

# Solve the maze!

Your task is to find a deterministic algorithm (see below for definitions) to make your way through and out of an arbitrary maze (no loops).

Attached are many practice mazes. You and your partner will take turns being maze master and mouse. The mouse tries to find their way through the maze but CAN NOT see the maze at all. The maze master tracks the path of the mouse through the maze and gives them limited feedback:

1. Mouse must find their way out of the maze they can't see:
  - a. All they can do is issue movement commands
  - b. May use pencil and paper for record keeping but can't see the maze
2. Maze Master holds and sees the maze:
  - a. Keeps track of current position/square and direction
  - b. Tells mouse if movement would hit a wall or succeeded in moving
3. Movement:
  - a. One square at a time
  - b. Mouse issues move command (forward, left, right) ... to move backward must turn, turn then go forward
  - c. Maze Master:
    - Says "OK" if destination square is clear
    - Says "wall" if destination square is blocked
    - Moves marker as indicated to indicate current position
    - Mouse is always pointed in direction moved

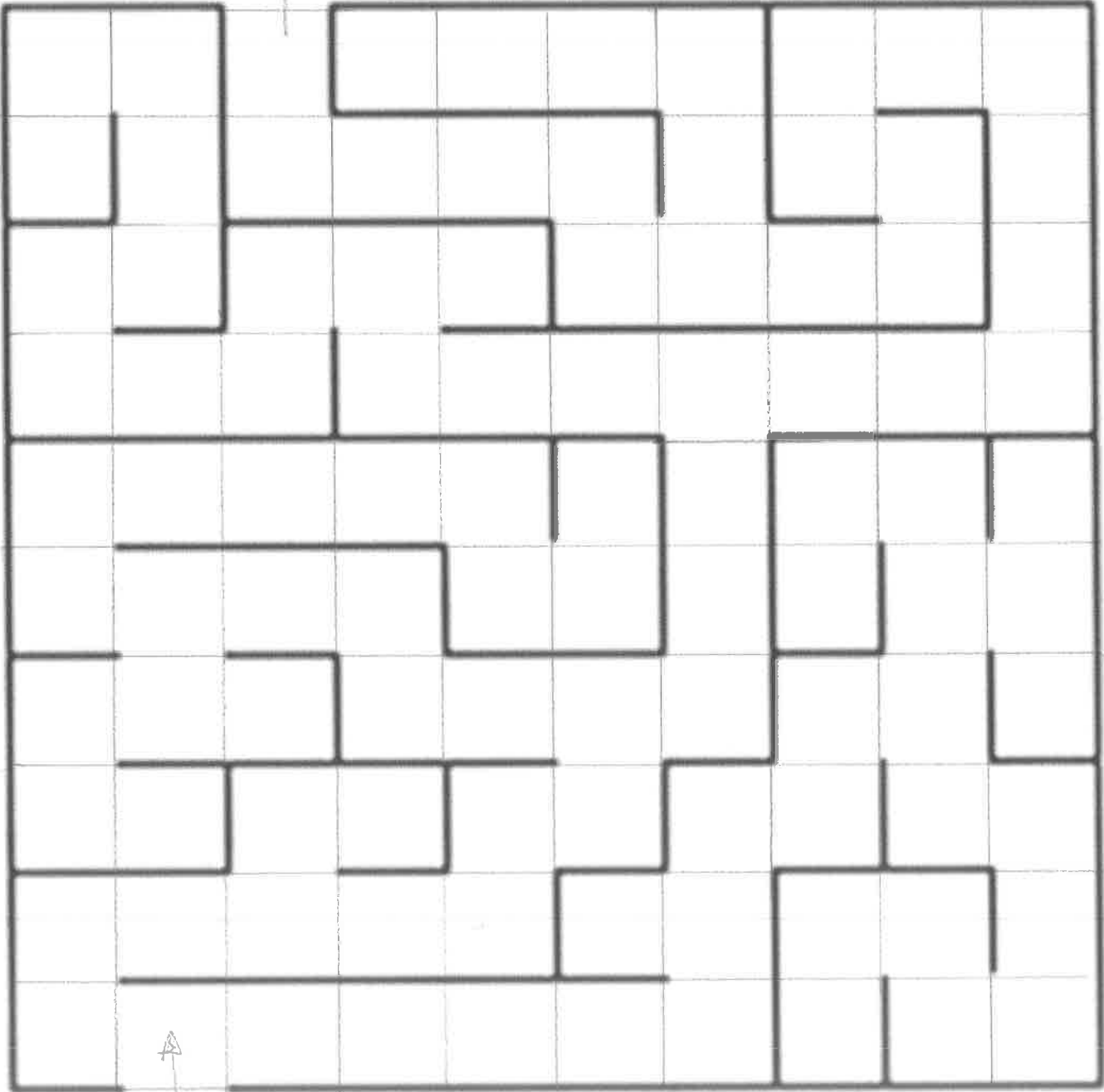
## *Definitions:*

- Deterministic:
  - Does not rely on chance at all
  - Always does exactly the same thing in a given situation
- Algorithm:
  - Deterministic set of steps to follow to accomplish a given task
  - Like a recipe ... if you follow the recipe exactly you'll get the right thing

## *Hints:*

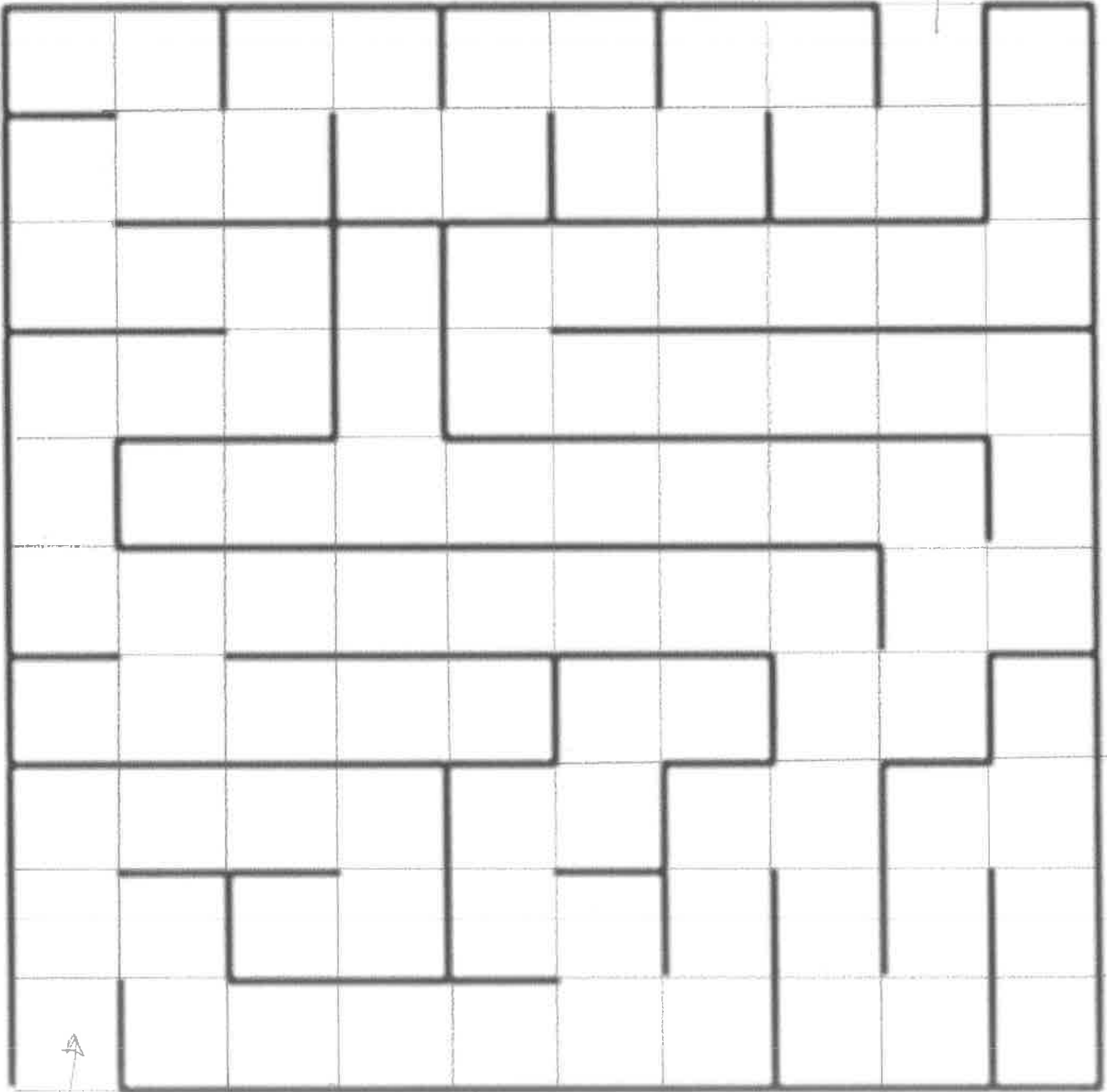
- You will come up with a small number of situations the robot will find itself in:
  - Example situation: there is a wall directly ahead and the robot cannot move forward
- Remember, your algorithm MUST be deterministic.
  - Example: whenever there is a wall directly ahead the robot ALWAYS does X.
- Following the most common algorithm for this, there are only 3 situations the robot can find itself in!

