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Online Motion Planning
Problem Set 10
Universität Bonn, Institut für Informatik I
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To be solved until the 17th of January
*The solutions to this Problem Set are the last that will be evaluated.*

Problem 1:

Suppose you are searching for a vertical line L at a known location in the plane with n (non-touching) axis-aligned *square* obstacles of unknown positions. Your robot has only tactile sensors (no vision, but perfect control about his movement and he always knows exactly his coordinates and heading). Give an algorithm finding a path from starting point s to L of path length $2 \cdot \Pi_{OPT}$, where Π_{OPT} is the shortest path between s and L.

Problem 2:

Give a strategy for a robot at start position s in an unknown orthogonal simple polygon P that reaches the kernel of P on an optimal ℓ_1-path, or reports after a finite amount of time that $ker(P)$ is empty.

Problem 3:
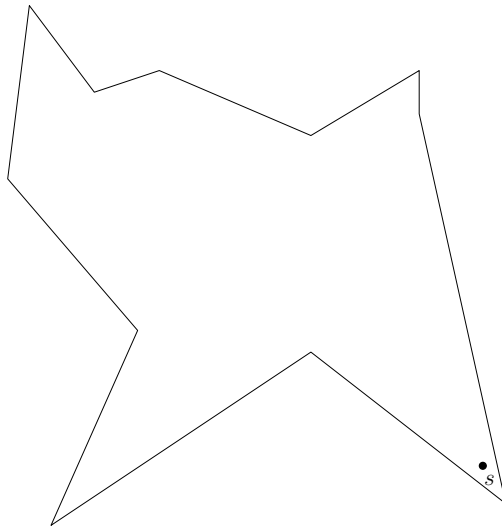
Draw in the polygon the path generated by the CAB algorithm.