

$$\mathcal{J}_3 = X \begin{array}{|c|} \hline \text{C} \\ \hline \end{array} + X^2 \begin{array}{|c|} \hline \text{H} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{E} \\ \hline \end{array}$$

$$\mathcal{J}_3^2 = \begin{array}{|c|} \hline \text{E} \\ \hline \end{array} + X^2 \begin{array}{|c|} \hline \text{H} \\ \hline \end{array} + X \begin{array}{|c|} \hline \text{C} \\ \hline \end{array}$$

In the basis

$$\left(\begin{array}{|c|} \hline \text{E} \\ \hline \end{array}, \begin{array}{|c|} \hline \text{C} \\ \hline \end{array}, \begin{array}{|c|} \hline \text{H} \\ \hline \end{array}, \begin{array}{|c|} \hline \text{C} \\ \hline \end{array}, \begin{array}{|c|} \hline \text{H} \\ \hline \end{array} \right)$$

this acts by right multiplication as

$$\begin{pmatrix} 1 & X & X^2 & 0 & 0 \\ 0 & -X^2 & -X - X^3 & 0 & 0 \\ 0 & X & 1 + X^2 & 0 & 0 \\ 0 & 0 & 0 & -X^2 & -X - X^3 \\ 0 & 0 & 0 & X & 1 + X^2 \end{pmatrix}$$

and by left multiplication by

$$\begin{pmatrix} 1 & X & X^2 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & -X^3 & 0 & 1 & 0 \\ 0 & 0 & -X^3 & 0 & 1 \end{pmatrix}$$