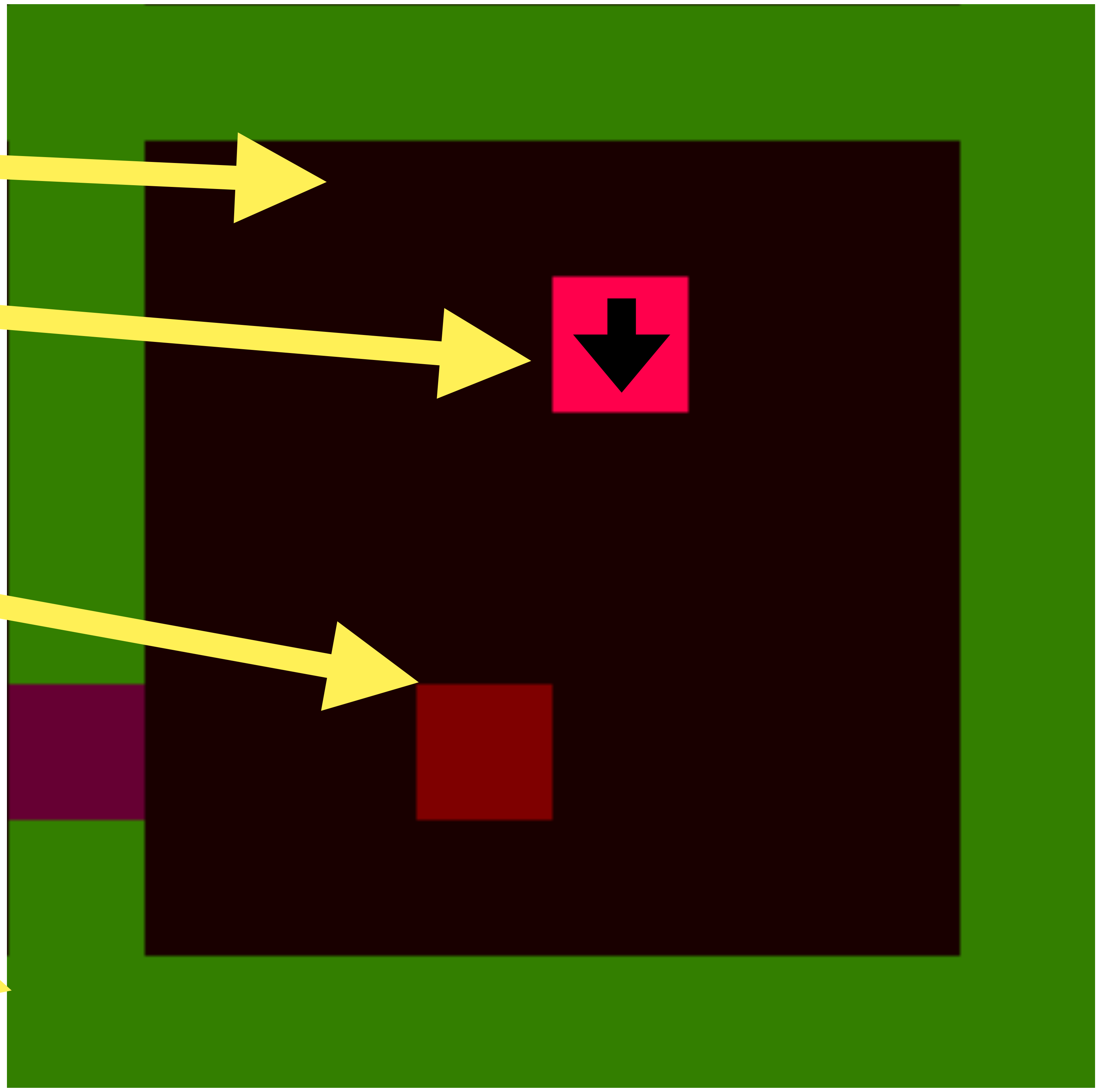
# Basic representation of a gridworld state

