A solution to a problem is a path from the initial state to the goal state

• Solution quality is measured by the path cost function and an optimal solution has the lowest path cost among all solutions

• Real world is absurdly complex – state space must be abstracted for problem solving

• (Abstract) state = set of real states

• (Abstract) action = complex combination of real actions – e.g., "Arad ◊ Zerind" represents a complex set of possible routes, detours, rest stops, etc.

• For guaranteed realizability, any real state "in Arad“ must get to some real state "in Zerind"

• (Abstract) solution = – set of real paths that are solutions in the real world • Each abstract action should be "easier" than the original problem