

Problem-Solving with Karel

Announcements

- Programming Assignment #1 Out:
 - Karel the Robot / Karel Writeup: Due Friday, January 16 at 3:15 PM
 - **Recommendation:** Try to get CollectNewspaperKarel and StoneMasonKarel completed by Monday.
 - Email: Due Sunday, January 18 at 11:59PM
- Sign up for section!

<http://cs198.stanford.edu/section>

Signups close this Sunday at 5PM.

Revisiting HurdleJumpingKarel

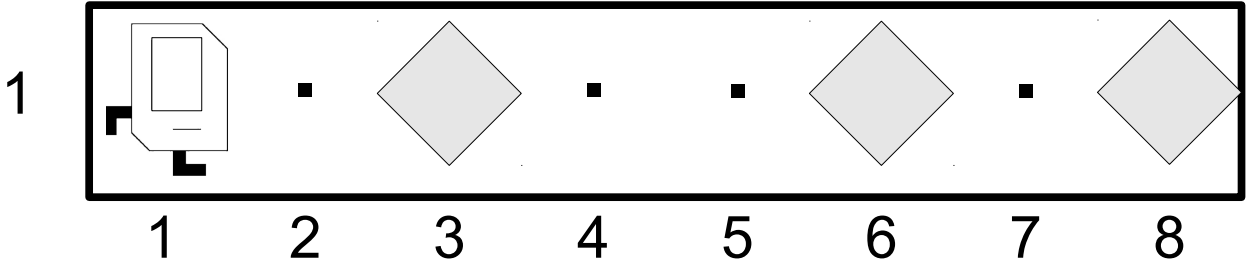
The if statement

```
if (condition) {  
... statements to run if condition holds ...  
}
```

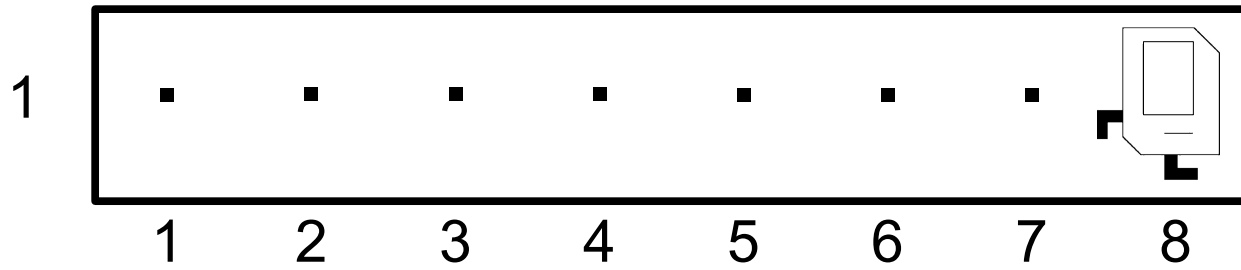
```
if (condition) {  
... statements to run if condition holds ...  
} else {  
... statements to run if condition doesn't hold ...  
}
```