Exit



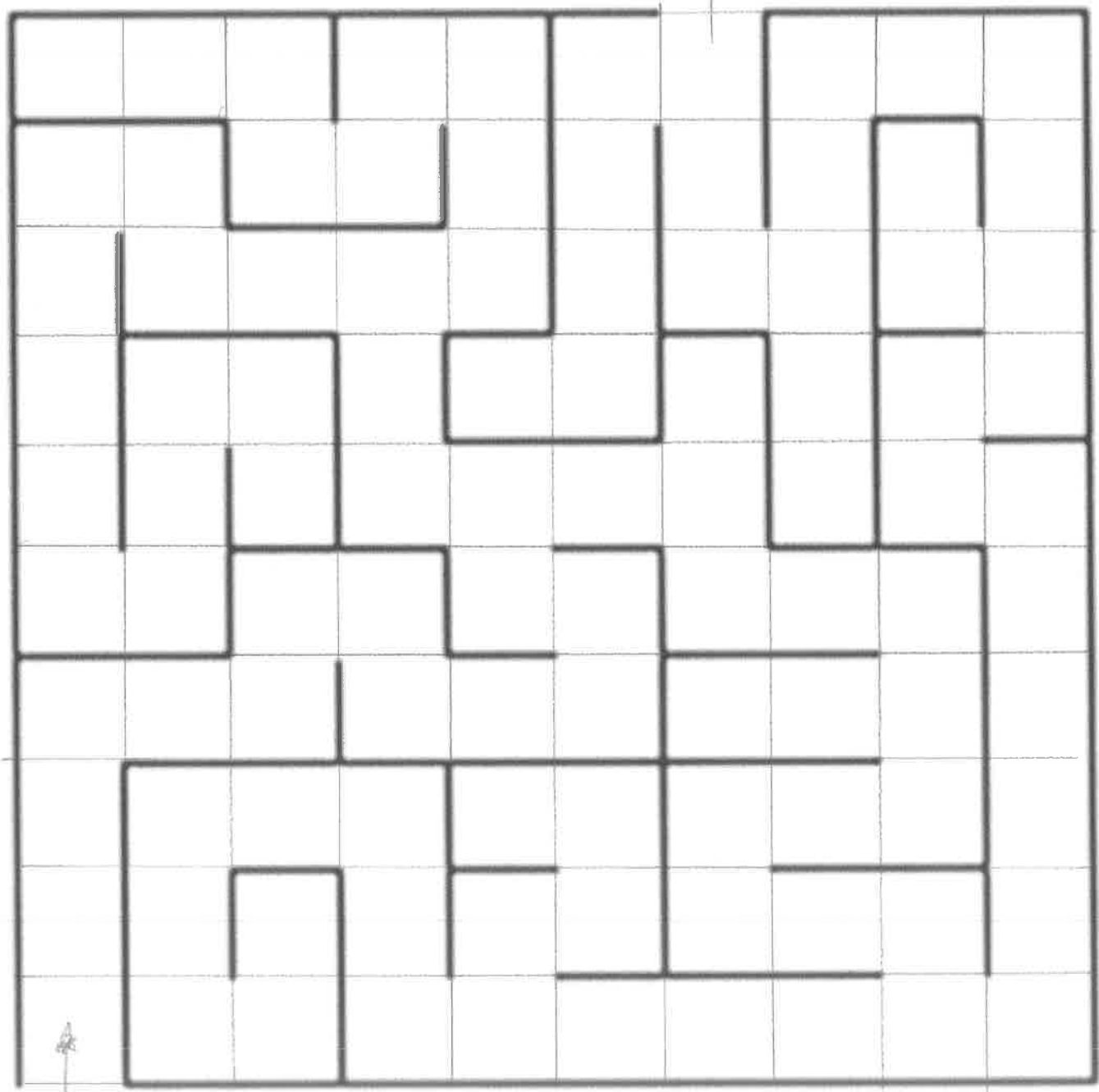
Start

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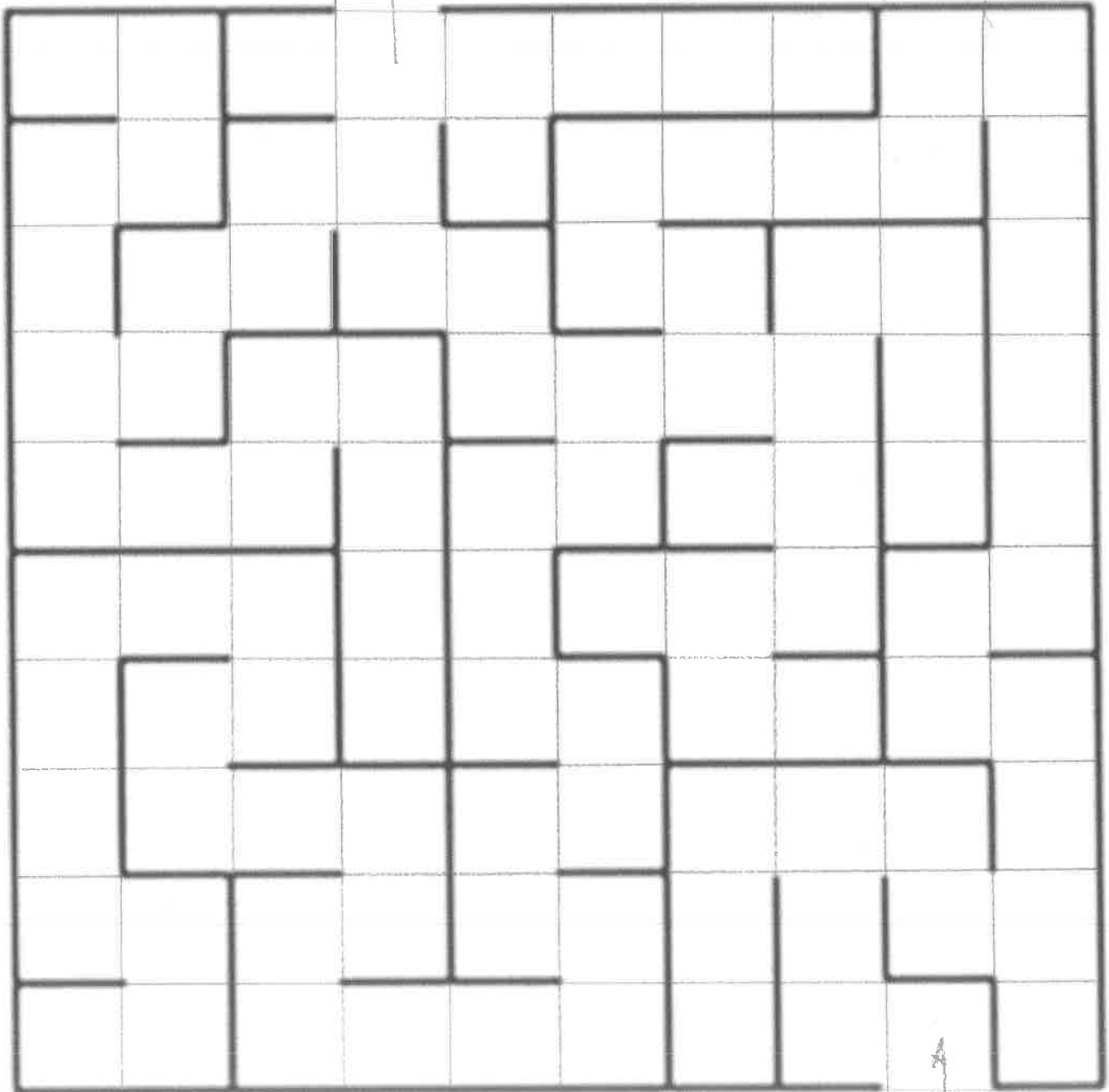
