164205	11	30	7	47	17	36	27	1406253	6135024	14	30	4	48	15	38	26
5314062	6420531	42	26	10	29	6	46	16	5314062	5024613	41	22	10	33	7	44	18
6253140	2053164	45	15	41	25	9	35	5	6253140	4613502	47	21	37	25	13	29	3
4062531	5316420	34	4	44	21	40	24	8	4062531	3502461	32	6	43	17	40	28	9
3140625	1642053	23	14	33	3	43	20	39	3140625	2461350	24	12	35	2	46	20	36
2531406	4205316	19	38	22	13	32	2	49	2531406	1350246	16	39	27	8	31	5	49

9/H1	4/L4						194/	9/H1	6/L3						200/		
0625314	0362514	1	46	21	38	27	9	33	0625314	0531624	1	48	18	37	28	10	33
1406253	5140362	13	30	5	43	18	42	24	1406253	3162405	11	30	7	45	19	36	27
5314062	3625140	39	28	10	34	2	47	15	5314062	6240531	42	24	12	29	6	46	16
6253140	1403625	44	19	36	25	14	31	6	6253140	4053162	47	15	41	25	9	35	3
4062531	6251403	35	3	48	16	40	22	11	4062531	5316240	34	4	44	21	38	26	8
3140625	4036251	26	8	32	7	45	20	37	3140625	1624053	23	14	31	5	43	20	39
2531406	2514036	17	41	23	12	29	4	49	2531406	2405316	17	40	22	13	32	2	49

[Group10]

10/H4	1/L1						196/	10/H4	2/L3						197/		
0361245	0654321	1	28	48	12	18	31	37	0361245	0531642	1	27	46	9	21	33	38
2450361	2106543	17	30	36	7	27	47	11	2450361	3164205	18	30	42	5	24	43	13
3612450	4321065	26	46	10	16	29	42	6	3612450	6420531	28	47	10	15	34	39	2
4503612	6543210	35	41	5	25	45	9	15	4503612	2053164	31	36	6	25	44	14	19
6124503	1065432	44	8	21	34	40	4	24	6124503	5316420	48	11	16	35	40	3	22
5036124	3210654	39	3	23	43	14	20	33	5036124	1642053	37	7	26	45	8	20	32
1245036	5432106	13	19	32	38	2	22	49	1245036	4205316	12	17	29	41	4	23	49

10/H4	3/L2						198/	10/H4	5/L1						202/		
0361245	0246135	1	24	47	14	16	32	41	0361245	0652341	1	28	48	10	18	33	37
2450361	6135024	21	30	39	6	22	45	12	2450361	4106523	19	30	36	7	27	45	11
3612450	5024613	27	43	10	19	35	37	4	3612450	2341065	24	46	12	16	29	42	6
4503612	4613502	33	42	2	25	48	8	17	4503612	6523410	35	41	3	25	47	9	15
6124503	3502461	46	13	15	31	40	7	23	6124503	1065234	44	8	21	34	38	4	26
5036124	2461350	38	5	28	44	11	20	29	5036124	3410652	39	5	23	43	14	20	31
1245036	1350246	9	18	34	36	3	26	49	1245036	5234106	13	17	32	40	2	22	49

[Group11]

11/H1	2/L3							208/	11/H1	3/L2							210/
0621354	0531642	1	48	18	9	28	40	31	0621354	0246135	1	45	19	14	23	39	34
5406213	3164205	39	30	7	47	17	8	27	5406213	6135024	42	30	4	48	15	10	26
1354062	6420531	14	26	38	29	6	46	16	1354062	5024613	13	22	38	33	7	44	18
6213540	2053164	45	15	13	25	37	35	5	6213540	4613502	47	21	9	25	41	29	3
4062135	5316420	34	4	44	21	12	24	36	4062135	3502461	32	6	43	17	12	28	37
3540621	1642053	23	42	33	3	43	20	11	3540621	2461350	24	40	35	2	46	20	8
2135406	4205316	19	10	22	41	32	2	49	2135406	1350246	16	11	27	36	31	5	49

[Group12]

12/H4	1/L1							205/	12/H4	2/L3							206/
0365241	0654321	1	28	48	40	18	31	9	0365241	0531642	1	27	46	37	21	33	10
2410365	2106543	17	30	8	7	27	47	39	2410365	3164205	18	30	14	5	24	43	41
3652410	4321065	26	46	38	16	29	14	6	3652410	6420531	28	47	38	15	34	11	2
4103652	6543210	35	13	5	25	45	37	15	4103652	2053164	31	8	6	25	44	42	19
6524103	1065432	44	36	21	34	12	4	24	6524103	5316420	48	39	16	35	12	3	22
1036524	3210654	11	3	23	43	42	20	33	1036524	1642053	9	7	26	45	36	20	32
5241036	5432106	41	19	32	10	2	22	49	5241036	4205316	40	17	29	13	4	23	49

[Group13]

13/H1	2/L3							292/	13/H1	3/L2							294/
0614325	0531642	1	48	11	30	28	19	38	0614325	0246135	1	45	12	35	23	18	41
2506143	3164205	18	37	7	47	10	29	27	2506143	6135024	21	37	4	48	8	31	26
4325061	6420531	35	26	17	36	6	46	9	4325061	5024613	34	22	17	40	7	44	11
6143250	2053164	45	8	34	25	16	42	5	6143250	4613502	47	14	30	25	20	36	3
5061432	5316420	41	4	44	14	33	24	15	5061432	3502461	39	6	43	10	33	28	16
3250614	1642053	23	21	40	3	43	13	32	3250614	2461350	24	19	42	2	46	13	29
1432506	4205316	12	31	22	20	39	2	49	1432506	1350246	9	32	27	15	38	5	49

[Group14]

14/H4	1/L1							289/	14/H4	2/L3							290/
0362154	0654321	1	28	48	19	11	38	30	0362154	0531642	1	27	46	16	14	40	31
1540362	2106543	10	37	29	7	27	47	18	1540362	3164205	11	37	35	5	24	43	20
3621540	4321065	26	46	17	9	36	35	6	3621540	6420531	28	47	17	8	41	32	2
5403621	6543210	42	34	5	25	45	16	8	5403621	2053164	38	29	6	25	44	21	12
6215403	1065432	44	15	14	41	33	4	24	6215403	5316420	48	18	9	42	33	3	22
4036215	3210654	32	3	23	43	21	13	40	4036215	1642053	30	7	26	45	15	13	39
2154036	5432106	20	12	39	31	2	22	49	2154036	4205316	19	10	36	34	4	23	49

[Group15]

15/H1	2/L3							304/	15/H1	3/L2							306/
0612345	0531642	1	48	11	16	28	33	38	0612345	0246135	1	45	12	21	23	32	41
4506123	3164205	32	37	7	47	10	15	27	4506123	6135024	35	37	4	48	8	17	26
2345061	6420531	21	26	31	36	6	46	9	2345061	5024613	20	22	31	40	7	44	11
6123450	2053164	45	8	20	25	30	42	5	6123450	4613502	47	14	16	25	34	36	3
5061234	5316420	41	4	44	14	19	24	29	5061234	3502461	39	6	43	10	19	28	30
3450612	1642053	23	35	40	3	43	13	18	3450612	2461350	24	33	42	2	46	13	15
1234506	4205316	12	17	22	34	39	2	49	1234506	1350246	9	18	27	29	38	5	49

[Group16]

16/H4	1/L1							301/	16/H4	2/L3							302/
0364152	0654321	1	28	48	33	11	38	16	0364152	0531642	1	27	46	30	14	40	17
1520364	2106543	10	37	15	7	27	47	32	1520364	3164205	11	37	21	5	24	43	34
3641520	4321065	26	46	31	9	36	21	6	3641520	6420531	28	47	31	8	41	18	2
5203641	6543210	42	20	5	25	45	30	8	5203641	2053164	38	15	6	25	44	35	12
6415203	1065432	44	29	14	41	19	4	24	6415203	5316420	48	32	9	42	19	3	22
2036415	3210654	18	3	23	43	35	13	40	2036415	1642053	16	7	26	45	29	13	39
4152036	5432106	34	12	39	17	2	22	49	4152036	4205316	33	10	36	20	4	23	49

[Group17]

17/H3	1/L1	2305/						17/H3	3/L2	2307/							
1630542	0654321	8	49	27	5	39	31	16	1630542	0246135	8	45	26	7	37	32	20
3054216	2106543	24	2	36	35	20	12	46	3054216	6135024	28	2	39	34	15	10	47
5421630	4321065	40	32	17	9	43	28	6	5421630	5024613	41	29	17	12	49	23	4
2163054	6543210	21	13	47	25	3	37	29	2163054	4613502	19	14	44	25	6	36	31
6305421	1065432	44	22	7	41	33	18	10	6305421	3502461	46	27	1	38	33	21	9
0542163	3210654	4	38	30	15	14	48	26	0542163	2461350	3	40	35	16	11	48	22
4216305	5432106	34	19	11	45	23	1	42	4216305	1350246	30	18	13	43	24	5	42

[Group18]

18/H3	1/L1	2311/						18/H3	3/L2	2313/							
1630524	0654321	8	49	27	5	39	17	30	1630524	0246135	8	45	26	7	37	18	34
3052416	2106543	24	2	36	21	34	12	46	3052416	6135024	28	2	39	20	29	10	47
5241630	4321065	40	18	31	9	43	28	6	5241630	5024613	41	15	31	12	49	23	4
4163052	6543210	35	13	47	25	3	37	15	4163052	4613502	33	14	44	25	6	36	17
6305241	1065432	44	22	7	41	19	32	10	6305241	3502461	46	27	1	38	19	35	9
0524163	3210654	4	38	16	29	14	48	26	0524163	2461350	3	40	21	30	11	48	22
2416305	5432106	20	33	11	45	23	1	42	2416305	1350246	16	32	13	43	24	5	42

[Group19]

19/H1	2/L3	2353/						19/H1	3/L2	2355/							
1546302	0531642	8	41	32	44	28	5	17	1546302	0246135	8	38	33	49	23	4	20
0215463	3164205	4	16	14	40	31	43	27	0215463	6135024	7	16	11	41	29	45	26
6302154	6420531	49	26	3	15	13	39	30	6302154	5024613	48	22	3	19	14	37	32
5463021	2053164	38	29	48	25	2	21	12	5463021	4613502	40	35	44	25	6	15	10
2154630	5316420	20	11	37	35	47	24	1	2154630	3502461	18	13	36	31	47	28	2
3021546	1642053	23	7	19	10	36	34	46	3021546	2461350	24	5	21	9	39	34	43
4630215	4205316	33	45	22	6	18	9	42	4630215	1350246	30	46	27	1	17	12	42

[Group20]

20/H2	1/L1	2359/						20/H2	2/L3	2360/							
1605234	0654321	8	49	6	40	18	24	30	1605234	0531642	8	48	4	37	21	26	31
5234160	2106543	38	16	22	35	13	47	4	5234160	3164205	39	16	28	33	10	43	6
4160523	4321065	33	11	45	2	36	21	27	4160523	6420531	35	12	45	1	41	18	23
0523416	6543210	7	41	19	25	31	9	43	0523416	2053164	3	36	20	25	30	14	47
3416052	1065432	23	29	14	48	5	39	17	3416052	5316420	27	32	9	49	5	38	15
6052341	3210654	46	3	37	15	28	34	12	6052341	1642053	44	7	40	17	22	34	11
2341605	5432106	20	26	32	10	44	1	42	2341605	4205316	19	24	29	13	46	2	42

[Group21]

21/H1	2/L3	2401/						21/H1	3/L2	2403/							
1526304	0531642	8	41	18	44	28	5	31	1526304	0246135	8	38	19	49	23	4	34
0415263	3164205	4	30	14	40	17	43	27	0415263	6135024	7	30	11	41	15	45	26
6304152	6420531	49	26	3	29	13	39	16	6304152	5024613	48	22	3	33	14	37	18
5263041	2053164	38	15	48	25	2	35	12	5263041	4613502	40	21	44	25	6	29	10
4152630	5316420	34	11	37	21	47	24	1	4152630	3502461	32	13	36	17	47	28	2
3041526	1642053	23	7	33	10	36	20	46	3041526	2461350	24	5	35	9	39	20	43
2630415	4205316	19	45	22	6	32	9	42	2630415	1350246	16	46	27	1	31	12	42

[Group22]

22/H2	1/L1	2407/						22/H2	2/L3	2408/							
1605432	0654321	8	49	6	40	32	24	16	1605432	0531642	8	48	4	37	35	26	17
5432160	2106543	38	30	22	21	13	47	4	5432160	3164205	39	30	28	19	10	43	6
2160543	4321065	19	11	45	2	36	35	27	2160543	6420531	21	12	45	1	41	32	23
0543216	6543210	7	41	33	25	17	9	43	0543216	2053164	3	36	34	25	16	14	47
3216054	1065432	23	15	14	48	5	39	31	3216054	5316420	27	18	9	49	5	38	29
6054321	3210654	46	3	37	29	28	20	12	6054321	1642053	44	7	40	31	22	20	11
4321605	5432106	34	26	18	10	44	1	42	4321605	4205316	33	24	15	13	46	2	42