RowSweepingKarel

Before

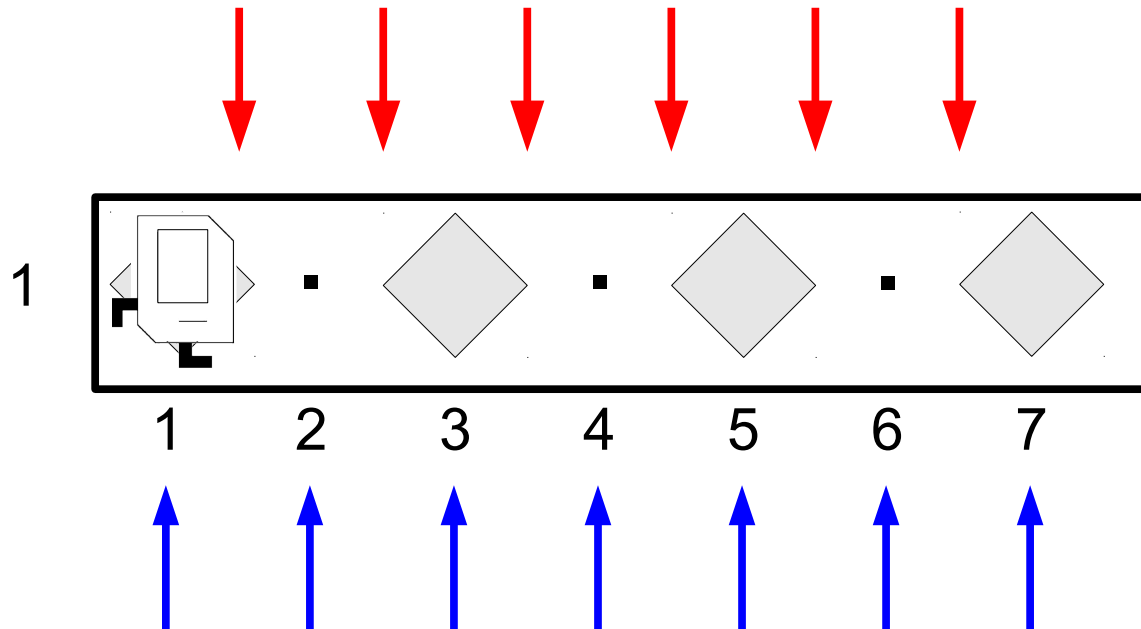


After

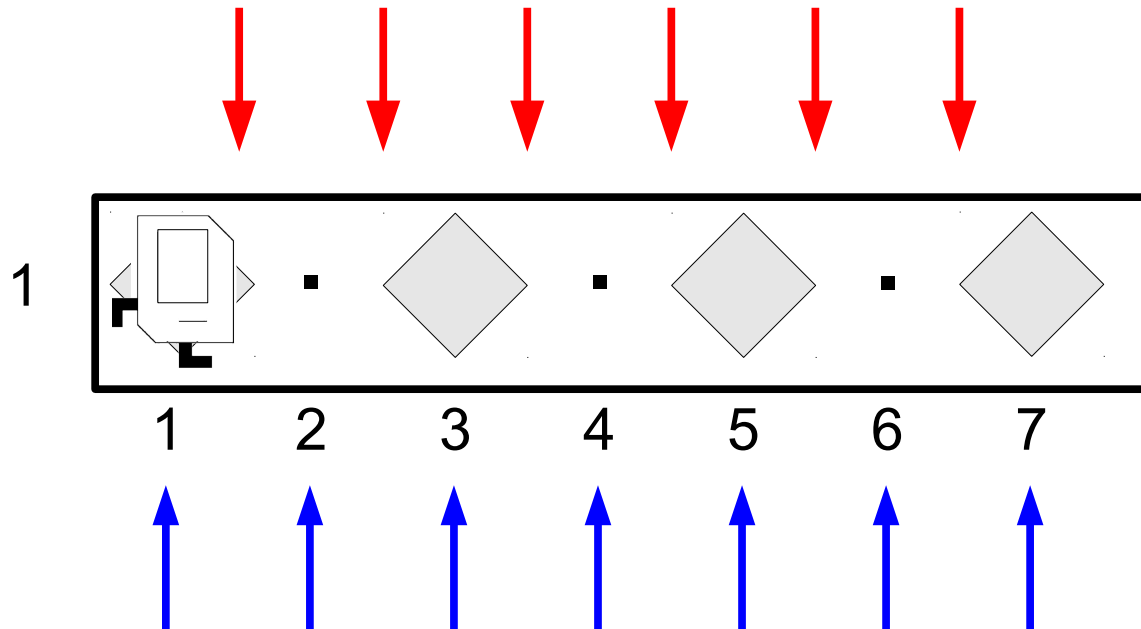


Let's Code it Up!

Karel has to take six steps...

