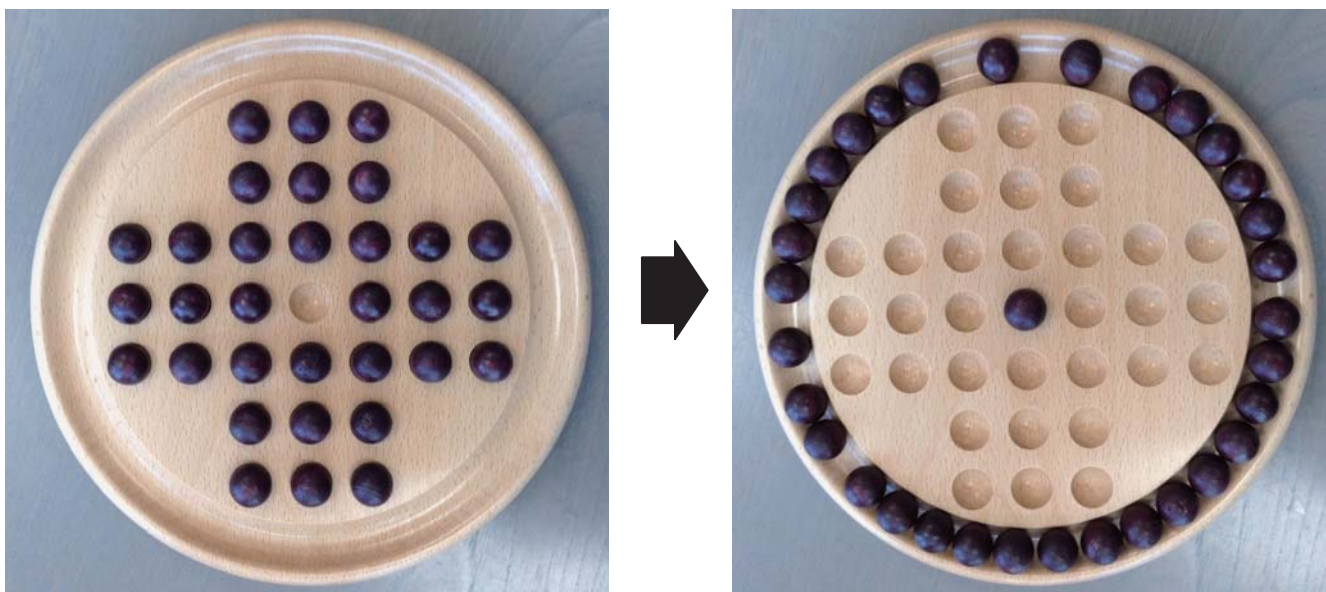


Experimental Enumeration of Solutions for Peg Solitaire (Short Talk)

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Abstract: Peg solitaire is one of the most popular classic puzzles around the world. The problem is NP-complete in general, which was shown in early 1990s. Therefore, it seems that it is intractable from the viewpoint of theoretical computer science. The real puzzle consists of board of 33 holes and 32 pegs, and a lot of solutions had found by puzzle players by hands. Martin Gardner said that “No one knows how many different ways there are to solve the puzzle leaving the last counter in the center” in his book. One of the authors once developed a heuristic algorithms in 1990, and found some of them. In his master thesis, he said “it is impossible to find all solutions in this search tree” in 1991. We show that recent computer can find all possible solutions for this real puzzle in efficiency. We develop some algorithms to count the number of solutions for the peg solitaire. They run efficiently, and we obtain the number of solutions in a reasonable computing time.



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