22/H2	4/L4		2409/	22/H2	5/L1		2410/
1605432	0362514	8 46 7 38 34	23 19	1605432	0652341	8 49 6 38 32	26 16
5432160	5140362	41 30 26 15 11	49 3	5432160	4106523	40 30 22 21 13	45 4
2160543	3625140	18 14 45 6 37	33 22	2160543	2341065	17 11 47 2 36	35 27
0543216	1403625	2 40 29 25 21	10 48	0543216	6523410	7 41 31 25 19	9 43
3216054	6251403	28 17 13 44 5	36 32	3216054	1065234	23 15 14 48 3	39 33
6054321	4036251	47 1 39 35 24	20 9	6054321	3410652	46 5 37 29 28	20 10
4321605	2514036	31 27 16 12 43	4 42	4321605	5234106	34 24 18 12 44	1 42

[Group23]

23/H4	1/L1		2449/	23/H4	2/L3		2450/
1352064	0654321	8 28 41 19 4	45 30	1352064	0531642	8 27 39 16 7	47 31
0641352	2106543	3 44 29 14 27	40 18	0641352	3164205	4 44 35 12 24	36 20
3520641	4321065	26 39 17 2 43	35 13	3520641	6420531	28 40 17 1 48	32 9
6413520	6543210	49 34 12 25 38	16 1	6413520	2053164	45 29 13 25 37	21 5
5206413	1065432	37 15 7 48 33	11 24	5206413	5316420	41 18 2 49 33	10 22
4135206	3210654	32 10 23 36 21	6 47	4135206	1642053	30 14 26 38 15	6 46
2064135	5432106	20 5 46 31 9	22 42	2064135	4205316	19 3 43 34 11	23 42

23/H4	3/L2		2451/	23/H4	5/L1		2452/
1352064	0246135	8 24 40 21 2	46 34	1352064	0652341	8 28 41 17 4	47 30
0641352	6135024	7 44 32 13 22	38 19	0641352	4106523	5 44 29 14 27	38 18
3520641	5024613	27 36 17 5 49	30 11	3520641	2341065	24 39 19 2 43	35 13
6413520	4613502	47 35 9 25 41	15 3	6413520	6523410	49 34 10 25 40	16 1
5206413	3502461	39 20 1 45 33	14 23	5206413	1065234	37 15 7 48 31	11 26
4135206	2461350	31 12 28 37 18	6 43	4135206	3410652	32 12 23 36 21	6 45
2064135	1350246	16 4 48 29 10	26 42	2064135	5234106	20 3 46 33 9	22 42

[Group24]

24/H4	1/L1		2455/	24/H4	2/L3		2456/
1354062	0654321	8 28 41 33 4	45 16	1354062	0531642	8 27 39 30 7	47 17
0621354	2106543	3 44 15 14 27	40 32	0621354	3164205	4 44 21 12 24	36 34
3540621	4321065	26 39 31 2 43	21 13	3540621	6420531	28 40 31 1 48	18 9
6213540	6543210	49 20 12 25 38	30 1	6213540	2053164	45 15 13 25 37	35 5
5406213	1065432	37 29 7 48 19	11 24	5406213	5316420	41 32 2 49 19	10 22
2135406	3210654	18 10 23 36 35	6 47	2135406	1642053	16 14 26 38 29	6 46
4062135	5432106	34 5 46 17 9	22 42	4062135	4205316	33 3 43 20 11	23 42

24/H4	3/L2		2457/	24/H4	5/L1		2458/
1354062	0246135	8 24 40 35 2	46 20	1354062	0652341	8 28 41 31 4	47 16
0621354	6135024	7 44 18 13 22	38 33	0621354	4106523	5 44 15 14 27	38 32
3540621	5024613	27 36 31 5 49	16 11	3540621	2341065	24 39 33 2 43	21 13
6213540	4613502	47 21 9 25 41	29 3	6213540	6523410	49 20 10 25 40	30 1
5406213	3502461	39 34 1 45 19	14 23	5406213	1065234	37 29 7 48 17	11 26
2135406	2461350	17 12 28 37 32	6 43	2135406	3410652	18 12 23 36 35	6 45
4062135	1350246	30 4 48 15 10	26 42	4062135	5234106	34 3 46 19 9	22 42

24/H4	6/L3		2459/	24/H4	7/L2		2460/
1354062	0531624	8 27 39 30 7	45 19	1354062	0426135	8 26 38 35 2	46 20
0621354	3162405	4 44 21 10 26	36 34	0621354	6135042	7 44 18 13 22	40 31
3540621	6240531	28 38 33 1 48	18 9	3540621	5042613	27 36 33 3 49	16 11
6213540	4053162	47 15 13 25 37	35 3	6213540	2613504	45 21 9 25 41	29 5
5406213	5316240	41 32 2 49 17	12 22	5406213	3504261	39 34 1 47 17	14 23
2135406	1624053	16 14 24 40 29	6 46	2135406	4261350	19 10 28 37 32	6 43
4062135	2405316	31 5 43 20 11	23 42	4062135	1350426	30 4 48 15 12	24 42

24/H4	9/L1		2468/	24/H4	10/L3		2467/
1354062	0645312	8 28 40 34 4	44 17	1354062	0432651	8 26 39 31 7	48 16
0621354	1206453	2 45 15 14 26	41 32	0621354	3265104	4 45 21 13 23	36 33
3540621	5312064	27 39 30 3 43	21 12	3540621	6510432	28 41 30 1 47	18 10
6213540	6453120	49 19 13 25 37	31 1	6213540	1043265	44 15 12 25 38	35 6
5406213	2064531	38 29 7 47 20	11 23	5406213	4326510	40 32 3 49 20	9 22
2135406	3120645	18 9 24 36 35	5 48	2135406	2651043	17 14 27 37 29	5 46
4062135	4531206	33 6 46 16 10	22 42	4062135	5104326	34 2 43 19 11	24 42





It makes me happy. I am also satisfied with the performance of this method. It runs extremely fast. I say, the fastest speed I have ever known.

## 7. Composition of Pan-diagonal C.E.S. of Order 7 by the Same Method

Let' compose C.E.S. of order 7 for pan-diagonal type next by the same method.

- [1] Any diagonal should be made of {0,1,2,3,4,5 and 6} using each one strictly once.  
There should be 5040 patterns without any conditions.  
 $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$
- [2] But we have to test those diagonals by the inequality condition:  $n1 < n49$  for high layers, and make high layers themselves from the first 2520 diagonals by the 4 types of Knight's Tour Composition.  
For low layers we can compose 20160 (= 5040 x 4) units by the same method.
- [3] Examine the results of high layers by the other inequality conditions:  $n1 < n7$ ,  $n1 < n43$ , and  $n2 > n8$ , and we will have the 2520 appropriate high layers:  
The low layers can pass to the next step as they are.
- [4] Pick up each of high layers and of low and combine one with another to compose every object solution by the next equation:  
 $nC = nH \times 7 + nL(+ 1)$   
You can get 50803200 (= 2520 x 20160) solutions.
- [5] At the final stage, before listing out all the results, put the examination to every result by the Definition (3) of C.E.S. to eliminate the wrong answers.  
Count and print only what could pass the examination. Total count of correct answers should be 38102400. It is equal to the  $(3/4) \times 50803200$ .  
The next long list shows the part of my recent reconstruction.

### [Layer Units for High Position]

1/H1	2/H3	3/H1	4/H3	5/H1	6/H3	7/H1	8/H3	9/H1	10/H3
0654321	0531642	0653421	0541632	0654231	0521643	0652431	0541623	0653241	0521634
2106543	3164205	2106534	4163205	3106542	2164305	3106524	4162305	4106532	2163405
4321065	6420531	3421065	6320541	4231065	6430521	2431065	6230541	3241065	6340521
6543210	2053164	6534210	2054163	6542310	3052164	6524310	3054162	6532410	4052163
1065432	5316420	1065342	5416320	1065423	5216430	1065243	5416230	1065324	5216340
3210654	1642053	4210653	1632054	2310654	1643052	4310652	1623054	2410653	1634052
5432106	4205316	5342106	3205416	5423106	4305216	5243106	2305416	5324106	3405216
11/H1	12/H3	13/H1	14/H3	15/H1	16/H4	17/H1	18/H3	19/H1	20/H4
0652341	0531624	0645321	0431652	0643521	0562413	0645231	0421653	0642531	0563412
4106523	3162405	2106453	3165204	2106435	4130562	3106452	2165304	3106425	4120563
2341065	6240531	5321064	6520431	3521064	5624130	5231064	6530421	2531064	5634120
6523410	4053162	6453210	2043165	6435210	1305624	6452310	3042165	6425310	1205634
1065234	5316240	1064532	4316520	1064352	6241305	1064523	4216530	1064253	6341205
3410652	1624053	3210645	1652043	5210643	3056241	2310645	1653042	5310642	2056341
5234106	2405316	4532106	5204316	4352106	2413056	4523106	5304216	4253106	3412056
21/H1	22/H3	23/H1	24/H3	25/H1	26/H4	27/H1	28/H4	29/H1	30/H3
0643251	0421635	0642351	0431625	0635421	0462315	0634521	0562314	0635241	0321654
5106432	2163504	5106423	3162504	2106354	3150462	2106345	3140562	4106352	2165403
3251064	6350421	2351064	6250431	5421063	4623150	4521063	5623140	5241063	6540321
6432510	5042163	6423510	5043162	6354210	1504623	6345210	1405623	6352410	4032165
1064325	4216350	1064235	4316250	1063542	6231504	1063452	6231405	1063524	3216540
2510643	1635042	3510642	1625043	4210635	5046231	5210634	4056231	2410635	1654032
4325106	3504216	4235106	2504316	3542106	2315046	3452106	2314056	3524106	5403216
31/H1	32/H4	33/H1	34/H3	35/H1	36/H4	37/H1	38/H4	39/H1	40/H4
0632541	0564312	0634251	0321645	0632451	0465312	0625431	0463215	0624531	0563214
4106325	3120564	5106342	2164503	5106324	3120465	3106254	2150463	3106245	2140563
2541063	5643120	4251063	6450321	2451063	4653120	5431062	4632150	4531062	5632140
6325410	1205643	6342510	5032164	6324510	1204653	6254310	1504632	6245310	1405632
1063254	6431205	1063425	3216450	1063245	6531204	1062543	6321504	1062453	6321405
5410632	2056431	2510634	1645032	4510632	2046531	4310625	5046321	5310624	4056321
3254106	4312056	3425106	4503216	3245106	5312046	2543106	3215046	2453106	3214056

