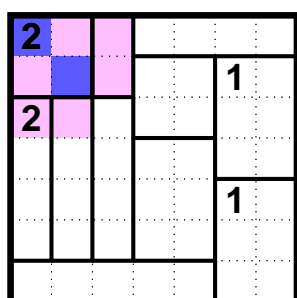
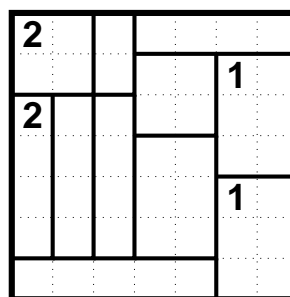


Heyawake

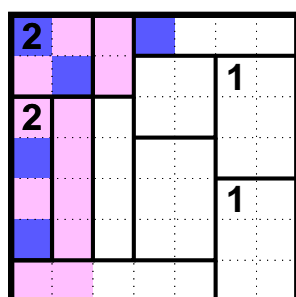
I became aware of this puzzle from Alex Bellos' book, 'Puzzle Ninja', though it has had a following on the web for some time. The web puzzlers can time themselves with ambitious puzzles which would be too difficult for pencil & paper, the interactive facility giving them the ability to retrace their steps without leaving a trail of out-rubbings. The examples given here are more gentle but nevertheless quite demanding, giving an opportunity for a new clientele with this engaging puzzle. I mentioned this puzzle in the introduction to **hitori** as the final objective for both puzzles is the same, but with **heyawake** the grid has very few numbers, so it seems that there is very little given information. This is however rather deceptive as there is a great deal of information in the pattern of squares and rectangles – there must always be just enough negative entropy for any puzzle like this to have a unique solution.

The grid is divided into rectangular 'rooms', some of which contain a number. Your task is to shade cells so that the total shaded in each room matches the number if it is given. The shaded cells may only touch each other at their corners, and the unshaded cells must form a single interconnected region. If there is a row (or column) of any number of connected unshaded cells, they must all be in either one or two rooms.

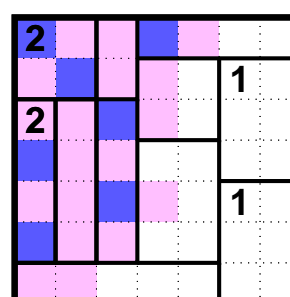
In the top left of this example puzzle you see a square of 4 cells, 2 of which must be shaded in. Although there are two ways to do this you will notice that one arrangement isolates the unshaded corner cell which then is inaccessible from all other unshaded cells, so the corner cell itself must be shaded. In these diagrams any cell which is known to be unshaded in the final result is shown in pink. In **A** there are four more pink cells decided, two being neighbours of shaded cells and the other two in positions that would isolate other pink cells.



A

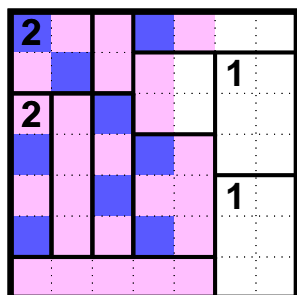


B

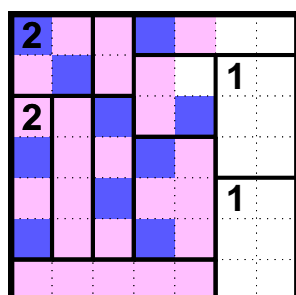


C

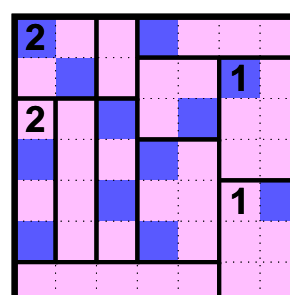
On the left side we now see a room with the given of 2 and three undecided cells. These can be filled only in one way as the shaded cells may not be neighbours, and immediately there are more cells that can be coloured pink, **B**. In the top row of this diagram we see the first invocation of the rule of two rooms maximum for a run of pink cells, so there has to be a shaded cell in the next room on the first row. This rule is invoked twice more in **C**, and then a number of pink cells can be marked as neighbours of the newly shaded cells.



D



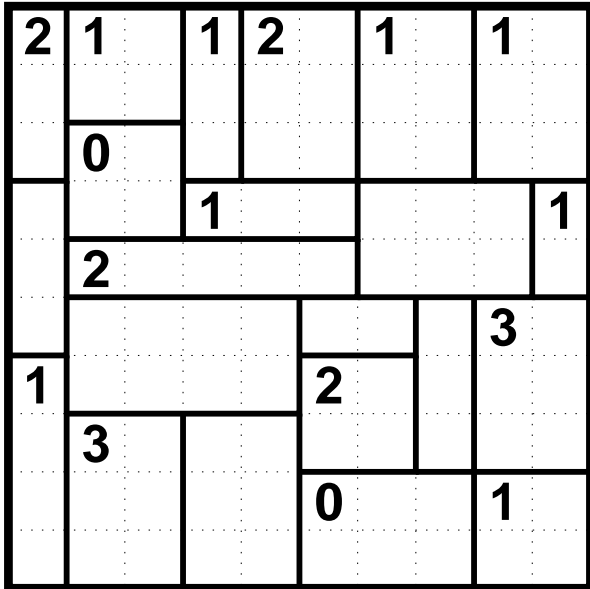
E



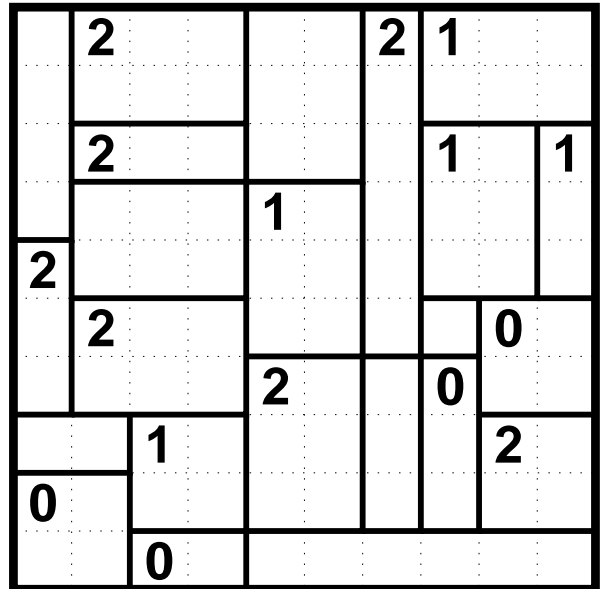
F

On invoking this rule twice more in the fourth and sixth rows to give **D**, the bottom left room can be completed with pink cells because any shaded cells would isolate a region of pink cells. One more cell is shaded in **E** using the rule in the fifth column, after which the puzzle can be easily finished, **F**. First invoke the rule in the second row by shading a cell which satisfies the upper room with given 1, then preventing an isolated region by completing the top room in pink. The last shaded cell is forced by the rule in the seventh column, and the solution is complete.

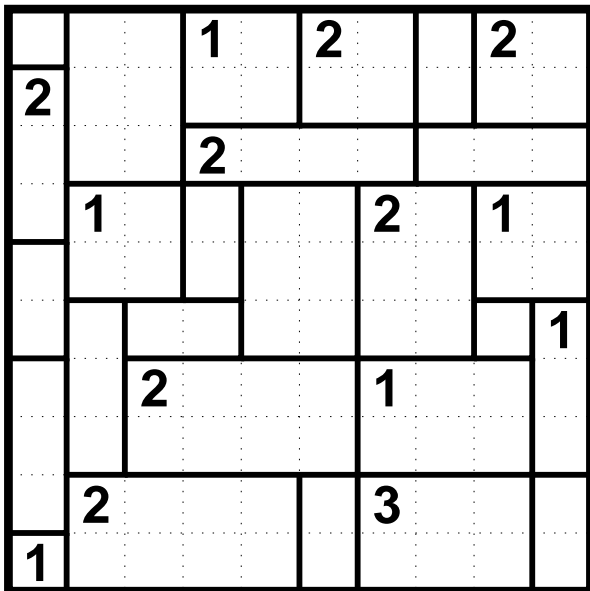
Heyawake 10 × 10



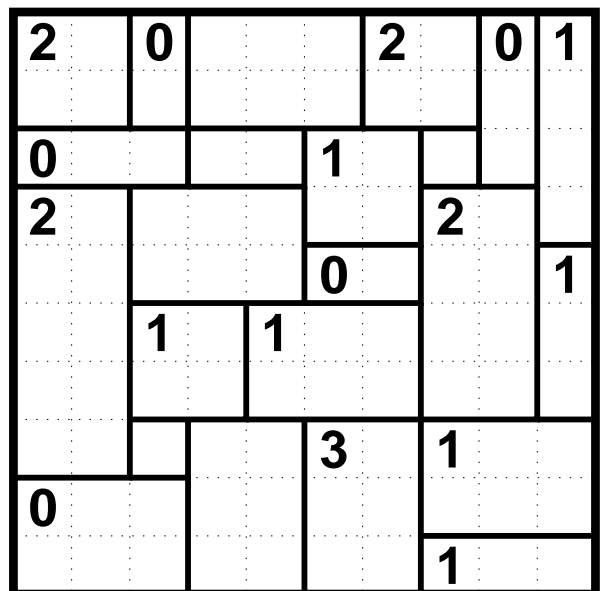
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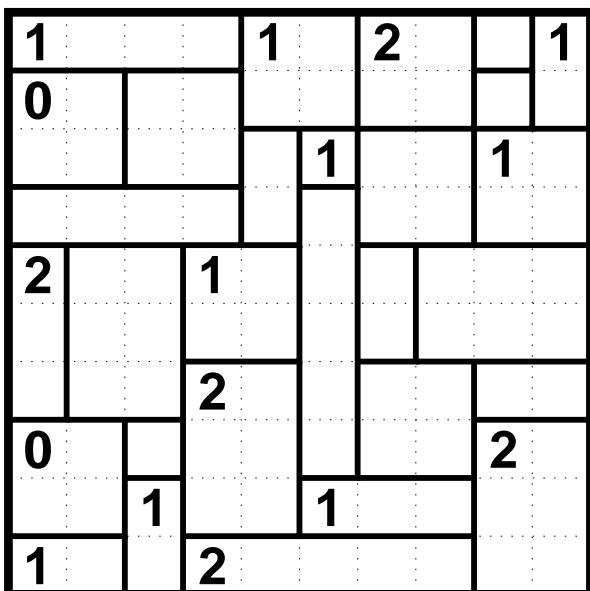
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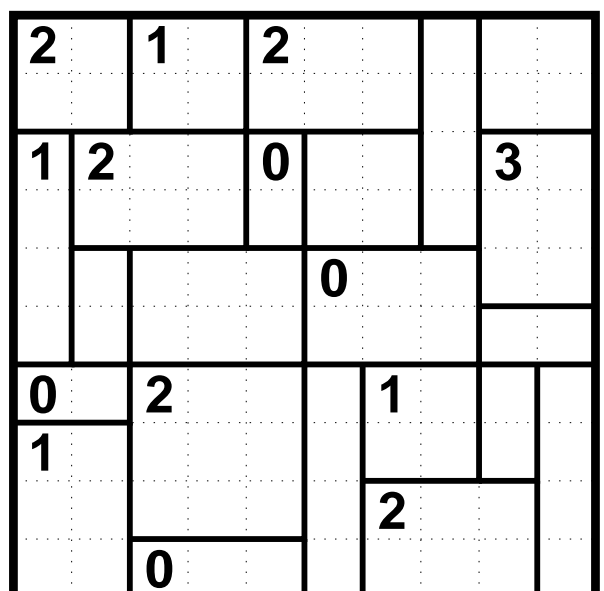
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4

