Another version:

\[ A_R = \begin{bmatrix} \text{all rows of } A \\ \text{but the first two} \end{bmatrix} \]

\[ w^T = \text{second row of } A \]

\[ \text{(which csp target)} \]

\[ \max w^T f \]

\[ \text{st. } A_R f = 0 \quad (\text{Kirchhoff's law}) \]

\[ f \geq 0 \quad f \leq \mathbf{c} \]

We will do max-flow, min-cut by LP-duality

**Step 1:**

\[ A, A_R \text{ are TUM} \]