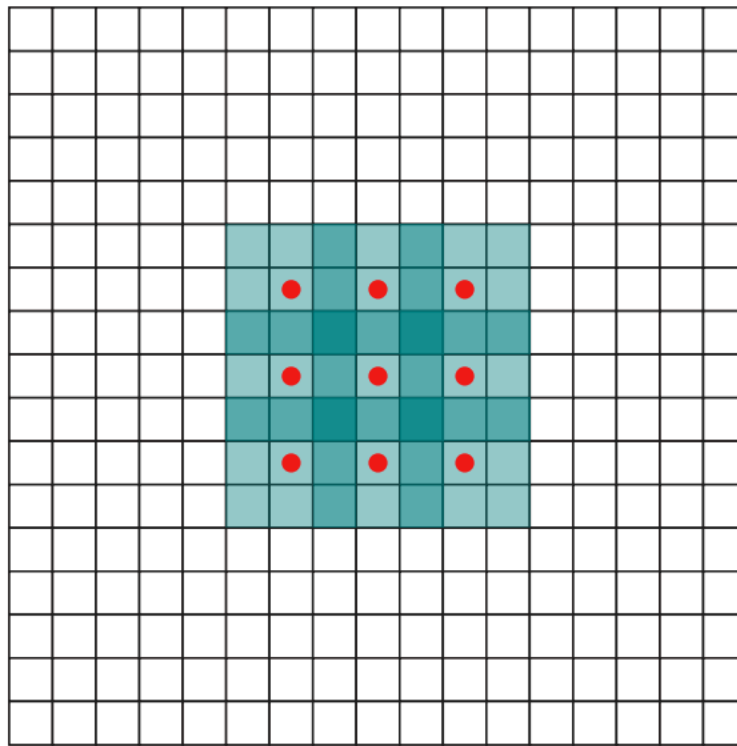
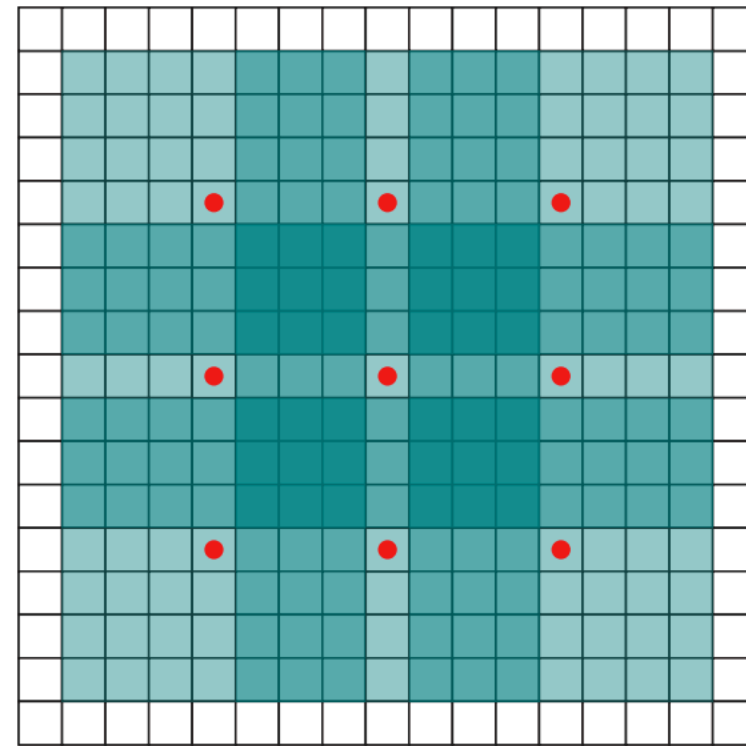


(a)



(b)



(c)

Figure 1: Systematic dilation supports exponential expansion of the receptive field without loss of resolution or coverage. (a)  $F_1$  is produced from  $F_0$  by a 1-dilated convolution; each element in  $F_1$  has a receptive field of  $3 \times 3$ . (b)  $F_2$  is produced from  $F_1$  by a 2-dilated convolution; each element in  $F_2$  has a receptive field of  $7 \times 7$ . (c)  $F_3$  is produced from  $F_2$  by a 4-dilated convolution; each element in  $F_3$  has a receptive field of  $15 \times 15$ . The number of parameters associated with each layer is identical. The receptive field grows exponentially while the number of parameters grows linearly.