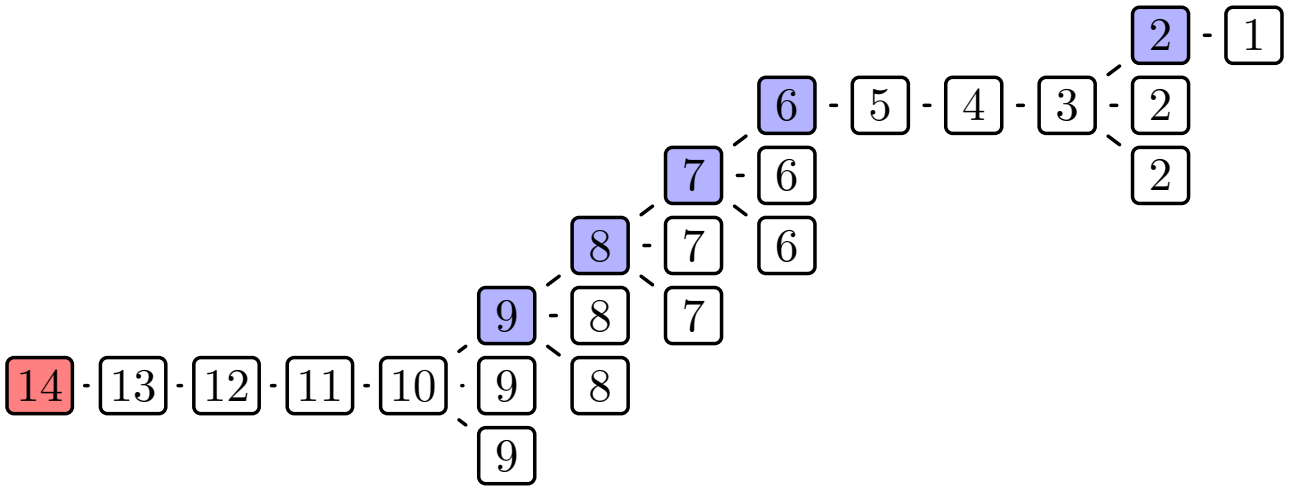
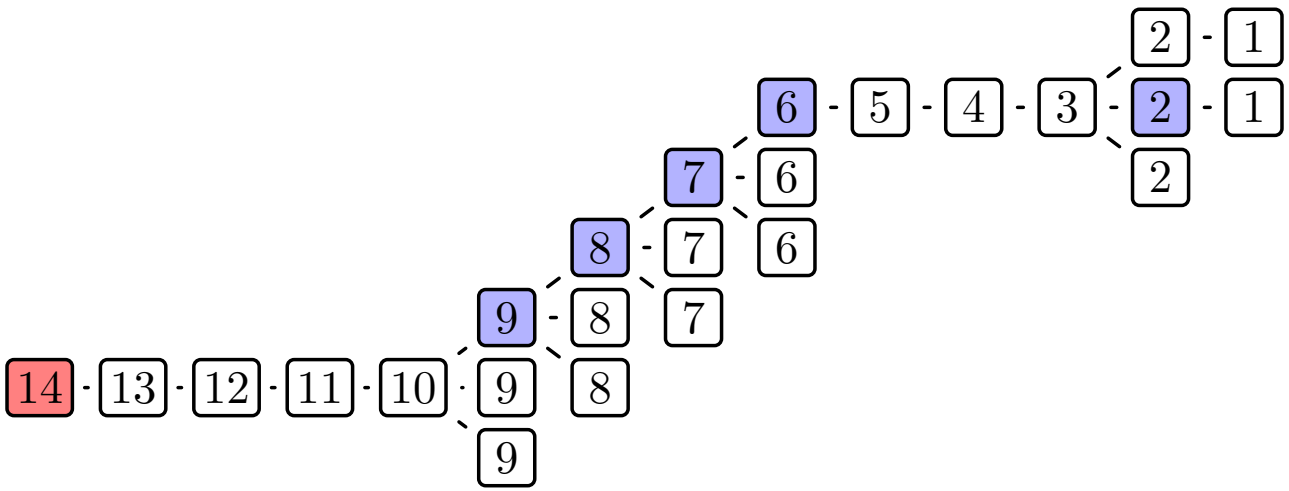
RLS Algorithm