41/H1	42/H4	43/H1	44/H4	45/H1	46/H4	47/H1	48/H4	49/H1	50/H3
0625341	0364215	0623541	0564213	0624351	0365214	0623451	0465213	0654312	0532641
4106253	2150364	4106235	2130564	5106243	2140365	5106234	2130465	1206543	3264105
5341062	3642150	3541062	5642130	4351062	3652140	3451062	4652130	4312065	6410532
6253410	1503642	6235410	1305642	6243510	1403652	6234510	1304652	6543120	1053264
1062534	6421503	1062354	6421305	1062435	6521403	1062345	6521304	2065431	5326410
3410625	5036421	5410623	3056421	3510624	4036521	4510623	3046521	3120654	2641053
2534106	4215036	2354106	4213056	2435106	5214036	2345106	5213046	5431206	4105326
51/H1	52/H3	53/H1	54/H3	55/H1	56/H3	57/H1	58/H3	59/H1	60/H3
0653412	0542631	0654132	0512643	0651432	0542613	0653142	0512634	0651342	0532614
1206534	4263105	3206541	1264305	3206514	4261305	4206531	1263405	4206513	3261405
3412065	6310542	4132065	6430512	1432065	6130542	3142065	6340512	1342065	6140532
6534120	1054263	6541320	3051264	6514320	3054261	6531420	4051263	6513420	4053261
2065341	5426310	2065413	5126430	2065143	5426130	2065314	5126340	2065134	5326140
4120653	2631054	1320654	2643051	4320651	2613054	1420653	2634051	3420651	2614053
5341206	3105426	5413206	4305126	5143206	1305426	5314206	3405126	5134206	1405326
61/H1	62/H3	63/H1	64/H4	65/H1	66/H3	67/H1	68/H4	69/H1	70/H3
0645312	0432651	0643512	0561423	0645132	0412653	0641532	0563421	0643152	0412635
1206453	3265104	1206435	4230561	3206451	1265304	3206415	4210563	5206431	1263504
5312064	6510432	3512064	5614230	5132064	6530412	1532064	5634210	3152064	6350412
6453120	1043265	6435120	2305614	6451320	3041265	6415320	2105634	6431520	5041263
2064531	4326510	2064351	6142305	2064513	4126530	2064153	6342105	2064315	4126350
3120645	2651043	5120643	3056142	1320645	2653041	5320641	1056342	1520643	2635041
4531206	5104326	4351206	1423056	4513206	5304126	4153206	3421056	4315206	3504126
71/H1	72/H3	73/H1	74/H4	75/H1	76/H4	77/H1	78/H3	79/H1	80/H4
0641352	0432615	0635412	0461325	0634512	0561324	0635142	0312654	0631542	0564321
5206413	3261504	1206354	3250461	1206345	3240561	4206351	1265403	4206315	3210564
1352064	6150432	5412063	4613250	4512063	5613240	5142063	6540312	1542063	5643210
6413520	5043261	6354120	2504613	6345120	2405613	6351420	4031265	6315420	2105643
2064135	4326150	2063541	6132504	2063451	6132405	2063514	3126540	2063154	6432105
3520641	2615043	4120635	5046132	5120634	4056132	1420635	2654031	5420631	1056432
4135206	1504326	3541206	1325046	3451206	1324056	3514206	5403126	3154206	4321056
81/H1	82/H3	83/H1	84/H4	85/H1	86/H4	87/H1	88/H4	89/H1	90/H4
0634152	0312645	0631452	0465321	0615432	0463125	0614532	0563124	0615342	0364125
5206341	1264503	5206314	3210465	3206154	1250463	3206145	1240563	4206153	1250364
4152063	6450312	1452063	4653210	5432061	4631250	4532061	5631240	5342061	3641250
6341520	5031264	6314520	2104653	6154320	2504631	6145320	2405631	6153420	2503641
2063415	3126450	2063145	6532104	2061543	6312504	2061453	6312405	2061534	6412503
1520634	2645031	4520631	1046532	4320615	5046312	5320614	4056312	3420615	5036412
3415206	4503126	3145206	5321046	1543206	3125046	1453206	3124056	1534206	4125036
91/H1	92/H4	93/H1	94/H4	95/H1	96/H4	97/H1	98/H3	99/H1	100/H3
0613542	0564123	0614352	0365124	0613452	0465123	0654213	0523641	0652413	0543621
4206135	1230564	5206143	1240365	5206134	1230465	1306542	2364105	1306524	4362105
3542061	5641230	4352061	3651240	3452061	4651230	4213065	6410523	2413065	6210543
6135420	2305641	6143520	2403651	6134520	2304651	6542130	1052364	6524130	1054362
2061354	6412305	2061435	6512403	2061345	6512304	3065421	5236410	3065241	5436210
5420613	3056412	3520614	4036512	4520613	3046512	2130654	3641052	4130652	3621054
1354206	4123056	1435206	5124036	1345206	5123046	5421306	4105236	5241306	2105436

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[Layer Units for Low Position]

1/L1	2/L3	3/L2	4/L4	5/L1	6/L3	7/L2	8/L4	9/L1	10/L3
0654321	0531642	0246135	0362514	0653421	0541632	0236145	0462513	0654231	0521643
2106543	3164205	6135024	5140362	2106534	4163205	6145023	5130462	3106542	2164305
4321065	6420531	5024613	3625140	3421065	6320541	5023614	4625130	4231065	6430521
6543210	2053164	4613502	1403625	6534210	2054163	3614502	1304625	6542310	3052164
1065432	5316420	3502461	6251403	1065342	5416320	4502361	6251304	1065423	5216430
3210654	1642053	2461350	4036251	4210653	1632054	2361450	3046251	2310654	1643052
5432106	4205316	1350246	2514036	5342106	3205416	1450236	2513046	5423106	4305216

11/L2	12/L4	13/L1	14/L3	15/L2	16/L4	17/L1	18/L3	19/L2	20/L4
0346125	0263514	0652431	0541623	0326145	0463512	0653241	0521634	0436125	0264513
6125034	5140263	3106524	4162305	6145032	5120463	4106532	2163405	6125043	5130264
5034612	2635140	2431065	6230541	5032614	4635120	3241065	6340521	5043612	2645130
4612503	1402635	6524310	3054162	2614503	1204635	6532410	4052163	3612504	1302645
2503461	6351402	1065243	5416230	4503261	6351204	1065324	5216340	2504361	6451302
3461250	4026351	4310652	1623054	3261450	2046351	2410653	1634052	4361250	3026451
1250346	3514026	5243106	2305416	1450326	3512046	5324106	3405216	1250436	4513026
21/L1	22/L3	23/L2	24/L4	25/L1	26/L3	27/L2	28/L4	29/L1	30/L3
0652341	0531624	0426135	0364512	0645321	0431652	0256134	0362415	0643521	0451632
4106523	3162405	6135042	5120364	2106453	3165204	6134025	4150362	2106435	5163204
2341065	6240531	5042613	3645120	5321064	6520431	4025613	3624150	3521064	6320451
6523410	4053162	2613504	1203645	6453210	2043165	5613402	1503624	6435210	2045163
1065234	5316240	3504261	6451203	1064532	4316520	3402561	6241503	1064352	4516320
3410652	1624053	4261350	2036451	3210645	1652043	2561340	5036241	5210643	1632045
5234106	2405316	1350426	4512036	4532106	5204316	1340256	2415036	4352106	3204516
31/L2	32/L4	33/L1	34/L3	35/L2	36/L4	37/L1	38/L3	39/L2	40/L4
0236154	0562413	0645231	0421653	0356124	0263415	0642531	0451623	0326154	0563412
6154023	4130562	3106452	2165304	6124035	4150263	3106425	5162304	6154032	4120563
4023615	5624130	5231064	6530421	4035612	2634150	2531064	6230451	4032615	5634120
3615402	1305624	6452310	3042165	5612403	1502634	6425310	3045162	2615403	1205634
5402361	6241305	1064523	4216530	2403561	6341502	1064253	4516230	5403261	6341205
2361540	3056241	2310645	1653042	3561240	5026341	5310642	1623045	3261540	2056341
1540236	2413056	4523106	5304216	1240356	3415026	4253106	2304516	1540326	3412056
41/L1	42/L3	43/L2	44/L4	45/L1	46/L3	47/L2	48/L4	49/L1	50/L3
0643251	0421635	0536124	0265413	0642351	0431625	0526134	0365412	0635421	0341652
5106432	2163504	6124053	4130265	5106423	3162504	6134052	4120365	2106354	4165203
3251064	6350421	4053612	2654130	2351064	6250431	4052613	3654120	5421063	6520341
6432510	5042163	3612405	1302654	6423510	5043162	2613405	1203654	6354210	2034165
1064325	4216350	2405361	6541302	1064235	4316250	3405261	6541203	1063542	3416520
2510643	1635042	5361240	3026541	3510642	1625043	5261340	2036541	4210635	1652034
4325106	3504216	1240536	5413026	4235106	2504316	1340526	5412036	3542106	5203416
51/L2	52/L4	53/L1	54/L3	55/L2	56/L4	57/L1	58/L3	59/L2	60/L4
0256143	0462315	0634521	0351642	0246153	0562314	0635241	0321654	0456123	0264315
6143025	3150462	2106345	5164203	6153024	3140562	4106352	2165403	6123045	3150264
3025614	4623150	4521063	6420351	3024615	5623140	5241063	6540321	3045612	2643150
5614302	1504623	6345210	2035164	4615302	1405623	6352410	4032165	5612304	1502643
4302561	6231504	1063452	3516420	5302461	6231405	1063524	3216540	2304561	6431502
2561430	5046231	5210634	1642035	2461530	4056231	2410635	1654032	4561230	5026431
1430256	2315046	3452106	4203516	1530246	2314056	3524106	5403216	1230456	4315026
61/L1	62/L3	63/L2	64/L4	65/L1	66/L3	67/L2	68/L4	69/L1	70/L3
0632541	0351624	0426153	0564312	0634251	0321645	0546123	0265314	0632451	0341625
4106325	5162403	6153042	3120564	5106342	2164503	6123054	3140265	5106324	4162503
2541063	6240351	3042615	5643120	4251063	6450321	3054612	2653140	2451063	6250341
6325410	4035162	2615304	1205643	6342510	5032164	4612305	1402653	6324510	5034162
1063254	3516240	5304261	6431205	1063425	3216450	2305461	6531402	1063245	3416250
5410632	1624035	4261530	2056431	2510634	1645032	5461230	4026531	4510632	1625034
3254106	2403516	1530426	4312056	3425106	4503216	1230546	5314026	3245106	2503416
71/L2	72/L4	73/L1	74/L3	75/L2	76/L4	77/L1	78/L3	79/L2	80/L4
0526143	0465312	0625431	0241653	0356142	0463215	0624531	0251643	0346152	0563214
6143052	3120465	3106254	4165302	6142035	2150463	3106245	5164302	6152034	2140563
3052614	4653120	5431062	6530241	2035614	4632150	4531062	6430251	2034615	5632140
2614305	1204653	6254310	3024165	5614203	1504632	6245310	3025164	4615203	1405632
4305261	6531204	1062543	2416530	4203561	6321504	1062453	2516430	5203461	6321405
5261430	2046531	4310625	1653024	3561420	5046321	5310624	1643025	3461520	4056321
1430526	5312046	2543106	5302416	1420356	3215046	2453106	4302516	1520346	3214056
81/L1	82/L3	83/L2	84/L4	85/L1	86/L3	87/L2	88/L4	89/L1	90/L3
0625341	0231654	0456132	0364215	0623541	0251634	0436152	0564213	0624351	0231645
4106253	3165402	6132045	2150364	4106235	5163402	6152043	2130564	5106243	3164502
5341062	6540231	2045613	3642150	3541062	6340251	2043615	5642130	4351062	6450231
6253410	4023165	5613204	1503642	6235410	4025163	3615204	1305642	6243510	5023164
1062534	2316540	3204561	6421503	1062354	2516340	5204361	6421305	1062435	2316450
3410625	1654023	4561320	5036421	5410623	1634025	4361520	3056421	3510624	1645023
2534106	5402316	1320456	4215036	2354106	3402516	1520436	4213056	2435106	4502316

91/L2	92/L4	93/L1	94/L3	95/L2	96/L4	97/L1	98/L3	99/L2	100/L4
0546132	0365214	0623451	0241635	0536142	0465213	0654312	0532641	0146235	0361524
6132054	2140365	5106234	4163502	6142053	2130465	1206543	3264105	6235014	5240361
2054613	3652140	3451062	6350241	2053614	4652130	4312065	6410532	5014623	3615240
4613205	1403652	6234510	5024163	3614205	1304652	6543120	1053264	4623501	2403615
3205461	6521403	1062345	2416350	4205361	6521304	2065431	5326410	3501462	6152403
5461320	4036521	4510623	1635024	5361420	3046521	3120654	2641053	1462350	4036152
1320546	5214036	2345106	3502416	1420536	5213046	5431206	4105326	2350146	1524036

\* Reconstruct the 'Complete Euler Squares' 7x7 for Pan-diagonal Type \*

[Group 1]