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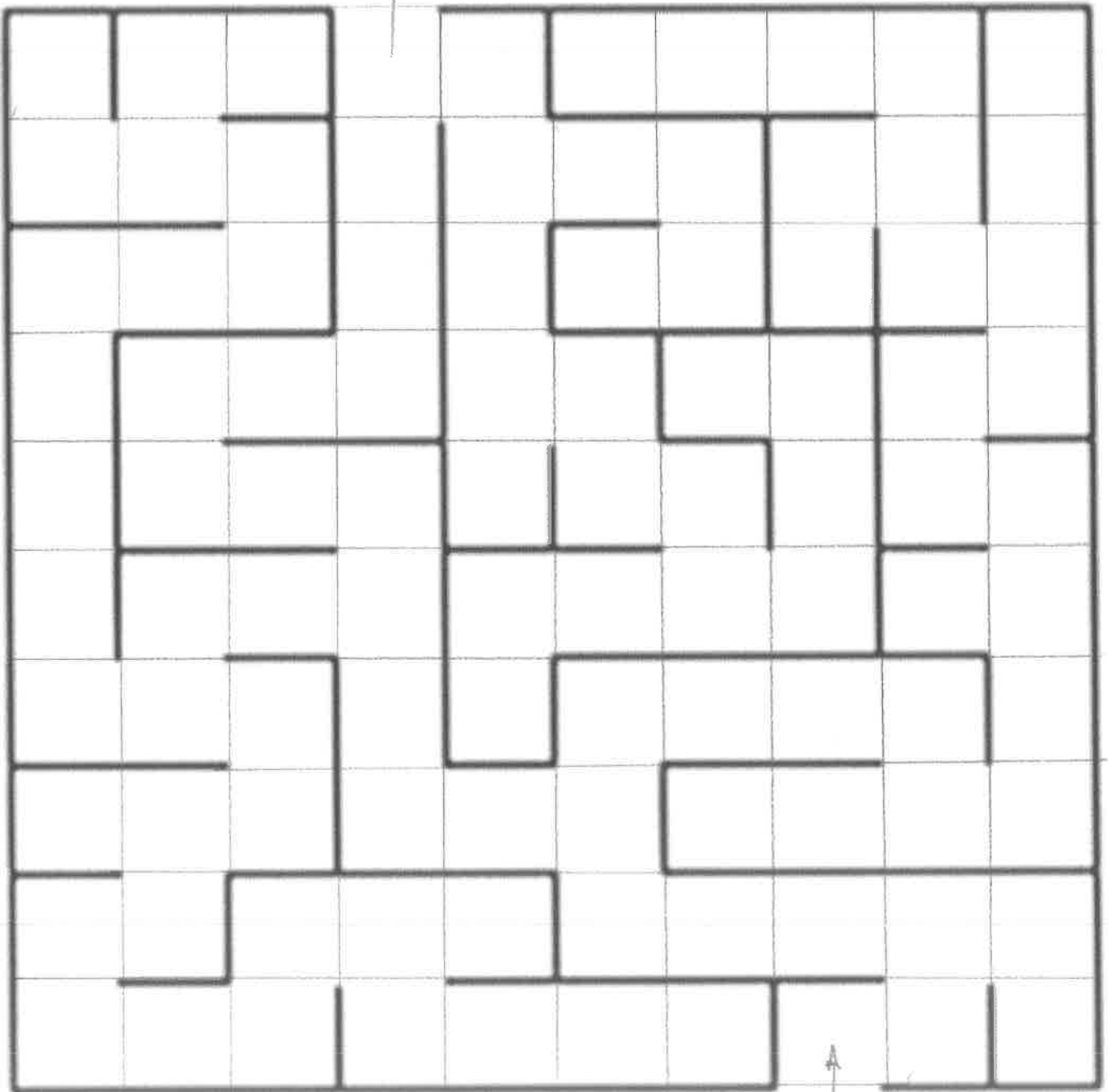
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