- Start at ESR $= (0, \ldots, 0)$
- Cycle through all possible ESR strings
  Upper bound $= \left(\text{max number of stage equlibria}\right)^{(\text{nr points in } S)}$
- Efficiently skip infeasible ESR strings using information on number of stage equilibria found on previous iteration
- Stopping rule: run out of digits

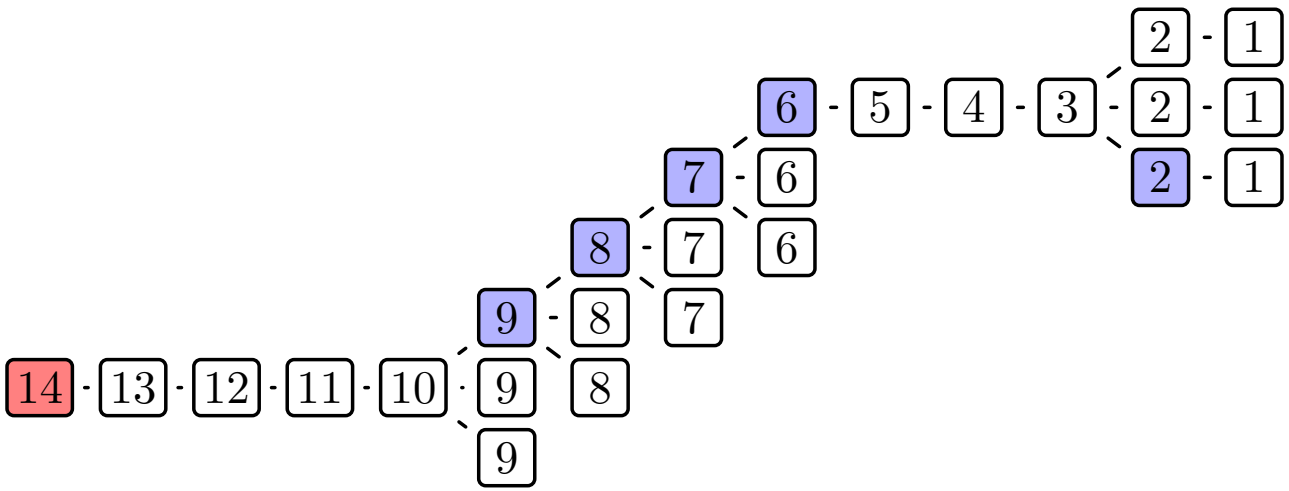
RLS tree traversal, step 1



