$$x_1, \ldots, x_{h=3} \in \mathbb{F}_{2^2}$$

$$\boldsymbol{x}_{\text{scalar}} = (x_1, x_2, x_3) = (1, \alpha, \alpha + 1).$$

$$\boldsymbol{x}_1, \ldots, \boldsymbol{x}_{h=3} \in \mathbb{F}_2^2$$

$$\boldsymbol{x}_{\text{vector}} = (\boldsymbol{x}_1, \boldsymbol{x}_2, \boldsymbol{x}_3).$$

$$
\begin{bmatrix}
x_1 = 1 \\
x_2 = \alpha \\
x_3 = \alpha + 1
\end{bmatrix}
\rightarrow
\begin{bmatrix}
\begin{pmatrix} 1 \\ 0 \end{pmatrix} \\
\begin{pmatrix} 0 \\ 1 \end{pmatrix} \\
\begin{pmatrix} 1 \\ 1 \end{pmatrix}
\end{bmatrix},
$$

$$
a_0 \cdot \alpha^0 + a_1 \cdot \alpha^1 + \ldots + a_{t-1} \cdot \alpha^{t-1} \rightarrow
\begin{pmatrix}
a_0 \\
a_1 \\
\vdots \\
a_{t-1}
\end{pmatrix}.
$$