

from linearalgebra import vec

$$\begin{aligned}icf_i &= \text{vec}(c_i^{-1}) \\qq1_i &= (icf_{i,1}, icf_{i,2}, icf_{i,3}) \\qq2_i &= (icf_{i,5}, icf_{i,6}, icf_{i,9}) \\qlin_i &= c_i^{-1} v_{i,*} \\v_{out_i} &= \begin{bmatrix} qql_{i,1}^T \\ (qq1_{i,2}, qq2_{i,1}, qq2_{i,2})^T \\ (qq1_{i,3}, qq2_{i,2}, qq2_{i,3})^T \end{bmatrix}^{-1} qlin_i\end{aligned}$$

where

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

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

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

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