

## A COMPLETE LIST OF $g$ -VECTORS FOR $\mathcal{A}_3$

We recall that  $\mathcal{A}_3 = \mathbb{F}Q/I$  is given by

$$Q : 1 \begin{array}{c} \xrightarrow{\alpha_1} \\ \xleftarrow{\beta_1} \end{array} 2 \begin{array}{c} \xrightarrow{\alpha_2} \\ \xleftarrow{\beta_2} \end{array} 3$$

with

$$I : \langle \alpha_1\beta_1, \alpha_1\alpha_2, \beta_2\beta_1, \beta_1\alpha_1 - \alpha_2\beta_2 \rangle.$$

Then, the complete list of  $g$ -vectors for  $\mathcal{A}_3$  is as follows.

$$(1) \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$(2) \begin{pmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(3) \begin{pmatrix} 0 & 1 & 0 \\ 0 & 1 & -1 \\ 1 & 0 & 0 \end{pmatrix}$$

$$(4) \begin{pmatrix} 1 & -1 & 1 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}$$

$$(5) \begin{pmatrix} -1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$(6) \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & -1 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(7) \begin{pmatrix} -1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 1 & -1 \end{pmatrix}$$

$$(8) \begin{pmatrix} 1 & -1 & 1 \\ 1 & 0 & 0 \\ 1 & -1 & 0 \end{pmatrix}$$

$$(9) \begin{pmatrix} 0 & -1 & 1 \\ 1 & -1 & 1 \\ 0 & 0 & 1 \end{pmatrix}$$

$$(10) \begin{pmatrix} 0 & 0 & 1 \\ -1 & 1 & 0 \\ -1 & 0 & 0 \end{pmatrix}$$

$$(11) \begin{pmatrix} 1 & 0 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(12) \begin{pmatrix} -1 & 1 & -1 \\ 0 & 1 & -1 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(13) \begin{pmatrix} -1 & 1 & 0 \\ -1 & 1 & -1 \\ 0 & 1 & -1 \end{pmatrix}$$

$$(14) \begin{pmatrix} 0 & -1 & 1 \\ 1 & -1 & 1 \\ 1 & -1 & 0 \end{pmatrix}$$

$$(15) \begin{pmatrix} 0 & 0 & 1 \\ 0 & -1 & 1 \\ -1 & 0 & 0 \end{pmatrix}$$

$$(16) \begin{pmatrix} -1 & 1 & 0 \\ -1 & 1 & -1 \\ -1 & 0 & 0 \end{pmatrix}$$

$$(17) \begin{pmatrix} 1 & -1 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(18) \begin{pmatrix} -1 & 1 & -1 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

$$(19) \begin{pmatrix} 0 & -1 & 1 \\ 1 & -1 & 0 \\ 0 & -1 & 0 \end{pmatrix}$$

$$(20) \begin{pmatrix} 0 & -1 & 1 \\ -1 & 0 & 0 \\ 0 & -1 & 0 \end{pmatrix}$$