1/H1	2/L3					1/		1/H1	3/L2					2/			
0654321	0531642	1	48	39	30	28	19	10	0654321	0246135	1	45	40	35	23	18	13
2106543	3164205	18	9	7	47	38	29	27	2106543	6135024	21	9	4	48	36	31	26
4321065	6420531	35	26	17	8	6	46	37	4321065	5024613	34	22	17	12	7	44	39
6543210	2053164	45	36	34	25	16	14	5	6543210	4613502	47	42	30	25	20	8	3
1065432	5316420	13	4	44	42	33	24	15	1065432	3502461	11	6	43	38	33	28	16
3210654	1642053	23	21	12	3	43	41	32	3210654	2461350	24	19	14	2	46	41	29
5432106	4205316	40	31	22	20	11	2	49	5432106	1350246	37	32	27	15	10	5	49
1/H1	4/L4					3/		1/H1	6/L3					4/			
0654321	0362514	1	46	42	31	27	16	12	0654321	0541632	1	48	40	30	28	18	10
2106543	5140362	20	9	5	43	39	35	24	2106543	4163205	19	9	7	46	38	29	27
4321065	3625140	32	28	17	13	2	47	36	4321065	6320541	35	25	17	8	6	47	37
6543210	1403625	44	40	29	25	21	10	6	6543210	2054163	45	36	34	26	16	14	4
1065432	6251403	14	3	48	37	33	22	18	1065432	5416320	13	5	44	42	32	24	15
3210654	4036251	26	15	11	7	45	41	30	3210654	1632054	23	21	11	3	43	41	33
5432106	2514036	38	34	23	19	8	4	49	5432106	3205416	39	31	22	20	12	2	49
1/H1	7/L2					5/		1/H1	8/L4					6/			
0654321	0236145	1	45	39	35	23	19	13	0654321	0462513	1	47	42	31	27	16	11
2106543	6145023	21	9	5	48	36	31	25	2106543	5130462	20	9	4	43	40	35	24
4321065	5023614	34	22	17	11	7	44	40	4321065	4625130	33	28	17	13	2	46	36
6543210	3614502	46	42	30	26	20	8	3	6543210	1304625	44	39	29	26	21	10	6
1065432	4502361	12	6	43	38	32	28	16	1065432	6251304	14	3	48	37	32	22	19
3210654	2361450	24	18	14	2	47	41	29	3210654	3046251	25	15	12	7	45	41	30
5432106	1450236	37	33	27	15	10	4	49	5432106	2513046	38	34	23	18	8	5	49
1/H1	10/L3					7/		1/H1	11/L2					8/			
0654321	0521643	1	48	38	30	28	19	11	0654321	0346125	1	46	40	35	23	17	13
2106543	2164305	17	9	7	47	39	29	27	2106543	6125034	21	9	3	48	36	32	26
4321065	6430521	35	26	18	8	6	45	37	4321065	5034612	34	22	18	12	7	44	38
6543210	3052164	46	36	34	24	16	14	5	6543210	4612503	47	42	30	24	20	8	4
1065432	5216430	13	3	44	42	33	25	15	1065432	2503461	10	6	43	39	33	28	16
3210654	1643052	23	21	12	4	43	41	31	3210654	3461250	25	19	14	2	45	41	29
5432106	4305216	40	32	22	20	10	2	49	5432106	1250346	37	31	27	15	11	5	49
1/H1	12/L4					9/		1/H1	14/L3					10/			
0654321	0263514	1	45	42	32	27	16	12	0654321	0541623	1	48	40	30	28	17	11
2106543	5140263	20	9	5	43	38	35	25	2106543	4162305	19	9	7	45	39	29	27
4321065	2635140	31	28	18	13	2	47	36	4321065	6230541	35	24	18	8	6	47	37
6543210	1402635	44	40	29	24	21	11	6	6543210	3054162	46	36	34	26	16	14	3
1065432	6351402	14	4	48	37	33	22	17	1065432	5416230	13	5	44	42	31	25	15
3210654	4026351	26	15	10	7	46	41	30	3210654	1623054	23	21	10	4	43	41	33
5432106	3514026	39	34	23	19	8	3	49	5432106	2305416	38	32	22	20	12	2	49

[Group 2]

2/H3	1/L1					15121/		2/H3	3/L2					15122/			
0531642	0654321	1	42	27	12	46	31	16	0531642	0246135	1	38	26	14	44	32	20
3164205	2106543	24	9	43	35	20	5	39	3164205	6135024	28	9	46	34	15	3	40
6420531	4321065	47	32	17	2	36	28	13	6420531	5024613	48	29	17	5	42	23	11
2053164	6543210	21	6	40	25	10	44	29	2053164	4613502	19	7	37	25	13	43	31
5316420	1065432	37	22	14	48	33	18	3	5316420	3502461	39	27	8	45	33	21	2
1642053	3210654	11	45	30	15	7	41	26	1642053	2461350	10	47	35	16	4	41	22
4205316	5432106	34	19	4	38	23	8	49	4205316	1350246	30	18	6	36	24	12	49

2/H3	4/L4		15123/	2/H3	5/L1		15124/
0531642	0362514	1 39 28 10 48 30 19		0531642	0653421	1 42 27 11 47 31 16	
3164205	5140362	27 9 47 29 18 7 38		3164205	2106534	24 9 43 35 20 4 40	
6420531	3625140	46 35 17 6 37 26 8		6420531	3421065	46 33 17 2 36 28 13	
2053164	1403625	16 5 36 25 14 45 34		2053164	6534210	21 6 39 26 10 44 29	
5316420	6251403	42 24 13 44 33 15 4		5316420	1065342	37 22 14 48 32 19 3	
1642053	4036251	12 43 32 21 3 41 23		1642053	4210653	12 45 30 15 7 41 25	
4205316	2514036	31 20 2 40 22 11 49		4205316	5342106	34 18 5 38 23 8 49	

2/H3	7/L2		15125/	2/H3	8/L4		15126/
0531642	0236145	1 38 25 14 44 33 20		0531642	0462513	1 40 28 10 48 30 18	
3164205	6145023	28 9 47 34 15 3 39		3164205	5130462	27 9 46 29 19 7 38	
6420531	5023614	48 29 17 4 42 23 12		6420531	4625130	47 35 17 6 37 25 8	
2053164	3614502	18 7 37 26 13 43 31		2053164	1304625	16 4 36 26 14 45 34	
5316420	4502361	40 27 8 45 32 21 2		5316420	6251304	42 24 13 44 32 15 5	
1642053	2361450	10 46 35 16 5 41 22		1642053	3046251	11 43 33 21 3 41 23	
4205316	1450236	30 19 6 36 24 11 49		4205316	2513046	31 20 2 39 22 12 49	

2/H3	9/L1		15127/	2/H3	11/L2		15128/
0531642	0654231	1 42 27 12 45 32 16		0531642	0346125	1 39 26 14 44 31 20	
3164205	3106542	25 9 43 35 20 5 38		3164205	6125034	28 9 45 34 15 4 40	
6420531	4231065	47 31 18 2 36 28 13		6420531	5034612	48 29 18 5 42 23 10	
2053164	6542310	21 6 40 24 11 44 29		2053164	4612503	19 7 37 24 13 43 32	
5316420	1065423	37 22 14 48 33 17 4		5316420	2503461	38 27 8 46 33 21 2	
1642053	2310654	10 46 30 15 7 41 26		1642053	3461250	11 47 35 16 3 41 22	
4205316	5423106	34 19 3 39 23 8 49		4205316	1250346	30 17 6 36 25 12 49	

2/H3	12/L4		15129/	2/H3	13/L1		15130/
0531642	0263514	1 38 28 11 48 30 19		0531642	0652431	1 42 27 10 47 32 16	
3164205	5140263	27 9 47 29 17 7 39		3164205	3106524	25 9 43 35 20 3 40	
6420531	2635140	45 35 18 6 37 26 8		6420531	2431065	45 33 18 2 36 28 13	
2053164	1402635	16 5 36 24 14 46 34		2053164	6524310	21 6 38 26 11 44 29	
5316420	6351402	42 25 13 44 33 15 3		5316420	1065243	37 22 14 48 31 19 4	
1642053	4026351	12 43 31 21 4 41 23		1642053	4310652	12 46 30 15 7 41 24	
4205316	3514026	32 20 2 40 22 10 49		4205316	5243106	34 17 5 39 23 8 49	

[Group 3]

3/H1	2/L3		30241/	3/H1	3/L2		30242/
0653421	0531642	1 48 39 23 35 19 10		0653421	0246135	1 45 40 28 30 18 13	
2106534	3164205	18 9 7 47 38 22 34		2106534	6135024	21 9 4 48 36 24 33	
3421065	6420531	28 33 17 8 6 46 37		3421065	5024613	27 29 17 12 7 44 39	
6534210	2053164	45 36 27 32 16 14 5		6534210	4613502	47 42 23 32 20 8 3	
1065342	5316420	13 4 44 42 26 31 15		1065342	3502461	11 6 43 38 26 35 16	
4210653	1642053	30 21 12 3 43 41 25		4210653	2461350	31 19 14 2 46 41 22	
5342106	4205316	40 24 29 20 11 2 49		5342106	1350246	37 25 34 15 10 5 49	

3/H1	4/L4		30243/	3/H1	6/L3		30244/
0653421	0362514	1 46 42 24 34 16 12		0653421	0541632	1 48 40 23 35 18 10	
2106534	5140362	20 9 5 43 39 28 31		2106534	4163205	19 9 7 46 38 22 34	
3421065	3625140	25 35 17 13 2 47 36		3421065	6320541	28 32 17 8 6 47 37	
6534210	1403625	44 40 22 32 21 10 6		6534210	2054163	45 36 27 33 16 14 4	
1065342	6251403	14 3 48 37 26 29 18		1065342	5416320	13 5 44 42 25 31 15	
4210653	4036251	33 15 11 7 45 41 23		4210653	1632054	30 21 11 3 43 41 26	
5342106	2514036	38 27 30 19 8 4 49		5342106	3205416	39 24 29 20 12 2 49	

3/H1	7/L2		30245/	3/H1	8/L4		30246/
0653421	0236145	1 45 39 28 30 19 13		0653421	0462513	1 47 42 24 34 16 11	
2106534	6145023	21 9 5 48 36 24 32		2106534	5130462	20 9 4 43 40 28 31	
3421065	5023614	27 29 17 11 7 44 40		3421065	4625130	26 35 17 13 2 46 36	
6534210	3614502	46 42 23 33 20 8 3		6534210	1304625	44 39 22 33 21 10 6	
1065342	4502361	12 6 43 38 25 35 16		1065342	6251304	14 3 48 37 25 29 19	
4210653	2361450	31 18 14 2 47 41 22		4210653	3046251	32 15 12 7 45 41 23	
5342106	1450236	37 26 34 15 10 4 49		5342106	2513046	38 27 30 18 8 5 49	

3/H1	10/L3							30247/	3/H1	11/L2								30248/
0653421	0521643	1	48	38	23	35	19	11	0653421	0346125	1	46	40	28	30	17	13	
2106534	2164305	17	9	7	47	39	22	34	2106534	6125034	21	9	3	48	36	25	33	
3421065	6430521	28	33	18	8	6	45	37	3421065	5034612	27	29	18	12	7	44	38	
6534210	3052164	46	36	27	31	16	14	5	6534210	4612503	47	42	23	31	20	8	4	
1065342	5216430	13	3	44	42	26	32	15	1065342	2503461	10	6	43	39	26	35	16	
4210653	1643052	30	21	12	4	43	41	24	4210653	3461250	32	19	14	2	45	41	22	
5342106	4305216	40	25	29	20	10	2	49	5342106	1250346	37	24	34	15	11	5	49	
3/H1	12/L4							30249/	3/H1	14/L3								30250/
0653421	0263514	1	45	42	25	34	16	12	0653421	0541623	1	48	40	23	35	17	11	
2106534	5140263	20	9	5	43	38	28	32	2106534	4162305	19	9	7	45	39	22	34	
3421065	2635140	24	35	18	13	2	47	36	3421065	6230541	28	31	18	8	6	47	37	
6534210	1402635	44	40	22	31	21	11	6	6534210	3054162	46	36	27	33	16	14	3	
1065342	6351402	14	4	48	37	26	29	17	1065342	5416230	13	5	44	42	24	32	15	
4210653	4026351	33	15	10	7	46	41	23	4210653	1623054	30	21	10	4	43	41	26	
5342106	3514026	39	27	30	19	8	3	49	5342106	2305416	38	25	29	20	12	2	49	

[Group 4]