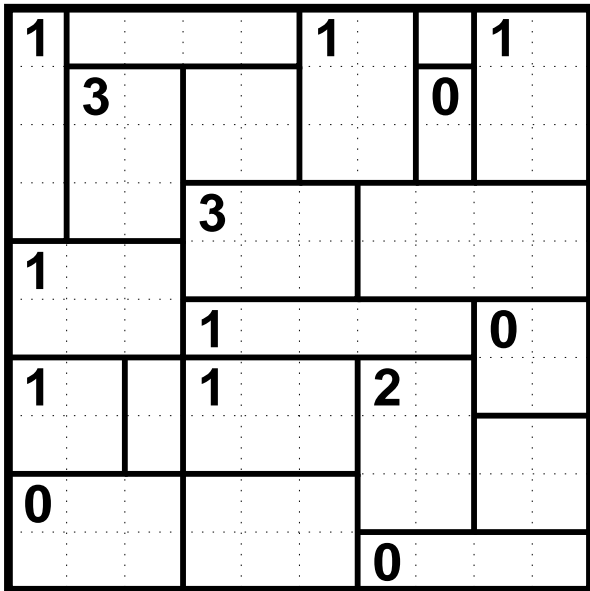


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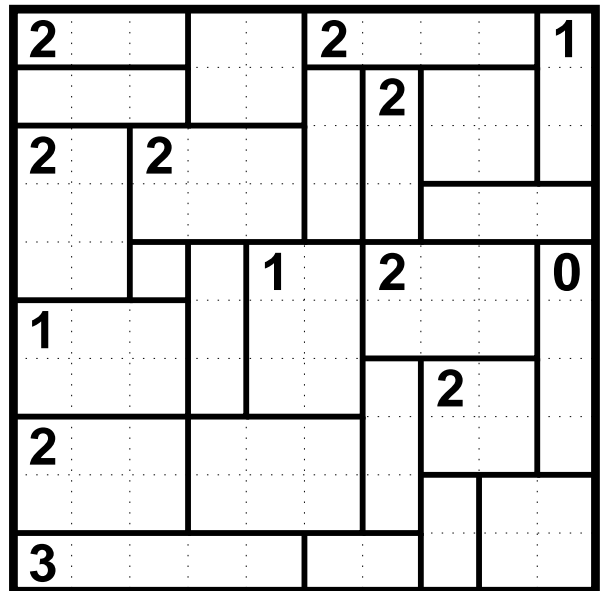


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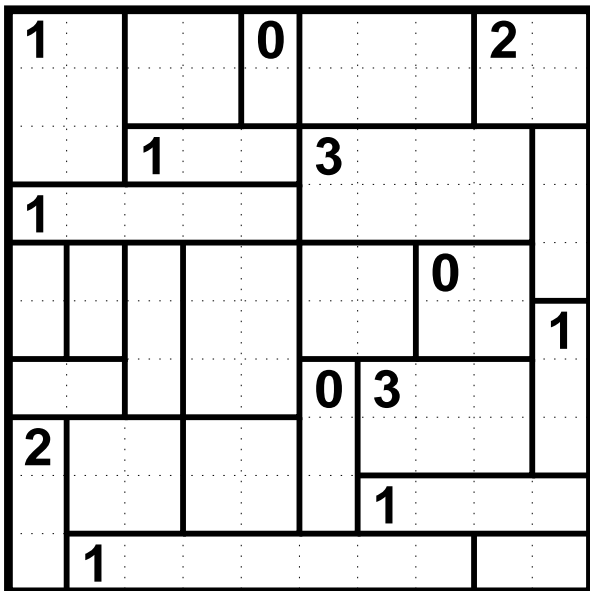
Heyawake 10 × 10



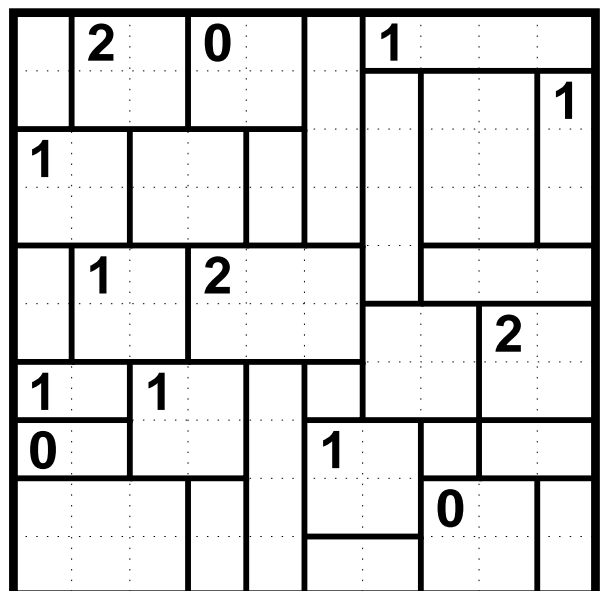
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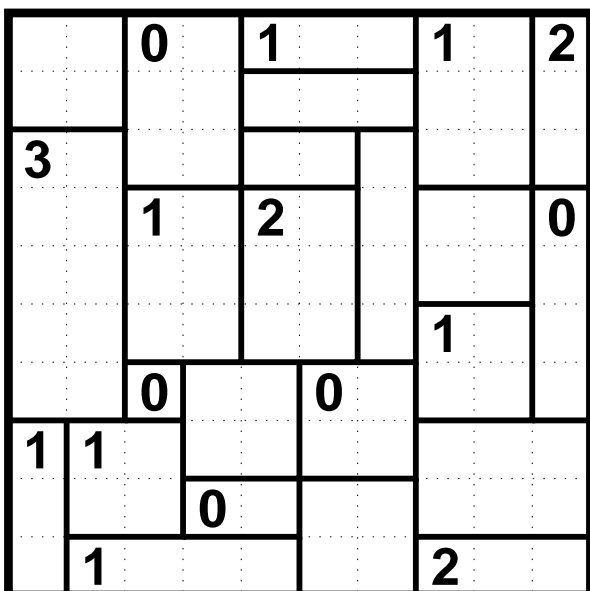
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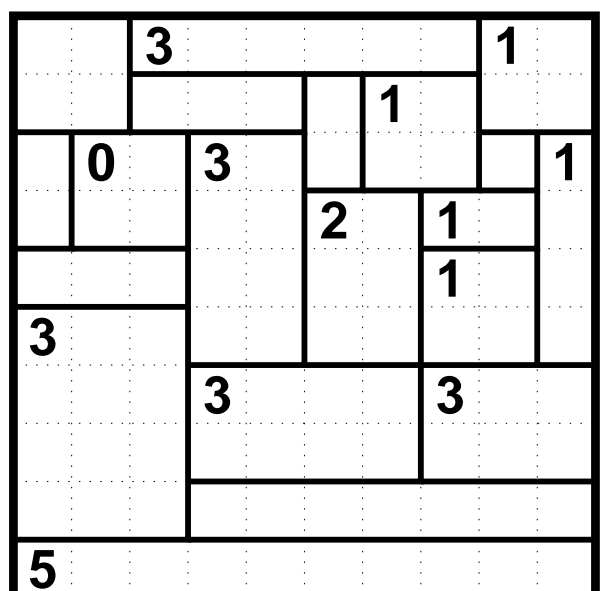
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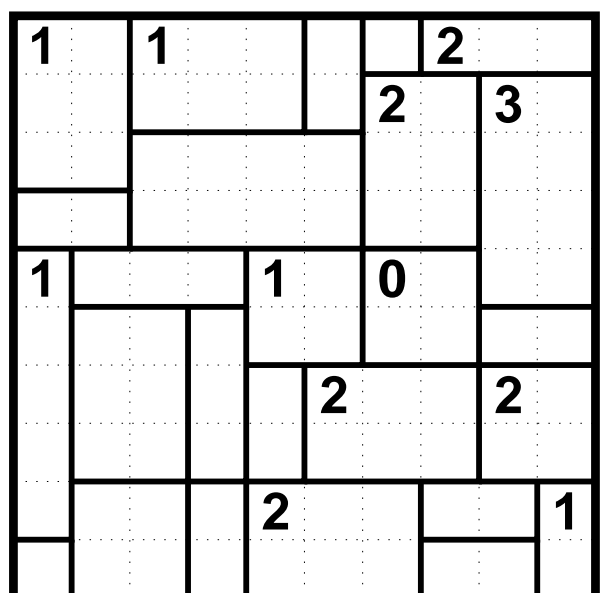
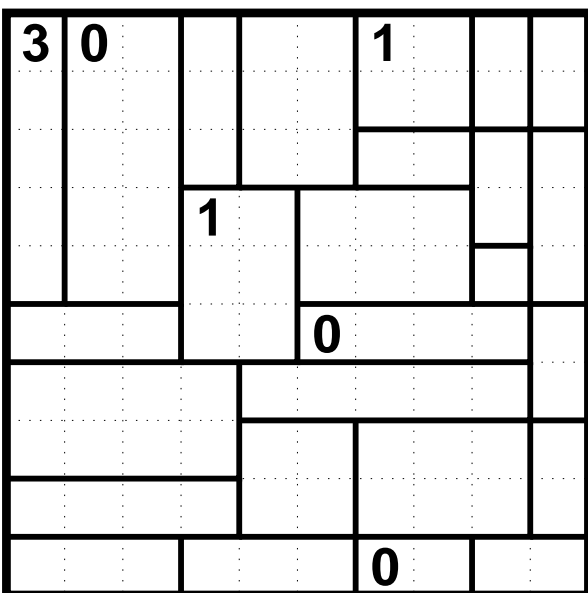
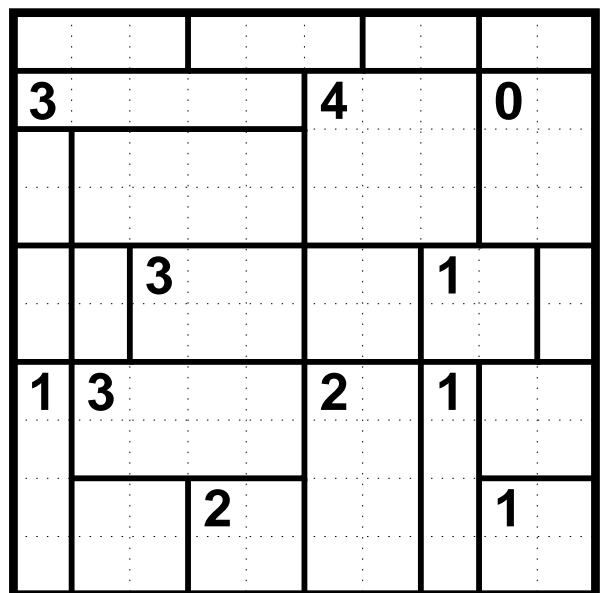
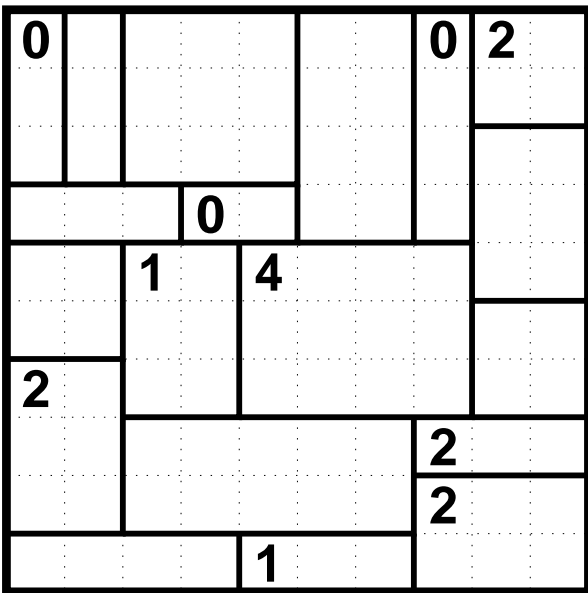
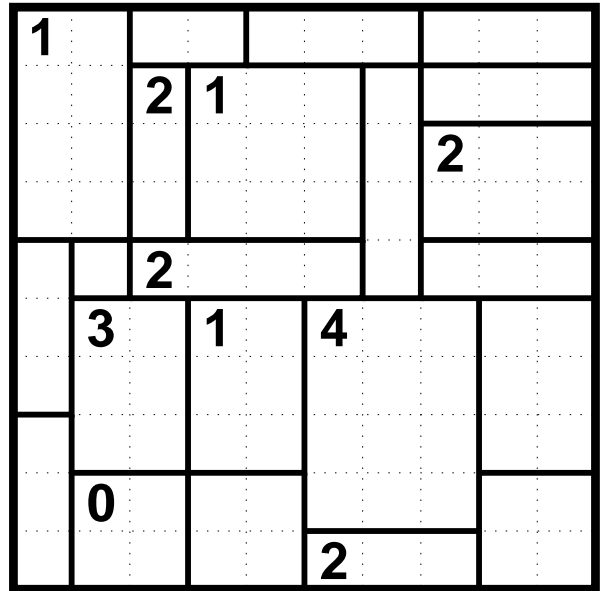
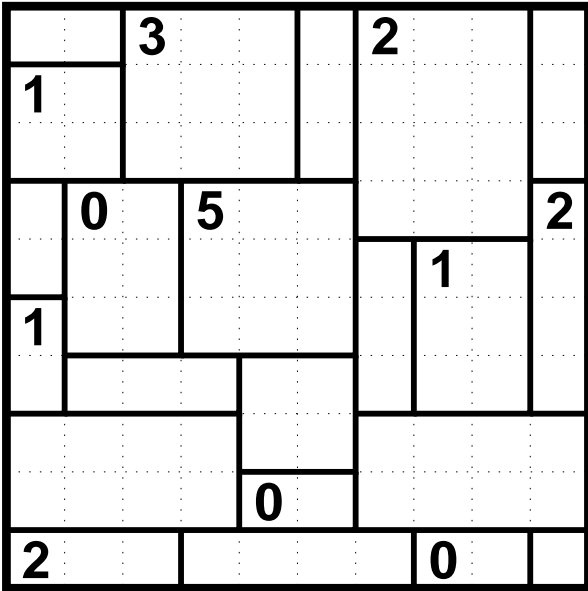


