Problem-Solving with Karel
Announcements

- Programming Assignment #1 Out:
  - Karel the Robot: Due Friday, January 20 at 3:15 PM
  - Email: Due Sunday, January 22 at 11:59PM
- Sign up for section!
  

Signups close this Sunday at 5PM.
Friday Four Square

- Good snacks!
- Good company!
- Good game!
- Good fun!
- Today at 4:15 in front of Gates.

Don’t be this guy!
Revisiting HurdleJumpingKarel
RowSweepingKarel
Before
After
Let's Code it Up!
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).
  • 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 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.
BeeperDoublingKarel
Before
After
How do you double beepers?