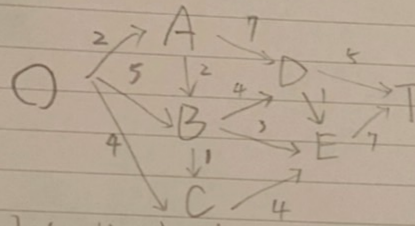


作業研究 prelecture 10

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(C)


$$G = (V, E)$$

We add $g_{rc}(T, 0)$ to E
with capacity ∞ , cost-

Let u_{ij} be the capacity from vertex i to vertex j , $i, j \in V$
The formulation is: $(i, j) \in E$

(x_{ij} is the flow from i to j)

$$\min -x_{t0}$$

$$\text{s.t.} \quad \sum_{(i,k) \in E} x_{ik} - \sum_{(k,j) \in E} x_{kj} = 0 \quad \forall k \in V$$

$$\chi_{\tilde{\nu}} \in h_{\tilde{\nu}} \quad \forall (\tilde{\nu}) \in I$$

$$x_{ij} \in \mathbb{Z}_+, \quad \forall (i,j) \in E$$

(b) The coefficient matrix:

In each column, there are exactly one 1 and one -1 (other 0)

It satisfy the unimodularity proof

② each column contains at most two nonzero elements

And rows can be divided into two groups so that for each column two nonzero elements are in the same group if and only if they are different