[[1]](#footnote-0)



Figure 1. A model case for space interference matrix

**1. Last development task**

Step 1: write the matrix of X +, X-, Y +, Y-, Z + and Z-.(Completed in the last project)



**the second step:**



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**2. This development task: obtain all possible disassembly sequences (0 in result indicates the possibility of disassembly, and 6 columns in rusult correspond to X +, X-, Y +, Y-, Z +, Z-respectively).**

**For example, in equation (2), row 1 and column 1 of result is 0, indicating that A can be removed from the X + direction.**

**Again, in formula (2), row 3 and column 3 of result is 0, which means that C can be removed from the X + direction.**

**Here is a complete example:**

Step 1: Remove A from the X + direction, and the rows and columns in formula (2) and A are removed from the matrix. The resulting matrix row element performs "or" and obtains a new result, such as the (3) child. There are three demolition schemes, i. e

1. Remove C from the Y + direction;

2. Remove D from the Y + direction;

3. Remove F from the Z-direction;

 (3)

Step 2: Select the scenario 2 in the previous step, that is, remove D from the Y + direction. The rows and columns associated to D in equation (3) are removed from the matrix. The resulting matrix row element is then "or" to obtain a new result, such as (4). Next came the six demolition options, i. e

1. Remove B from the X + direction;

2. Remove B from the X-direction;

3. Remove B from the Y + direction;

4. Remove B from the Z + direction;

5. Remove C from the Y + direction;

6. Remove F from the Z-direction;

 (4)

Step 3: Select scenario 1 in the previous step, that is to remove B from the X + direction; the rows and columns in formula (4) and B are removed from the matrix. The resulting matrix row element is then calculated "or" to obtain a new result, such as formula (5). There are two demolition options, i. e

1. Remove C from the Y + direction;

2. Remove F from the Z-direction;

 (5)

Step 3: Select the scenario 1 in the previous step, that is to remove C from the Y + direction; the rows and columns related to C in the equation (5) are removed from the matrix. The resulting matrix row element is then calculated "or" to obtain a new result, such as formula child (6). There are two demolition options, i. e

1. Remove E from the Y + direction;

2. Remove F from the Z-direction;

 (6)

Step 4: Select scenario 1 in the previous step, remove E from the Y + direction; the rows and columns related to E in Formula (6) are removed from the matrix. The resulting matrix row element is then calculated as "or" to obtain a new result, such as the formula- (7) child. At this point, only F, which can be removed from any direction, so that F can not be processed.

 (7)

* **After the above steps, a disassembly scheme (required results) indicating the complete disassembly elements (A, B, C, D, E, F) and the corresponding disassembly direction (X +, X-, Y +, Y-, Z +, Z-) is obtained as follows:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Disassemble elements | A | D | B | C | E |
| Corresponding to the disassembly direction | X+ | Y+ | X+ | Y+ | Y+ |

Finally, you need to traverse (list) all possible disassembly solutions!

1. [↑](#footnote-ref-0)