4/H3	1/L1							45361/	4/H3	3/L2								45362/
0541632	0654321	1	42	34	12	46	24	16	0541632	0246135	1	38	33	14	44	25	20	
4163205	2106543	31	9	43	28	20	5	39	4163205	6135024	35	9	46	27	15	3	40	
6320541	4321065	47	25	17	2	36	35	13	6320541	5024613	48	22	17	5	42	30	11	
2054163	6543210	21	6	40	32	10	44	22	2054163	4613502	19	7	37	32	13	43	24	
5416320	1065432	37	29	14	48	26	18	3	5416320	3502461	39	34	8	45	26	21	2	
1632054	3210654	11	45	23	15	7	41	33	1632054	2461350	10	47	28	16	4	41	29	
3205416	5432106	27	19	4	38	30	8	49	3205416	1350246	23	18	6	36	31	12	49	
4/H3	4/L4							45363/	4/H3	5/L1								45364/
0541632	0362514	1	39	35	10	48	23	19	0541632	0653421	1	42	34	11	47	24	16	
4163205	5140362	34	9	47	22	18	7	38	4163205	2106534	31	9	43	28	20	4	40	
6320541	3625140	46	28	17	6	37	33	8	6320541	3421065	46	26	17	2	36	35	13	
2054163	1403625	16	5	36	32	14	45	27	2054163	6534210	21	6	39	33	10	44	22	
5416320	6251403	42	31	13	44	26	15	4	5416320	1065342	37	29	14	48	25	19	3	
1632054	4036251	12	43	25	21	3	41	30	1632054	4210653	12	45	23	15	7	41	32	
3205416	2514036	24	20	2	40	29	11	49	3205416	5342106	27	18	5	38	30	8	49	
4/H3	7/L2							45365/	4/H3	8/L4								45366/
0541632	0236145	1	38	32	14	44	26	20	0541632	0462513	1	40	35	10	48	23	18	
4163205	6145023	35	9	47	27	15	3	39	4163205	5130462	34	9	46	22	19	7	38	
6320541	5023614	48	22	17	4	42	30	12	6320541	4625130	47	28	17	6	37	32	8	
2054163	3614502	18	7	37	33	13	43	24	2054163	1304625	16	4	36	33	14	45	27	
5416320	4502361	40	34	8	45	25	21	2	5416320	6251304	42	31	13	44	25	15	5	
1632054	2361450	10	46	28	16	5	41	29	1632054	3046251	11	43	26	21	3	41	30	
3205416	1450236	23	19	6	36	31	11	49	3205416	2513046	24	20	2	39	29	12	49	
4/H3	9/L1							45367/	4/H3	11/L2								45368/
0541632	0654231	1	42	34	12	45	25	16	0541632	0346125	1	39	33	14	44	24	20	
4163205	3106542	32	9	43	28	20	5	38	4163205	6125034	35	9	45	27	15	4	40	
6320541	4231065	47	24	18	2	36	35	13	6320541	5034612	48	22	18	5	42	30	10	
2054163	6542310	21	6	40	31	11	44	22	2054163	4612503	19	7	37	31	13	43	25	
5416320	1065423	37	29	14	48	26	17	4	5416320	2503461	38	34	8	46	26	21	2	
1632054	2310654	10	46	23	15	7	41	33	1632054	3461250	11	47	28	16	3	41	29	
3205416	5423106	27	19	3	39	30	8	49	3205416	1250346	23	17	6	36	32	12	49	
4/H3	12/L4							45369/	4/H3	13/L1								45370/
0541632	0263514	1	38	35	11	48	23	19	0541632	0652431	1	42	34	10	47	25	16	
4163205	5140263	34	9	47	22	17	7	39	4163205	3106524	32	9	43	28	20	3	40	
6320541	2635140	45	28	18	6	37	33	8	6320541	2431065	45	26	18	2	36	35	13	
2054163	1402635	16	5	36	31	14	46	27	2054163	6524310	21	6	38	33	11	44	22	
5416320	6351402	42	32	13	44	26	15	3	5416320	1065243	37	29	14	48	24	19	4	
1632054	4026351	12	43	24	21	4	41	30	1632054	4310652	12	46	23	15	7	41	31	
3205416	3514026	25	20	2	40	29	10	49	3205416	5243106	27	17	5	39	30	8	49	

[Group 5]

5/H1	2/L3	60481/						5/H1	3/L2	60482/							
0654231	0531642	1	48	39	30	21	26	10	0654231	0246135	1	45	40	35	16	25	13
3106542	3164205	25	9	7	47	38	29	20	3106542	6135024	28	9	4	48	36	31	19
4231065	6420531	35	19	24	8	6	46	37	4231065	5024613	34	15	24	12	7	44	39
6542310	2053164	45	36	34	18	23	14	5	6542310	4613502	47	42	30	18	27	8	3
1065423	5316420	13	4	44	42	33	17	22	1065423	3502461	11	6	43	38	33	21	23
2310654	1642053	16	28	12	3	43	41	32	2310654	2461350	17	26	14	2	46	41	29
5423106	4205316	40	31	15	27	11	2	49	5423106	1350246	37	32	20	22	10	5	49
5/H1	4/L4	60483/						5/H1	6/L3	60484/							
0654231	0362514	1	46	42	31	20	23	12	0654231	0541632	1	48	40	30	21	25	10
3106542	5140362	27	9	5	43	39	35	17	3106542	4163205	26	9	7	46	38	29	20
4231065	3625140	32	21	24	13	2	47	36	4231065	6320541	35	18	24	8	6	47	37
6542310	1403625	44	40	29	18	28	10	6	6542310	2054163	45	36	34	19	23	14	4
1065423	6251403	14	3	48	37	33	15	25	1065423	5416320	13	5	44	42	32	17	22
2310654	4036251	19	22	11	7	45	41	30	2310654	1632054	16	28	11	3	43	41	33
5423106	2514036	38	34	16	26	8	4	49	5423106	3205416	39	31	15	27	12	2	49
5/H1	7/L2	60485/						5/H1	8/L4	60486/							
0654231	0236145	1	45	39	35	16	26	13	0654231	0462513	1	47	42	31	20	23	11
3106542	6145023	28	9	5	48	36	31	18	3106542	5130462	27	9	4	43	40	35	17
4231065	5023614	34	15	24	11	7	44	40	4231065	4625130	33	21	24	13	2	46	36
6542310	3614502	46	42	30	19	27	8	3	6542310	1304625	44	39	29	19	28	10	6
1065423	4502361	12	6	43	38	32	21	23	1065423	6251304	14	3	48	37	32	15	26
2310654	2361450	17	25	14	2	47	41	29	2310654	3046251	18	22	12	7	45	41	30
5423106	1450236	37	33	20	22	10	4	49	5423106	2513046	38	34	16	25	8	5	49

[Group 6]

6/H3	1/L1	75601/						6/H3	3/L2	75602/							
0521643	0654321	1	42	20	12	46	31	23	0521643	0246135	1	38	19	14	44	32	27
2164305	2106543	17	9	43	35	27	5	39	2164305	6135024	21	9	46	34	22	3	40
6430521	4321065	47	32	24	2	36	21	13	6430521	5024613	48	29	24	5	42	16	11
3052164	6543210	28	6	40	18	10	44	29	3052164	4613502	26	7	37	18	13	43	31
5216430	1065432	37	15	14	48	33	25	3	5216430	3502461	39	20	8	45	33	28	2
1643052	3210654	11	45	30	22	7	41	19	1643052	2461350	10	47	35	23	4	41	15
4305216	5432106	34	26	4	38	16	8	49	4305216	1350246	30	25	6	36	17	12	49
6/H3	4/L4	75603/						6/H3	5/L1	75604/							
0521643	0362514	1	39	21	10	48	30	26	0521643	0653421	1	42	20	11	47	31	23
2164305	5140362	20	9	47	29	25	7	38	2164305	2106534	17	9	43	35	27	4	40
6430521	3625140	46	35	24	6	37	19	8	6430521	3421065	46	33	24	2	36	21	13
3052164	1403625	23	5	36	18	14	45	34	3052164	6534210	28	6	39	19	10	44	29
5216430	6251403	42	17	13	44	33	22	4	5216430	1065342	37	15	14	48	32	26	3
1643052	4036251	12	43	32	28	3	41	16	1643052	4210653	12	45	30	22	7	41	18
4305216	2514036	31	27	2	40	15	11	49	4305216	5342106	34	25	5	38	16	8	49

[Group 7]

7/H1	2/L3	90721/						7/H1	3/L2	90722/							
0652431	0531642	1	48	39	16	35	26	10	0652431	0246135	1	45	40	21	30	25	13
3106524	3164205	25	9	7	47	38	15	34	3106524	6135024	28	9	4	48	36	17	33
2431065	6420531	21	33	24	8	6	46	37	2431065	5024613	20	29	24	12	7	44	39
6524310	2053164	45	36	20	32	23	14	5	6524310	4613502	47	42	16	32	27	8	3
1065243	5316420	13	4	44	42	19	31	22	1065243	3502461	11	6	43	38	19	35	23
4310652	1642053	30	28	12	3	43	41	18	4310652	2461350	31	26	14	2	46	41	15
5243106	4205316	40	17	29	27	11	2	49	5243106	1350246	37	18	34	22	10	5	49
7/H1	4/L4	90723/						7/H1	6/L3	90724/							
0652431	0362514	1	46	42	17	34	23	12	0652431	0541632	1	48	40	16	35	25	10
3106524	5140362	27	9	5	43	39	21	31	3106524	4163205	26	9	7	46	38	15	34
2431065	3625140	18	35	24	13	2	47	36	2431065	6320541	21	32	24	8	6	47	37
6524310	1403625	44	40	15	32	28	10	6	6524310	2054163	45	36	20	33	23	14	4
1065243	6251403	14	3	48	37	19	29	25	1065243	5416320	13	5	44	42	18	31	22
4310652	4036251	33	22	11	7	45	41	16	4310652	1632054	30	28	11	3	43	41	19
5243106	2514036	38	20	30	26	8	4	49	5243106	3205416	39	17	29	27	12	2	49



[Group 8]

8/H3	1/L1	105841/	8/H3	3/L2	105842/
0541623	0654321	1 42 34 12 46 17 23	0541623	0246135	1 38 33 14 44 18 27
4162305	2106543	31 9 43 21 27 5 39	4162305	6135024	35 9 46 20 22 3 40
6230541	4321065	47 18 24 2 36 35 13	6230541	5024613	48 15 24 5 42 30 11
3054162	6543210	28 6 40 32 10 44 15	3054162	4613502	26 7 37 32 13 43 17
5416230	1065432	37 29 14 48 19 25 3	5416230	3502461	39 34 8 45 19 28 2
1623054	3210654	11 45 16 22 7 41 33	1623054	2461350	10 47 21 23 4 41 29
2305416	5432106	20 26 4 38 30 8 49	2305416	1350246	16 25 6 36 31 12 49

[Group 9]

9/H1	2/L3	120961/	9/H1	3/L2	120962/
0653241	0531642	1 48 39 23 21 33 10	0653241	0246135	1 45 40 28 16 32 13
4106532	3164205	32 9 7 47 38 22 20	4106532	6135024	35 9 4 48 36 24 19
3241065	6420531	28 19 31 8 6 46 37	3241065	5024613	27 15 31 12 7 44 39
6532410	2053164	45 36 27 18 30 14 5	6532410	4613502	47 42 23 18 34 8 3
1065324	5316420	13 4 44 42 26 17 29	1065324	3502461	11 6 43 38 26 21 30
2410653	1642053	16 35 12 3 43 41 25	2410653	2461350	17 33 14 2 46 41 22
5324106	4205316	40 24 15 34 11 2 49	5324106	1350246	37 25 20 29 10 5 49

[Group 10]

10/H3	1/L1	136081/	10/H3	3/L2	136082/
0521634	0654321	1 42 20 12 46 24 30	0521634	0246135	1 38 19 14 44 25 34
2163405	2106543	17 9 43 28 34 5 39	2163405	6135024	21 9 46 27 29 3 40
6340521	4321065	47 25 31 2 36 21 13	6340521	5024613	48 22 31 5 42 16 11
4052163	6543210	35 6 40 18 10 44 22	4052163	4613502	33 7 37 18 13 43 24
5216340	1065432	37 15 14 48 26 32 3	5216340	3502461	39 20 8 45 26 35 2
1634052	3210654	11 45 23 29 7 41 19	1634052	2461350	10 47 28 30 4 41 15
3405216	5432106	27 33 4 38 16 8 49	3405216	1350246	23 32 6 36 17 12 49

[Group 11]

11/H1	2/L3	151201/	11/H1	3/L2	151202/
0652341	0531642	1 48 39 16 28 33 10	0652341	0246135	1 45 40 21 23 32 13
4106523	3164205	32 9 7 47 38 15 27	4106523	6135024	35 9 4 48 36 17 26
2341065	6420531	21 26 31 8 6 46 37	2341065	5024613	20 22 31 12 7 44 39
6523410	2053164	45 36 20 25 30 14 5	6523410	4613502	47 42 16 25 34 8 3
1065234	5316420	13 4 44 42 19 24 29	1065234	3502461	11 6 43 38 19 28 30
3410652	1642053	23 35 12 3 43 41 18	3410652	2461350	24 33 14 2 46 41 15
5234106	4205316	40 17 22 34 11 2 49	5234106	1350246	37 18 27 29 10 5 49

[Group 12]

12/H3	1/L1	166321/	12/H3	3/L2	166322/
0531624	0654321	1 42 27 12 46 17 30	0531624	0246135	1 38 26 14 44 18 34
3162405	2106543	24 9 43 21 34 5 39	3162405	6135024	28 9 46 20 29 3 40
6240531	4321065	47 18 31 2 36 28 13	6240531	5024613	48 15 31 5 42 23 11
4053162	6543210	35 6 40 25 10 44 15	4053162	4613502	33 7 37 25 13 43 17
5316240	1065432	37 22 14 48 19 32 3	5316240	3502461	39 27 8 45 19 35 2
1624053	3210654	11 45 16 29 7 41 26	1624053	2461350	10 47 21 30 4 41 22
2405316	5432106	20 33 4 38 23 8 49	2405316	1350246	16 32 6 36 24 12 49

[Group 13]

13/H1	2/L3	181441/	13/H1	3/L2	181442/
0645321	0531642	1 48 32 37 28 19 10	0645321	0246135	1 45 33 42 23 18 13
2106453	3164205	18 9 7 47 31 36 27	2106453	6135024	21 9 4 48 29 38 26
5321064	6420531	42 26 17 8 6 46 30	5321064	5024613	41 22 17 12 7 44 32
6453210	2053164	45 29 41 25 16 14 5	6453210	4613502	47 35 37 25 20 8 3
1064532	5316420	13 4 44 35 40 24 15	1064532	3502461	11 6 43 31 40 28 16
3210645	1642053	23 21 12 3 43 34 39	3210645	2461350	24 19 14 2 46 34 36
4532106	4205316	33 38 22 20 11 2 49	4532106	1350246	30 39 27 15 10 5 49

