

Starting Rover Mission Problem Decomposition

Subproblem 1: Move to Sample(Breadth First Search)

Goal found

Goal State: (Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True

Charged? False, 'pick_up_tool')

Total number of states generated: 6

(Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True

Charged? False, 'pick_up_tool')

Subproblem 1: Move to Sample(Depth First Search)

Goal found

Goal State: (Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True

Charged? False, 'move_to_sample')

Total number of states generated: 6

(Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True

Charged? False, 'move_to_sample')

Subproblem 1: Move to Sample(Depth Limited Search)

Goal found

Goal State: Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True

Charged? False

Depth: 2

Total number of states generated: 6

(Location: sample

Sample Extracted?: False

Holding Sample?: False

Holding Tool?: True
Charged? False, 'move_to_sample')

Subproblem 2: Remove Sample(Breadth First Search)

Goal found

Goal State: (Location: sample

Sample Extracted?: True

Holding Sample?: True

Holding Tool?: True

Charged? False, 'pick_up_sample')

Total number of states generated: 16

(Location: sample

Sample Extracted?: True

Holding Sample?: True

Holding Tool?: True

Charged? False, 'pick_up_sample')

Subproblem 2: Remove Sample(Depth First Search)

Goal found

Goal State: (Location: sample

Sample Extracted?: True

Holding Sample?: True

Holding Tool?: True

Charged? True, 'pick_up_tool')

Total number of states generated: 22

(Location: sample

Sample Extracted?: True

Holding Sample?: True

Holding Tool?: True

Charged? True, 'pick_up_tool')

Subproblem 2: Remove Sample(Depth Limited Search)

Goal found

Goal State: Location: sample

Sample Extracted?: True

Holding Sample?: True

Holding Tool?: True

Charged? True

Depth: 5

Total number of states generated: 23

(Location: sample

Sample Extracted?: True
Holding Sample?: True
Holding Tool?: True
Charged? True, 'pick_up_tool')

Subproblem 3: Return to Charger(Breadth First Search)

Goal found
Goal State: (Location: battery
Sample Extracted?: True
Holding Sample?: True
Holding Tool?: False
Charged? False, 'move_to_battery')

Total number of states generated: 8
(Location: battery
Sample Extracted?: True
Holding Sample?: True
Holding Tool?: False
Charged? False, 'move_to_battery')

Subproblem 3: Return to Charger(Depth First Search)

Goal found
Goal State: (Location: battery
Sample Extracted?: True
Holding Sample?: False
Holding Tool?: False
Charged? False, 'move_to_battery')

Total number of states generated: 14
(Location: battery
Sample Extracted?: True
Holding Sample?: False
Holding Tool?: False
Charged? False, 'move_to_battery')

Subproblem 3: Return to Charger(Depth Limited Search)

Goal found
Goal State: Location: battery
Sample Extracted?: True
Holding Sample?: False
Holding Tool?: False
Charged? False
Depth: 5

Total number of states generated: 14
(Location: battery
Sample Extracted?: True
Holding Sample?: False
Holding Tool?: False
Charged? False, 'move_to_battery')