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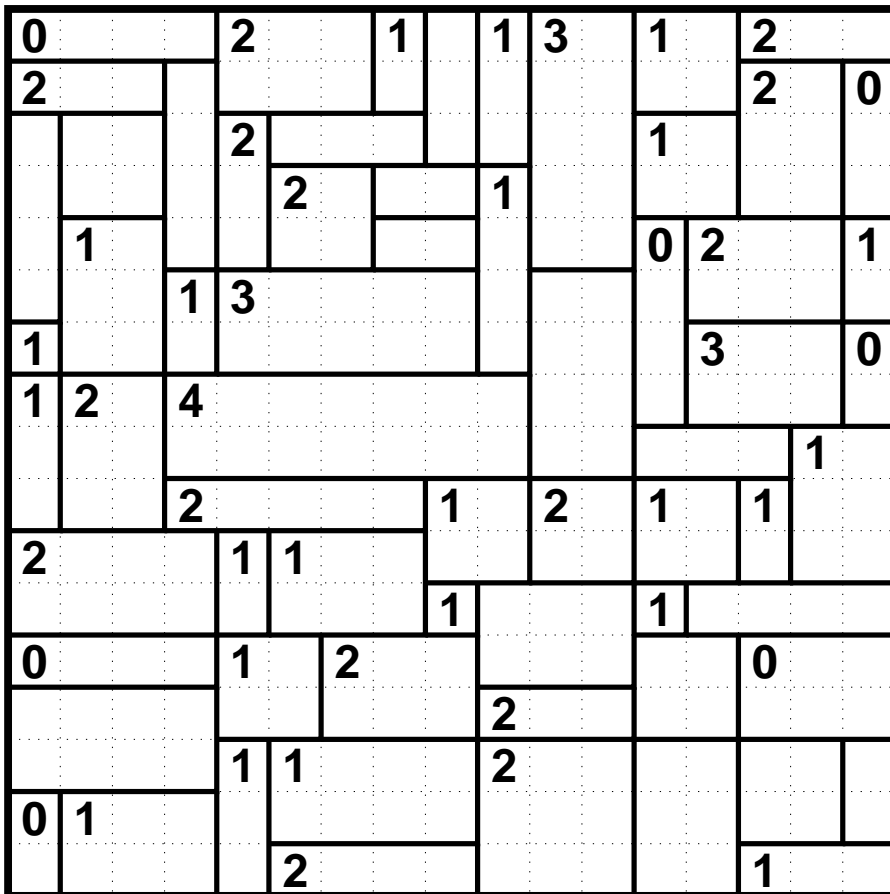


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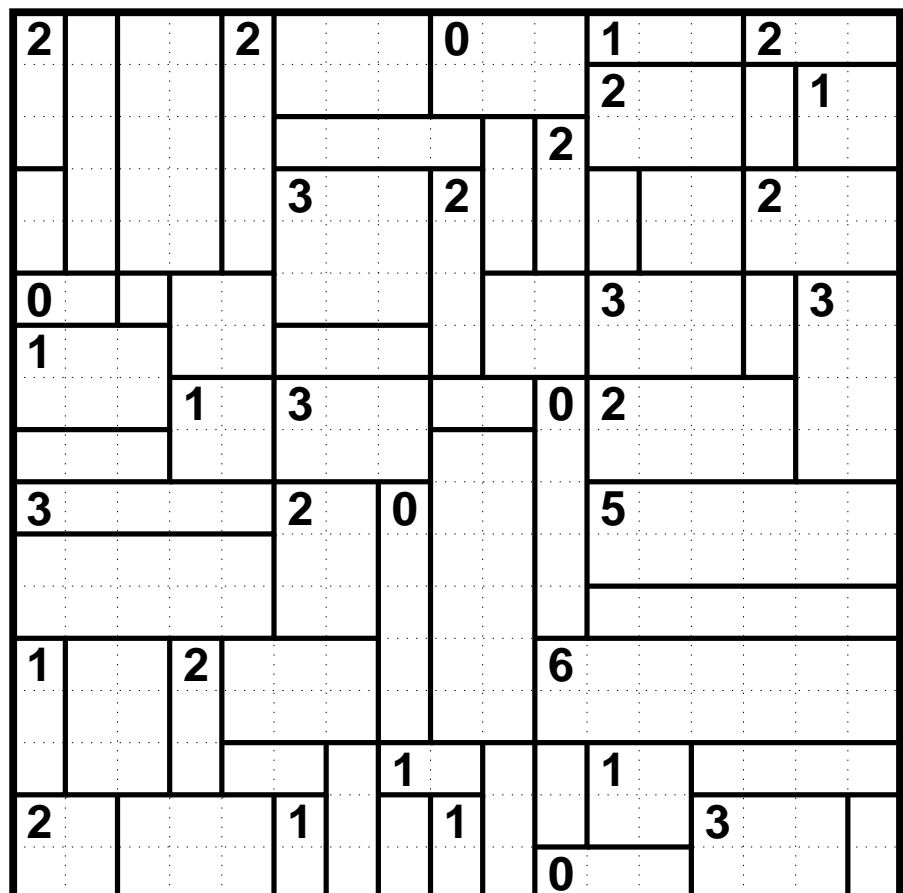
Heyawake 10 × 10