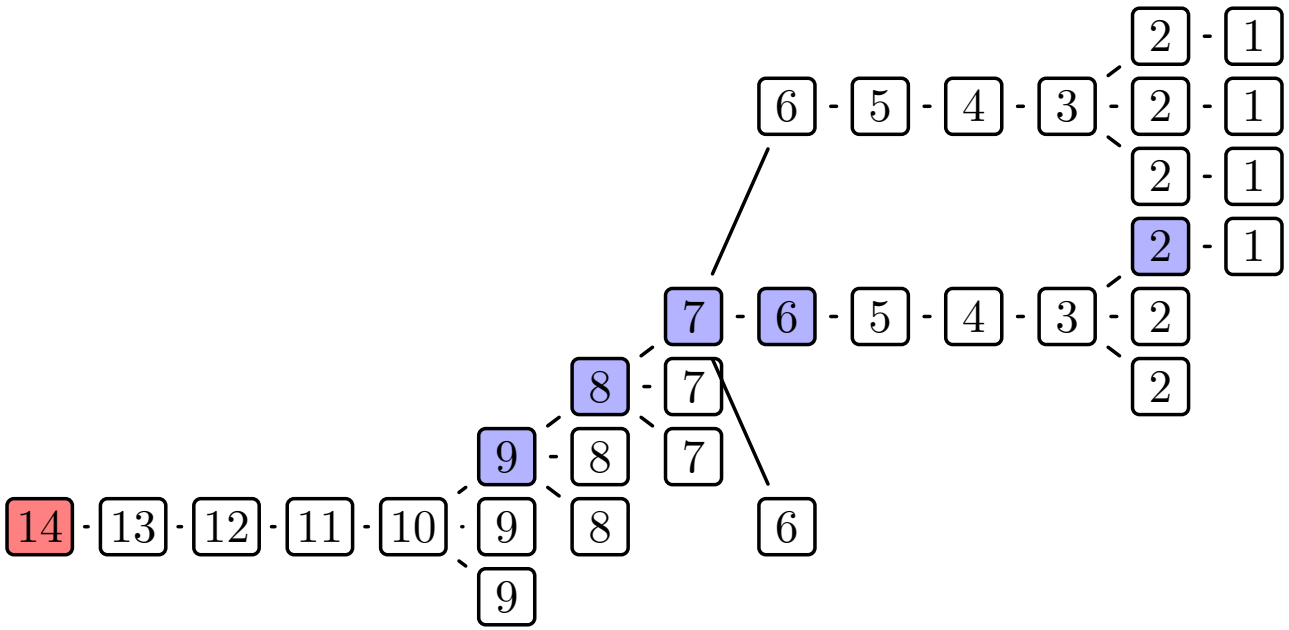
RLS tree traversal, step 2



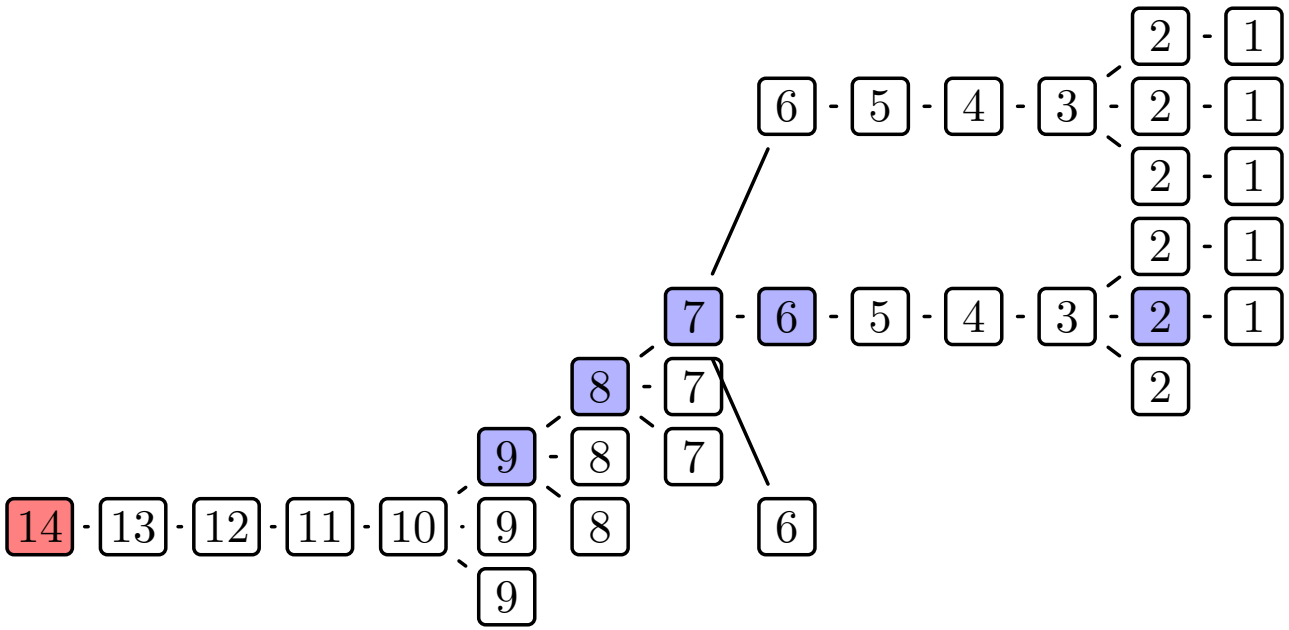
RLS tree traversal, step 3



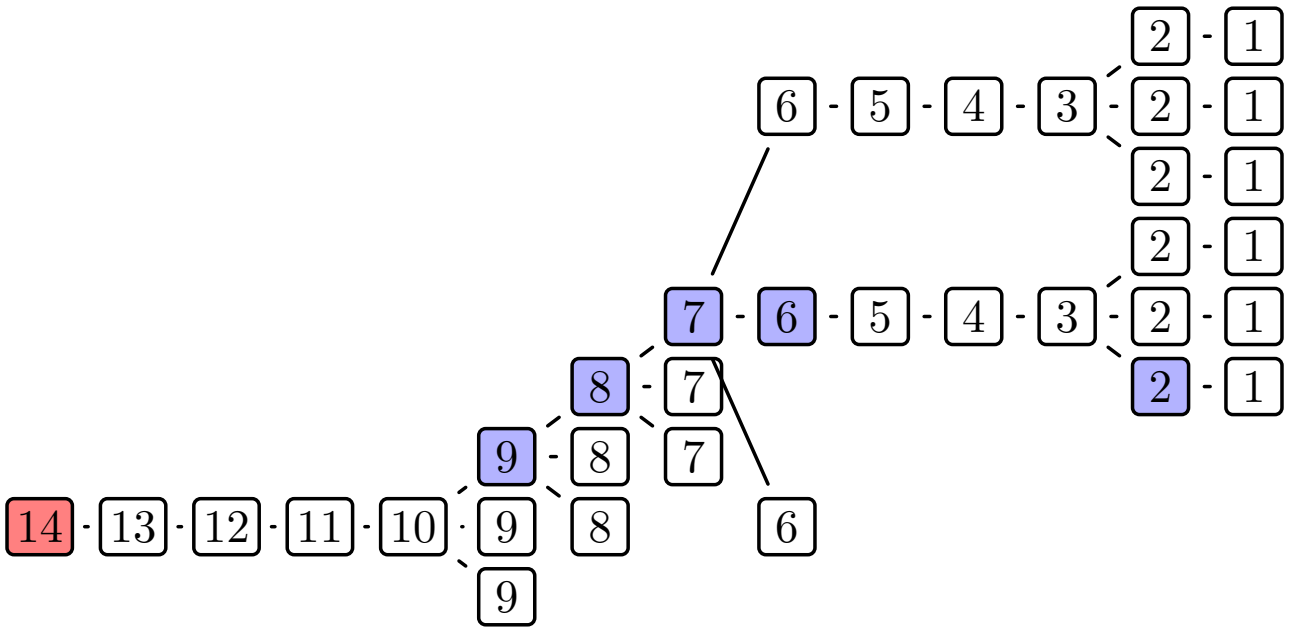
RLS tree traversal, step 4



