COMP9020

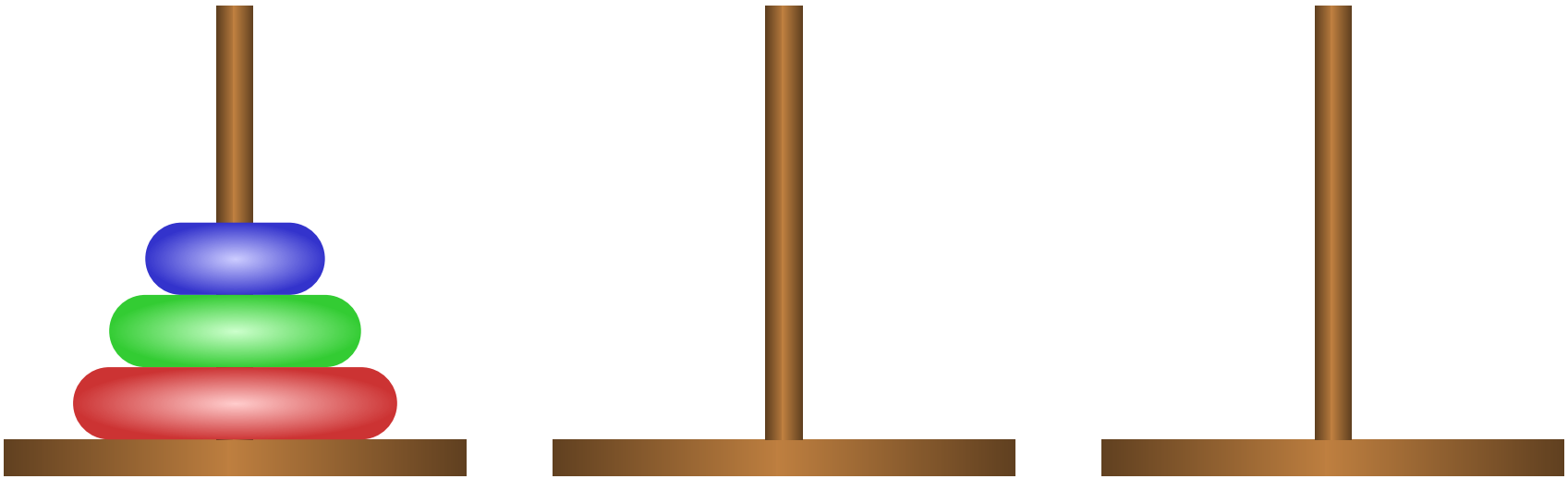
Foundations of Computer Science

Lecture 9 Preview: Recursion

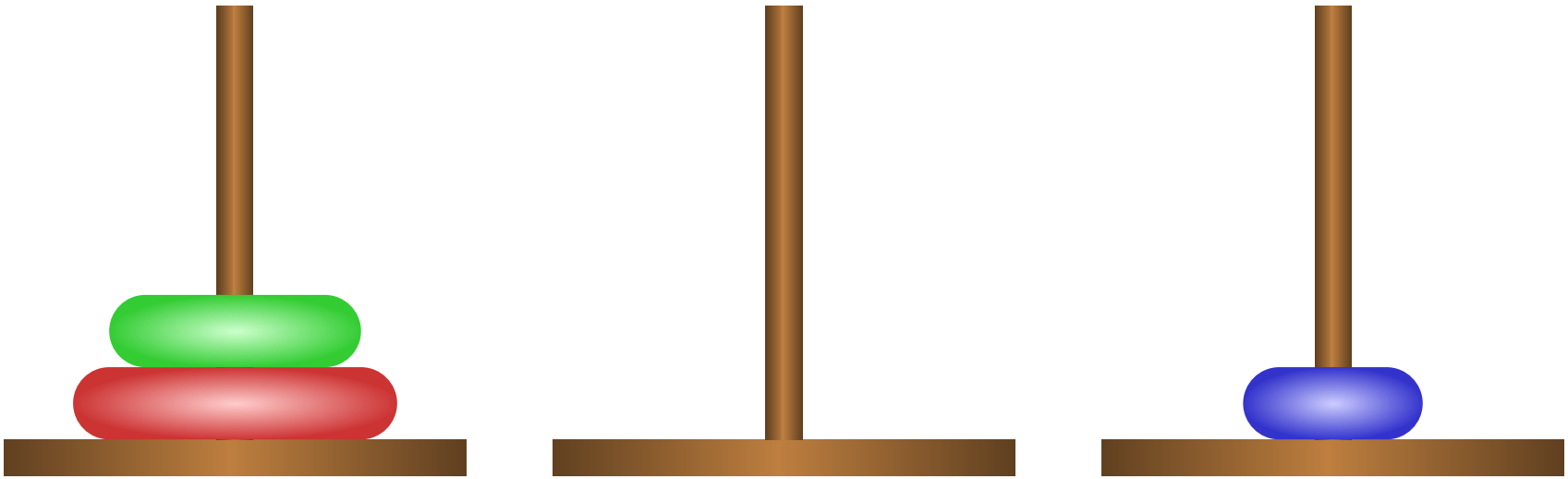
Puzzle: Towers of Hanoi

- There are 3 towers (pegs)
- n disks of decreasing size placed on the first tower
- You need to move all disks from the first tower to the last tower
- Larger disks cannot be placed on top of smaller disks
- The third tower can be used to temporarily hold disks