Heyawake 17×17

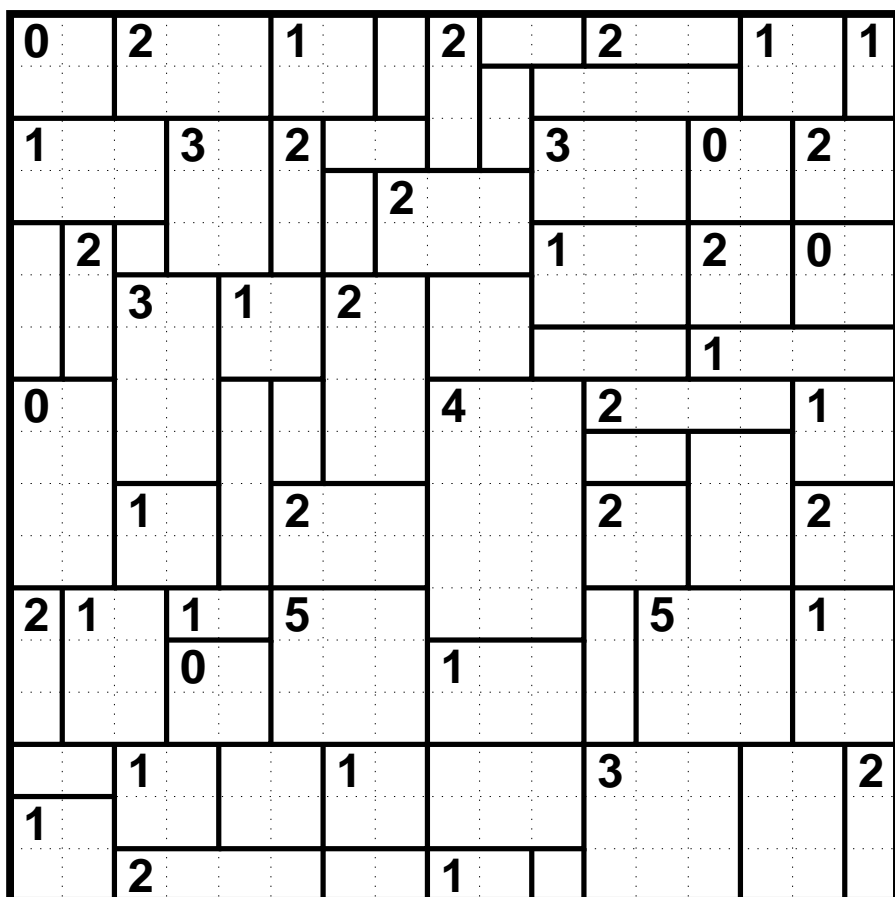


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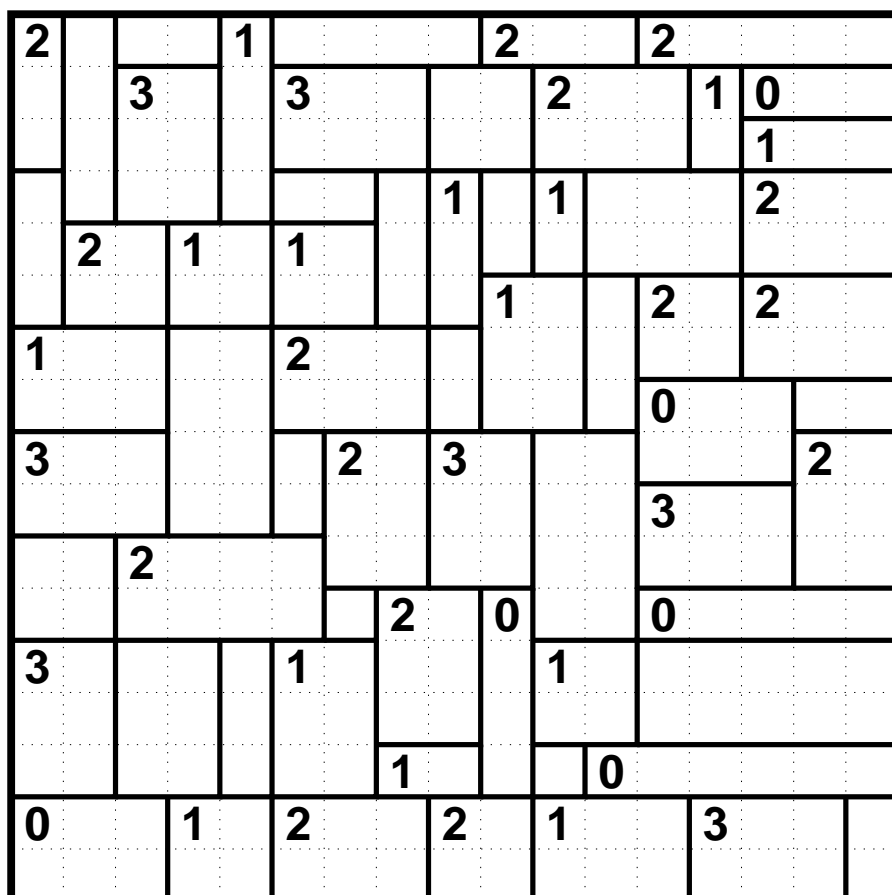
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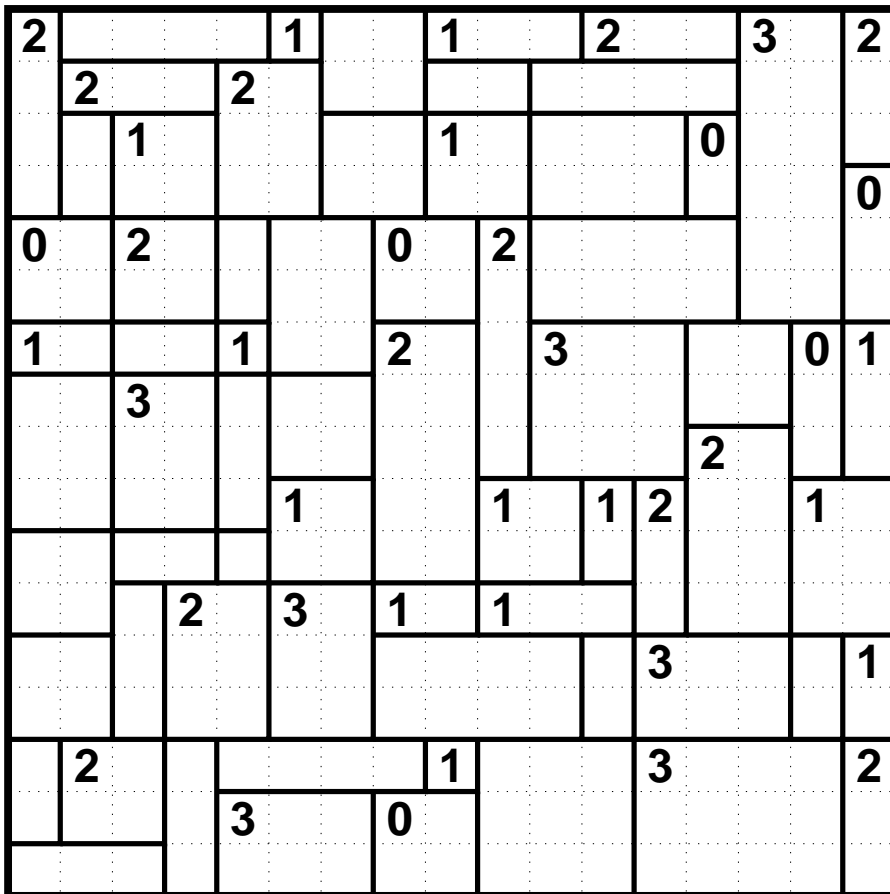


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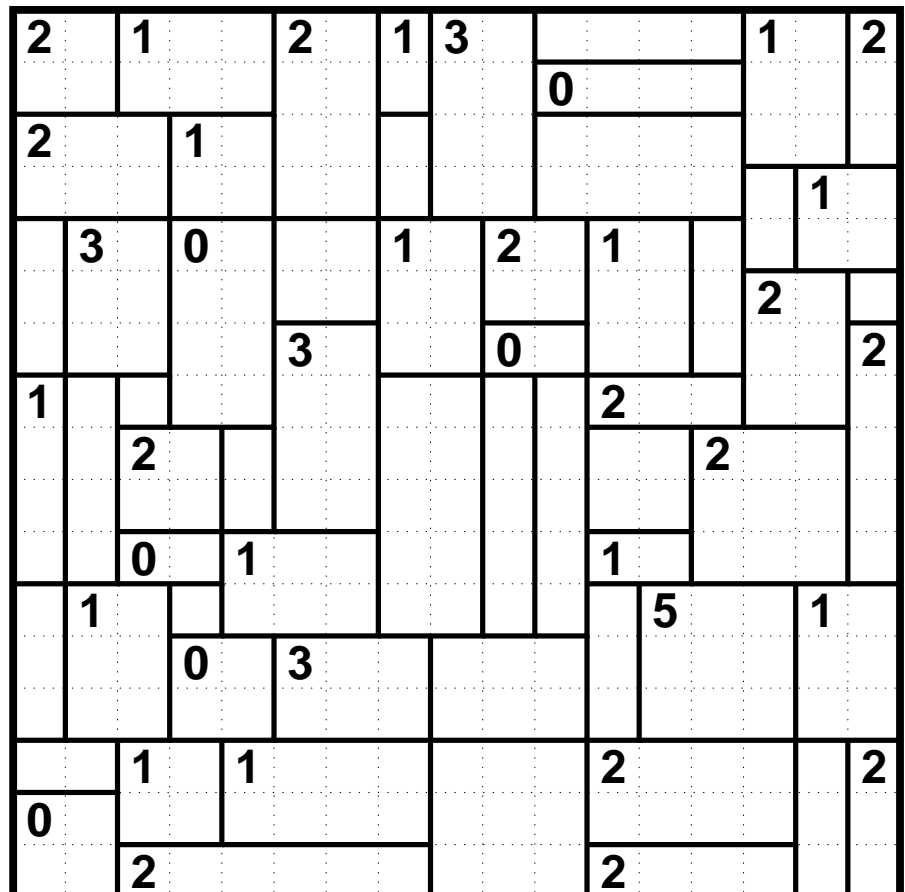


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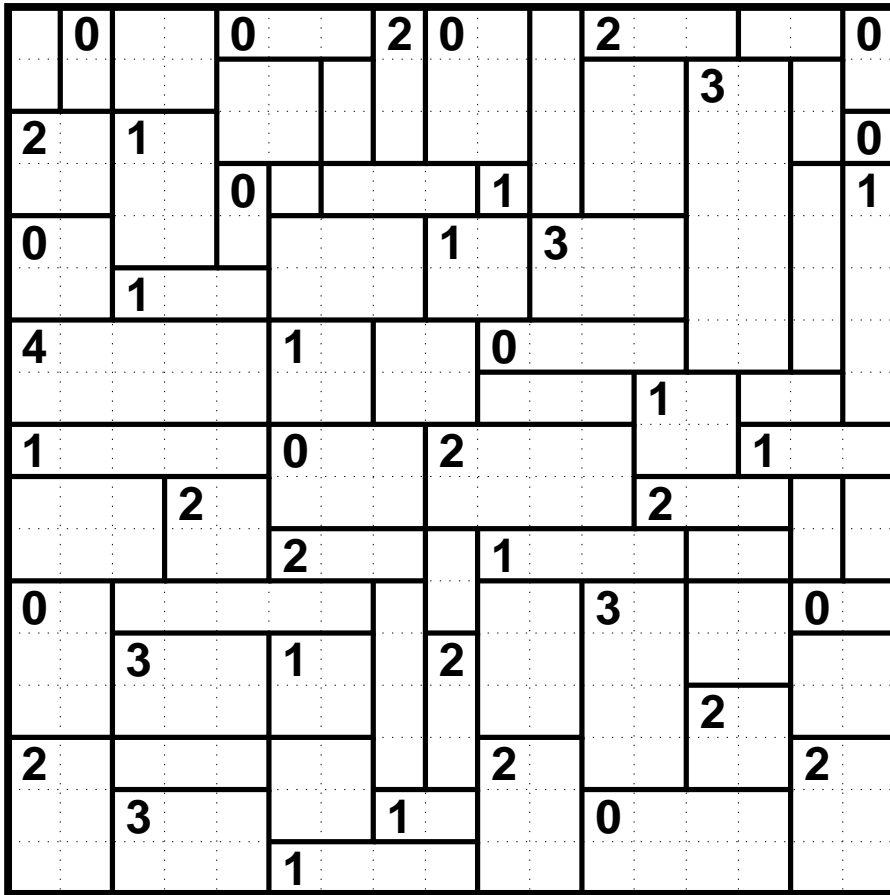