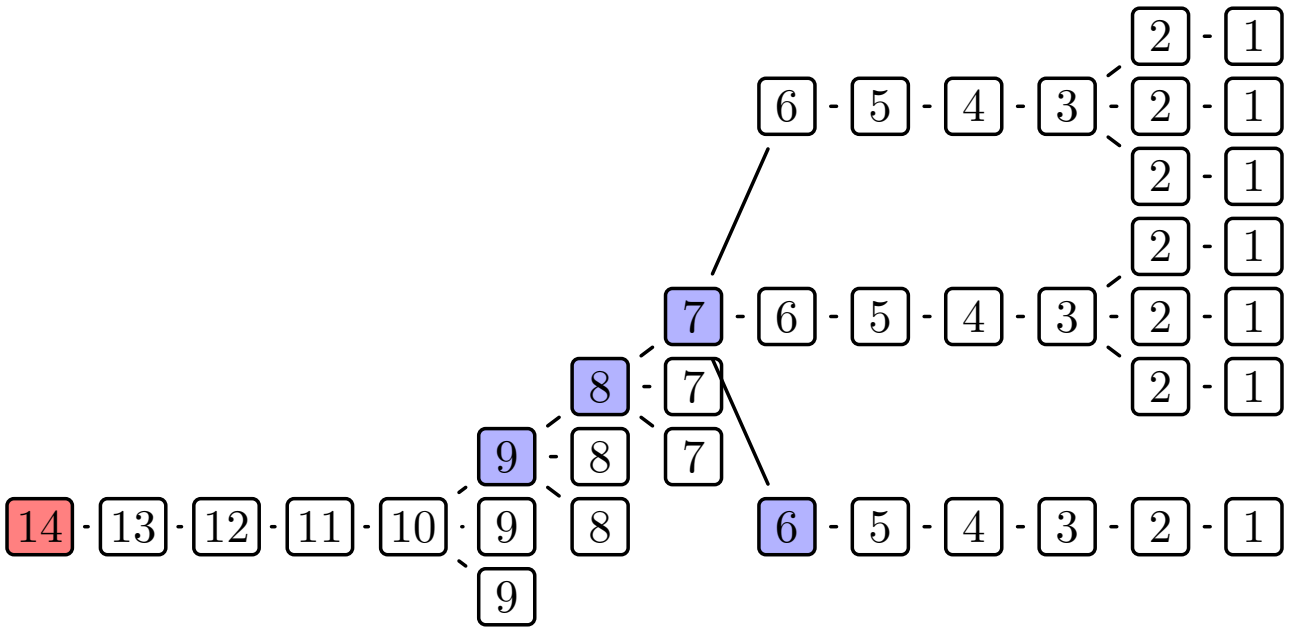
RLS tree traversal, step 5



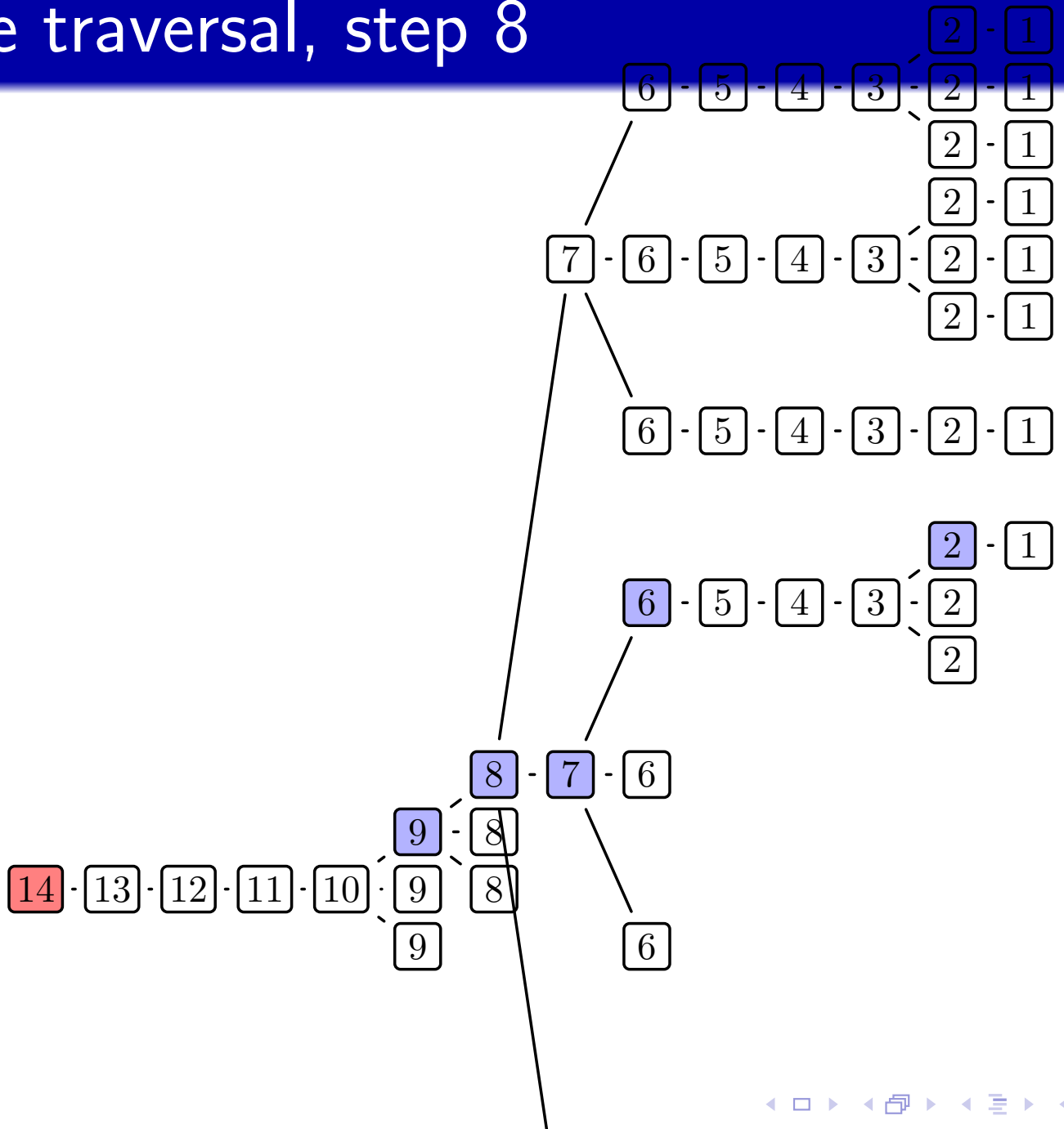
RLS tree traversal, step 6



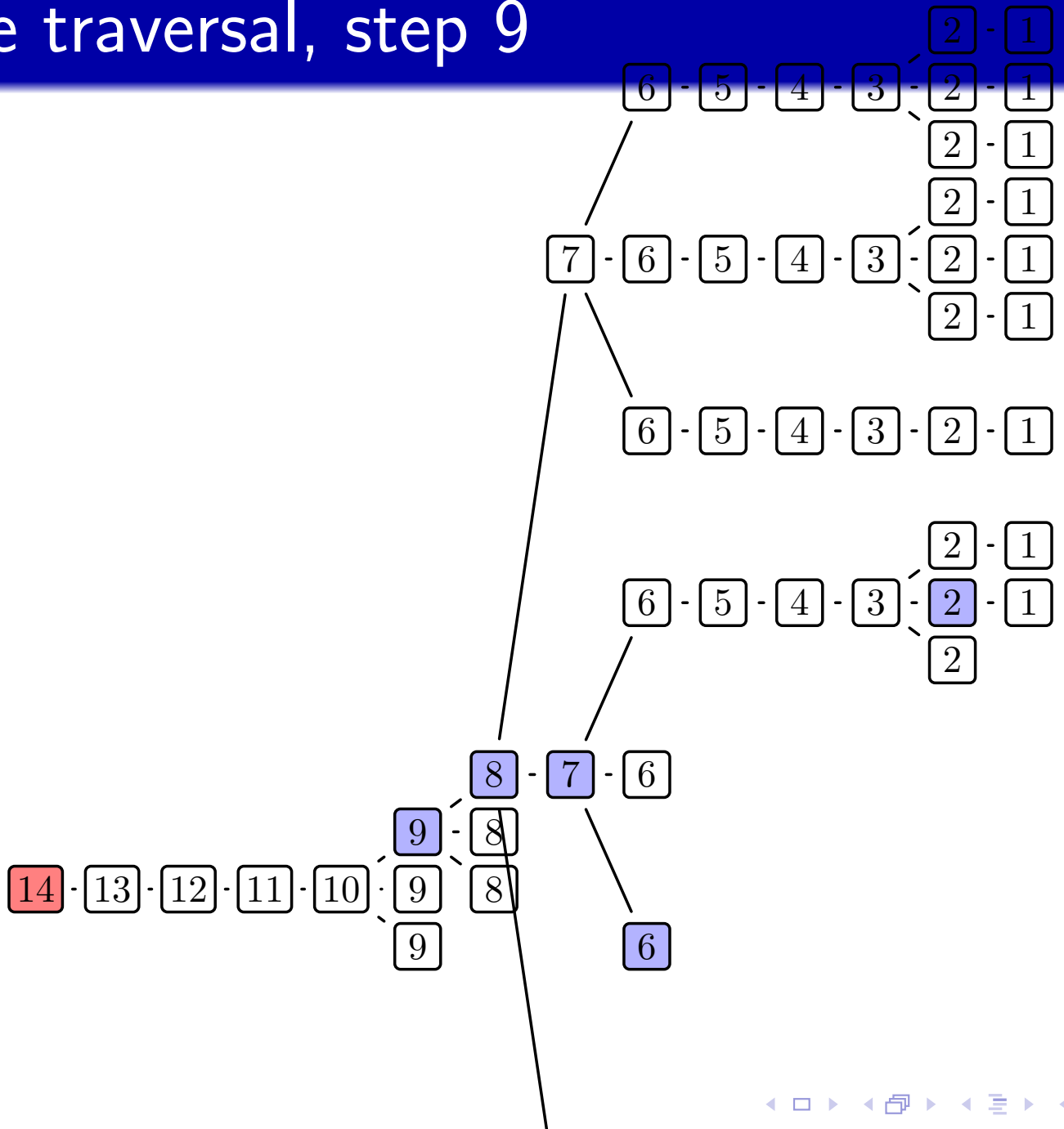
RLS tree traversal, step 7