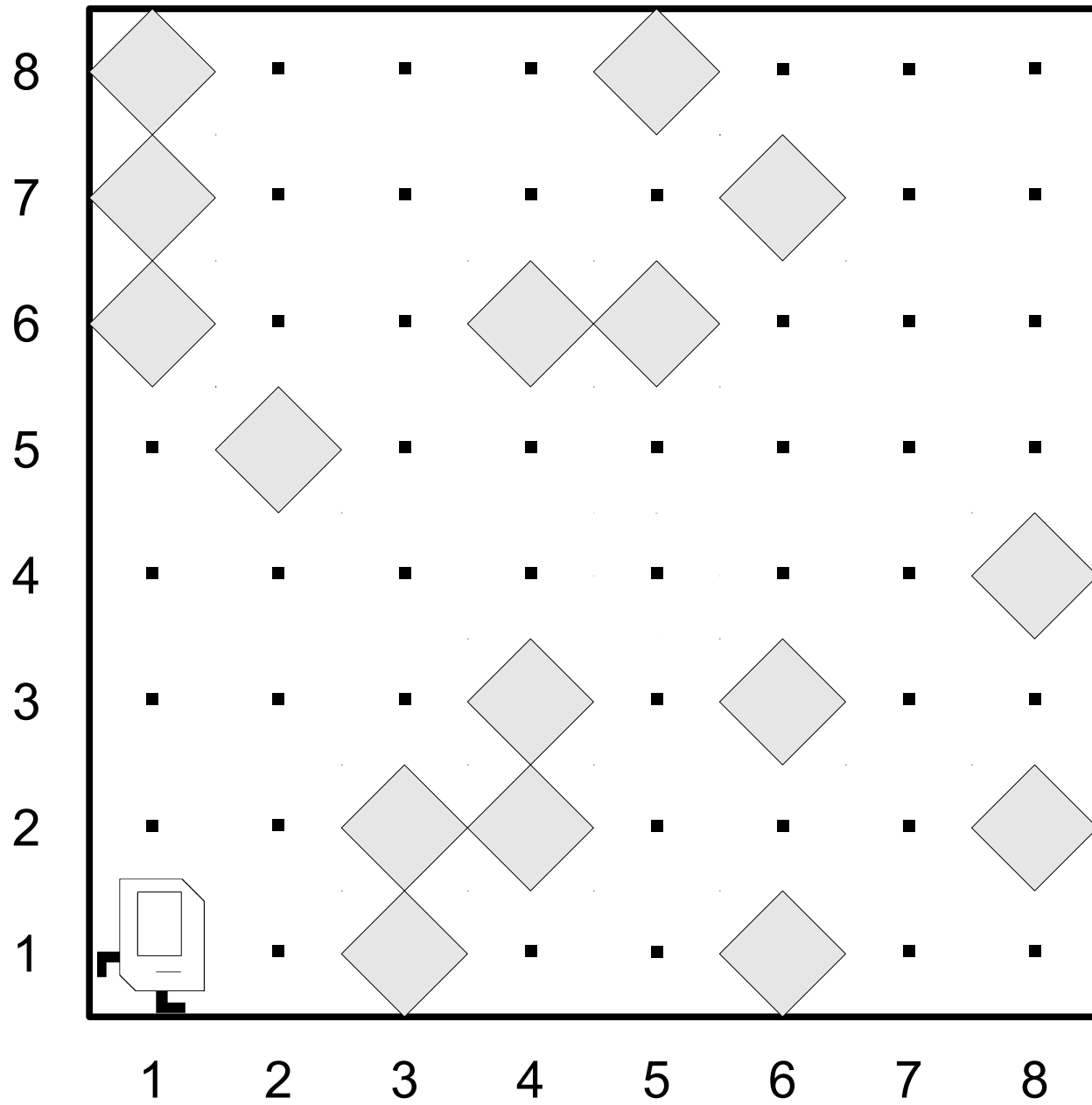


Karel has to take six steps...



...but has to sweep seven corners.