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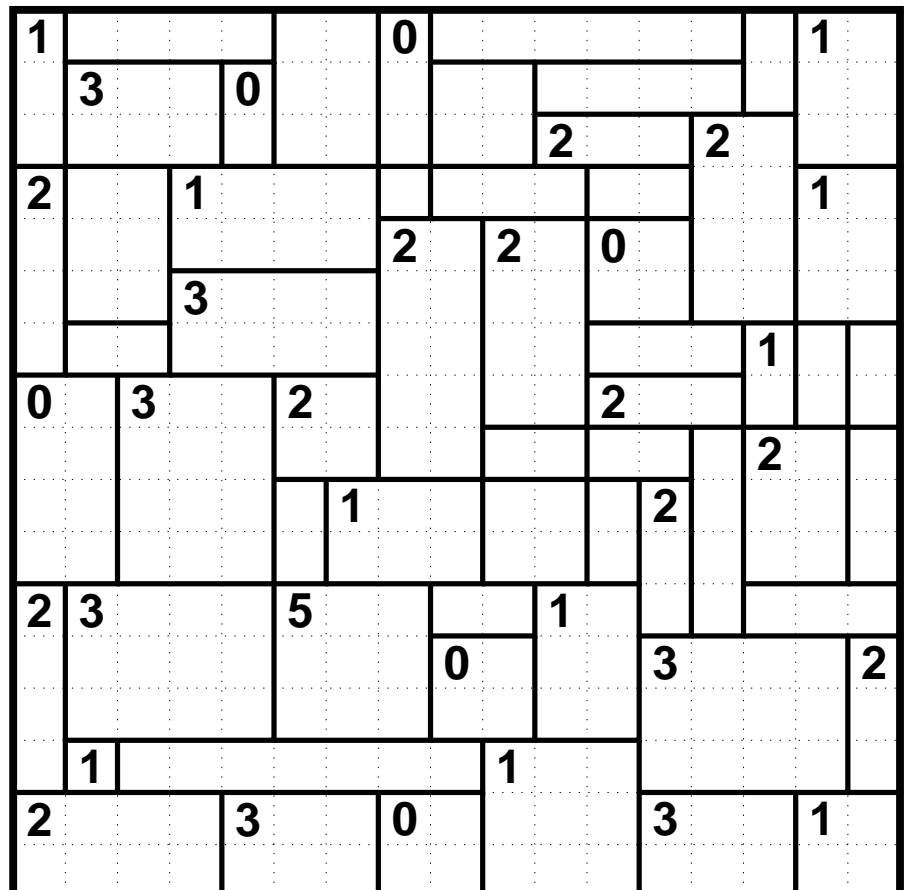


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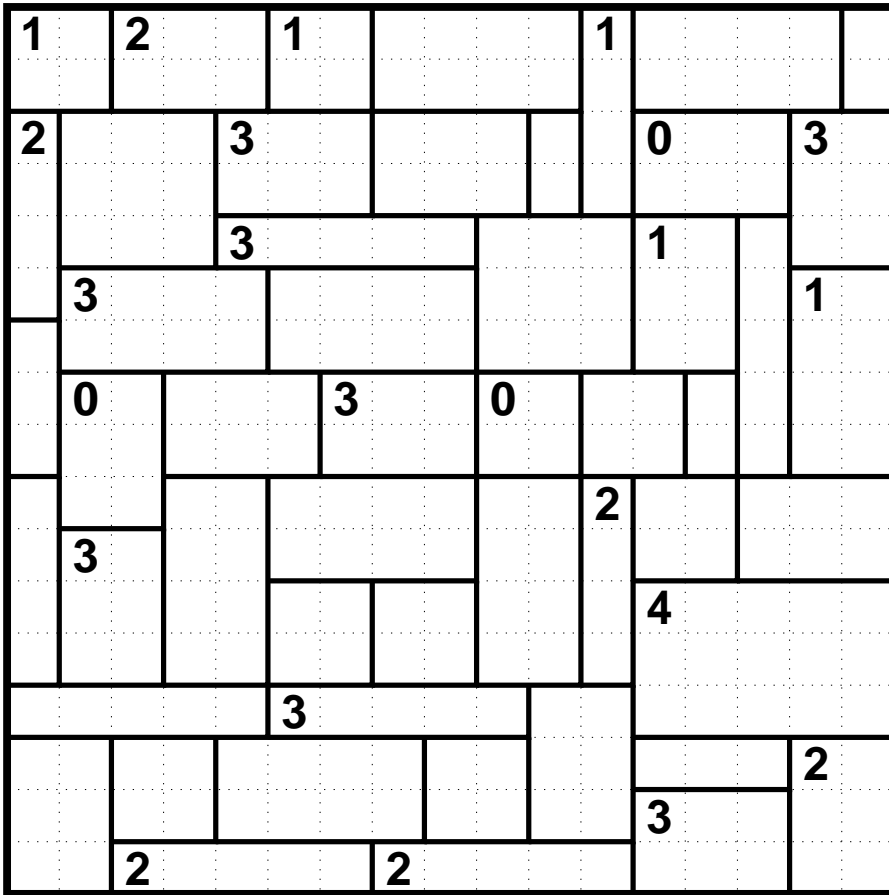


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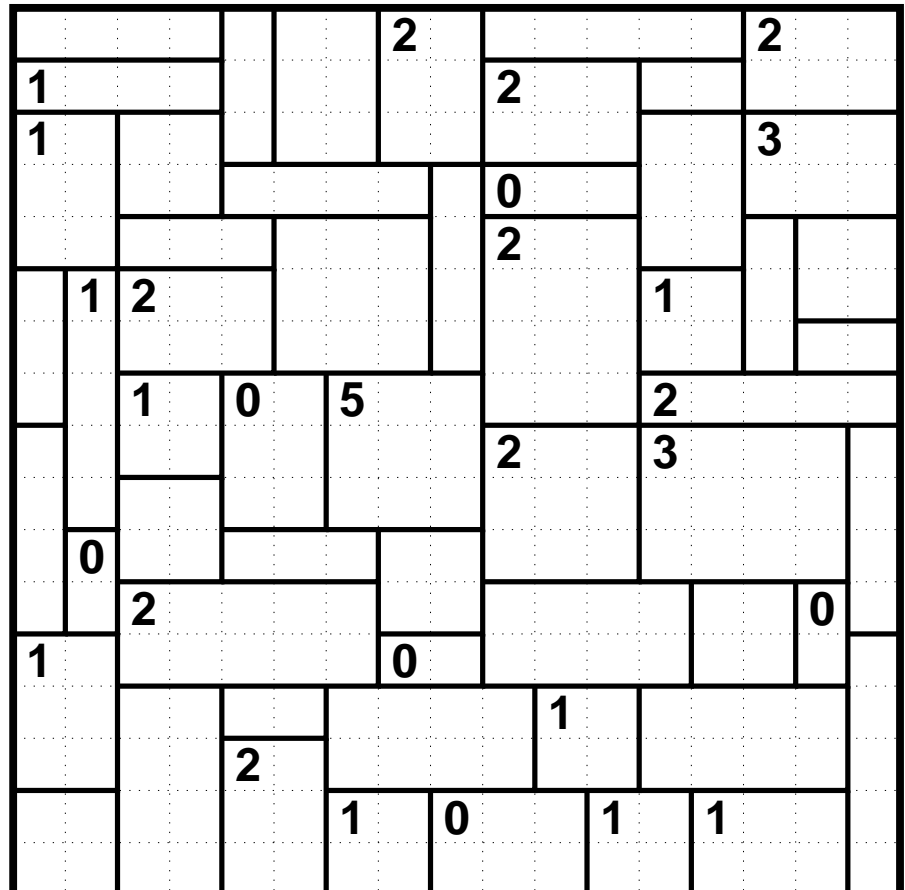


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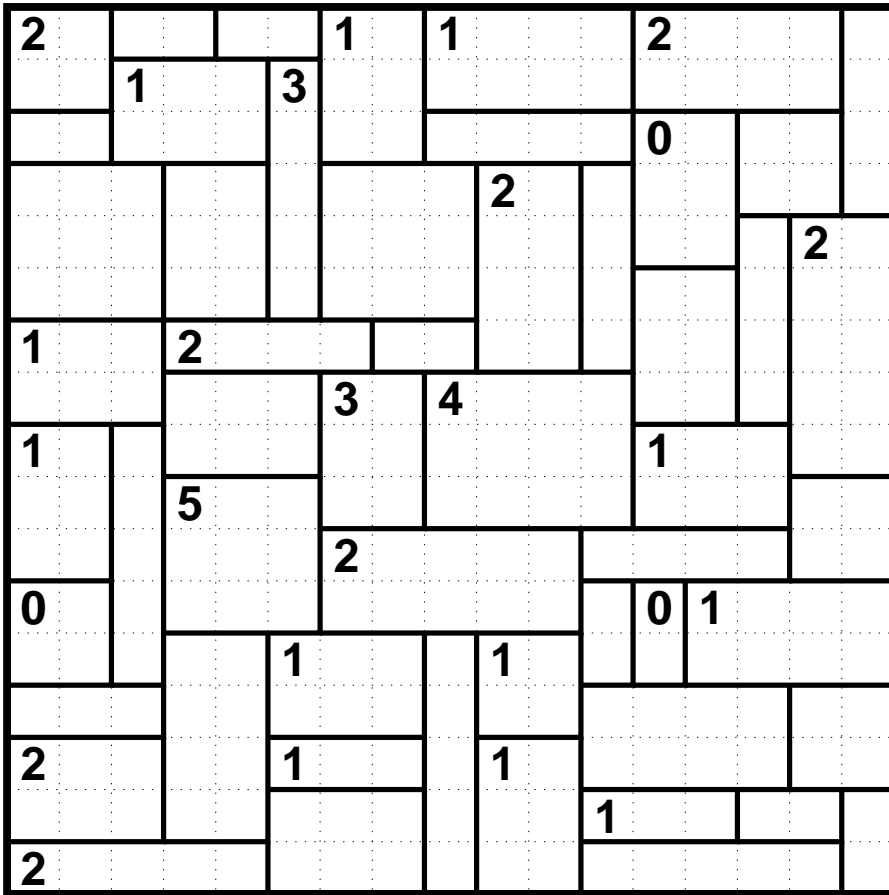