[Group 14]

14/H3	1/L1	196561/	14/H3	3/L2	196562/
0431652	0654321	1 35 27 12 46 38 16	0431652	0246135	1 31 26 14 44 39 20
3165204	2106543	24 9 43 42 20 5 32	3165204	6135024	28 9 46 41 15 3 33
6520431	4321065	47 39 17 2 29 28 13	6520431	5024613	48 36 17 5 35 23 11

2043165	6543210	21	6	33	25	10	44	36	2043165	4613502	19	7	30	25	13	43	38
4316520	1065432	30	22	14	48	40	18	3	4316520	3502461	32	27	8	45	40	21	2
1652043	3210654	11	45	37	15	7	34	26	1652043	2461350	10	47	42	16	4	34	22
5204316	5432106	41	19	4	31	23	8	49	5204316	1350246	37	18	6	29	24	12	49
[Group 15]																	
15/H1	2/L3	211681/						15/H1	3/L2	211682/							
0643521	0531642	1	48	32	23	42	19	10	0643521	0246135	1	45	33	28	37	18	13
2106435	3164205	18	9	7	47	31	22	41	2106435	6135024	21	9	4	48	29	24	40
3521064	6420531	28	40	17	8	6	46	30	3521064	5024613	27	36	17	12	7	44	32
6435210	2053164	45	29	27	39	16	14	5	6435210	4613502	47	35	23	39	20	8	3
1064352	5316420	13	4	44	35	26	38	15	1064352	3502461	11	6	43	31	26	42	16
5210643	1642053	37	21	12	3	43	34	25	5210643	2461350	38	19	14	2	46	34	22
4352106	4205316	33	24	36	20	11	2	49	4352106	1350246	30	25	41	15	10	5	49
[Group 16]																	
16/H4	1/L1	226801/						16/H4	2/L3	226802/							
0562413	0654321	1	42	48	19	32	10	23	0562413	0531642	1	41	46	16	35	12	24
4130562	2106543	31	9	22	7	41	47	18	4130562	3164205	32	9	28	5	38	43	20
5624130	4321065	40	46	17	30	8	28	6	5624130	6420531	42	47	17	29	13	25	2
1305624	6543210	14	27	5	39	45	16	29	1305624	2053164	10	22	6	39	44	21	33
6241305	1065432	44	15	35	13	26	4	38	6241305	5316420	48	18	30	14	26	3	36
3056241	3210654	25	3	37	43	21	34	12	3056241	1642053	23	7	40	45	15	34	11
2413056	5432106	20	33	11	24	2	36	49	2413056	4205316	19	31	8	27	4	37	49
[Group 17]																	
17/H1	2/L3	241921/						17/H1	3/L2	241922/							
0645231	0531642	1	48	32	37	21	26	10	0645231	0246135	1	45	33	42	16	25	13
3106452	3164205	25	9	7	47	31	36	20	3106452	6135024	28	9	4	48	29	38	19
5231064	6420531	42	19	24	8	6	46	30	5231064	5024613	41	15	24	12	7	44	32
6452310	2053164	45	29	41	18	23	14	5	6452310	4613502	47	35	37	18	27	8	3
1064523	5316420	13	4	44	35	40	17	22	1064523	3502461	11	6	43	31	40	21	23
2310645	1642053	16	28	12	3	43	34	39	2310645	2461350	17	26	14	2	46	34	36
4523106	4205316	33	38	15	27	11	2	49	4523106	1350246	30	39	20	22	10	5	49
[Group 18]																	
18/H3	1/L1	257041/						18/H3	3/L2	257042/							
0421653	0654321	1	35	20	12	46	38	23	0421653	0246135	1	31	19	14	44	39	27
2165304	2106543	17	9	43	42	27	5	32	2165304	6135024	21	9	46	41	22	3	33
6530421	4321065	47	39	24	2	29	21	13	6530421	5024613	48	36	24	5	35	16	11
3042165	6543210	28	6	33	18	10	44	36	3042165	4613502	26	7	30	18	13	43	38
4216530	1065432	30	15	14	48	40	25	3	4216530	3502461	32	20	8	45	40	28	2
1653042	3210654	11	45	37	22	7	34	19	1653042	2461350	10	47	42	23	4	34	15
5304216	5432106	41	26	4	31	16	8	49	5304216	1350246	37	25	6	29	17	12	49
[Group 19]																	
19/H1	2/L3	272161/						19/H1	3/L2	272162/							
0642531	0531642	1	48	32	16	42	26	10	0642531	0246135	1	45	33	21	37	25	13
3106425	3164205	25	9	7	47	31	15	41	3106425	6135024	28	9	4	48	29	17	40
2531064	6420531	21	40	24	8	6	46	30	2531064	5024613	20	36	24	12	7	44	32
6425310	2053164	45	29	20	39	23	14	5	6425310	4613502	47	35	16	39	27	8	3
1064253	5316420	13	4	44	35	19	38	22	1064253	3502461	11	6	43	31	19	42	23
5310642	1642053	37	28	12	3	43	34	18	5310642	2461350	38	26	14	2	46	34	15
4253106	4205316	33	17	36	27	11	2	49	4253106	1350246	30	18	41	22	10	5	49
[Group 20]																	
20/H4	1/L1	287281/						20/H4	2/L3	287282/							
0563412	0654321	1	42	48	26	32	10	16	0563412	0531642	1	41	46	23	35	12	17
4120563	2106543	31	9	15	7	41	47	25	4120563	3164205	32	9	21	5	38	43	27
5634120	4321065	40	46	24	30	8	21	6	5634120	6420531	42	47	24	29	13	18	2
1205634	6543210	14	20	5	39	45	23	29	1205634	2053164	10	15	6	39	44	28	33
6341205	1065432	44	22	35	13	19	4	38	6341205	5316420	48	25	30	14	19	3	36
2056341	3210654	18	3	37	43	28	34	12	2056341	1642053	16	7	40	45	22	34	11
3412056	5432106	27	33	11	17	2	36	49	3412056	4205316	26	31	8	20	4	37	49

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[Group 99]

99/H1	2/L3		1481761/	99/H1	3/L2		1481762/
0652413	0531642	1 48 39 16 35 12 24		0652413	0246135	1 45 40 21 30 11 27	
1306524	3164205	11 23 7 47 38 15 34		1306524	6135024	14 23 4 48 36 17 33	
2413065	6420531	21 33 10 22 6 46 37		2413065	5024613	20 29 10 26 7 44 39	
6524130	2053164	45 36 20 32 9 28 5		6524130	4613502	47 42 16 32 13 22 3	
3065241	5316420	27 4 44 42 19 31 8		3065241	3502461	25 6 43 38 19 35 9	
4130652	1642053	30 14 26 3 43 41 18		4130652	2461350	31 12 28 2 46 41 15	
5241306	4205316	40 17 29 13 25 2 49		5241306	1350246	37 18 34 8 24 5 49	

[Group 100]

100/H3	1/L1		1496881/	100/H3	3/L2		1496882/
0543621	0654321	1 42 34 26 46 17 9		0543621	0246135	1 38 33 28 44 18 13	
4362105	2106543	31 23 43 21 13 5 39		4362105	6135024	35 23 46 20 8 3 40	
6210543	4321065	47 18 10 2 36 35 27		6210543	5024613	48 15 10 5 42 30 25	
1054362	6543210	14 6 40 32 24 44 15		1054362	4613502	12 7 37 32 27 43 17	
5436210	1065432	37 29 28 48 19 11 3		5436210	3502461	39 34 22 45 19 14 2	
3621054	3210654	25 45 16 8 7 41 33		3621054	2461350	24 47 21 9 4 41 29	
2105436	5432106	20 12 4 38 30 22 49		2105436	1350246	16 11 6 36 31 26 49	

[Group 101]

101/H1	2/L3		1512001/	101/H1	3/L2		1512002/
0654123	0531642	1 48 39 30 14 19 24		0654123	0246135	1 45 40 35 9 18 27	
2306541	3164205	18 23 7 47 38 29 13		2306541	6135024	21 23 4 48 36 31 12	
4123065	6420531	35 12 17 22 6 46 37		4123065	5024613	34 8 17 26 7 44 39	
6541230	2053164	45 36 34 11 16 28 5		6541230	4613502	47 42 30 11 20 22 3	
3065412	5316420	27 4 44 42 33 10 15		3065412	3502461	25 6 43 38 33 14 16	
1230654	1642053	9 21 26 3 43 41 32		1230654	2461350	10 19 28 2 46 41 29	
5412306	4205316	40 31 8 20 25 2 49		5412306	1350246	37 32 13 15 24 5 49	

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[Group 499]

499/H1	2/L3		7529761/	499/H1	3/L2		7529762/
0452631	0531642	1 34 39 16 49 26 10		0452631	0246135	1 31 40 21 44 25 13	
3104526	3164205	25 9 7 33 38 15 48		3104526	6135024	28 9 4 34 36 17 47	
2631045	6420531	21 47 24 8 6 32 37		2631045	5024613	20 43 24 12 7 30 39	
4526310	2053164	31 36 20 46 23 14 5		4526310	4613502	33 42 16 46 27 8 3	
1045263	5316420	13 4 30 42 19 45 22		1045263	3502461	11 6 29 38 19 49 23	
6310452	1642053	44 28 12 3 29 41 18		6310452	2461350	45 26 14 2 32 41 15	
5263104	4205316	40 17 43 27 11 2 35		5263104	1350246	37 18 48 22 10 5 35	

[Group 500]

500/H4	1/L1		7544881/	500/H4	2/L3		7544882/
0643512	0654321	1 49 34 26 39 10 16		0643512	0531642	1 48 32 23 42 12 17	
5120643	2106543	38 9 15 7 48 33 25		5120643	3164205	39 9 21 5 45 29 27	
6435120	4321065	47 32 24 37 8 21 6		6435120	6420531	49 33 24 36 13 18 2	
1206435	6543210	14 20 5 46 31 23 36		1206435	2053164	10 15 6 46 30 28 40	
4351206	1065432	30 22 42 13 19 4 45		4351206	5316420	34 25 37 14 19 3 43	
2064351	3210654	18 3 44 29 28 41 12		2064351	1642053	16 7 47 31 22 41 11	
3512064	5432106	27 40 11 17 2 43 35		3512064	4205316	26 38 8 20 4 44 35	

[Group 501]

501/H3	1/L1		7560001/	501/H3	3/L2		7560002/
0521436	0654321	1 42 20 12 32 24 44		0521436	0246135	1 38 19 14 30 25 48	
2143605	2106543	17 9 29 28 48 5 39		2143605	6135024	21 9 32 27 43 3 40	
4360521	4321065	33 25 45 2 36 21 13		4360521	5024613	34 22 45 5 42 16 11	
6052143	6543210	49 6 40 18 10 30 22		6052143	4613502	47 7 37 18 13 29 24	
5214360	1065432	37 15 14 34 26 46 3		5214360	3502461	39 20 8 31 26 49 2	
1436052	3210654	11 31 23 43 7 41 19		1436052	2461350	10 33 28 44 4 41 15	
3605214	5432106	27 47 4 38 16 8 35		3605214	1350246	23 46 6 36 17 12 35	

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[Group 999]

999/H2	1/L1	15089761/	999/H2	2/L3	15089762/
0452163	0654321	1 35 41 19 11 45 23	0452163	0531642	1 34 39 16 14 47 24
2163045	2106543	17 9 43 28 6 33 39	2163045	3164205	18 9 49 26 3 29 41
3045216	4321065	26 4 31 37 15 14 48	3045216	6420531	28 5 31 36 20 11 44
5216304	6543210	42 20 12 46 24 2 29	5216304	2053164	38 15 13 46 23 7 33
6304521	1065432	44 22 7 34 40 18 10	6304521	5316420	48 25 2 35 40 17 8
4521630	3210654	32 38 16 8 49 27 5	4521630	1642053	30 42 19 10 43 27 4
1630452	5432106	13 47 25 3 30 36 21	1630452	4205316	12 45 22 6 32 37 21

[Group 1000]