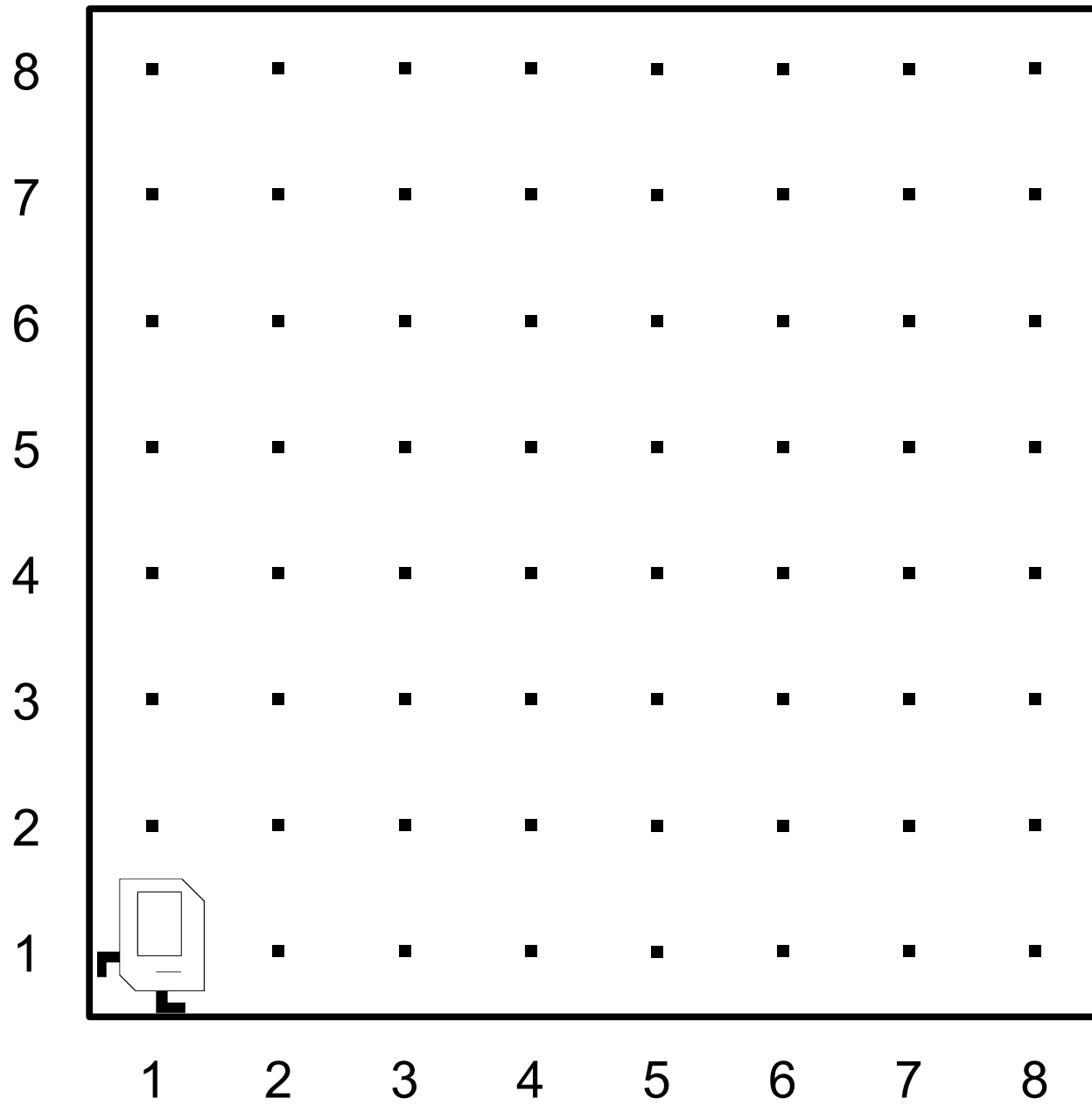
A More Elaborate Problem

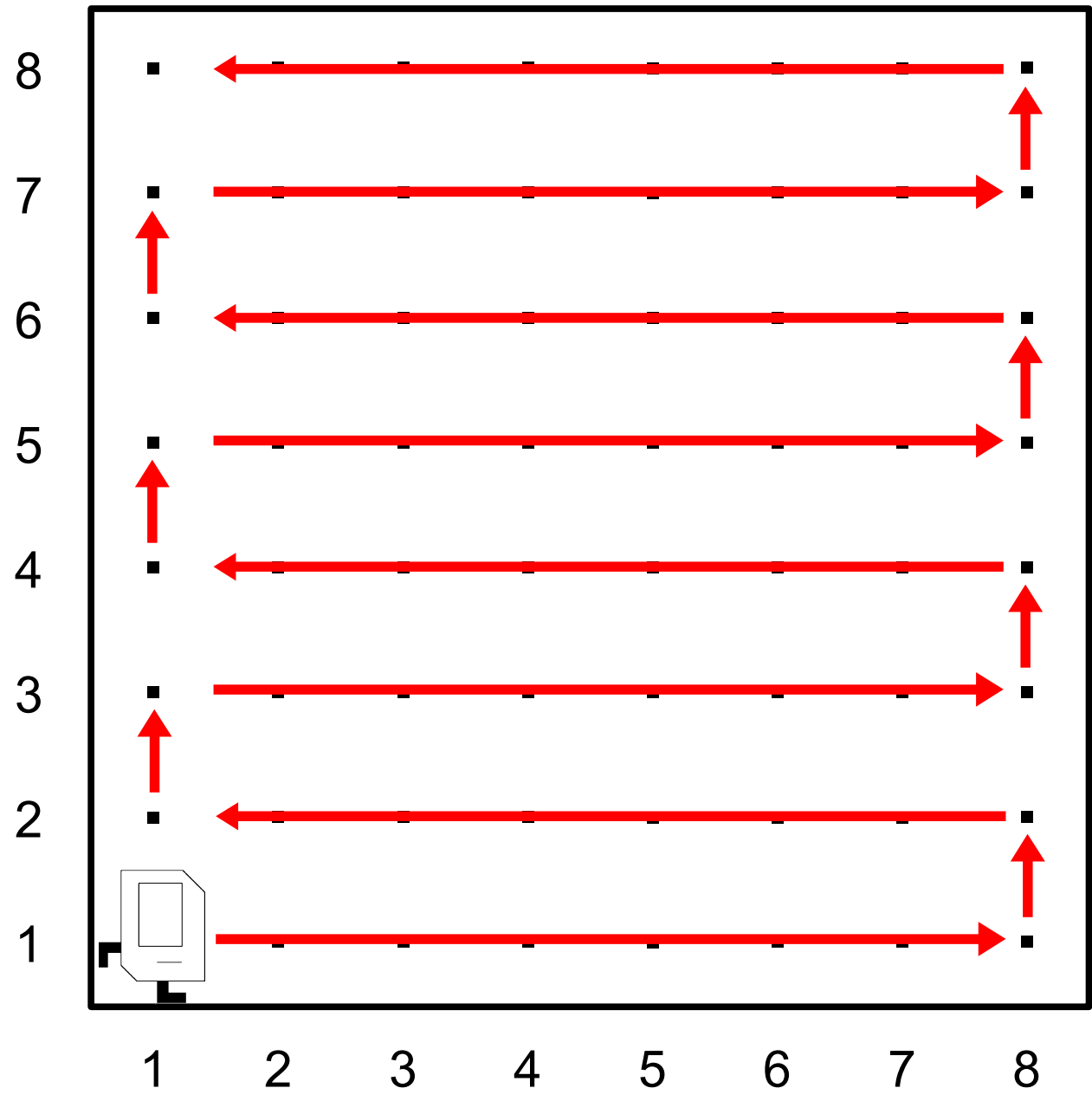


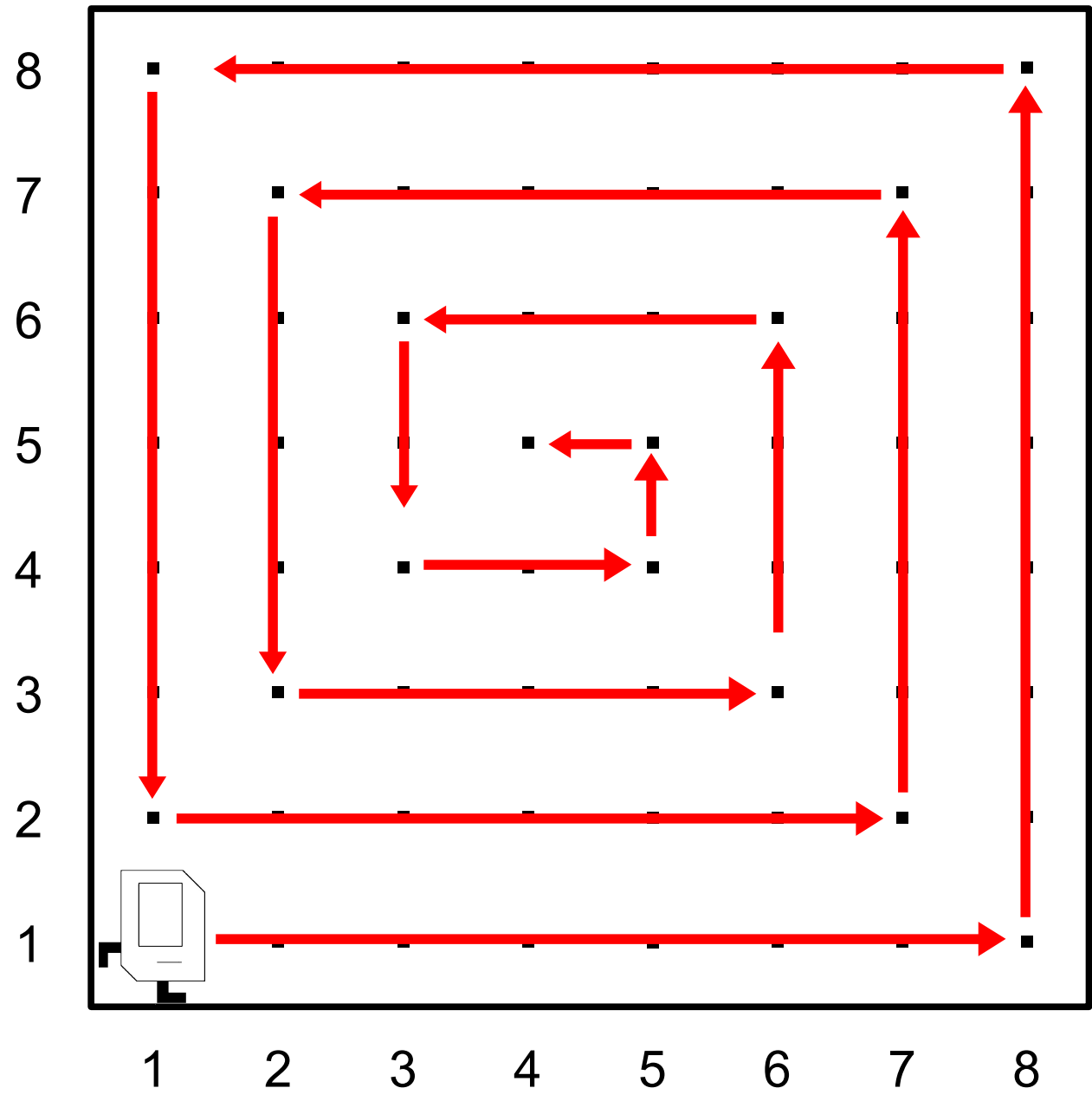
