

$$\begin{bmatrix} \underline{y}_1^{(1)} \\ \underline{y}_1^{(2)} \\ \underline{y}_1^{(3)} \\ \underline{y}_1^{(4)} \end{bmatrix} = \underbrace{\begin{bmatrix} \begin{matrix} t & \boxed{} \end{matrix} \\ \begin{matrix} t & \boxed{} \end{matrix} \\ \begin{matrix} t & \boxed{} \end{matrix} \\ \begin{matrix} t & \boxed{} \end{matrix} \end{bmatrix}}_{\mathbb{F}_q^{4t \times 3t}} \begin{bmatrix} \underline{x}_1 \\ \underline{x}_2 \\ \underline{x}_3 \end{bmatrix}$$

Diagram illustrating a matrix multiplication over the finite field \mathbb{F}_q .

The left vector is a column vector of size $4t$, containing elements $\underline{y}_1^{(1)}$, $\underline{y}_1^{(2)}$, $\underline{y}_1^{(3)}$, and $\underline{y}_1^{(4)}$.

The middle matrix is a block matrix of size $4t \times 3t$, consisting of four rows, each with a scalar t and a $3t$ -sized block (indicated by a double-headed arrow above the first row).

The right vector is a column vector of size $3t$, containing elements \underline{x}_1 , \underline{x}_2 , and \underline{x}_3 .