1000/H4	1/L1	15104881/	1000/H4	2/L3	15104882/
0624315	0654321	1 49 20 33 25 10 37	0624315	0531642	1 48 18 30 28 12 38
3150624	2106543	24 9 36 7 48 19 32	3150624	3164205	25 9 42 5 45 15 34
6243150	4321065	47 18 31 23 8 42 6	6243150	6420531	49 19 31 22 13 39 2
1506243	6543210	14 41 5 46 17 30 22	1506243	2053164	10 36 6 46 16 35 26
2431506	1065432	16 29 28 13 40 4 45	2431506	5316420	20 32 23 14 40 3 43
5062431	3210654	39 3 44 15 35 27 12	5062431	1642053	37 7 47 17 29 27 11
4315062	5432106	34 26 11 38 2 43 21	4315062	4205316	33 24 8 41 4 44 21

[Group 1001]

1001/H2	1/L1	15120001/	1001/H2	2/L3	15120002/
0562143	0654321	1 42 48 19 11 31 23	0562143	0531642	1 41 46 16 14 33 24
2143056	2106543	17 9 29 28 6 40 46	2143056	3164205	18 9 35 26 3 36 48
3056214	4321065	26 4 38 44 15 14 34	3056214	6420531	28 5 38 43 20 11 30
6214305	6543210	49 20 12 32 24 2 36	6214305	2053164	45 15 13 32 23 7 40
4305621	1065432	30 22 7 41 47 18 10	4305621	5316420	34 25 2 42 47 17 8
5621430	3210654	39 45 16 8 35 27 5	5621430	1642053	37 49 19 10 29 27 4
1430562	5432106	13 33 25 3 37 43 21	1430562	4205316	12 31 22 6 39 44 21

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[Group 1397]

[Group 1398]

[Group 1399]

[Group 1440]

1440/H4	1/L1	21757681/	1440/H4	2/L3	21757682/
0415263	0654321	1 35 13 40 18 45 23	0415263	0531642	1 34 11 37 21 47 24
2630415	2106543	17 44 22 7 34 12 39	2630415	3164205	18 44 28 5 31 8 41
4152630	4321065	33 11 38 16 43 28 6	4152630	6420531	35 12 38 15 48 25 2
6304152	6543210	49 27 5 32 10 37 15	6304152	2053164	45 22 6 32 9 42 19
1526304	1065432	9 36 21 48 26 4 31	1526304	5316420	13 39 16 49 26 3 29
3041526	3210654	25 3 30 8 42 20 47	3041526	1642053	23 7 33 10 36 20 46
5263041	5432106	41 19 46 24 2 29 14	5263041	4205316	40 17 43 27 4 30 14

[Group 1441]

[Group 1442]

[Group 1443]

[Group 1444]

[Group 1445]

[Group 1446]

[Group 1447]

[Group 1448]

1448/H4	1/L1	21878641/	1448/H4	2/L3	21878642/
1562403	0654321	8 42 48 19 32 3 23	1562403	0531642	8 41 46 16 35 5 24
4031562	2106543	31 2 22 14 41 47 18	4031562	3164205	32 2 28 12 38 43 20
5624031	4321065	40 46 17 30 1 28 13	5624031	6420531	42 47 17 29 6 25 9
0315624	6543210	7 27 12 39 45 16 29	0315624	2053164	3 22 13 39 44 21 33
6240315	1065432	44 15 35 6 26 11 38	6240315	5316420	48 18 30 7 26 10 36
3156240	3210654	25 10 37 43 21 34 5	3156240	1642053	23 14 40 45 15 34 4
2403156	5432106	20 33 4 24 9 36 49	2403156	4205316	19 31 1 27 11 37 49

[Group 1449]

[Group 1450]

1450/H4	1/L1		21908881/	1450/H4	2/L3		21908882/
1563402	0654321	8 42 48 26 32 3 16		1563402	0531642	8 41 46 23 35 5 17	
4021563	2106543	31 2 15 14 41 47 25		4021563	3164205	32 2 21 12 38 43 27	
5634021	4321065	40 46 24 30 1 21 13		5634021	6420531	42 47 24 29 6 18 9	
0215634	6543210	7 20 12 39 45 23 29		0215634	2053164	3 15 13 39 44 28 33	
6340215	1065432	44 22 35 6 19 11 38		6340215	5316420	48 25 30 7 19 10 36	
2156340	3210654	18 10 37 43 28 34 5		2156340	1642053	16 14 40 45 22 34 4	
3402156	5432106	27 33 4 17 9 36 49		3402156	4205316	26 31 1 20 11 37 49	

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[Group 2507]

2507/H4	1/L1		37890721/	2507/H4	2/L3		37890722/
3145026	0654321	22 14 34 40 4 17 44		3145026	0531642	22 13 32 37 7 19 45	
0263145	2106543	3 16 43 28 13 33 39		0263145	3164205	4 16 49 26 10 29 41	
1450263	4321065	12 32 38 2 15 49 27		1450263	6420531	14 33 38 1 20 46 23	
2631450	6543210	21 48 26 11 31 37 1		2631450	2053164	17 43 27 11 30 42 5	
4502631	1065432	30 36 7 20 47 25 10		4502631	5316420	34 39 2 21 47 24 8	
6314502	3210654	46 24 9 29 42 6 19		6314502	1642053	44 28 12 31 36 6 18	
5026314	5432106	41 5 18 45 23 8 35		5026314	4205316	40 3 15 48 25 9 35	

[Group 2508]

2508/H4	1/L1		37905841/	2508/H4	2/L3		37905842/
3146025	0654321	22 14 34 47 4 17 37		3146025	0531642	22 13 32 44 7 19 38	
0253146	2106543	3 16 36 28 13 33 46		0253146	3164205	4 16 42 26 10 29 48	
1460253	4321065	12 32 45 2 15 42 27		1460253	6420531	14 33 45 1 20 39 23	
2531460	6543210	21 41 26 11 31 44 1		2531460	2053164	17 36 27 11 30 49 5	
4602531	1065432	30 43 7 20 40 25 10		4602531	5316420	34 46 2 21 40 24 8	
5314602	3210654	39 24 9 29 49 6 19		5314602	1642053	37 28 12 31 43 6 18	
6025314	5432106	48 5 18 38 23 8 35		6025314	4205316	47 3 15 41 25 9 35	

[Group 2509]

[Group 2510]

[Group 2511]

[Group 2512]

[Group 2513]

[Group 2514]

[Group 2515]

[Group 2516]

[Group 2517]

[Group 2518]

[Group 2519]

[Group 2520]

[Count = 38102400] OK!

We have completely succeeded in reconstructing C.E.S. 7x7 of Pan-diagonal type.

I remember I have once seen this total count anywhere in the former sections. Yes, when I got the 777600 Fundamental Solutions of that type before, I predicted the total count should be 38102400 (= 777600 x 49).

It is now verified by the different powerful way of composition. It makes me happy.

I am also surprised at the incredible speed of this method. It took only a few minutes to count them up to the last, without listing anything to the printer.

Now I would like to say that the combination of primary diagonal and the Knight's Composition should be something like the essential core of the C.E.S. world.

## 8. Factors of the Total Counts

Let's consider a little about what each total count of solutions of the next four types means.

First of all, reviewing all the processes we have ever had, let's make such a table as follows:

	Simul.5x5	PanDgn1.5x5	Simul.7x7	PanDgn1.7x7	
Primary Diagonals	2x1x2x2=8	5x4x3x2x1 =120	3x2x1x2x2x2 =48	7x6x5x4x3x2x1 =5040	
Knight's Mov	2 types	2 types	4 types	4 types	
Low Layer	8x2=16	120x2=240	48x4=192	5040x4=20160	
High Layer	16/8=2	240/8=30	192/8=24	20160/8=2520	<-*0
Combination of High/Low	2x16=32	30x240=7200	24x192=4608	2520x20160 =50803200	
Correct Answers	32x(1/2)=16	7200x(1/2) =3600	4608x(3/4) =3456	50803200x(3/4) =38102400	
	*1	*1	*2	*2	

**\*0:** In order to prevent us from double counting of the same object solutions with any simple rotation and reflection, we must select them under the next inequality conditions:

$n1 < n25$ ;  $n1 < n5$ ;  $n1 < n21$ ;  $n2 > n6$ ; for order 5.

$n1 < n49$ ;  $n1 < n7$ ;  $n1 < n43$ ;  $n2 > n8$ ; for order 7.

One eighth of layer units for high position can pass them to the next stage.

**\*1:** In the case of order 5, the combination of high layer and of low often makes wrong answer against the Definition (3) of C.E.S. It is caused when you combine both layers of the same type of Knight's Movement.

Probability of  $\{(H1, L1), (H2, L2)\}$  in all cases  $\{(H1, L1), (H1, L2), (H2, L1), (H2, L2)\}$  is  $2/4 = 1/2$ . Therefore, the probability of answers being correct must be:  $1 - (1/2) = 1/2$ .

**\*2:** In the case of order 7, combination of high layer and of low sometimes makes wrong answer against the Definition (3) of C.E.S. It is caused when you combine both layers of the same type of Knight's Movement.

Probability of  $\{(H1, L1), (H2, L2), (H3, L3), (H4, L4)\}$  in all cases  $\{(H1, L1), (H1, L2), (H1, L3), (H1, L4), (H2, L1), (H2, L2), (H2, L3), (H2, L4), (H3, L1), (H3, L2), (H3, L3), (H3, L4), (H4, L1), (H4, L2), (H4, L3), (H4, L4)\}$  is  $4/16 = 1/4$ . Therefore, the probability of answers being correct must be:  $1 - (1/4) = 3/4$ .

We could get all from the first two factors. We can say anything about the law among the same and common multiplications, can't we?

## 9. How about other Orders?

Is this method also effective for C.E.S. of orders 8, 9, 10 and 11, beside order 5 and 7? How about order 4 and 6?

I tested to know whether the 'Knight Composition' is possible or not in the cases of order 4 to 11. Let me show you each of the final diagrams of Knight's Compositions.

[Order 4] T1/ T2/ T3/ T4/

0 3 2 1 0 3 2 1	1 3 1 3 1 3 1 3	0 3 2 1 0 3 2 1	1 3 1 3 1 3 1 3
2 1   0   3   2   1   0 3	0 2   0   2   0   2   0 2	2 1   0   3   2   1   0 3	0 2   0   2   0   2   0 2
0 3   2   1   0   3   2 1	3 1   3   1   3   1   3 1	0 3   2   1   0   3   2 1	3 1   3   1   3   1   3 1
2 1   0   3   2   1   0 3	2 0   2   0   2   0   2 0	2 1   0   3   2   1   0 3	2 0   2   0   2   0   2 0
0 3   2   1   0   3   2 1	1 3   1   3   1   3   1 3	0 3   2   1   0   3   2 1	1 3   1   3   1   3   1 3
2 1 0 3 2 1 0 3	0 2 0 2 0 2 0 2	2 1 0 3 2 1 0 3	0 2 0 2 0 2 0 2

[Order 6] T1/ T2/ T3/ T4/

5 4 3 2 1 0 5 4	5 1 3 5 1 3 5 1	1 . . 0 . . 1 .	1 . . 1 . . 1
1   0   5   4   3   2   1   0	4   0   2   4   0   2   4   0	.   0   .   .   1   .   .   0	.   0   .   .   0   .   .   0
3   2   1   0   5   4   3   2	3   5   1   3   5   1   3   5	.   .   1   .   .   0   .   .	.   .   1   .   .   1   .   .
5   4   3   2   1   0   5   4	2   4   0   2   4   0   2   4	1   .   0   .   .   1   .   .	0   .   0   .   .   0   .   .
1   0   5   4   3   2   1   0	1   3   5   1   3   5   1   3	.   0   .   .   1   .   .   0	.   1   .   .   1   .   .   1
3   2   1   0   5   4   3   2	0   2   4   0   2   4   0   2	.   .   1   .   .   0   .   .	.   .   0   .   .   0   .   .
5   4   3   2   1   0   5   4	5   1   3   5   1   3   5   1	1   .   0   .   .   1   .   .	1   .   1   .   .   1   .   .
1 0 5 4 3 2 1 0	4 0 2 4 0 2 4 0	. 0 . . 1 . . 0	. 0 . . 0 . . 0