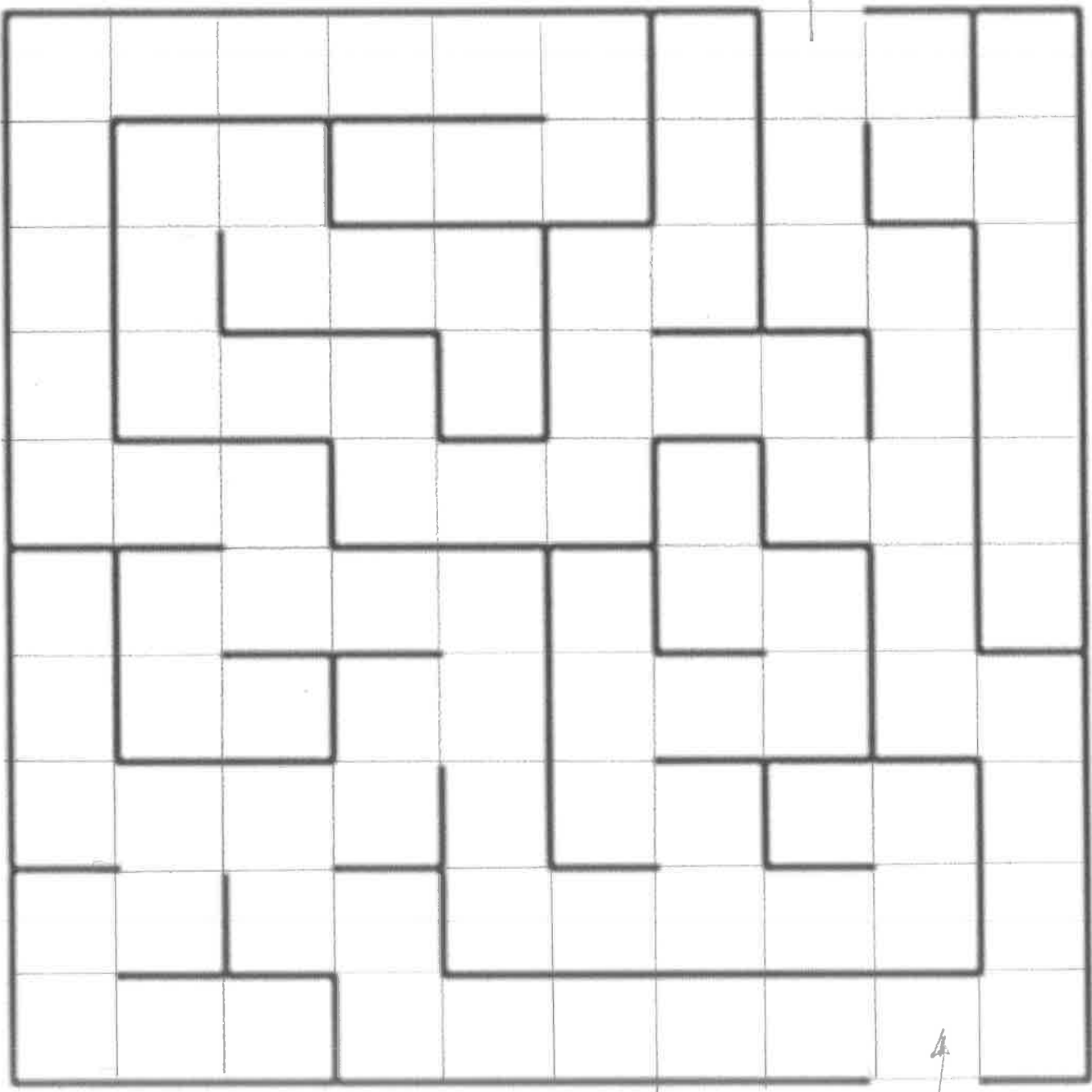
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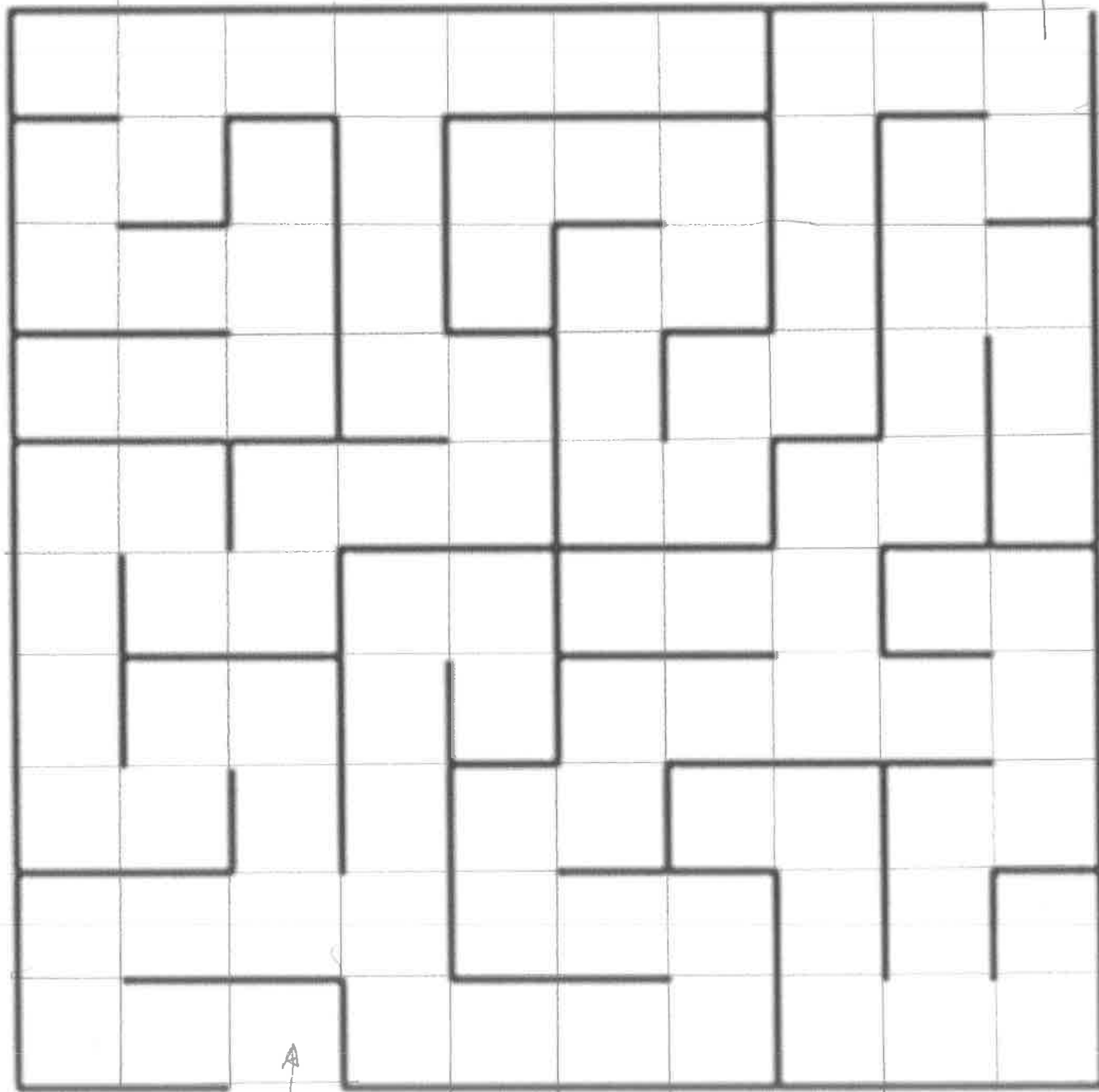
