

from linearalgebra import vec

$$icf_i = vec \left( c_i^{-1} \right)$$

$$qq1_i = (icf_{i,1}, icf_{i,2}, icf_{i,3})$$

$$qq2_i = (icf_{i,5}, icf_{i,6}, icf_{i,9})$$

$$qlin_i = c_i^{-1} v_{i,*}$$

$$v\_out_i = \left[ \begin{array}{c} qq1_i^T \\ (qq1_{i,2}, qq2_{i,1}, qq2_{i,2})^T \\ (qq1_{i,3}, qq2_{i,2}, qq2_{i,3})^T \end{array} \right]^{-1} qlin_i$$

where

$$v \in \mathbb{R}^{m \times 3}$$

$$f \in \mathbb{Z}^{t \times 3}$$

$$c_i \in \mathbb{R}^{3 \times 3}$$

$$n \in \mathbb{Z}$$