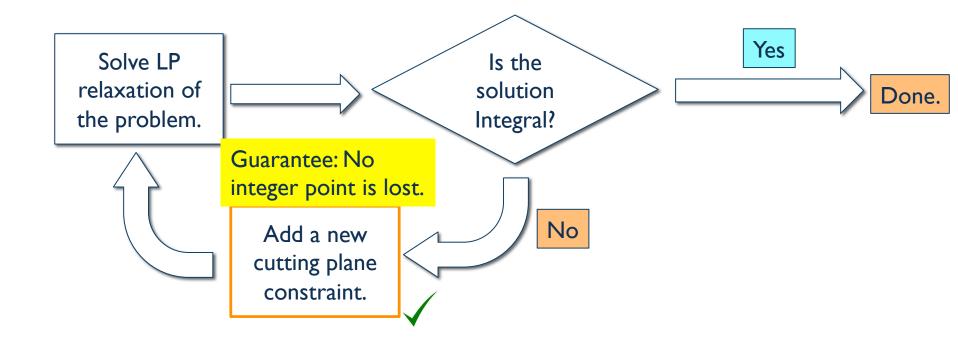
CUTTING PLANE METHOD

Updating the dictionary

Setup for subsequent iterations.

Overall method



Cutting Plane Example

x_1	1.2	$-3.1x_2$	$+4.3x_{3}$	$-0.5x_{5}$
x_4		$-x_2$. 0	$-x_5$
x_6	2.5	$+1.3x_2$	$-2.1x_3$	$+x_5$
\overline{z}	1.7	$-1.2x_{2}$	$-2.3x_{3}$	$-2.1x_{5}$

Cutting Plane:

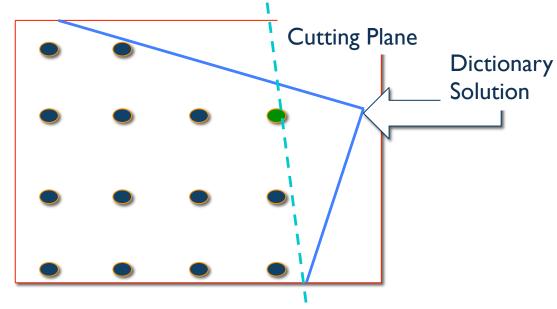
$$0.1x_2 + 0.7x_3 + 0.5x_5 \ge 0.2$$

Adding cutting plane to dictionary

$$0.1x_2 + 0.7x_3 + 0.5x_5 \ge 0.2$$

Cutting Plane Method

 Claim: Resulting dictionary after adding cutting plane is primal infeasible.



Cutting Plane: Example

x_1	1.2	$-3.1x_2$	$+4.3x_3$	$-0.5x_{5}$
x_4	$\mid 1$	$-x_2$	$+x_3$	$-x_5$
x_6	2.5	$+1.3x_2$	$-2.1x_3$	$+x_5$
w_1	-0.2	$+0.1x_2$	$+0.7x_3$	$+0.5x_{5}$
\overline{z}	1.7	$-1.2x_{2}$	$-2.3x_{3}$	$-2.1x_{5}$

Dual dictionary is feasible but non-final.

Naïve Approach: Re-solve initialization phase Simplex.

Cutting Plane: Solving again after cut.

Final Dictionary
LP relaxation.

Primal Infeasible
Dual Feasible

Optimize the dual problem dictionary.

Also final for primal

Final dictionary
for Dual