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Exit



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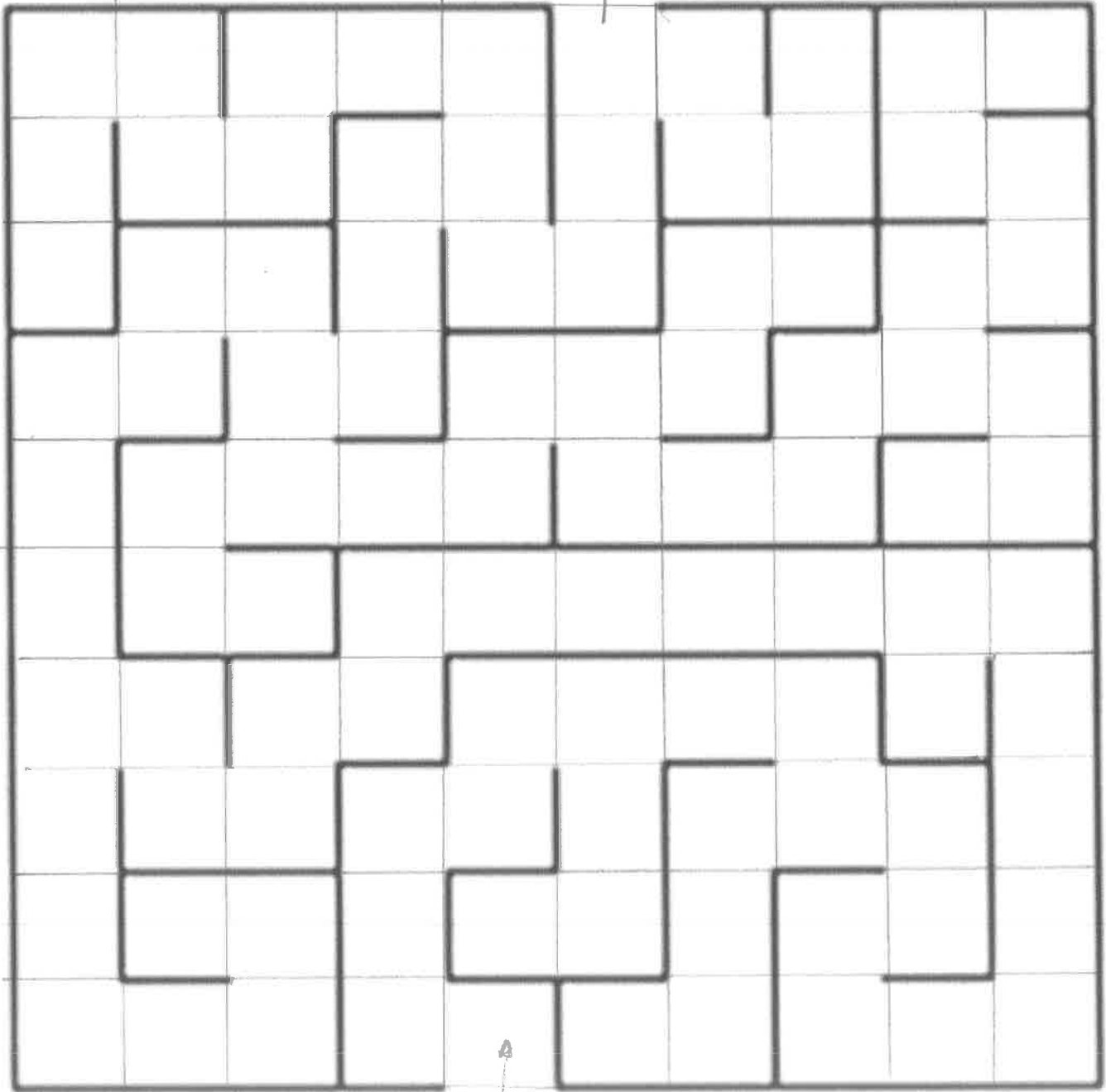
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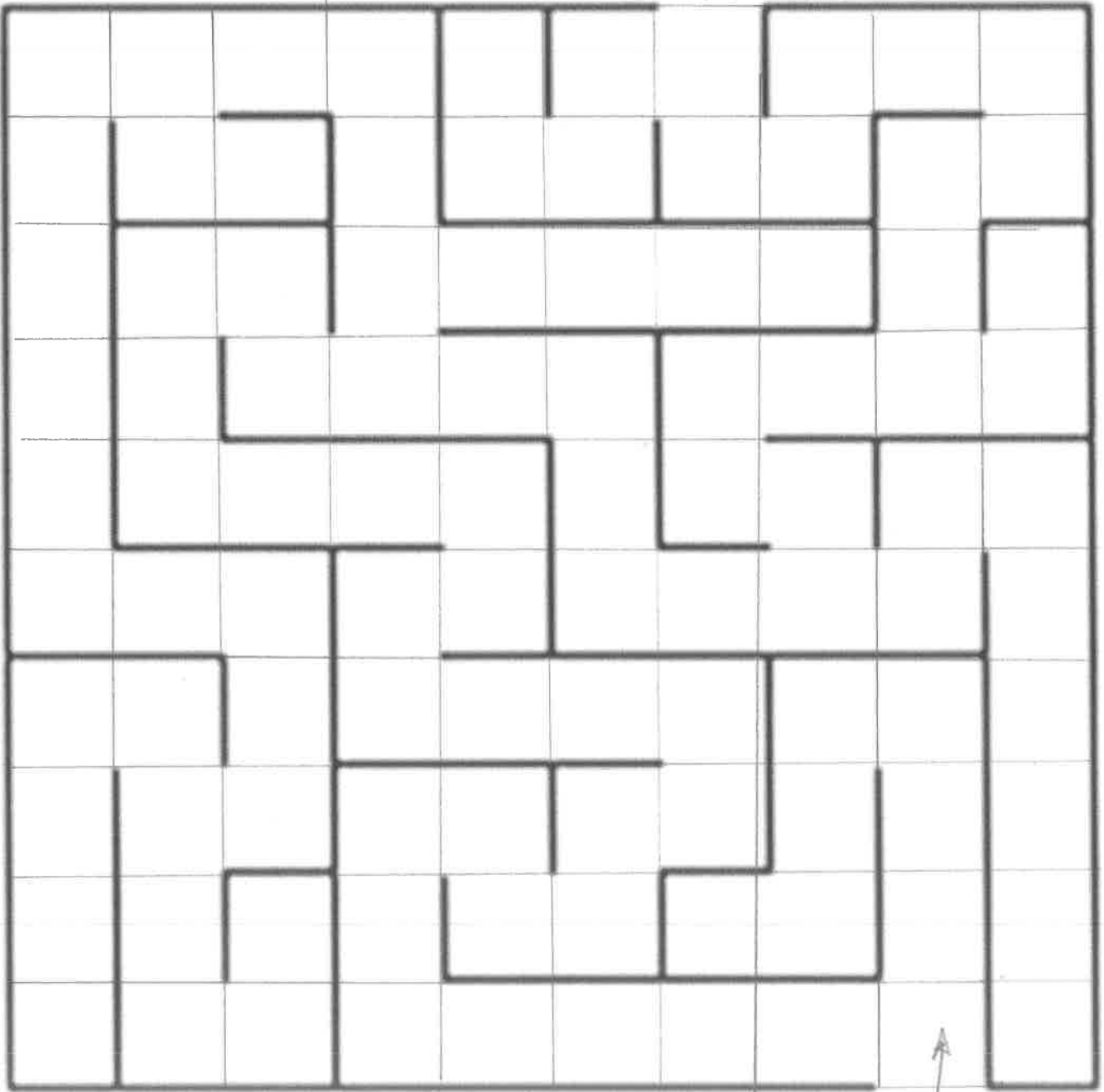


