APCS :: Lab 8 -- Carpenter

NOTE: This is a modification of problem 5.13 from the text. I think I explain it better.

- “Karel Karpeters” has been hired to install “carpet” in a series of “rooms” along street 1.
- Your goal is to detect complete rooms and carpet them.

**DefN:** A room is one, two, or three streets in height and always one avenue wide. A room is complete ONLY if it has contiguous walls along its west, north, and east sides. The “door” to the room is always on the south.

**RULES:**
- No more than one beeper may be placed on a corner AND once a beeper has been placed it cannot be picked back up again.
- The diagrams below show a possible room configuration before (left) and after (right) the Carpenter has completed her work.
- The rooms may be any number of streets high, and there may be any number of rooms. There will be a beeper on street 1 that indicates the end of the rooms.

![Diagram of room configurations](image)

**Strategy:**
This program will be similar in nature to the Decoder, although the things the robot needs to detect about the world are a little more complicated.

Use the techniques of recursion we discussed in class, and use lots of helper robots and a choreographer to get the job done.

Step-wise refinement, as usual, will help you. Solve the problem for one room first. Then do it repeatedly.