**type** Object =
{ empty,
  agent,
  key,
  door,
  wall }

**type** Action =
{ start, forward, left, right, pickup, toggle }

**viewpoint** lastAction : State -> Action
    lastAction(a) = start

**s : State =**



# Birdseye representation

**type** Quadrant = {1,2,3,4}

**type** Orientation = {N,E,S,W}

**viewpoint** qAgent : State -> Quadrant

qAgent(s) = 2

**viewpoint** qKey : State -> Quadrant

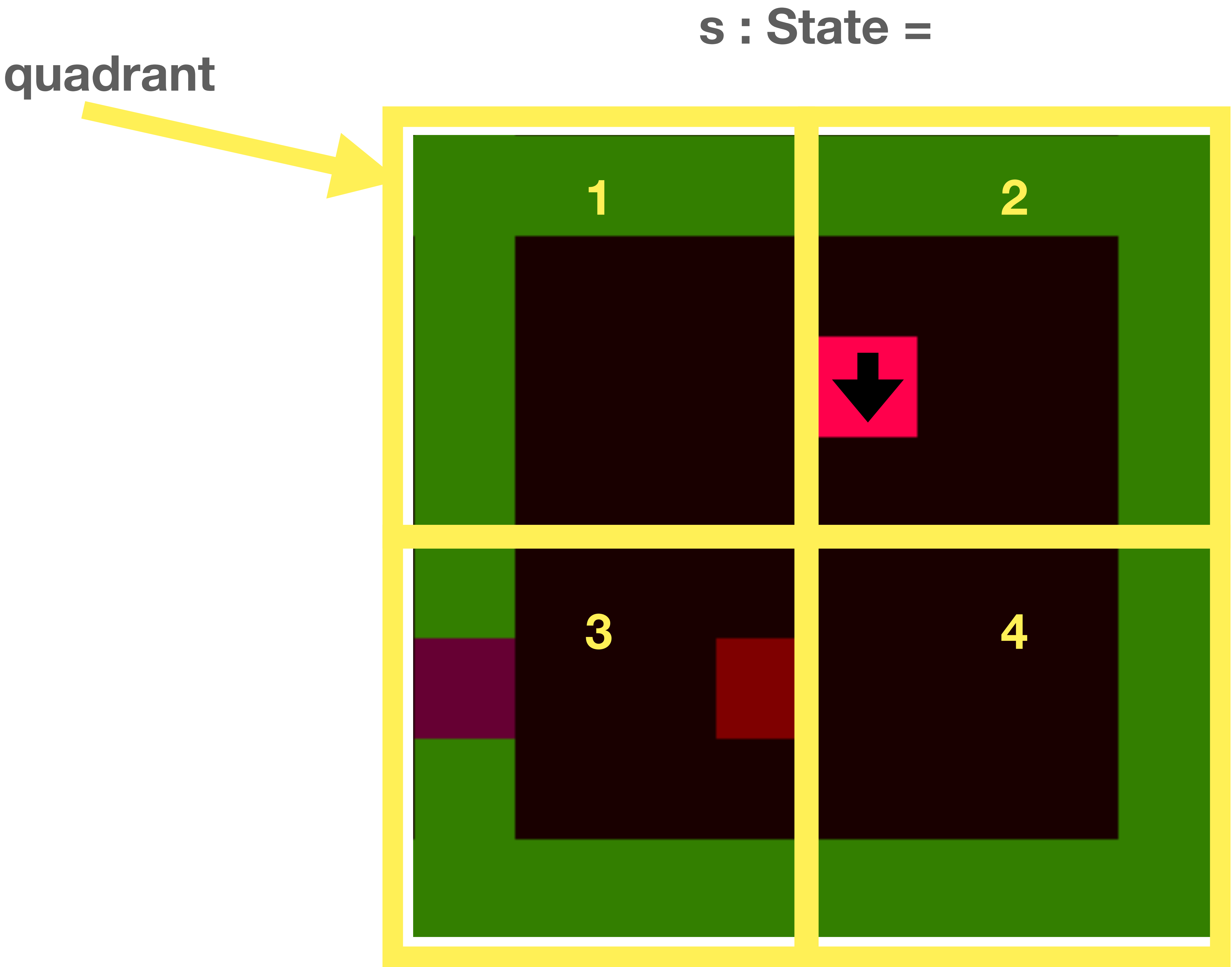
qKey(s) = 3

**viewpoint** qDoor : State -> Quadrant

qDoor = 3

**viewpoint** agentFacing : State -> Orientation

agentFacing(s) = S



# First person representation

8 viewpoints giving the object in each square surrounding the agent and labelled using clock bearings

