List 2[1]

Exercise 1

Consider the following planning task:

- You are trapped in the cellar of a building with a switch board full of light switches. In the rooms above you there is a vampire. Luckily, there also is a vampire slayer in those rooms. To keep things simple, we consider only room layouts that are circular corridors where each room has a clockwise and an anti-clockwise neighbor.
- The vampire avoids the light (yes, even if it is only artificial light). Whenever the light in the vampire's room is switched on, it moves to a neighboring room. If one of the rooms is dark, it will move there, preferring the anti-clockwise one if both are dark. If both neighboring rooms are bright, it will move clockwise.
- The slayer tries to stay in the light. If the light in her room is switched off, she moves to a neighboring room. She moves clockwise if that room is bright and anti-clockwise otherwise.
- If the two of them meet in a room they will fight. The vampire wins the fight in a dark room unless there is garlic in that room. In bright rooms or in rooms with garlic, the slayer wins.
- All you can do is use the switch board to toggle lights and watch the fight, when it happens.

(a) There is a partial model of this domain in the directory vampire. Complete it by adding the effects of `toggle-light` and `watch-fight`. Do not add new actions or predicates.

The directory also contains instances which you can use for debugging. Their optimal plan costs are 6, 4, 7, 5, 4, 12, 11, 10, 13, and 8.

Exercise 2

Look up the top 5 planners in the sequential optimal and sequential satisficing track of the International Planning Competition (IPC) 2014. For each of them, list their search direction, search state representation, search algorithm, heuristic, and other interesting aspects. For planners that use a portfolio of other planners it is sufficient to list the names of the other planners.

[1] Exercício de Malte Helmert.