[Order 8] T1/ T2/ T3/ T4/

7 6 5 4 3 2 1 0 7 6	7 1 3 5 7 1 3 5 7 1	7 2 5 0 3 6 1 4 7 2	7 5 3 1 7 5 3 1 7 5
1   0   7   6   5   4   3   2   1   0	6   0   2   4   6   0   2   4   6   0	5   0   3   6   1   4   7   2   5   0	2   0   6   4   2   0   6   4   2   0
3   2   1   0   7   6   5   4   3   2	5   7   1   3   5   7   1   3   5   7	3   6   1   4   7   2   5   0   3   6	5   3   1   7   5   3   1   7   5   3
5   4   3   2   1   0   7   6   5   4	4   6   0   2   4   6   0   2   4   6	1   4   7   2   5   0   3   6   1   4	0   6   4   2   0   6   4   2   0   6
7   6   5   4   3   2   1   0   7   6	3   5   7   1   3   5   7   1   3   5	7   2   5   0   3   6   1   4   7   2	3   1   7   5   3   1   7   5   3   1
1   0   7   6   5   4   3   2   1   0	2   4   6   0   2   4   6   0   2   4	5   0   3   6   1   4   7   2   5   0	6   4   2   0   6   4   2   0   6   4
3   2   1   0   7   6   5   4   3   2	1   3   5   7   1   3   5   7   1   3	3   6   1   4   7   2   5   0   3   6	1   7   5   3   1   7   5   3   1   7
5   4   3   2   1   0   7   6   5   4	0   2   4   6   0   2   4   6   0   2	1   4   7   2   5   0   3   6   1   4	4   2   0   6   4   2   0   6   4   2
7   6   5   4   3   2   1   0   7   6	7   1   3   5   7   1   3   5   7   1	7   2   5   0   3   6   1   4   7   2	7   5   3   1   7   5   3   1   7   5
1 0 7 6 5 4 3 2 1 0	6 0 2 4 6 0 2 4 6 0	5 0 3 6 1 4 7 2 5 0	2 0 6 4 2 0 6 4 2 0

[Order 9] T1/ T2/ T3/ T4/

8 7 6 5 4 3 2 1 0 8 7	8 1 3 5 7 0 2 4 6 8 1	2 . . 0 . . 1 . . 2 .	2 . . 1 . . 0 . . 2 .
1   0   8   7   6   5   4   3   2   1   0	7   0   2   4   6   8   1   3   5   7   0	.   0   .   .   1   .   .   2   .   .   0	.   0   .   .   2   .   .   1   .   .   0
3   2   1   0   8   7   6   5   4   3   2	6   8   1   3   5   7   0   2   4   6   8	.   .   1   .   .   2   .   .   0   .   .	.   .   1   .   .   0   .   .   2   .   .
5   4   3   2   1   0   8   7   6   5   4	5   7   0   2   4   6   8   1   3   5   7	1   .   .   2   .   .   0   .   .   1   .	0   .   .   2   .   .   1   .   .   0   .
7   6   5   4   3   2   1   0   8   7   6	4   6   8   1   3   5   7   0   2   4   6	.   2   .   .   0   .   .   1   .   .   2	.   1   .   .   0   .   .   2   .   .   1
0   8   7   6   5   4   3   2   1   0   8	3   5   7   0   2   4   6   8   1   3   5	.   .   0   .   .   1   .   .   2   .   .	.   .   2   .   .   1   .   .   0   .   .
2   1   0   8   7   6   5   4   3   2   1	2   4   6   8   1   3   5   7   0   2   4	0   .   .   1   .   .   2   .   .   0   .	1   .   .   0   .   .   2   .   .   1   .
4   3   2   1   0   8   7   6   5   4   3	1   3   5   7   0   2   4   6   8   1   3	.   1   .   .   2   .   .   0   .   .   1	.   2   .   .   1   .   .   0   .   .   2
6   5   4   3   2   1   0   8   7   6   5	0   2   4   6   8   1   3   5   7   0   2	.   .   2   .   .   0   .   .   1   .   .	.   .   0   .   .   2   .   .   1   .   .
8   7   6   5   4   3   2   1   0   8   7	8   1   3   5   7   0   2   4   6   8   1	2   .   .   0   .   .   1   .   .   2   .	2   .   .   1   .   .   0   .   .   2   .
1 0 8 7 6 5 4 3 2 1 0	7 0 2 4 6 8 1 3 5 7 0	. 0 . . 1 . . 2 . . 0	. 0 . . 2 . . 1 . . 0

[Order 10]	T1/	T2/	T3/	T4/
8 7 6 5 4 3 2 1 0 9	1 3 5 7 9 1 3 5 7 9	6 3 0 7 4 1 8 5 2 9	3 7 1 5 9 3 7 1 5 9	
0 9 8 7 6 5 4 3 2 1	0 2 4 6 8 0 2 4 6 8	0 7 4 1 8 5 2 9 6 3	0 4 8 2 6 0 4 8 2 6	
2 1 0 9 8 7 6 5 4 3	9 1 3 5 7 9 1 3 5 7	4 1 8 5 2 9 6 3 0 7	7 1 5 9 3 7 1 5 9 3	
4 3 2 1 0 9 8 7 6 5	8 0 2 4 6 8 0 2 4 6	8 5 2 9 6 3 0 7 4 1	4 8 2 6 0 4 8 2 6 0	
6 5 4 3 2 1 0 9 8 7	7 9 1 3 5 7 9 1 3 5	2 9 6 3 0 7 4 1 8 5	1 5 9 3 7 1 5 9 3 7	
8 7 6 5 4 3 2 1 0 9	6 8 0 2 4 6 8 0 2 4	6 3 0 7 4 1 8 5 2 9	8 2 6 0 4 8 2 6 0 4	
0 9 8 7 6 5 4 3 2 1	5 7 9 1 3 5 7 9 1 3	0 7 4 1 8 5 2 9 6 3	5 9 3 7 1 5 9 3 7 1	
2 1 0 9 8 7 6 5 4 3	4 6 8 0 2 4 6 8 0 2	4 1 8 5 2 9 6 3 0 7	2 6 0 4 8 2 6 0 4 8	
4 3 2 1 0 9 8 7 6 5	3 5 7 9 1 3 5 7 9 1	8 5 2 9 6 3 0 7 4 1	9 3 7 1 5 9 3 7 1 5	
6 5 4 3 2 1 0 9 8 7	2 4 6 8 0 2 4 6 8 0	2 9 6 3 0 7 4 1 8 5	6 0 4 8 2 6 0 4 8 2	
8 7 6 5 4 3 2 1 0 9	1 3 5 7 9 1 3 5 7 9	6 3 0 7 4 1 8 5 2 9	3 7 1 5 9 3 7 1 5 9	
0 9 8 7 6 5 4 3 2 1	0 2 4 6 8 0 2 4 6 8	0 7 4 1 8 5 2 9 6 3	0 4 8 2 6 0 4 8 2 6	

I have failed in composing any C.E.S. in the first 5 cases: Order 4, 6, 8, 9 and 10. What does this mean?

I think it surely implies that C.E.S. of those orders are impossible for us to make.

- "We cannot compose any C.E.S. of order 4 by Positional Number System of Base 4."
  - "We cannot compose any C.E.S. of order 6 by Positional Number System of Base 6."
  - "We cannot compose any C.E.S. of order 8 by Positional Number System of Base 8."
  - "We cannot compose any C.E.S. of order 9 by Positional Number System of Base 9."
  - "We can compose no C.E.S. of order 10 by Positional Number System of Base 10."
- These propositions may possibly be proved by the Knight's Tour Composition itself.

But in the case of order 11 everything seems to be hopeful.

"We can compose any C.E.S. of order 11 by Positional Number System of Base 11", by that 'Knight's Tour Composition', I should say.

It is interesting that there seems to be more than 4 types of Knight's Tours.

Let me show you the next eight diagrams below indicating four more types possible to be made.

Don't you think the fruitful world of 'Complete Euler Squares' of order 11 is waiting for us to visit?

But, I am afraid everything might be of great size in this case, too big for us to deal with the complete set of standard solutions, even of the simultaneous type.

[Order 11]	T1/	T2/	T3/	T4/
0 A 9 8 7 6 5 4 3 2 1	0 2 4 6 8 A 1 3 5 7 9	0 4 8 1 5 9 2 6 A 3 7	0 8 5 2 A 7 4 1 9 6 3	
2 1 0 A 9 8 7 6 5 4 3	A 1 3 5 7 9 0 2 4 6 8	8 1 5 9 2 6 A 3 7 0 4	4 1 9 6 3 0 8 5 2 A 7	
4 3 2 1 0 A 9 8 7 6 5	9 0 2 4 6 8 A 1 3 5 7	5 9 2 6 A 3 7 0 4 8 1	8 5 2 A 7 4 1 9 6 3 0	
6 5 4 3 2 1 0 A 9 8 7	8 A 1 3 5 7 9 0 2 4 6	2 6 A 3 7 0 4 8 1 5 9	1 9 6 3 0 8 5 2 A 7 4	
8 7 6 5 4 3 2 1 0 A 9	7 9 0 2 4 6 8 A 1 3 5	A 3 7 0 4 8 1 5 9 2 6	5 2 A 7 4 1 9 6 3 0 8	
A 9 8 7 6 5 4 3 2 1 0	6 8 A 1 3 5 7 9 0 2 4	7 0 4 8 1 5 9 2 6 A 3	9 6 3 0 8 5 2 A 7 4 1	
1 0 A 9 8 7 6 5 4 3 2	5 7 9 0 2 4 6 8 A 1 3	4 8 1 5 9 2 6 A 3 7 0	2 A 7 4 1 9 6 3 0 8 5	
3 2 1 0 A 9 8 7 6 5 4	4 6 8 A 1 3 5 7 9 0 2	1 5 9 2 6 A 3 7 0 4 8	6 3 0 8 5 2 A 7 4 1 9	
5 4 3 2 1 0 A 9 8 7 6	3 5 7 9 0 2 4 6 8 A 1	9 2 6 A 3 7 0 4 8 1 5	A 7 4 1 9 6 3 0 8 5 2	
7 6 5 4 3 2 1 0 A 9 8	2 4 6 8 A 1 3 5 7 9 0	6 A 3 7 0 4 8 1 5 9 2	3 0 8 5 2 A 7 4 1 9 6	
9 8 7 6 5 4 3 2 1 0 A	1 3 5 7 9 0 2 4 6 8 A	3 7 0 4 8 1 5 9 2 6 A	7 4 1 9 6 3 0 8 5 2 A	



[Order 11]

T5/

T6/

T7/

T8/

```

0|5|A|4|9|3|8|2|7|1|6|
-+-+-+
7|1|6|0|5|A|4|9|3|8|2|
-+-+-+
3|8|2|7|1|6|0|5|A|4|9|
-+-+-+
A|4|9|3|8|2|7|1|6|0|5|
-+-+-+
6|0|5|A|4|9|3|8|2|7|1|
-+-+-+
2|7|1|6|0|5|A|4|9|3|8|
-+-+-+
9|3|8|2|7|1|6|0|5|A|4|
-+-+-+
5|A|4|9|3|8|2|7|1|6|0|
-+-+-+
1|6|0|5|A|4|9|3|8|2|7|
-+-+-+
8|2|7|1|6|0|5|A|4|9|3|
-+-+-+
4|9|3|8|2|7|1|6|0|5|A|

```

```

0|7|3|A|6|2|9|5|1|8|4|
-+-+-+
5|1|8|4|0|7|3|A|6|2|9|
-+-+-+
A|6|2|9|5|1|8|4|0|7|3|
-+-+-+
4|0|7|3|A|6|2|9|5|1|8|
-+-+-+
9|5|1|8|4|0|7|3|A|6|2|
-+-+-+
3|A|6|2|9|5|1|8|4|0|7|
-+-+-+
8|4|0|7|3|A|6|2|9|5|1|
-+-+-+
2|9|5|1|8|4|0|7|3|A|6|
-+-+-+
7|3|A|6|2|9|5|1|8|4|0|
-+-+-+
1|8|4|0|7|3|A|6|2|9|5|
-+-+-+
6|2|9|5|1|8|4|0|7|3|A|

```

```

0|3|6|9|1|4|7|A|2|5|8|
-+-+-+
9|1|4|7|A|2|5|8|0|3|6|
-+-+-+
7|A|2|5|8|0|3|6|9|1|4|
-+-+-+
5|8|0|3|6|9|1|4|7|A|2|
-+-+-+
3|6|9|1|4|7|A|2|5|8|0|
-+-+-+
1|4|7|A|2|5|8|0|3|6|9|
-+-+-+
A|2|5|8|0|3|6|9|1|4|7|
-+-+-+
8|0|3|6|9|1|4|7|A|2|5|
-+-+-+
6|9|1|4|7|A|2|5|8|0|3|
-+-+-+
4|7|A|2|5|8|0|3|6|9|1|
-+-+-+
2|5|8|0|3|6|9|1|4|7|A|

```

```

0|9|7|5|3|1|A|8|6|4|2|
-+-+-+
3|1|A|8|6|4|2|0|9|7|5|
-+-+-+
6|4|2|0|9|7|5|3|1|A|8|
-+-+-+
9|7|5|3|1|A|8|6|4|2|0|
-+-+-+
1|A|8|6|4|2|0|9|7|5|3|
-+-+-+
4|2|0|9|7|5|3|1|A|8|6|
-+-+-+
7|5|3|1|A|8|6|4|2|0|9|
-+-+-+
A|8|6|4|2|0|9|7|5|3|1|
-+-+-+
2|0|9|7|5|3|1|A|8|6|4|
-+-+-+
5|3|1|A|8|6|4|2|0|9|7|
-+-+-+
8|6|4|2|0|9|7|5|3|1|A|

```

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