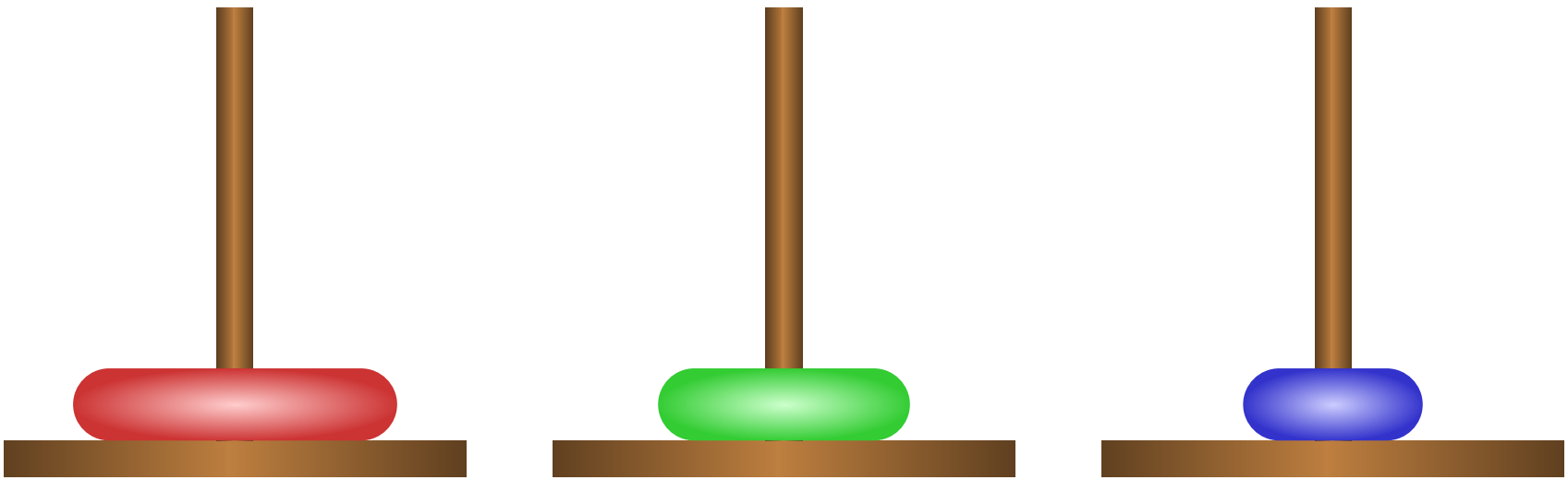
Puzzle: Towers of Hanoi



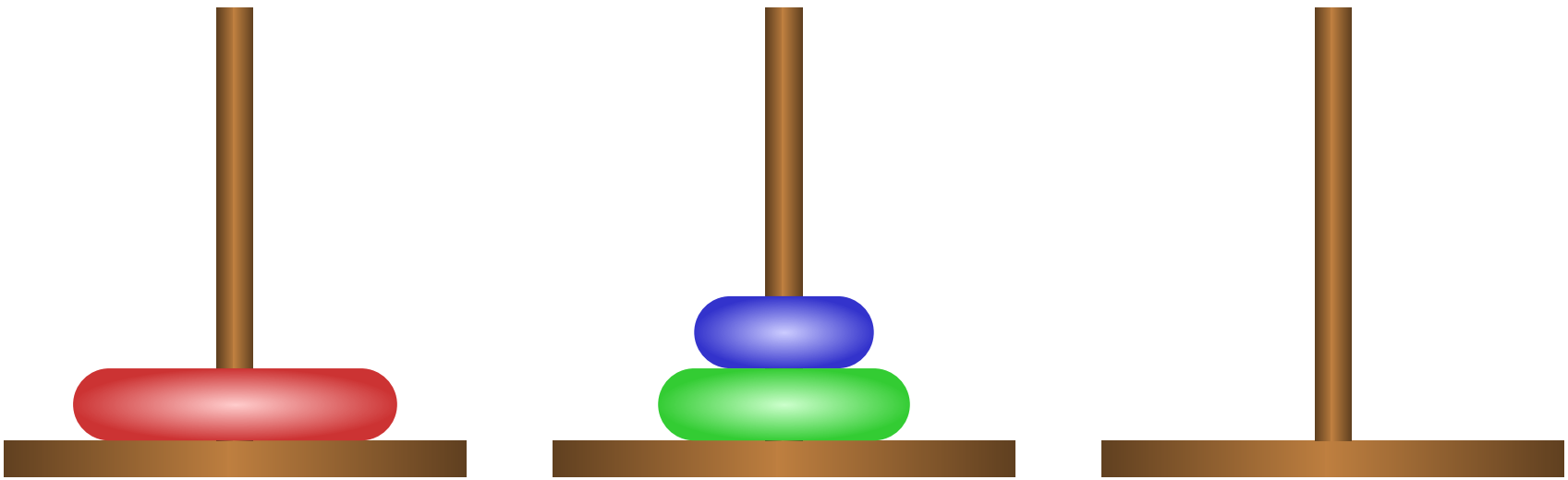
Puzzle: Towers of Hanoi



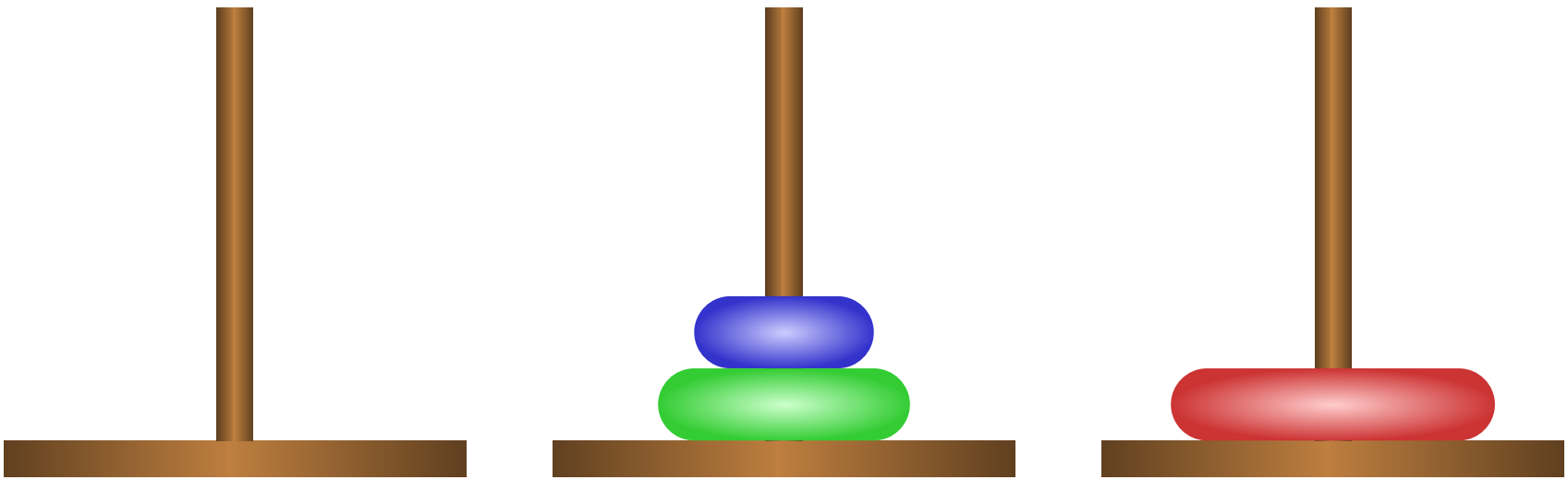
Puzzle: Towers of Hanoi



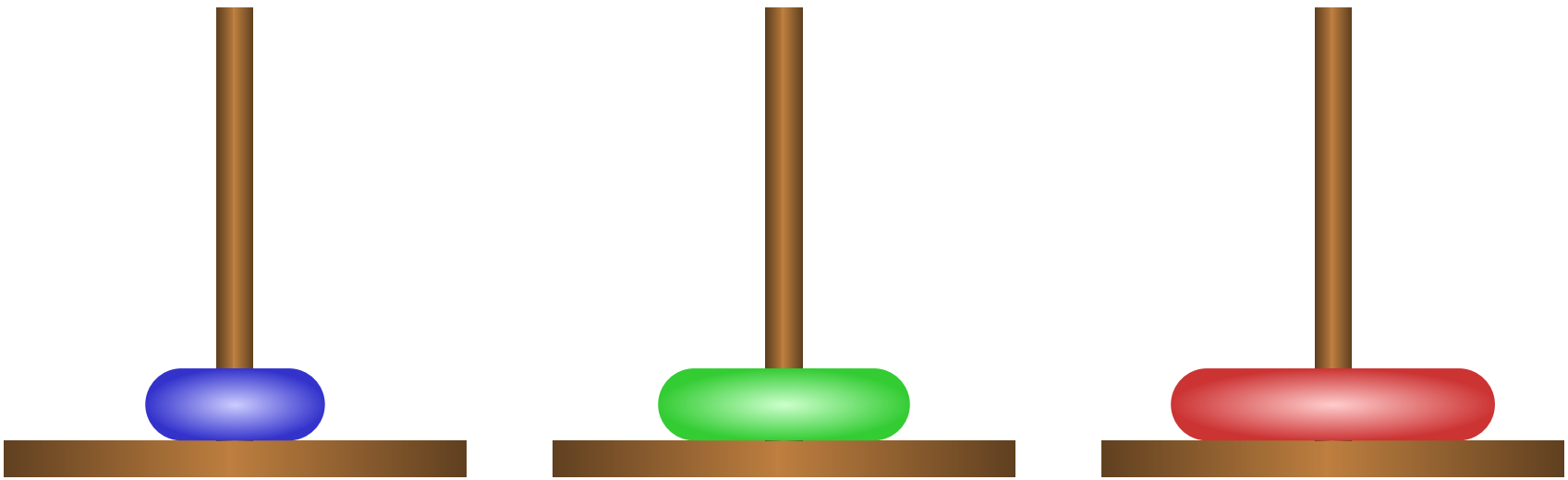
Puzzle: Towers of Hanoi



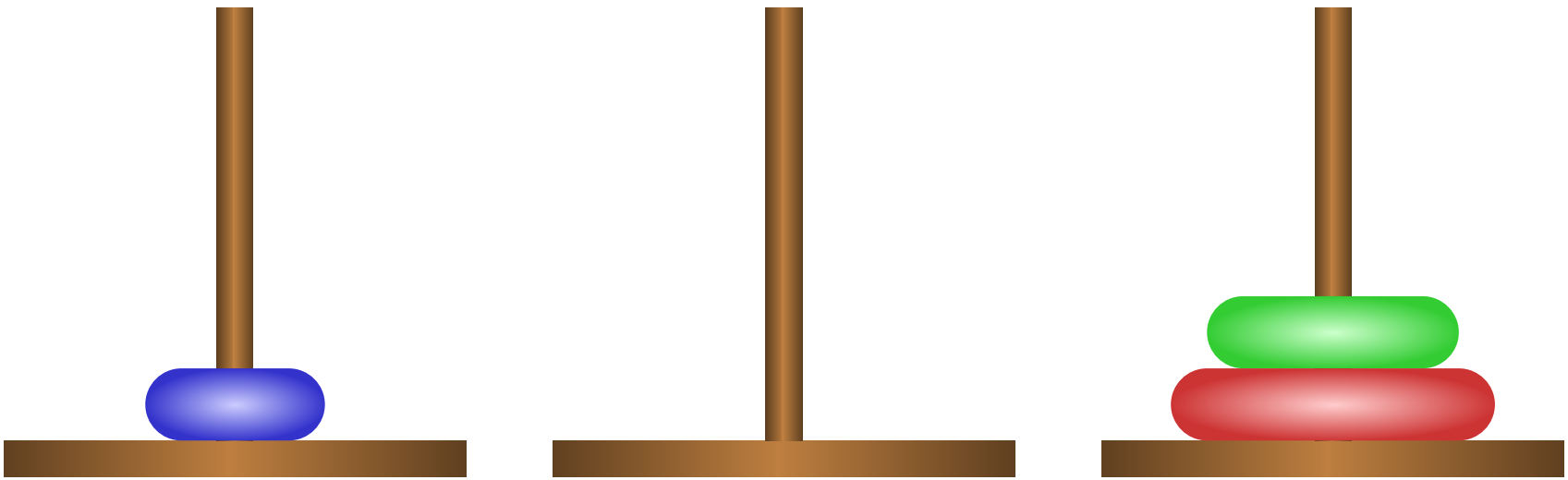
Puzzle: Towers of Hanoi



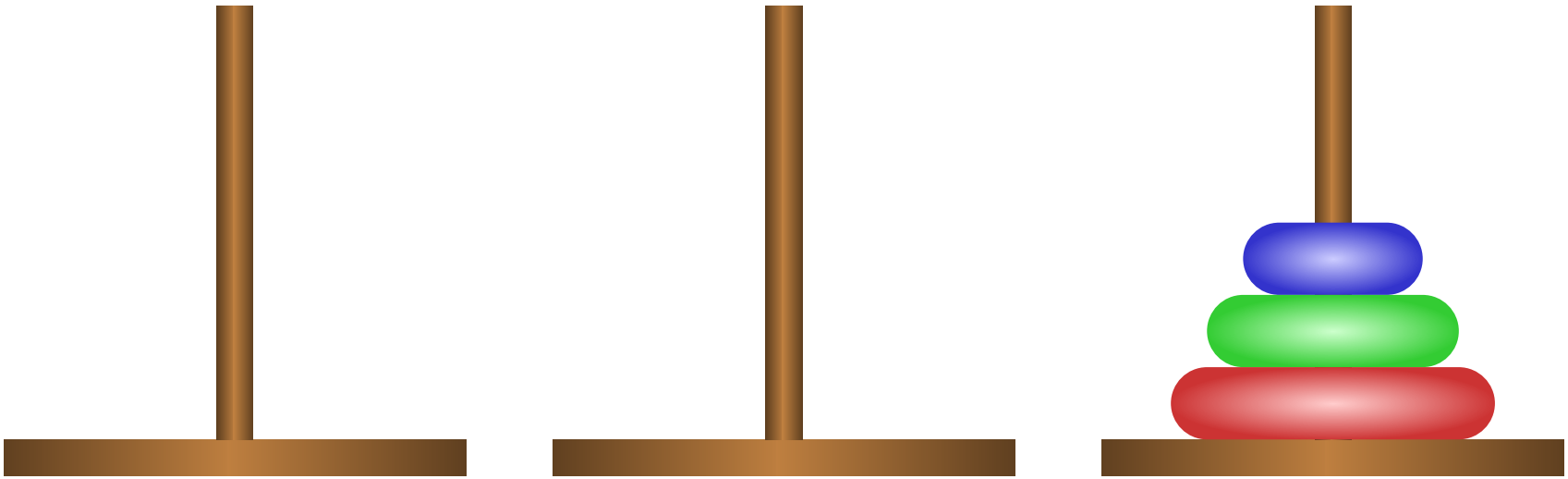
