

$$\mathcal{J}_2 = -X \begin{pmatrix} | & | \\ \hline & \\ \hline | & | \end{pmatrix}$$

$$\mathcal{J}_2^2 = -(X + X^3) \begin{pmatrix} | & | \\ \hline & \\ \hline | & | \end{pmatrix}$$

In the basis

$$\left( \begin{pmatrix} | & | \\ \hline & \\ \hline | & | \end{pmatrix}, \begin{pmatrix} | & | \\ \hline & \\ \hline | & | \end{pmatrix} \right)$$

this acts by right multiplication as

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

and by left multiplication by

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