

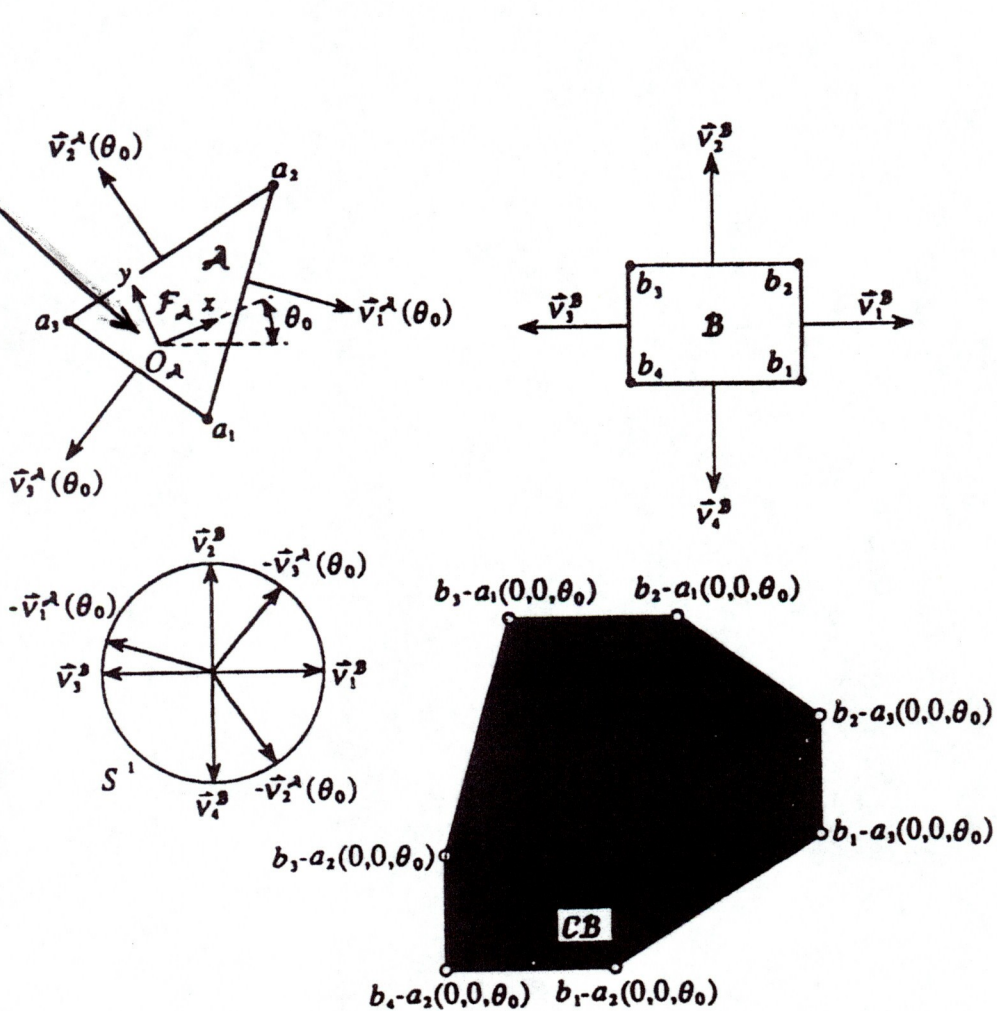
C-obstacle for Rigid Robot Translating in the Plane

$$CB = B \ominus A(0, 0, \theta_0)$$

where \ominus denotes the Minkowski difference defined by:

$$X \ominus Y = \{x - y | x \in X, y \in Y\}.$$

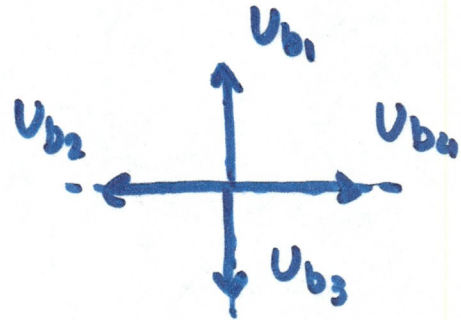
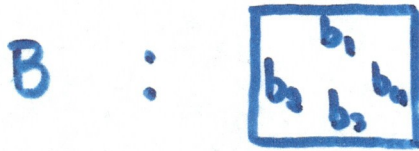
Reference point