Puzzle: Towers of Hanoi



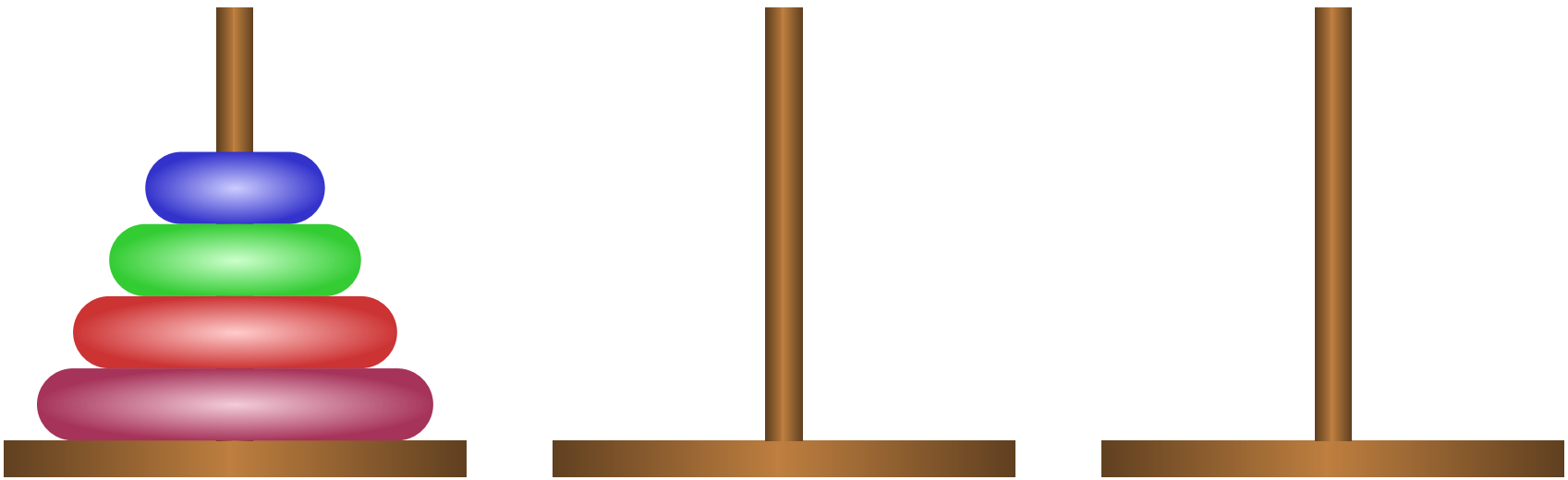
Puzzle: Towers of Hanoi



Puzzle: Towers of Hanoi



Puzzle: Towers of Hanoi



Puzzle: Towers of Hanoi

Questions

- Describe a general solution for n disks
- How many moves does it take?

Challenge Problem

https://webcms3.cse.unsw.edu.au/COMP9020/23T3/resources/91883

Group Challenge

- Find the optimal solution for 10 disks.
- Collaboration/collusion strongly encouraged.
- Hint: Try to find the optimal solution for 3 and 4 disks first!
- If more than 200 students achieve an optimal solution before next Monday lecture:

Challenge Problem

https://webcms3.cse.unsw.edu.au/COMP9020/23T3/resources/91883

Group Challenge

- Find the optimal solution for 10 disks.
- Collaboration/collusion strongly encouraged.
- Hint: Try to find the optimal solution for 3 and 4 disks first!
- If more than 200 students achieve an optimal solution before next Monday lecture: 3 day extension on Assignment 1 for everyone

Challenge Problem

https://webcms3.cse.unsw.edu.au/COMP9020/23T3/resources/91883

Group Challenge

- Find the optimal solution for 10 disks.
- Collaboration/collusion strongly encouraged.
- Hint: Try to find the optimal solution for 3 and 4 disks first!
- If more than 200 students achieve an optimal solution before next Monday lecture: 3 day extension on Assignment 1 for everyone

Check progress here:

https://www.cse.unsw.edu.au/~cs9020/cgi-bin/check