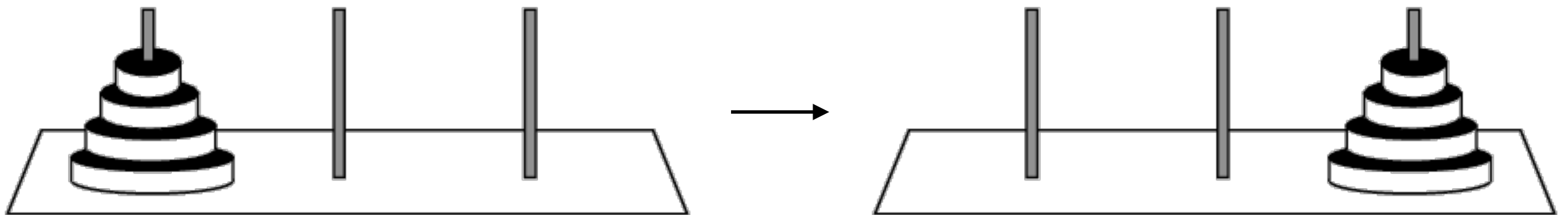


# Recursion 2

CS 146 - Spring 2017

# Towers of Hanoi



input:  $n$  disks on left peg

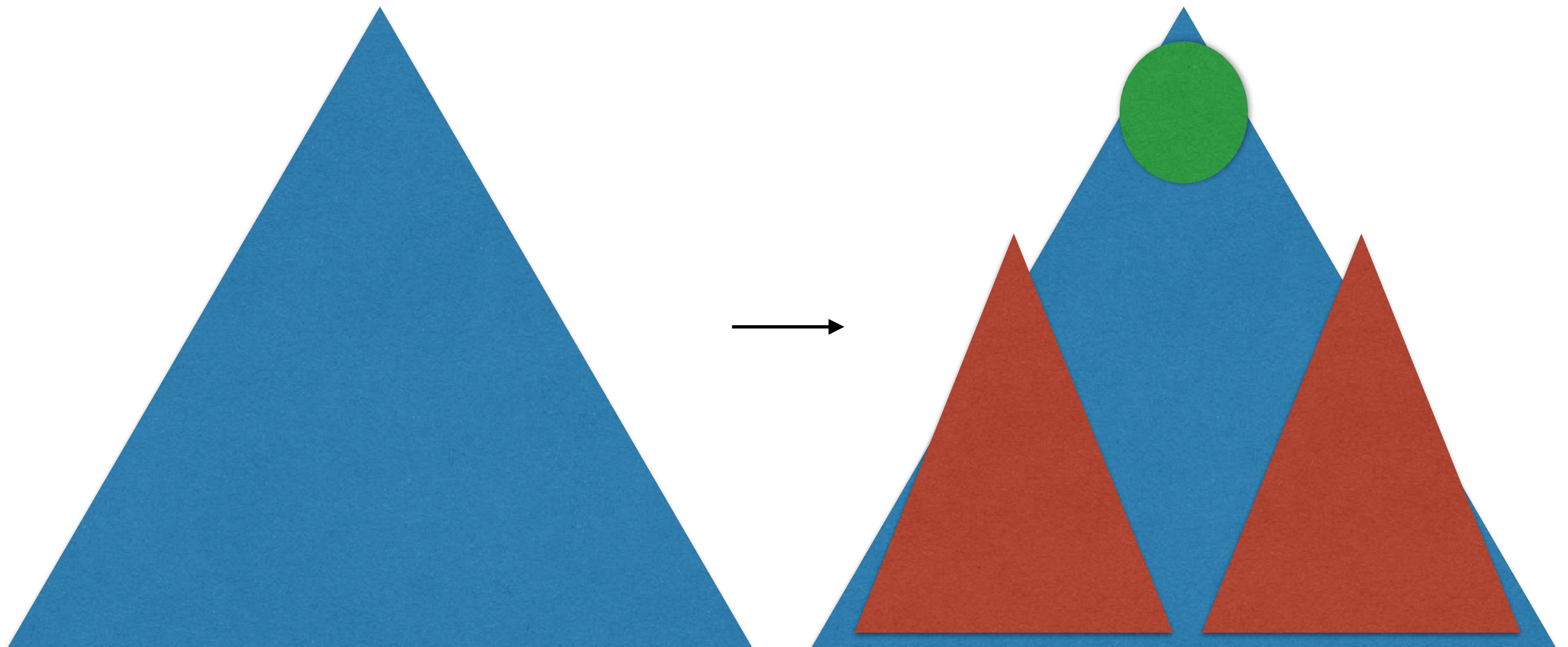
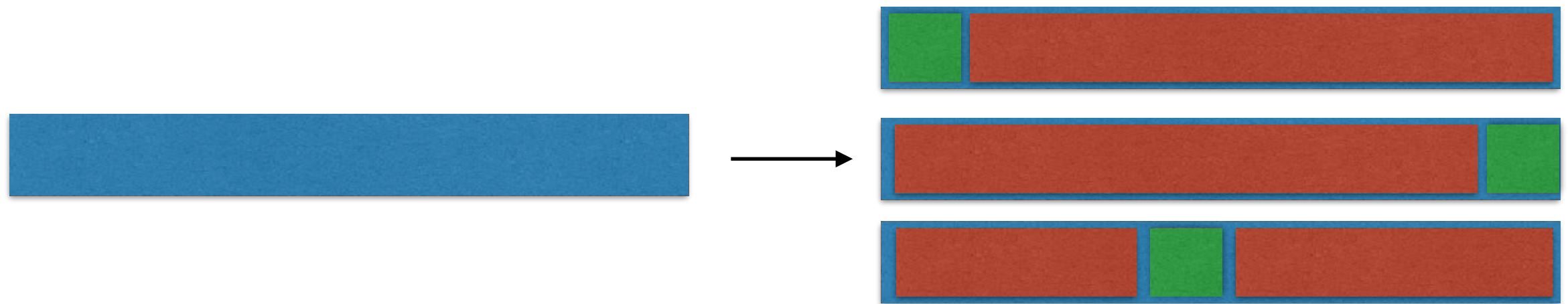
output: find a sequence of moves so that all  $n$  disks end up on right peg

rule: a larger disk cannot sit on top of a smaller disk

# Today

- Towers of Hanoi
- Homework questions?
- Recursion in a tree

# recursive data structures



# Recursion on a tree

- See code example -> `TreeNode.java`

# Java generics

- use to parameterize classes and methods by types
- public **class** TreeNode<E> { .... }
- public static <E> List<E> sort(List<E> list) { ... }
- useful for containers (java.util.Collections)
- learn more: <https://docs.oracle.com/javase/tutorial/java/generics/index.html>