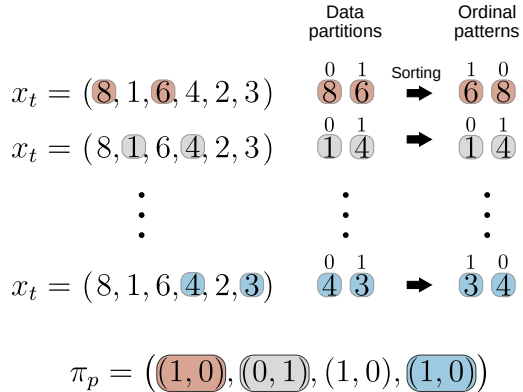
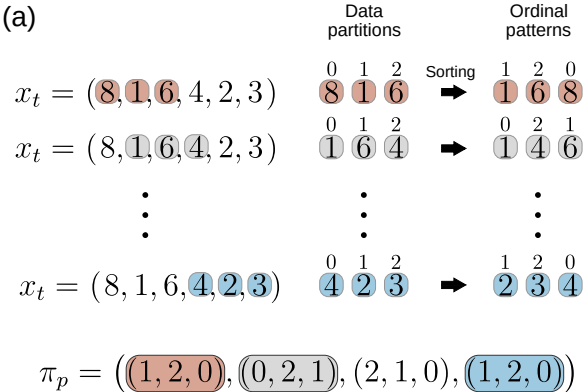
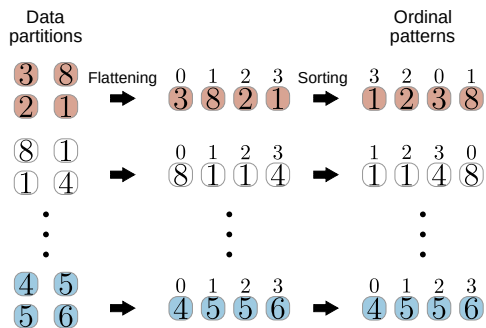


(a)

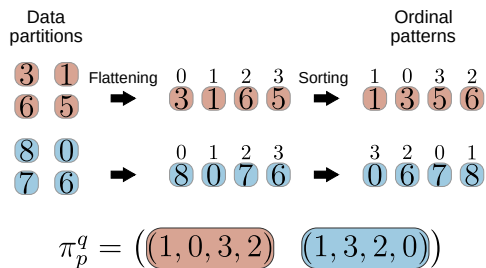


(b)

$$y_t^u = \begin{pmatrix} 3 & 8 & 1 & 0 \\ 2 & 1 & 4 & 5 \\ 6 & 7 & 5 & 6 \end{pmatrix}$$



$$y_t^u = \begin{pmatrix} 3 & 8 & 1 & 0 \\ 2 & 1 & 4 & 5 \\ 6 & 7 & 5 & 6 \end{pmatrix}$$



$$\pi_p^q = \left(\begin{pmatrix} 3, 2, 0, 1 \\ 1, 0, 2, 3 \end{pmatrix} \begin{pmatrix} 1, 2, 3, 0 \\ 0, 1, 3, 2 \end{pmatrix} \begin{pmatrix} 1, 0, 2, 3 \\ 0, 1, 2, 3 \end{pmatrix} \right)$$