

CPAIOR 2010

7th International Conference
on the Integration of Artificial Intelligence
and Operations Research techniques
in Constraint Programming

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Min $c^T x$

$Ax \geq b$

$x \geq 0$

$A^T u \leq c$

\bar{x} optimal solution

✓ all dual constraints

✓ some dual variables



subproblem:

$I := \{j : \bar{x}_j = 0\}$ $J := \{j : \bar{x}_j \neq 0\}$

$\max \Pi = \sum_{i=1}^m u_i b_i + u_{m+1} b_{m+1}$

$\Pi \geq u^* \cdot b$

(u^* solution of the previous dual)

$+ d_j \cdot u_{m+1} \leq c_j \quad \forall j \in I$

$+ d_j \cdot u_{m+1} \leq c_j \quad \forall j \in J$

$b_{m+1} = 0$

$d^T x^* < b_{m+1}$ violation

$d_j \geq 0 \rightarrow$