**viewpoint** a12 : State -> Object

**viewpoint** a130 : State -> Object

**viewpoint** a3 : State -> Object

**viewpoint** a430 : State -> Object

**viewpoint** a6 : State -> Object

**viewpoint** a730 : State -> Object

**viewpoint** a9 : State -> Object

**viewpoint** a1030 : State -> Object

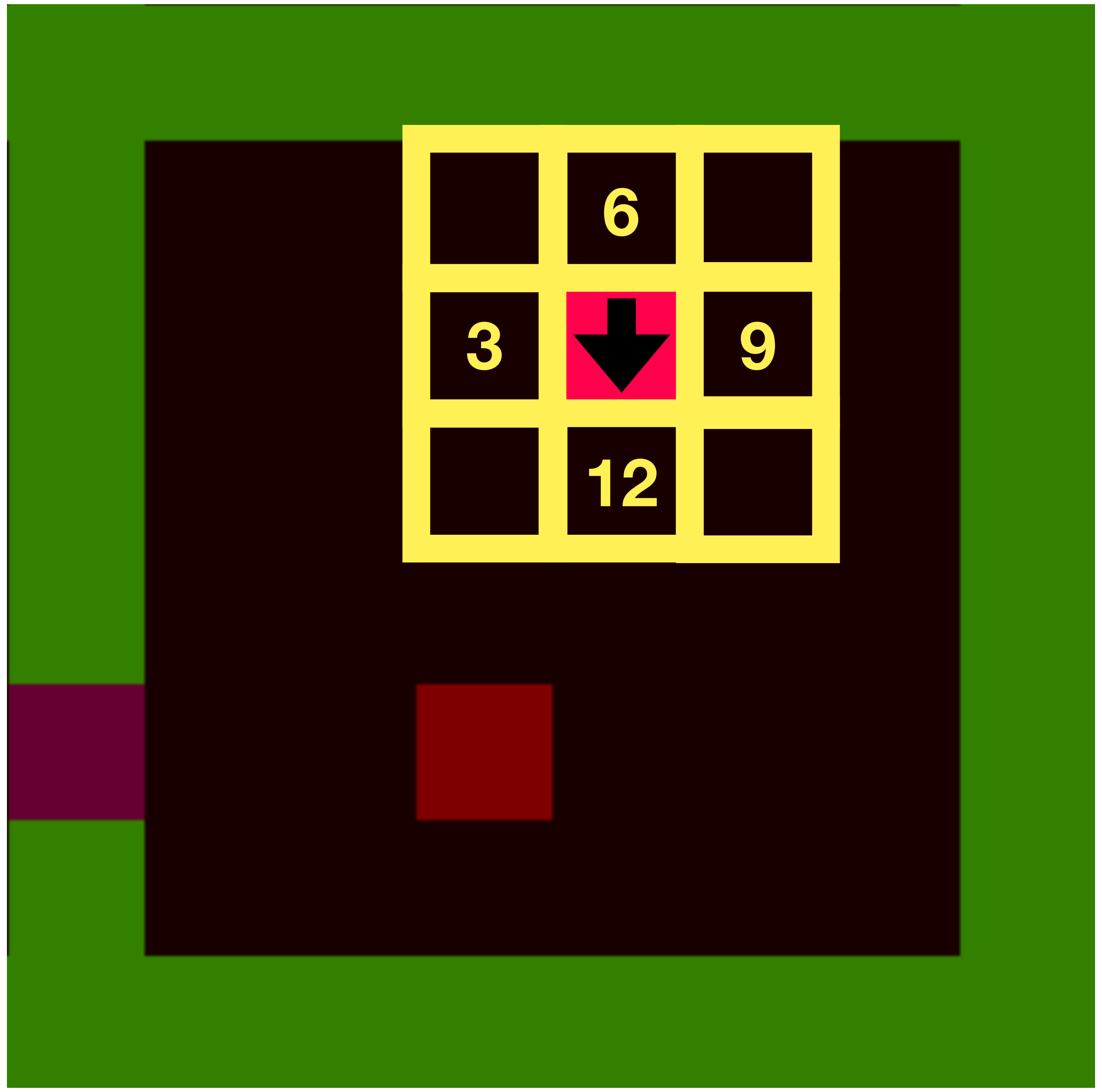
a12(s) = empty

a130(s) = empty

…

a1030(s) = empty

**s : State =**



# Other viewpoints

Additional viewpoints capturing the basic relationship between agent, door, key and far fall.

