Theory of programming languages

Formal Methods in computer science

Assignments 2: System modules in Maude — Academic year 2021/2022

Peg solitaire is a board game for one player involving movement of pegs on a board with holes. Initially, all positions but one have pegs and the game is solved when only one peg remains. Pegs can "jump" over other pegs if there is a hole on the other side, removing the peg we jump over from the board. More information is available here. In this assignment we will implement in Maude the **triangular version** of the Peg solitaire.

Exercise 1: Define a datatype for the board. Remember that we are only interested in the triangular version, but it must be able to represent boards of any size.

Exercise 2: Implement movements by using rewrite rules.

Exercise 3: Define an initial triangular board with 5 rows and a single hole in the second position of the third row (counting from the top). Use the search command to find:

(a) A solution.

(b) A "perfect solution", that is, a solution where the final peg is located in the position that originally had the hole.

Author: Adrián Riesco