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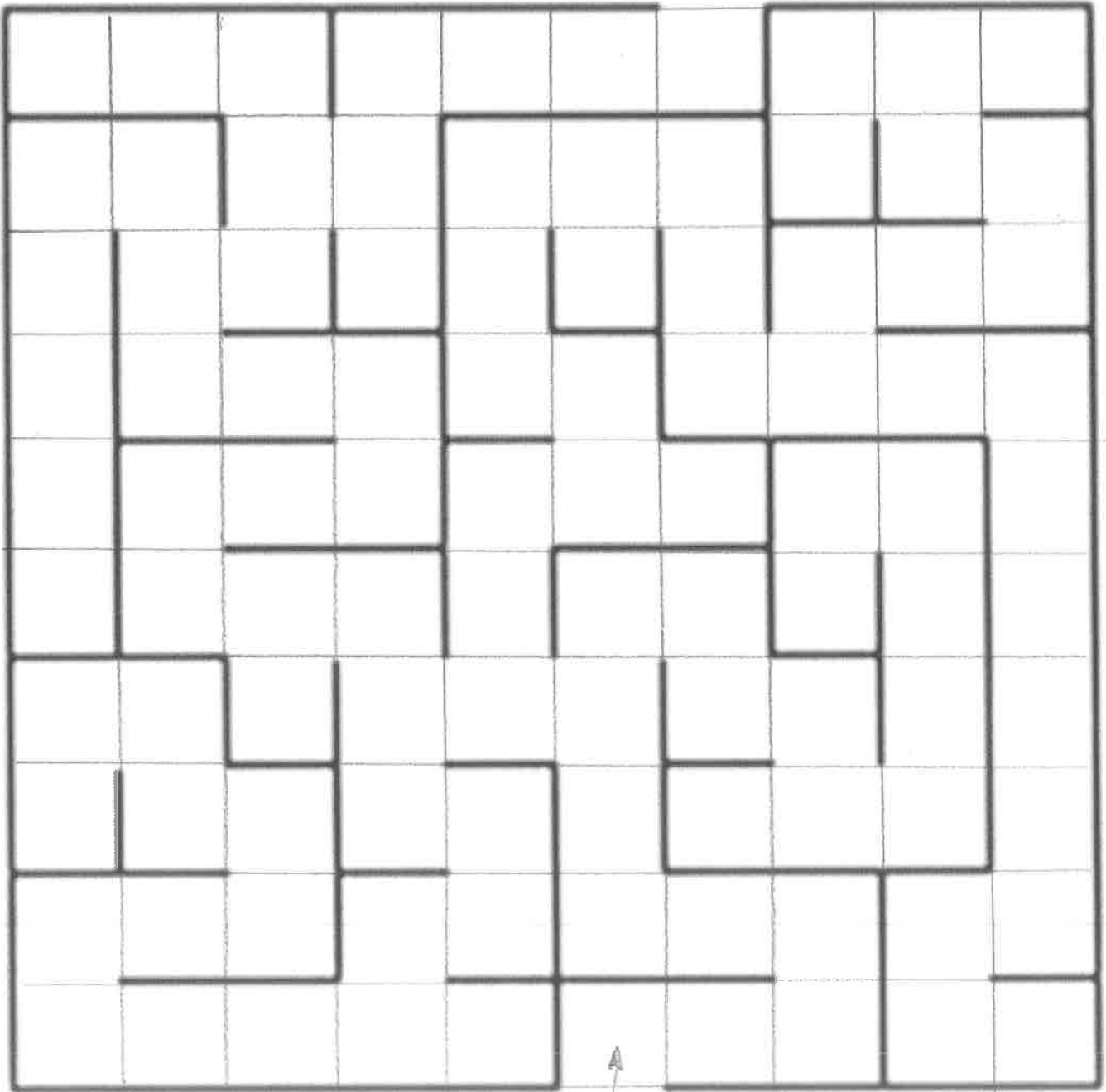
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