**viewpoint** canSeeKey : State -> Bool

canSeeKey(s) = true

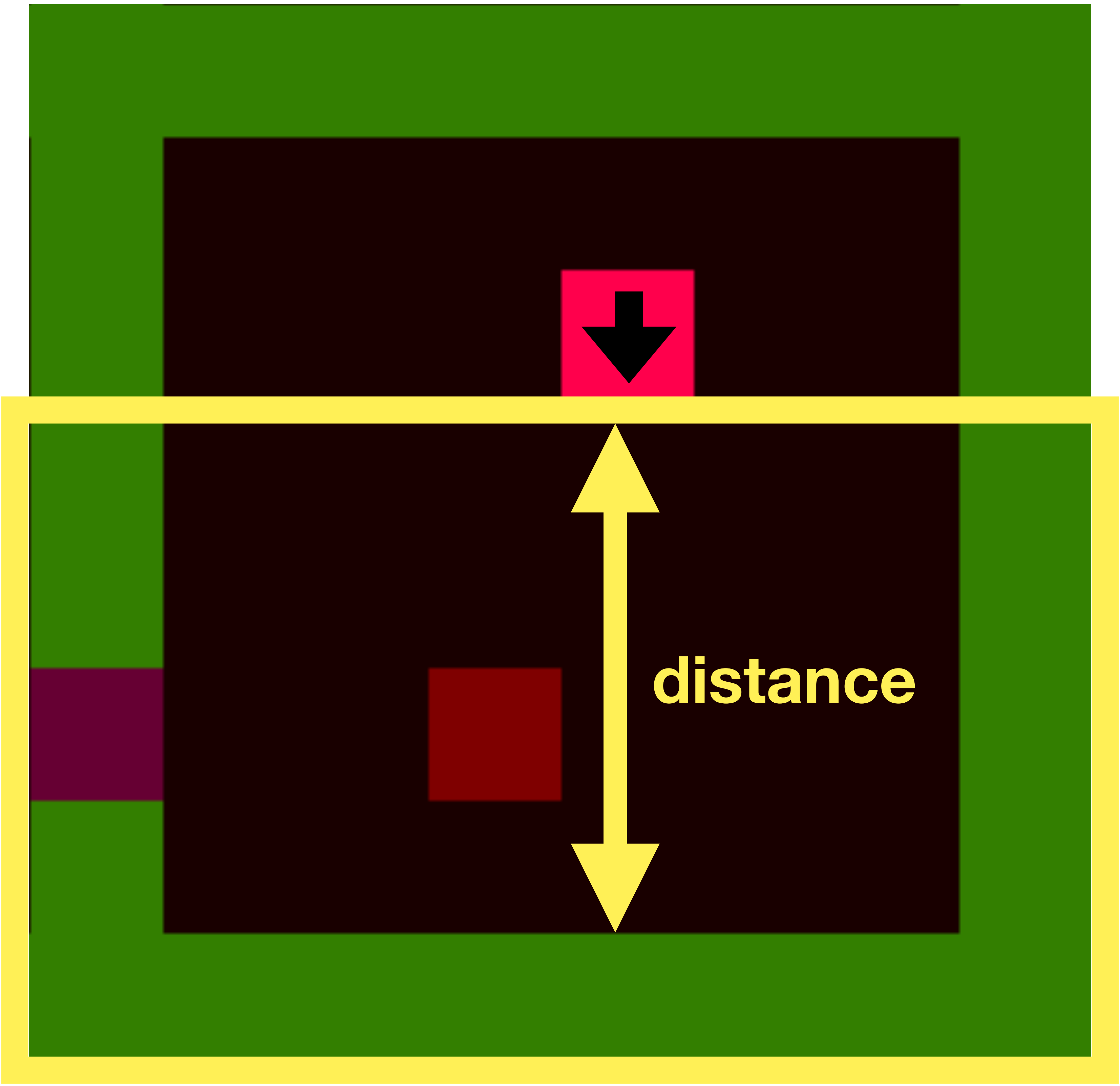
**viewpoint** canSeeDoor : State -> Bool

canSeeDoor(s) = true

**viewpoint** distance : State -> Integer

distance(s) = 4

s : State =



# Next

- Can these viewpoints be shoehorned into exiting idyom viewpoints?
  - I think so. maybe some copy and paste required.
- Are these viewpoints general enough?
  - Would they work for missions involving more objects, rooms, actions, etc?
- Are they too general?
  - Would it be better to have something more basic and have idyom learn the best combinations?