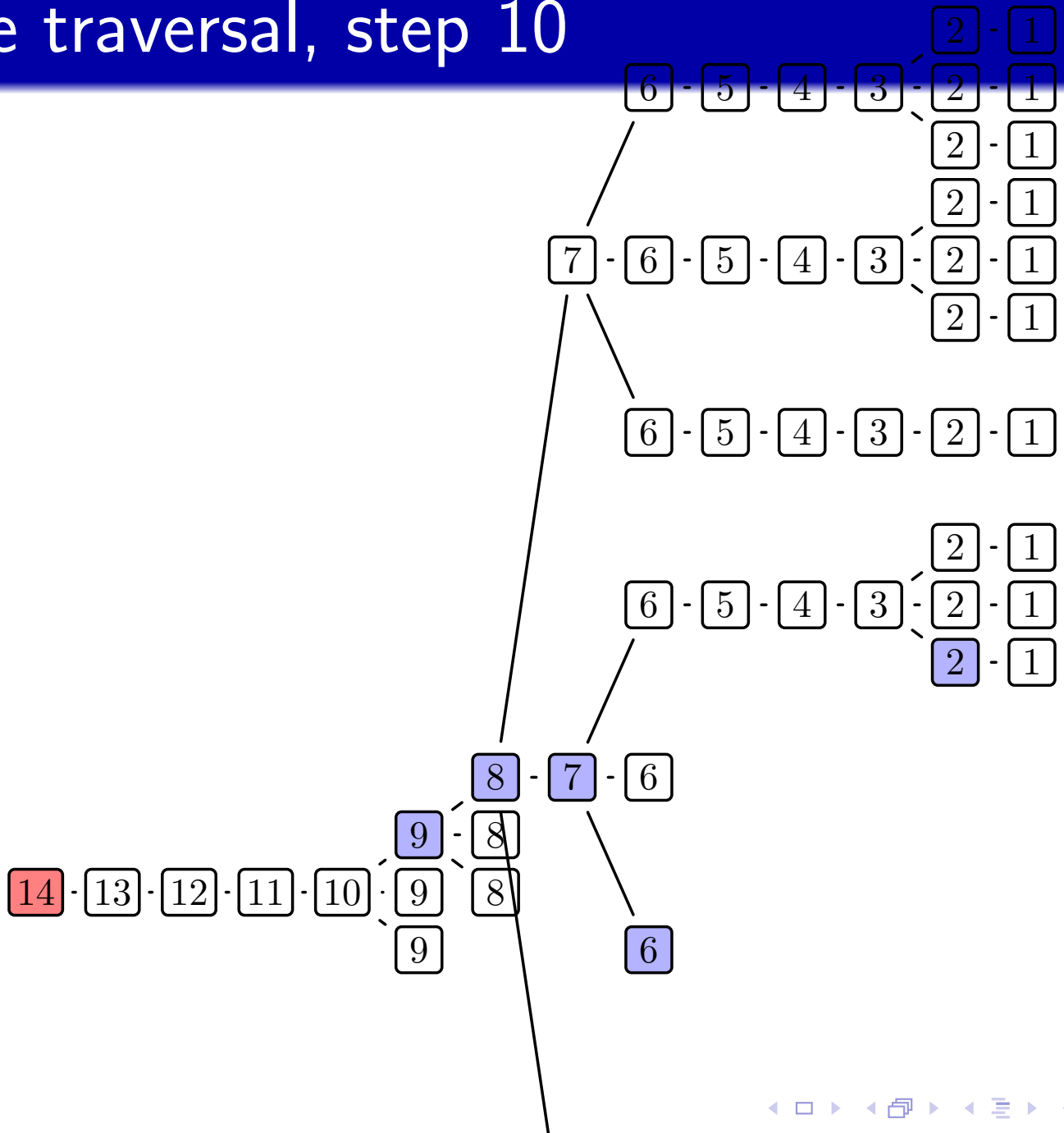
RLS tree traversal, step 8



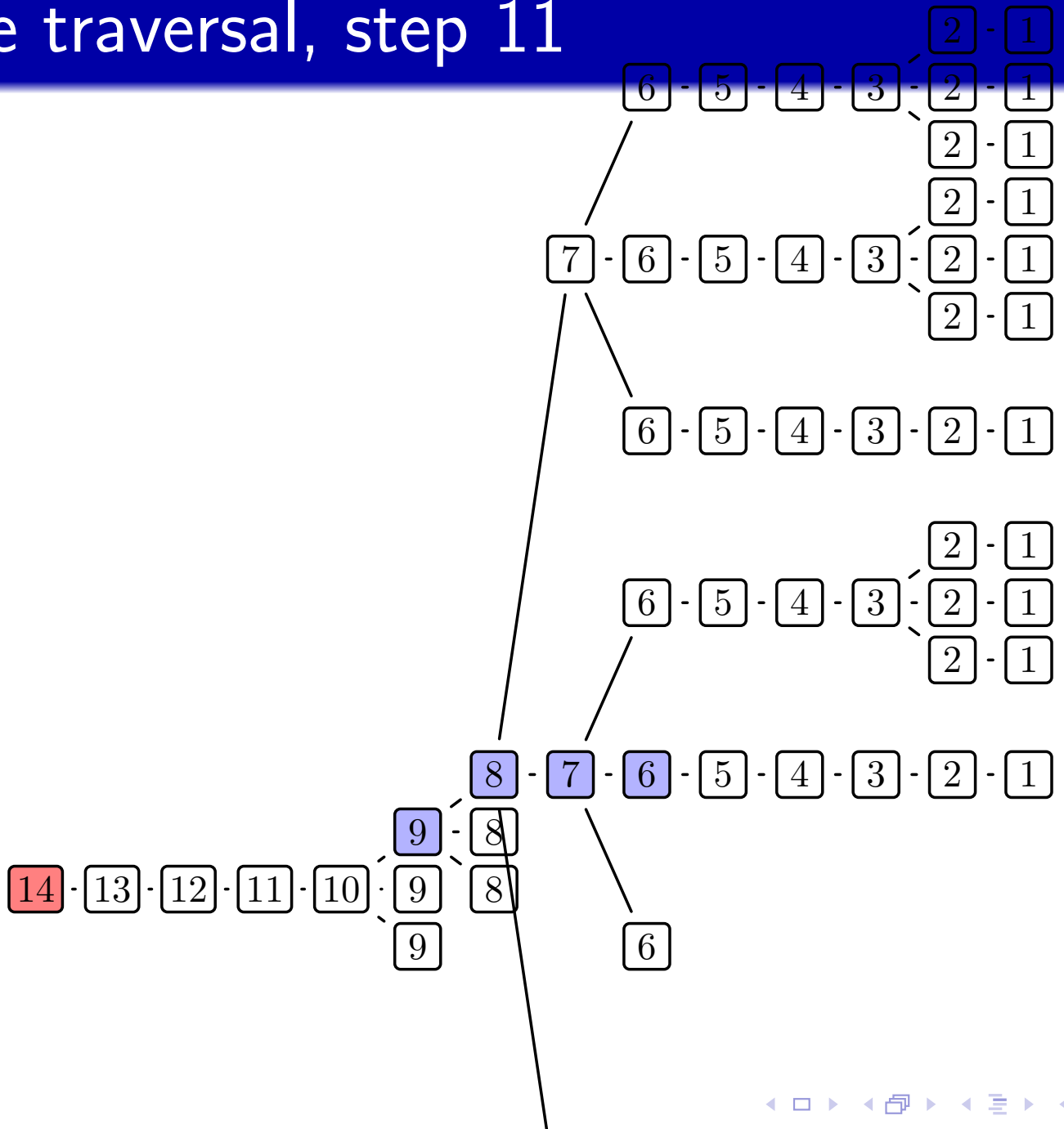
RLS tree traversal, step 9



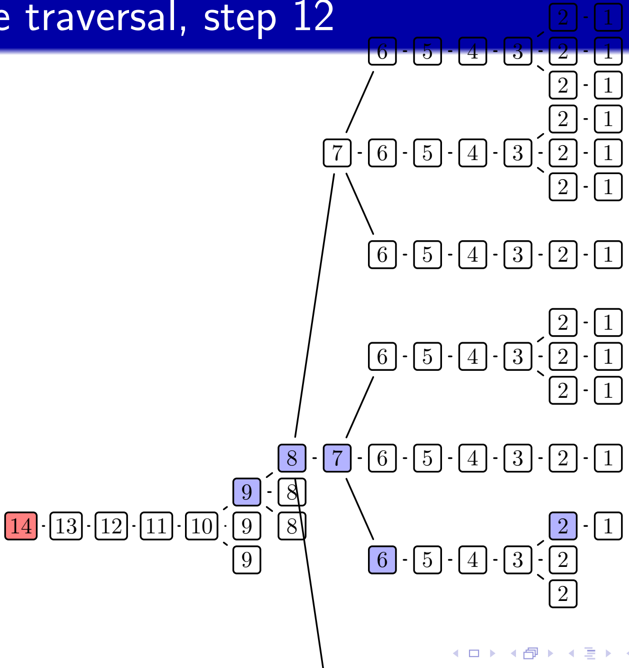
RLS tree traversal, step 10



RLS tree traversal, step 11



RLS tree traversal, step 12



Main result of the RLS Algorithm

Theorem (Decomposition theorem, strong)

Assume there exists an algorithm that can find all MPE of every stage game of the DDG, and that the number of these equilibria is finite in every stage game.
Then the RLS algorithm finds all MPE of the DDG in a finite number of steps, which equals the total number of MPE.