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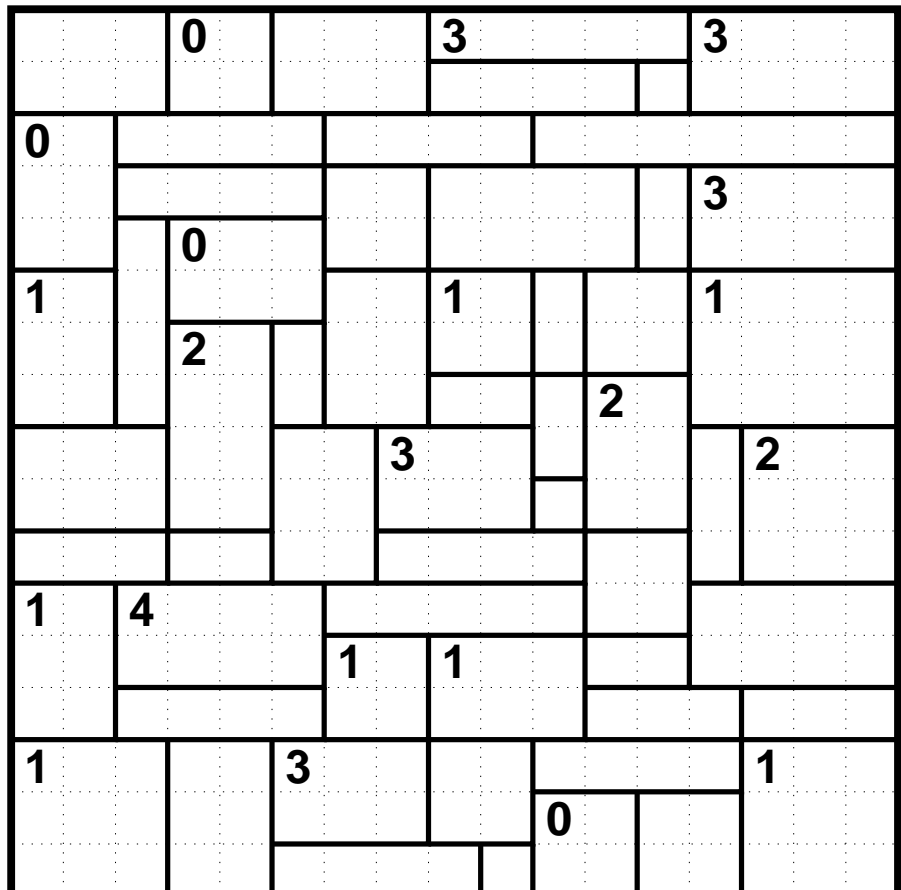


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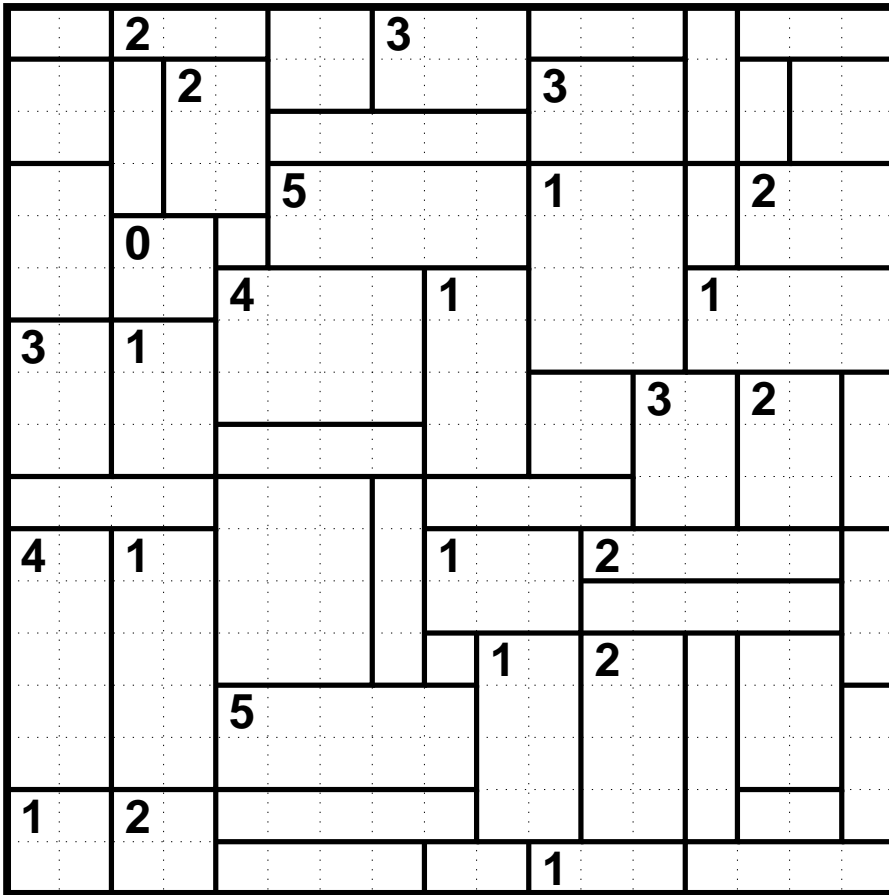


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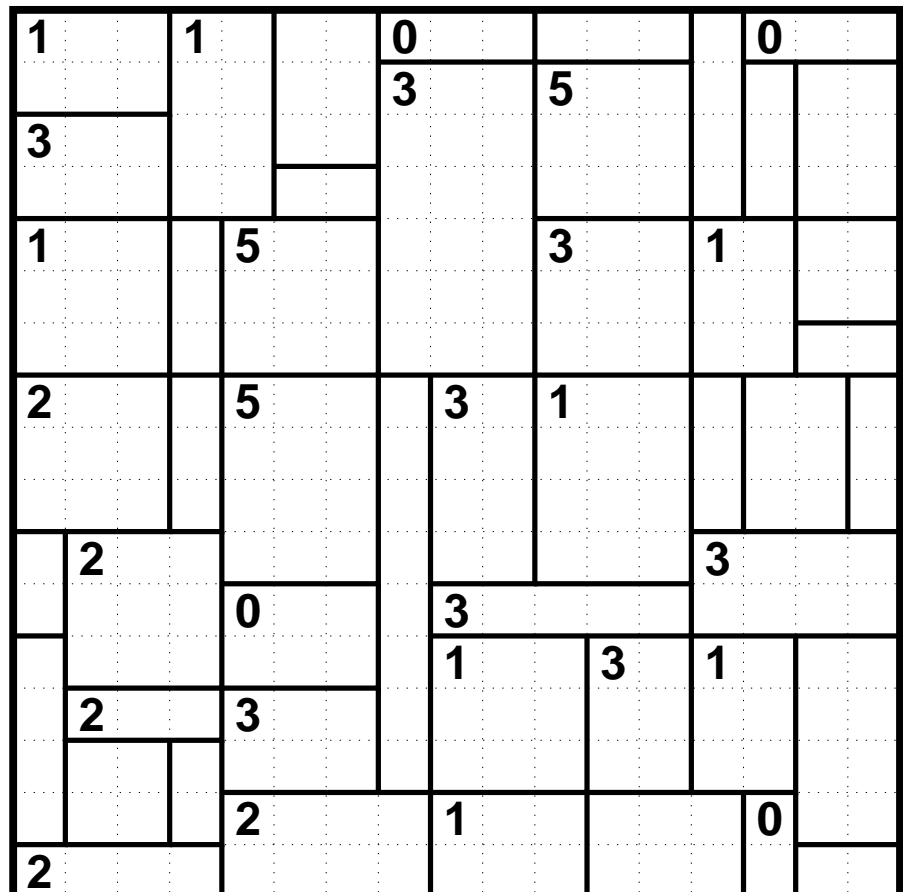
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Heyawake 17×17



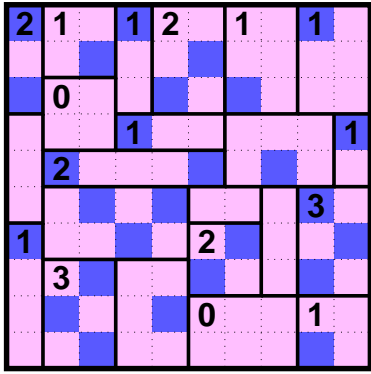
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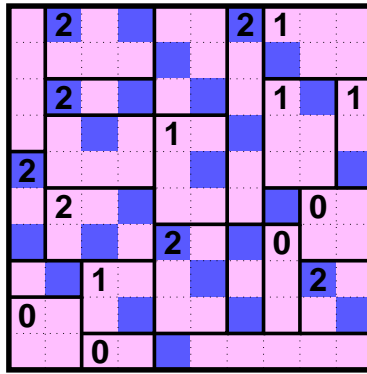
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Heyawake

