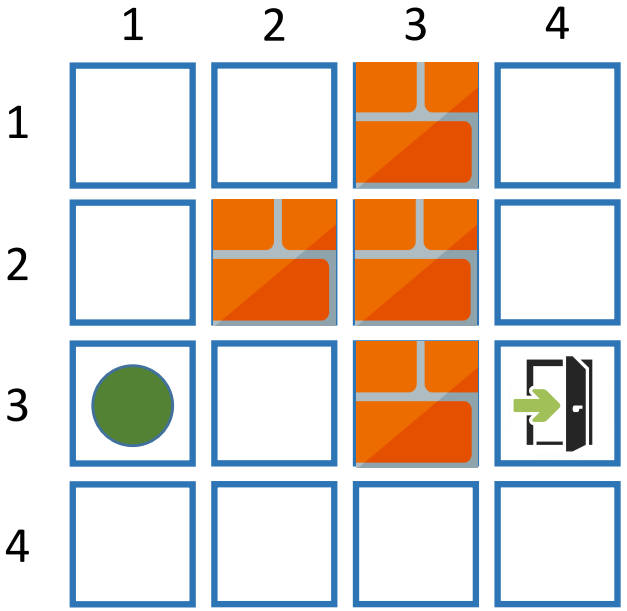
Exam 17/6/2015

An agent is posed at the entrance of the following labyrinth and, it has to traverse it to reach the exit . The symbol represents a wall



The **cost** for going **forward** or **up** is **1**, while for going **down** or **on diagonals** is **2**

The **state space** is the set of possible positions, that can be represented as a pair $\langle i, j \rangle$, with $\mathbf{0 < i < 5}$ and $\mathbf{0 < j < 5}$ and $\langle \boldsymbol{i}, \boldsymbol{j} \rangle \neq$

The **initial** state is in $\langle \mathbf{3}, \mathbf{1} \rangle$ while the **goal** state is in $\langle \mathbf{3}, \mathbf{4} \rangle$

At each step, the agent can move in every direction to one of the adjacent cells. It can perform an horizontal, vertical and diagonal move and, it can only advance from left to right, i.e. it cannot go from $\langle i, j \rangle$ to $\langle i, j-1 \rangle$, $\langle i-1, j-1 \rangle$ not $\langle i+1, j-1 \rangle$. Of course, the agent cannot traverse walls nor move out of the grid

1. Characterize the **state space**
2. Specify the **operators**