

$$\left(\begin{array}{l} \underbrace{y[2k]} \\ \mathcal{F}_{n < 2K}^{-1} \{Y[n]\}[2k] \\ \underbrace{y[2k+1]} \\ \mathcal{F}_{n < 2K}^{-1} \{Y[n]\}[2k+1] \end{array} = \begin{array}{l} \frac{1}{2} \underbrace{x[k]} \\ \mathcal{F}_{n < K}^{-1} \{X[n]\}[k] \\ \frac{1}{2K} \sum_{q=0}^{K-1} \underbrace{x[q]} \varphi[k-q] \\ \mathcal{F}_{n < K}^{-1} \{X[n]\}[q] \end{array} \right)$$