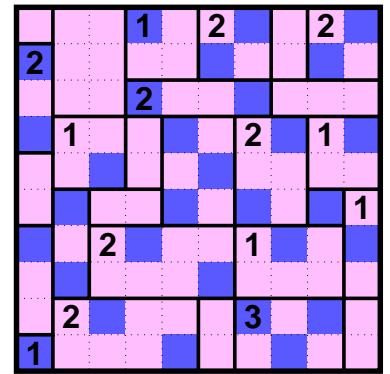
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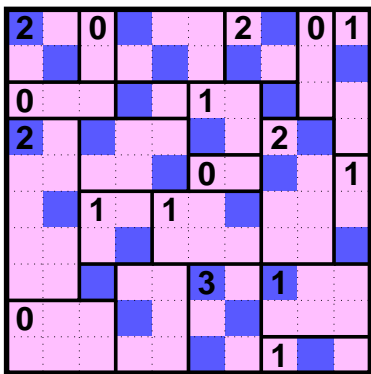
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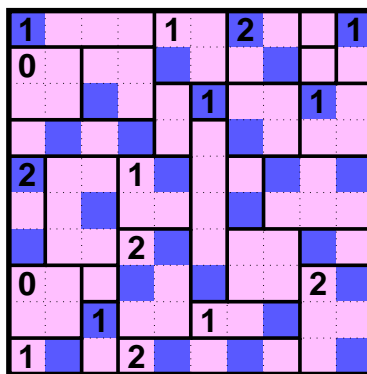
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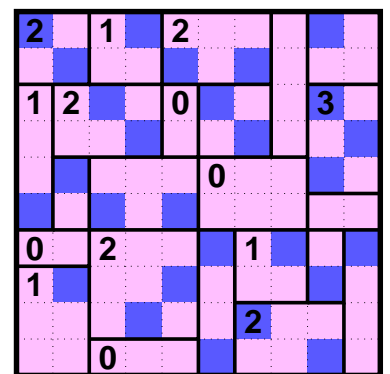
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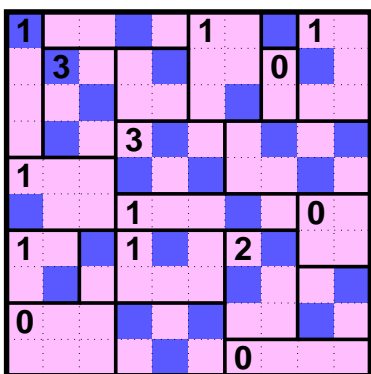
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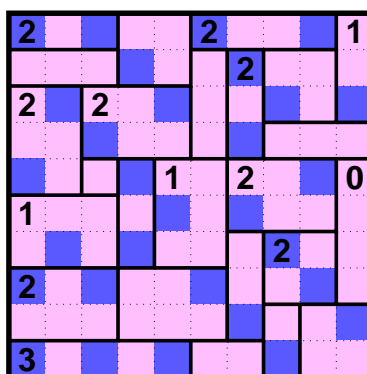
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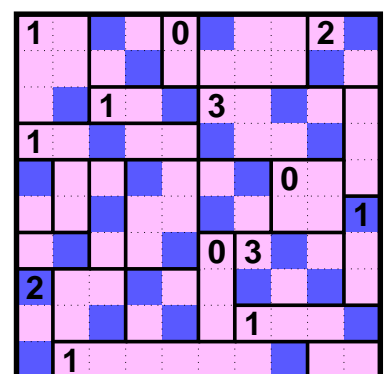
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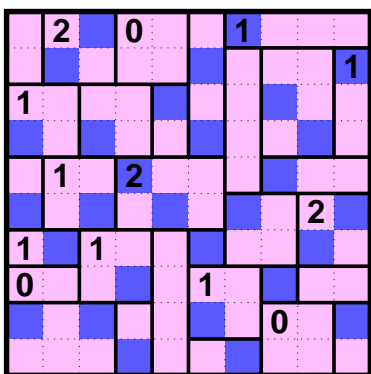
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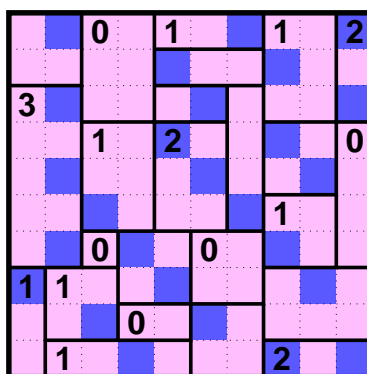
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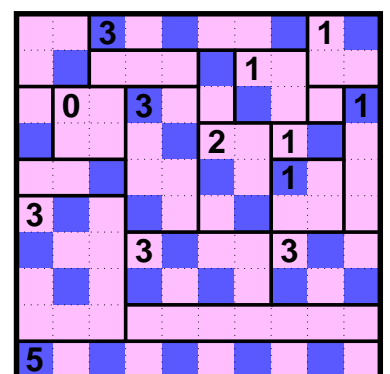
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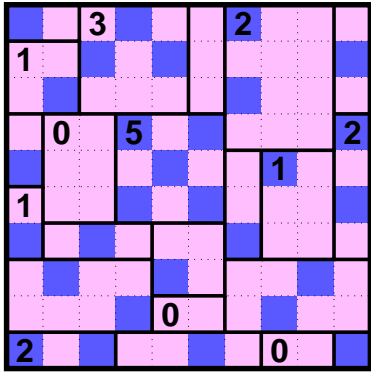
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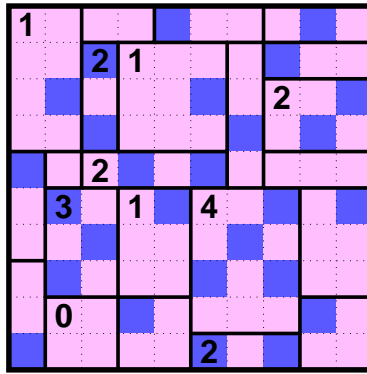
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Heyawake

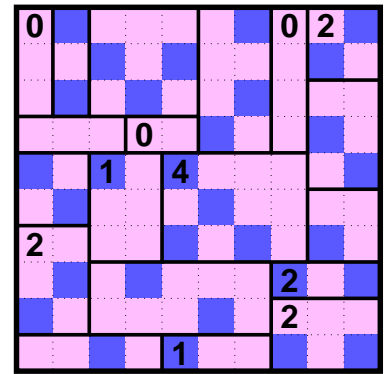
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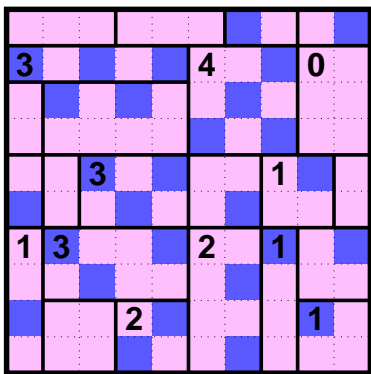
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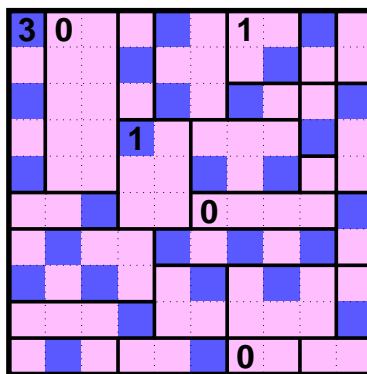
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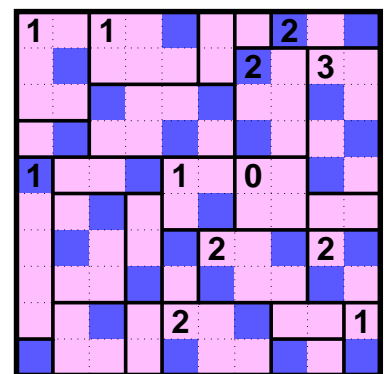
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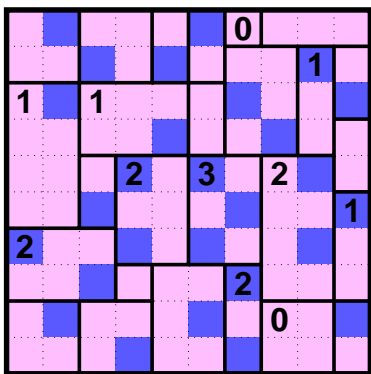
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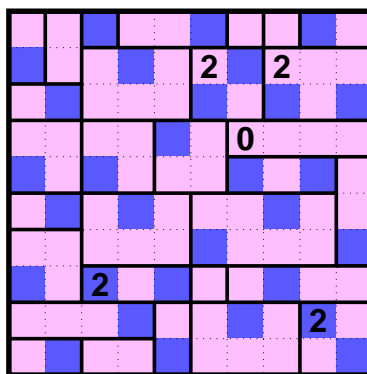
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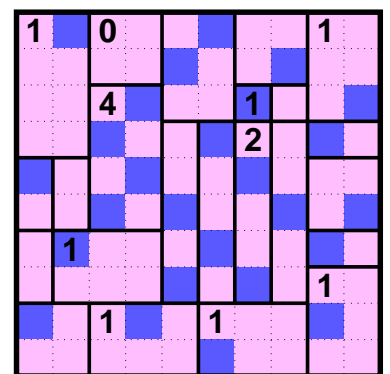
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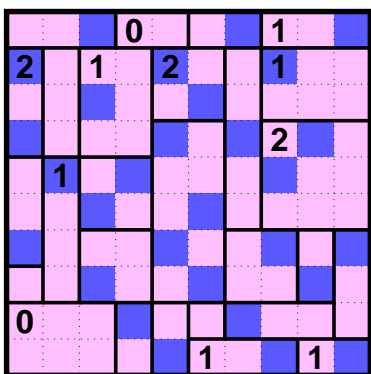
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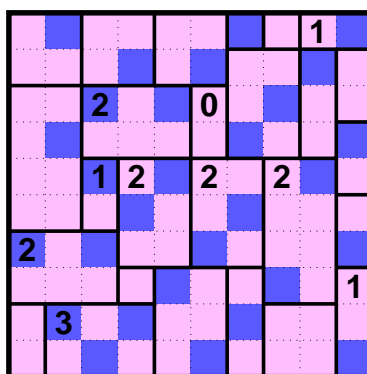
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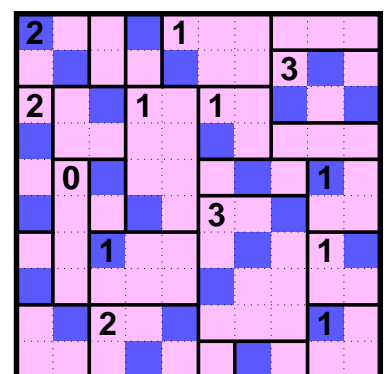
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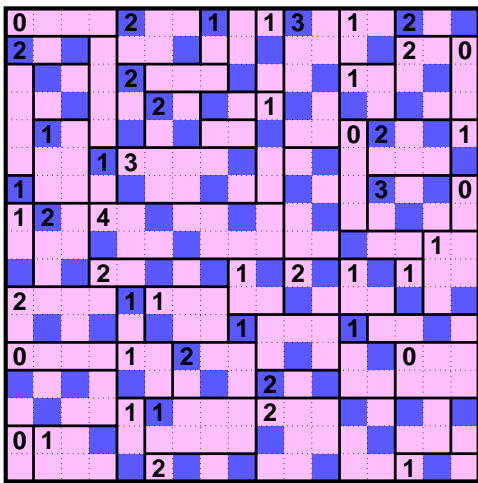
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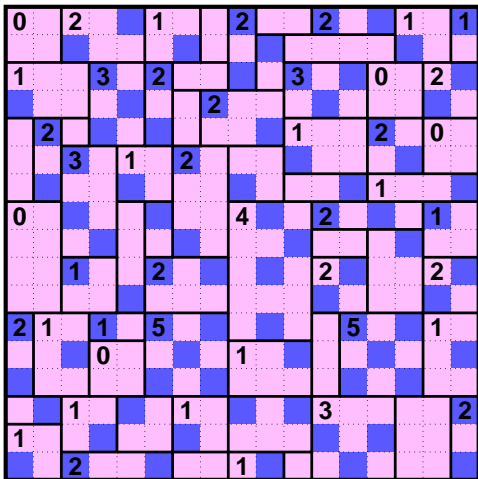
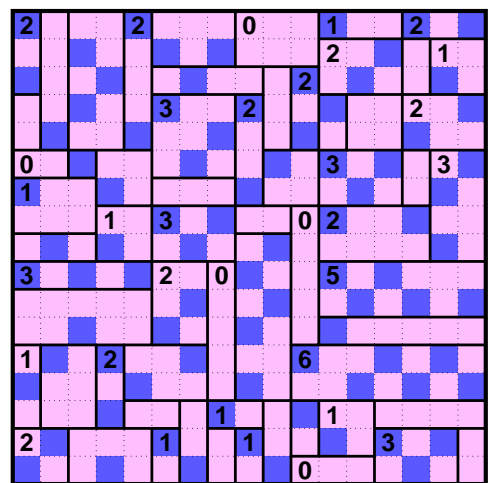
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Heyawake