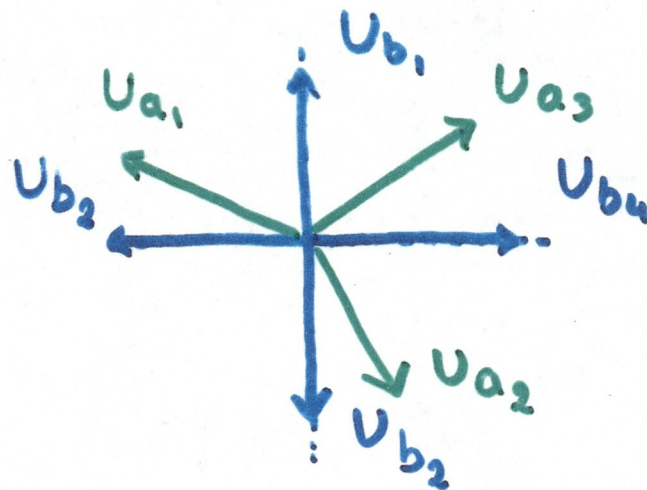
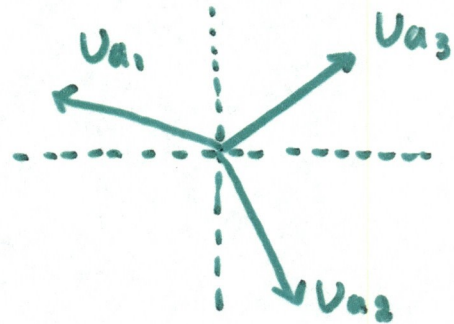
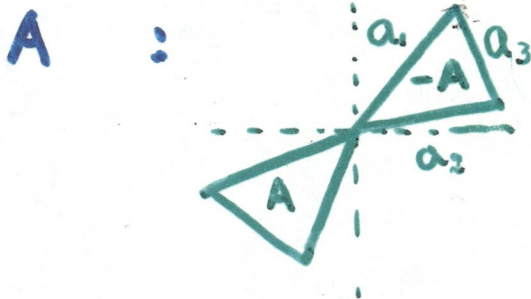
Time complexity: $O(n_A + n_B)$

Algorithm

ORDERED



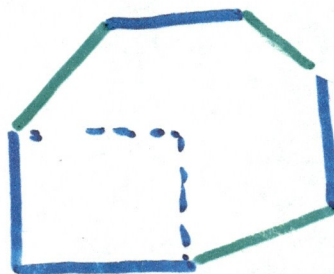
ORDERED



ORDERED

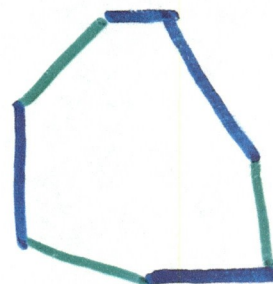
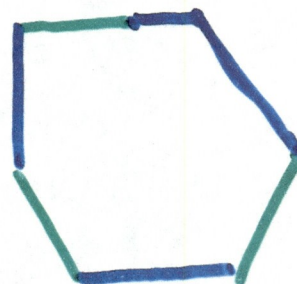
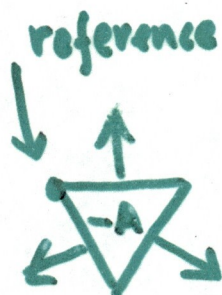
Algorithm

CB

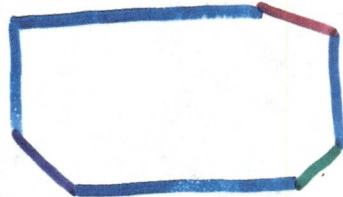
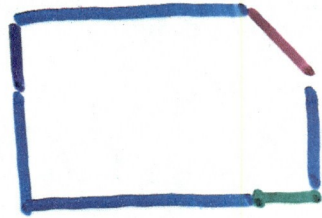
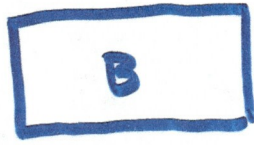


$$O(n_A + n_B)$$

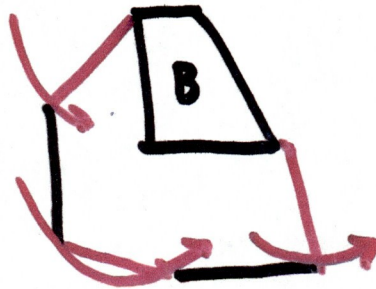
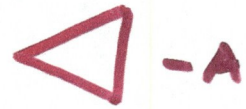
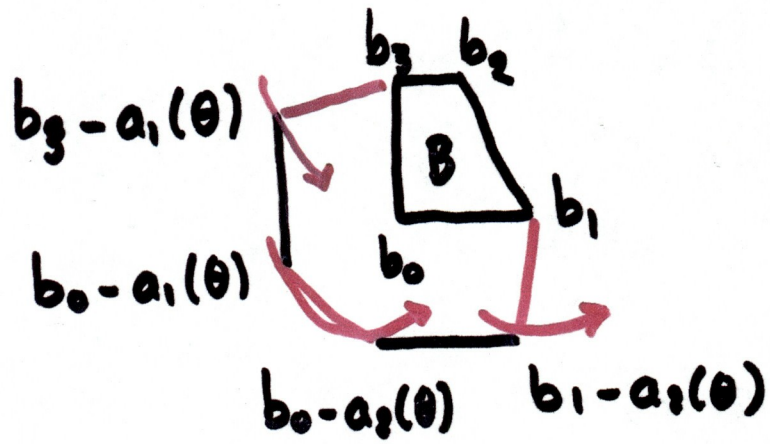
Some examples



Rotation

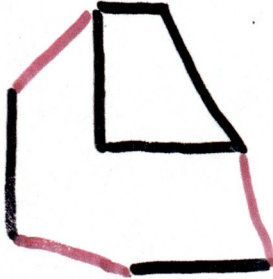


Rotation



Rotation of A

$\theta = 45$



$\theta = 75$

