Answer to Ex 2.1

- Q1: Since the agent will be deducted 1 point for each movement, we should not let the agent move back and forth between the two squares (like the agent described on page 12). This agent should stop when it knows that both squares are clean. Since this agent is only able to perceive dirt in its current location, we could add an internal state for the agent to know whether the other square is clean or not.
- Q2: If clean squares can become dirty, then the above agent should periodically check both squares (instead of stopping after both squares are clean) to make sure it will keep cleaning. If an environment is unknown, agent should explore the environment to clean if it's dirty.

Answer to Ex. #2.2

- Robot soccer player
  - Similar to the taxi driver example.

- Shopping for used AI books on the Internet
  - Similar to the mushroom picking robot.

Answer to Ex. #2.3

- 1. False. Most of the worlds are not fully observable, but we could still build a perfectly rational agent (it depends on the performance measurement)
- 2. True. If performance measurement gives the same value for any action.
- 3. True. If it doesn’t change its performance.
- 4. False. It also depends on your hands.