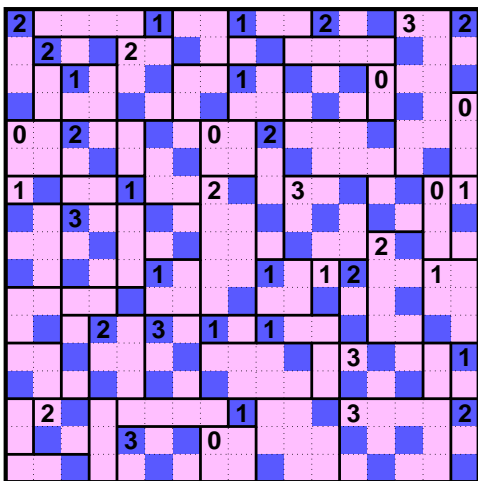
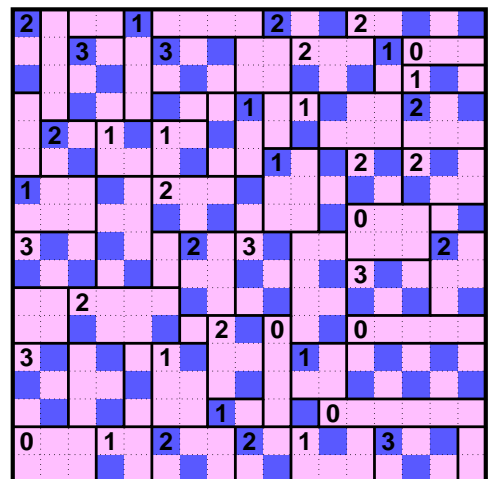
17 × 17



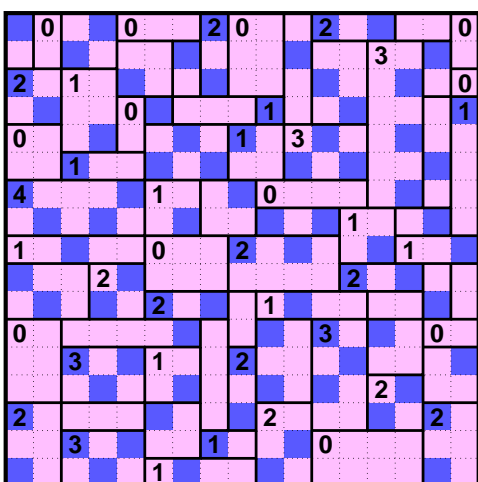
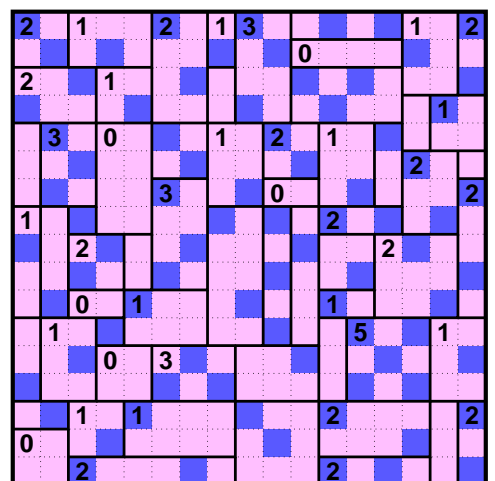
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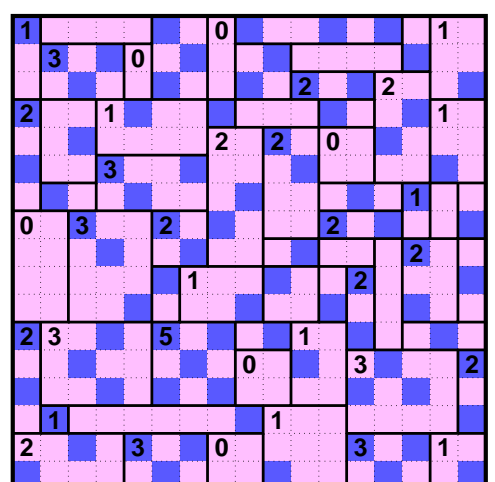
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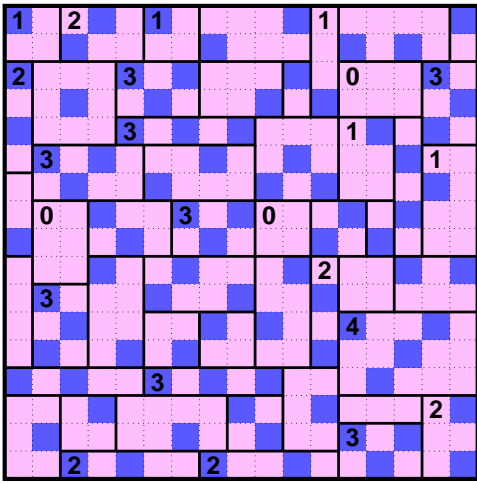


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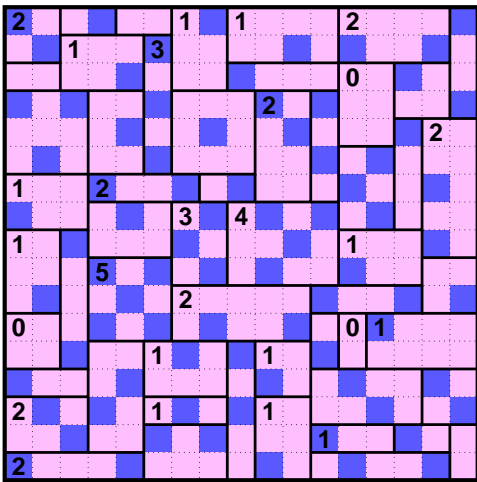
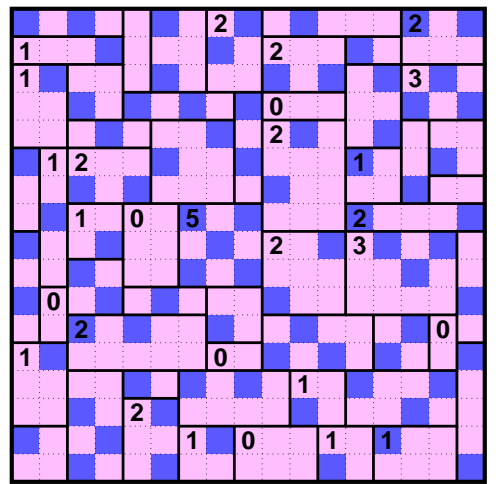
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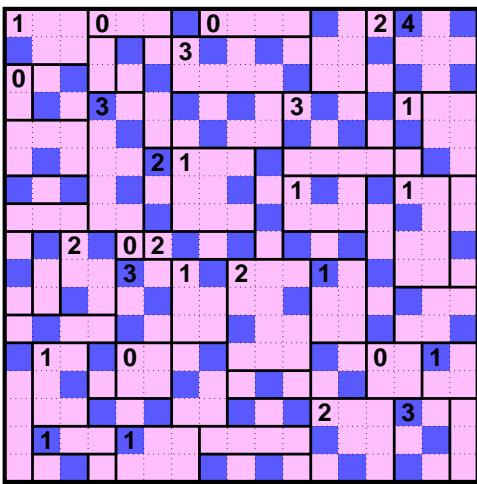
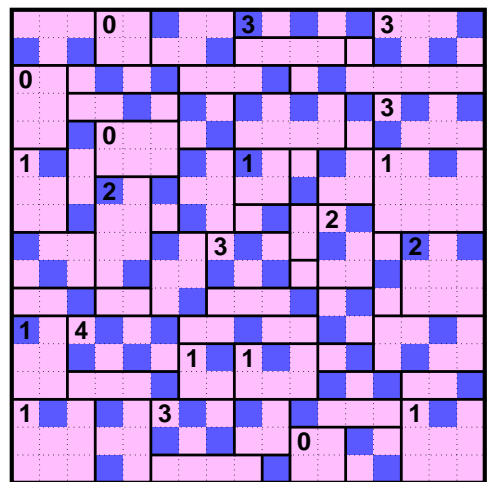
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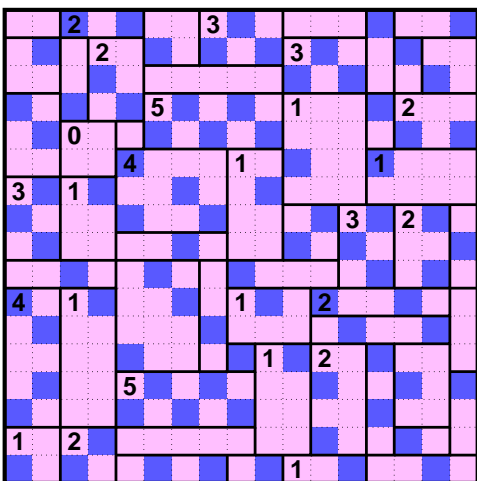
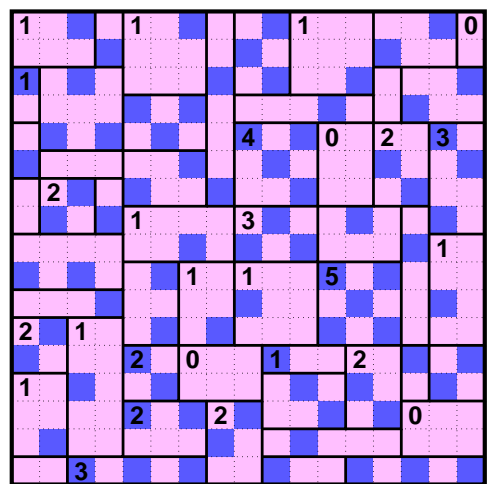
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