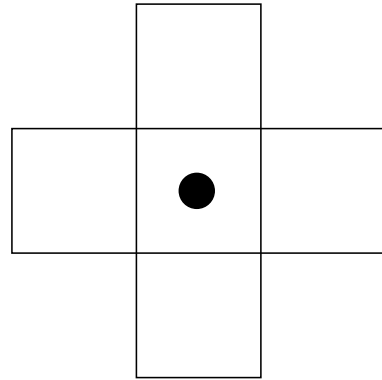
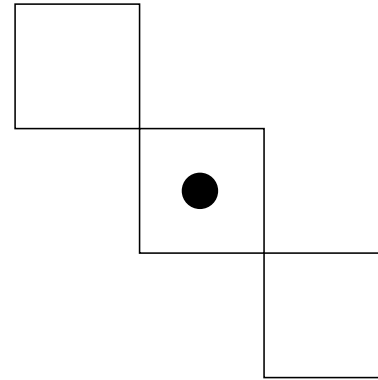


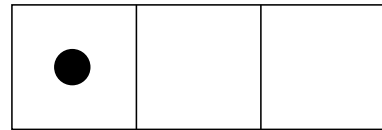
# Structuring Elements



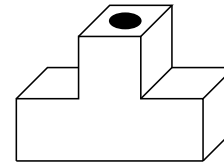
(a)



(b)



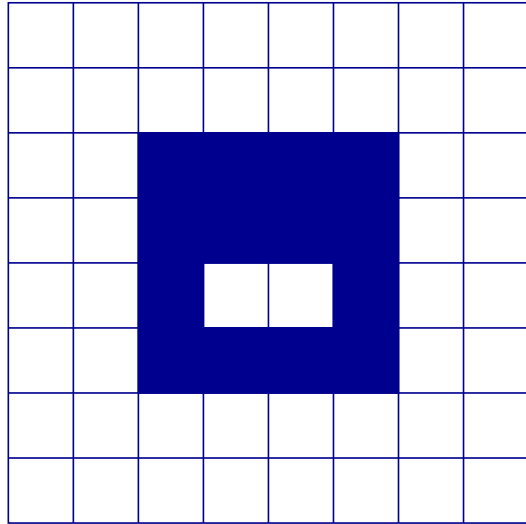
(c)



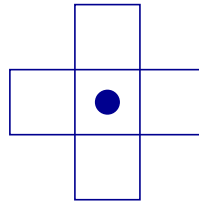
(d)

Figura 1: (a), (b), and (c) are planar and (d) is non-planar.

