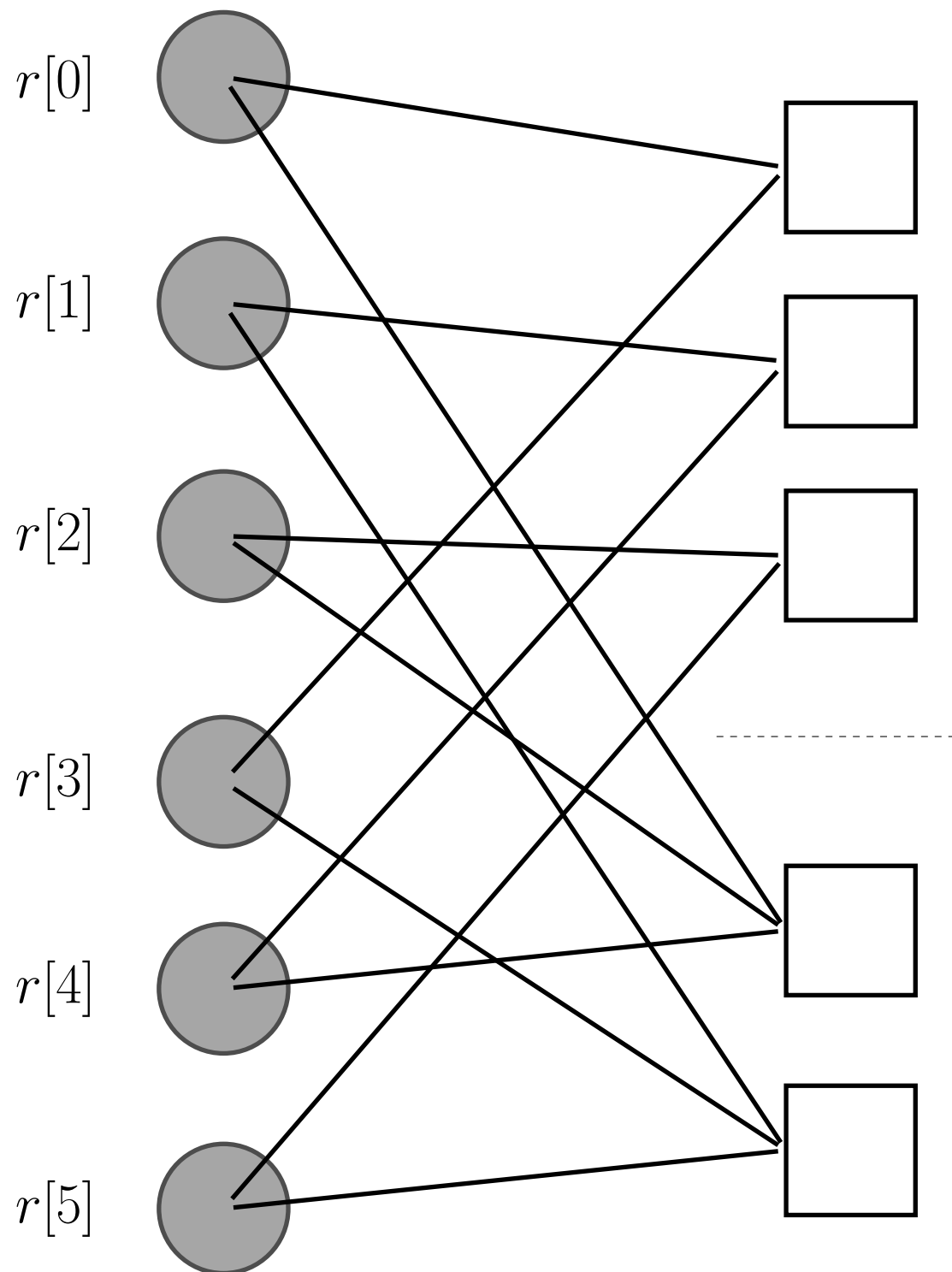$$w_i^k := \left(e^{j\frac{2\pi s_i}{N}}\right)^k$$

$$\underline{r}_{1,1}^b = \begin{bmatrix} r_{1,1}^s[1] = r[0]w_1^0 + r[3]w_1^3 \\ r_{1,2}^s[1] = r[0]w_2^0 + r[3]w_2^3 \end{bmatrix}$$

$$\underline{r}_{1,2}^b = \begin{bmatrix} r_{1,1}^s[2] = r[1]w_1^1 + r[4]w_1^4 \\ r_{1,2}^s[2] = r[1]w_2^1 + r[4]w_2^4 \end{bmatrix}$$

$$\underline{r}_{1,3}^b = \begin{bmatrix} r_{1,1}^s[3] = r[2]w_1^2 + r[5]w_1^5 \\ r_{1,2}^s[3] = r[2]w_2^2 + r[5]w_2^5 \end{bmatrix}$$

$$\underline{r}_{2,1}^b = \begin{bmatrix} r_{2,1}^s[1] = r[0]w_1^0 + r[2]w_1^2 + r[4]w_1^4 \\ r_{2,2}^s[1] = r[0]w_2^0 + r[2]w_2^2 + r[4]w_2^4 \end{bmatrix}$$

$$\underline{r}_{2,2}^b = \begin{bmatrix} r_{2,1}^s[2] = r[1]w_1^1 + r[3]w_1^3 + r[5]w_1^5 \\ r_{2,2}^s[2] = r[1]w_2^1 + r[3]w_2^3 + r[5]w_2^5 \end{bmatrix}$$