RoombaKarel

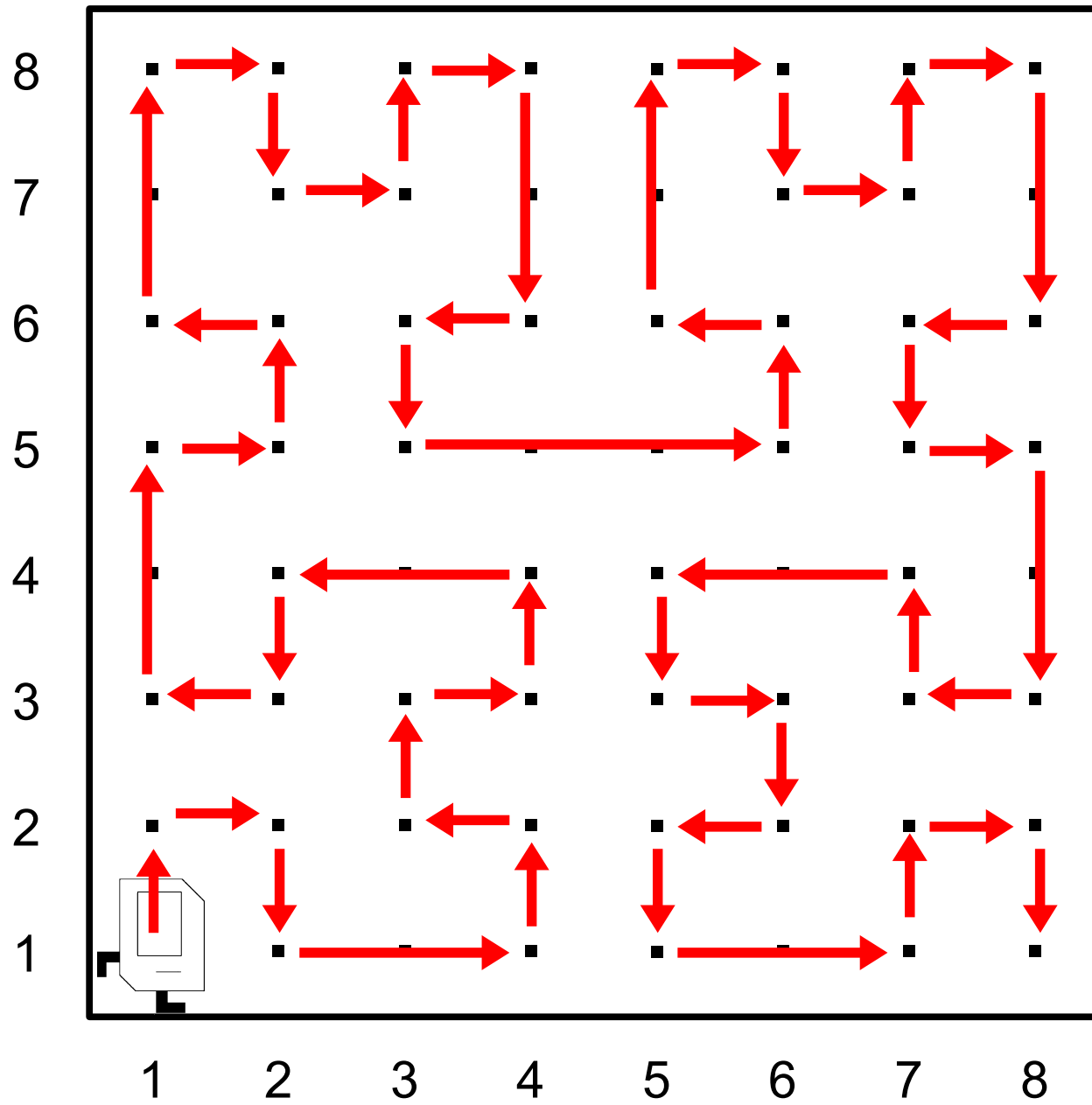
The Problem

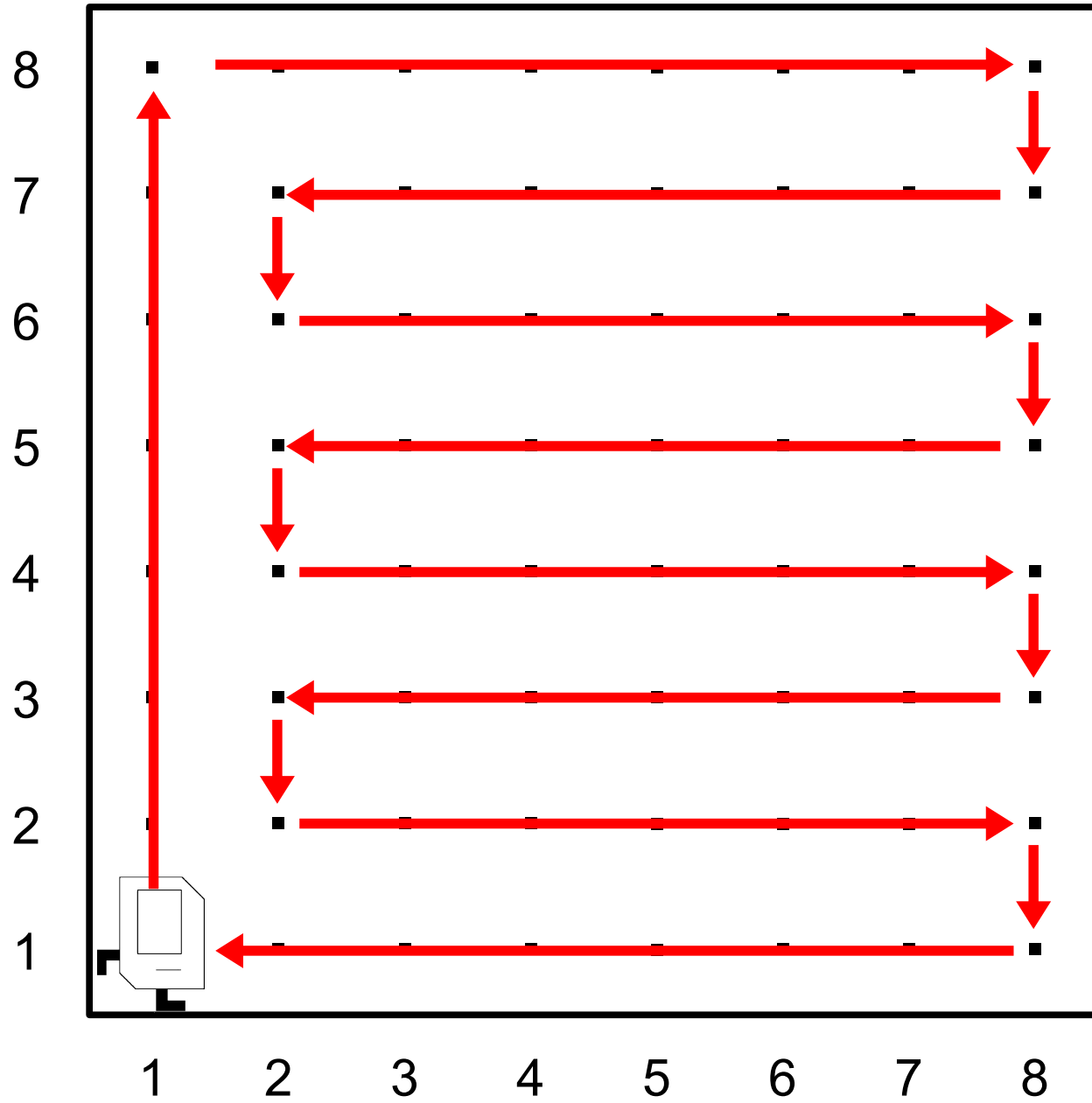
- Setup:
 - Karel begins at (1, 1) facing East.
 - Karel's world has no walls in it.
 - Each corner has zero or one beepers.
- Goal:
 - Karel's world is free of beepers.
 - Karel's end location does not matter.











Algorithms

- An **algorithm** is a process for solving some problem.
- Named for 9th-century Persian mathematician محمد بن موسى الخوارزمي, (Muhammad ibn Musa **al-Khwarizmi**).
- There are many algorithms for solving each problem; each offers tradeoffs.

