

6-Snakes Problem (snake)

— [Run LPL Code](#) , [HTML Document](#) —

Problem: The 6-snakes problem is a board game for one person. The board is a hexagon with 72 notches where the 72 pellets must be placed (see Figure 1¹). The pellets are divided into 6 groups of 12 pellets. In each group the pellets have the same color – hence there are 6 colors.

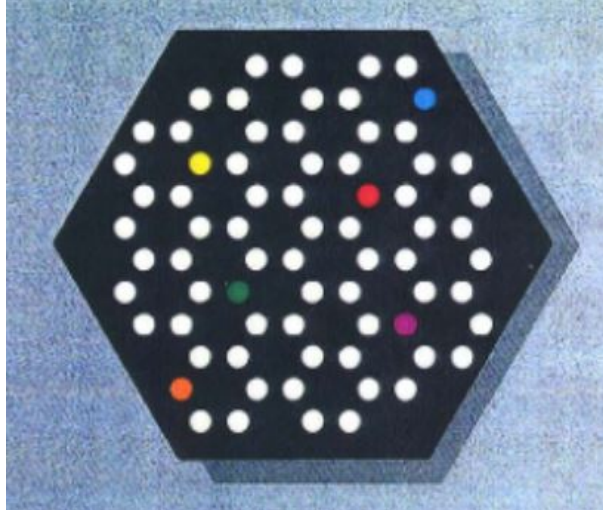


Figure 1: The Game Board

In each group, exactly one pellet is a little bit larger that is called the “head of the snake”. The initial situation of the game is to place the 6 heads of the snakes anywhere in a notch of the board. The goal is to place all other pellets such that the pellets with the same color form a “snake” on the board starting with the head of the snake, that is, each following pellets with the same color must be “neighbor” of the previous pellet with the same color and the snake cannot cross over another snake. A partial solution is given by Figure 2². The game is also called “Glastropfenspiel” or “Schlangengrube” in German.



Figure 2: An almost finished Solution

Questions

1. For some initial placements of the head, there is no solution. Find one.

¹copied from <https://www.spielregeln-spielanleitungen.de/spiel/das-glastropfenspiel/>

²found on <http://www.pyramo.de/schlangengrube.php>

2. “Solve” the problem with the subset J in the previous answer.

References

[1] MatMod. Homepage for Learning Mathematical Modeling : <https://matmod.ch>.