Online Motion Planning
Problem Set 9
Universität Bonn, Institut für Informatik I

To be solved until the 10th of January

Problem 1:

Compute the ratio of the following two search paths for the Window Shopper Problem:

a) Walk on a straight line segment from the starting point $(0, 0)$ to $(1, 0)$ and from there vertically until you hit the target.

b) Walk on a straight line segment to $(1, 1)$ (if you see the target on this path, you of course go directly to it) and then vertically until you hit the target.

Problem 2:

Now consider the following variation of the Window Shopper Problem:

The target ray is still horizontal but it starts from the vertical line $\{X = 1\}$ instead of a vertical ray (but it still goes to the left). Find a strategy for this problem that guarantees a constant ratio (not necessarily an optimal one).

Problem 3:

Compute the ratio of spiral search under the (additional) assumption that the ray that you are searching for is part of a line through the origin (i.e. the target ray is radial to the origin).