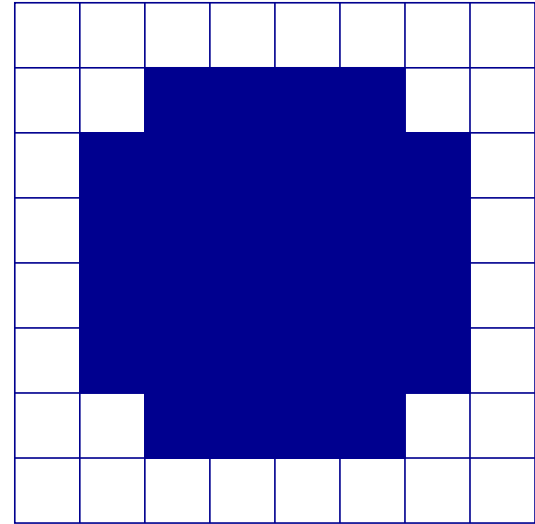
# Binary dilation



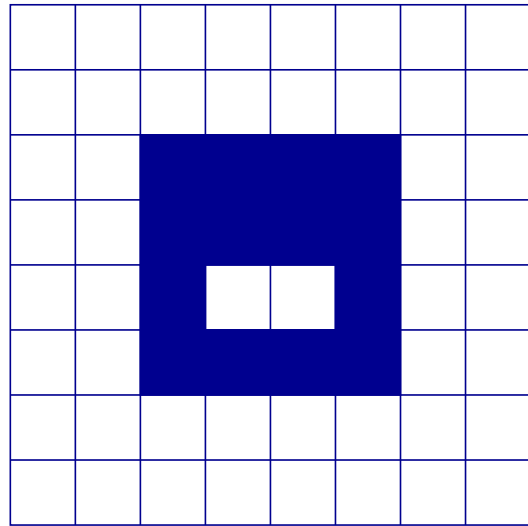
$\oplus$



=



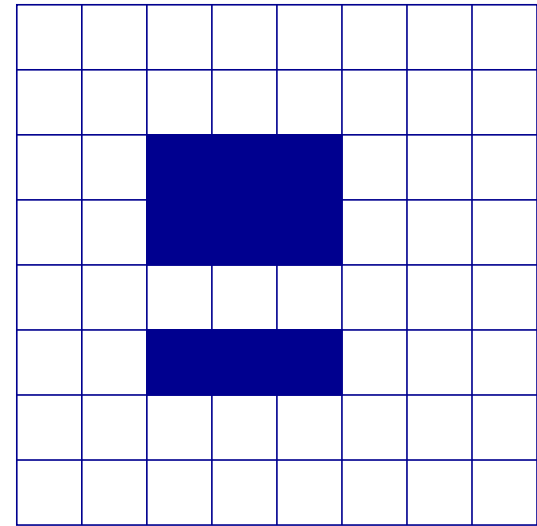
# Binary erosion



$\ominus$



=



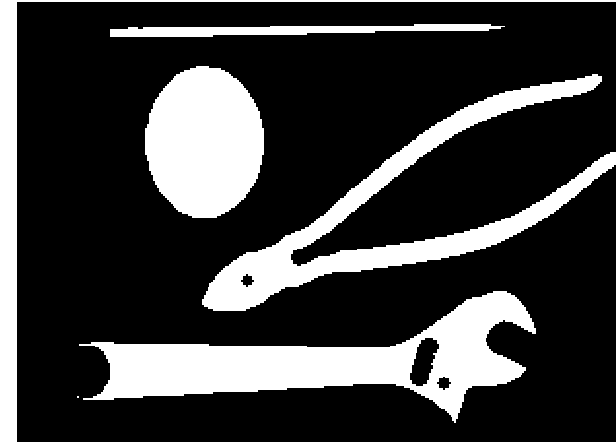
# Binary dilation and erosion



(a) Image



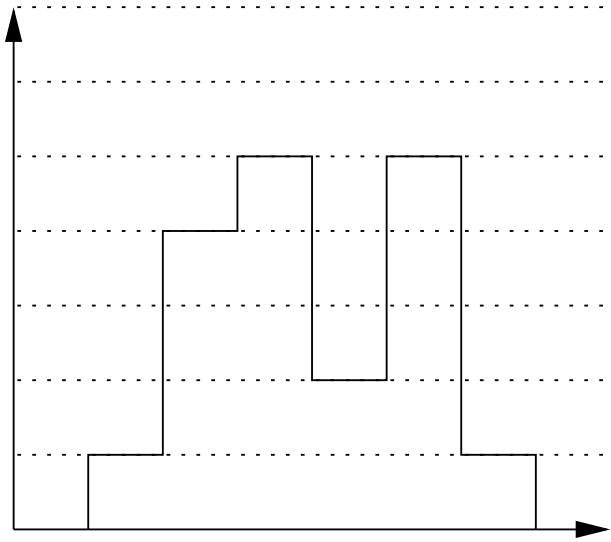
(b) After dilation



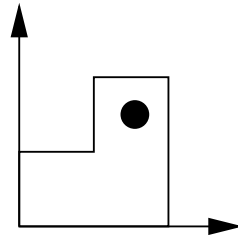
(c) After erosion

Figura 2: Structuring element is a disk of radius 3.0

