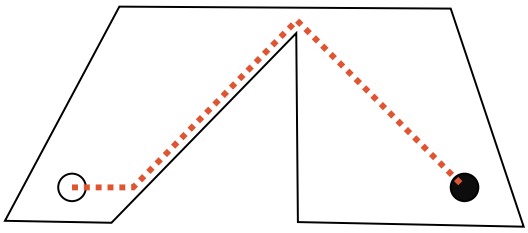
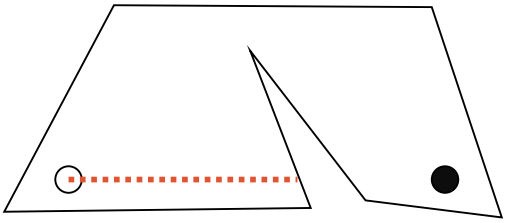
499 Project David Rappaport

The Attraction Trajectory of a Point

The beacon model used to idealize a communication network assumes that a *point beacon* can apply an attractive force to a *point object*, in an attempt to attract the object towards it. The beacon and object are both interior to a polygon as illustrated below.



In the figure above the beacon is the dark point and the object is the light point, and the attraction trajectory of the object to the beacon is shown by the dashed line. This trajectory moves the object directly towards the beacon, or slides along the boundary of the polygon as long as the object keeps getting closer to the beacon.



On the other hand as shown in the second example there are cases where the object cannot reach the beacon because it hits the boundary such that it cannot slide closer to the beacon.

The attraction trajectory can be fully characterized and there are fairly simple algorithms to compute it.

In this project you will be implementing an algorithm to compute the attraction trajectory of a point towards a beacon and animate the motion..

Skills that I am looking for are:

• Creativity
• Ability to understand a high level description of an algorithm and obtain a working implementation with a graphic visualization.
• Ability to test the program and collect empirical data relevant to the project