

$$\underline{v}^T Q = 0 \quad \underline{v_1 + v_2 + \dots + v_k = 1}$$

Q_0 : REPLACES A COLUMN (THE FIRST ONE) WITH ONE.

$$v^T Q_0 = (1, 0, \dots, 0)$$

$$v = (1, 0, \dots, 0) Q_0^{-1}$$