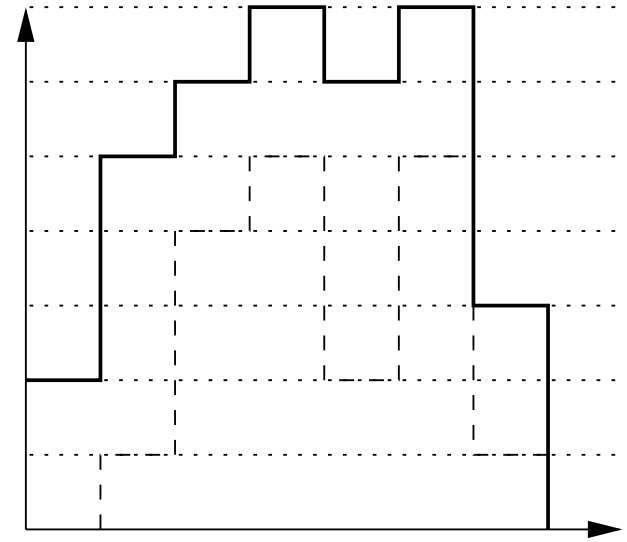
# Gray-scale dilation



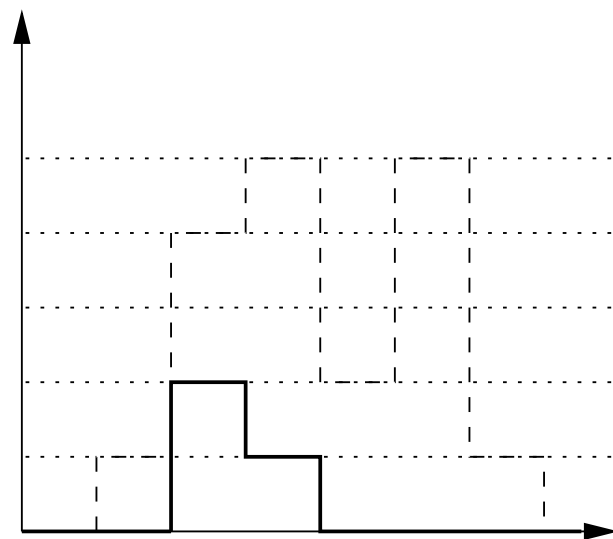
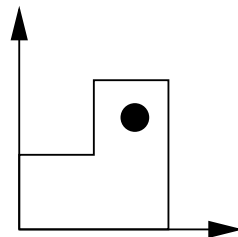
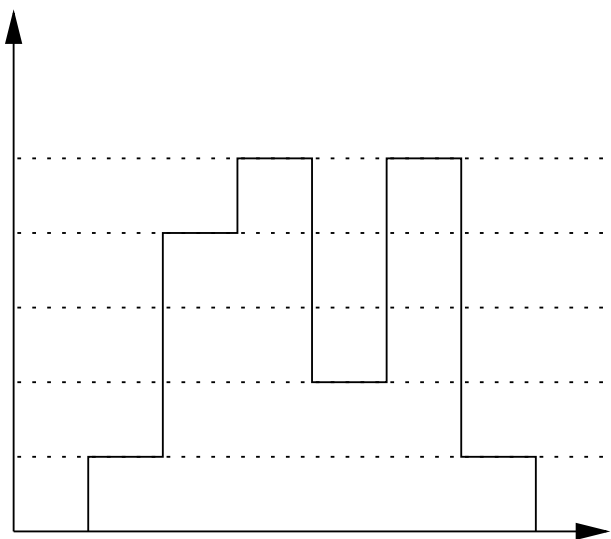
$\oplus$



=



# Gray-scale erosion



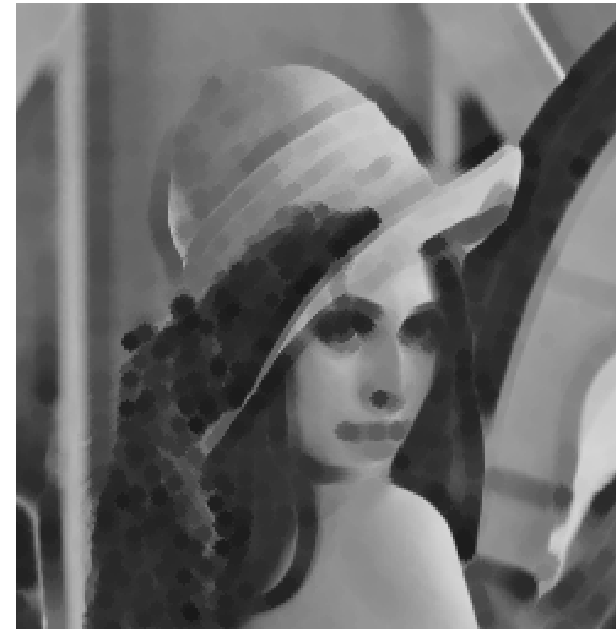
# Gray-scale dilation and erosion



(a) Image



(b) After dilation



(c) After erosion

Figura 3: Structuring element is a disk of radius 3.0