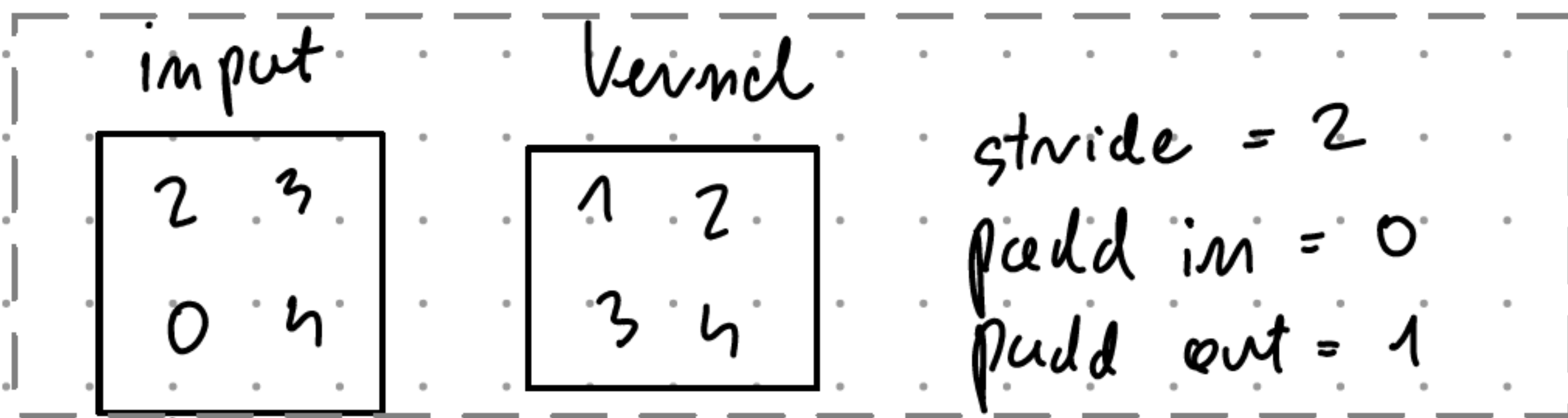


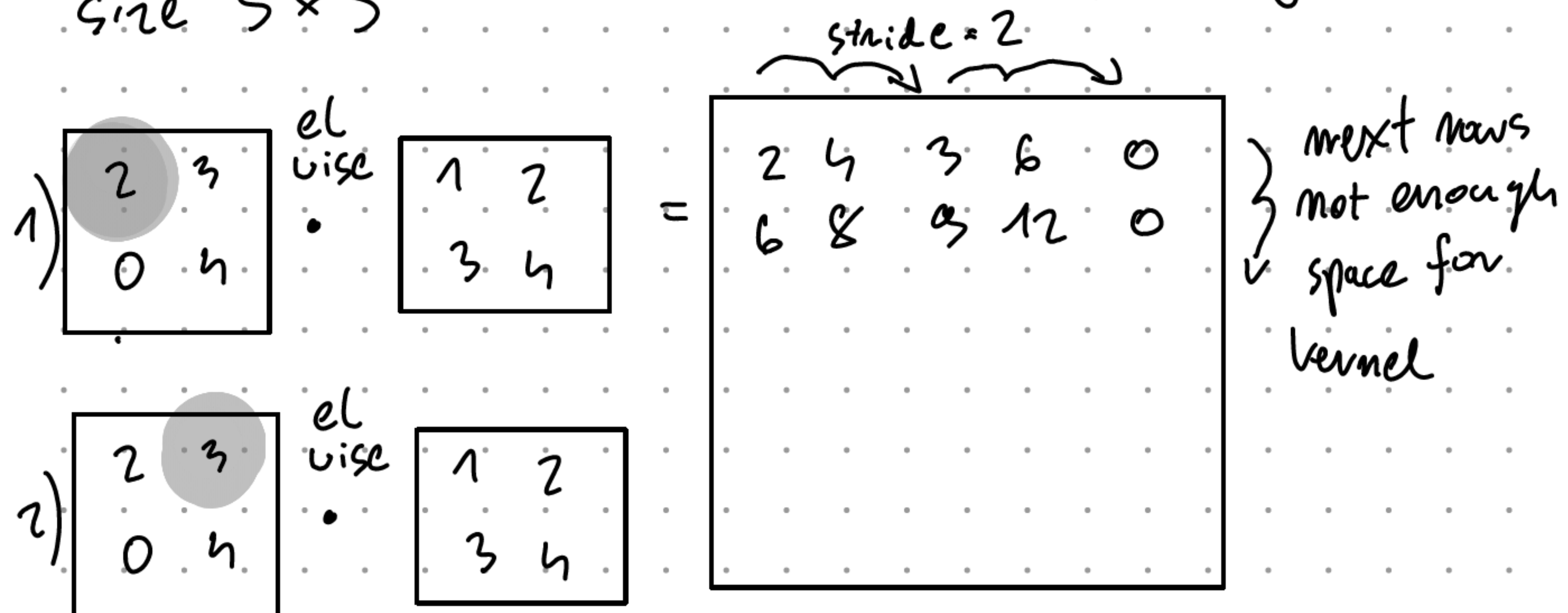
$$\text{output} = (\text{input} - 1) \cdot \text{stride} - 2 \cdot \text{padding} + \text{kernel} + \text{output padding}$$

Now "padding in" cuts output image but "padding out" adds rows and columns. It has to be smaller than stride



$$\text{output size} = (2 - 1) \cdot 2 - 2 \cdot 0 + 2 + 1 = 2 + 2 + 1 = 5$$

So with these settings the output image has size 5×5



3) $\begin{bmatrix} 2 & 3 \\ 0 & 4 \end{bmatrix} \cdot \begin{matrix} \text{el} \\ \text{wise} \end{matrix} \cdot \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} 2 & 4 & 3 & 6 & 0 \\ 6 & 8 & 9 & 12 & 0 \\ 0 & 0 & 4 & 8 & 0 \\ 0 & 0 & 12 & 16 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

4) $\begin{bmatrix} 2 & 3 \\ 0 & 4 \end{bmatrix} \cdot \begin{matrix} \text{el} \\ \text{wise} \end{matrix} \cdot \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} 2 & 4 & 3 & 6 & 0 \\ 6 & 8 & 9 & 12 & 0 \\ 0 & 0 & 4 & 8 & 0 \\ 0 & 0 & 12 & 16 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ (Note: The last row of the output matrix in the image is 0 0 0 0 0, which is not explicitly shown in the image but is implied by the context of padding.)

Slide

not enough room for kernel \rightarrow fill with "0"

Same output in python \therefore

$$\begin{bmatrix} 2 & 4 & 3 & 6 & 0 \\ 6 & 8 & 9 & 12 & 0 \\ 0 & 0 & 4 & 8 & 0 \\ 0 & 0 & 12 & 16 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$