

OR2 22-apr-2022

Benders' loop method

assuming $c \geq 0$

1. build model in CPLEX

$LB = 0$; $UB =$ incumbent value ;

while ($LB < 0.9999 * UB$) {

(*) (+)

CPX mipopt

↑ $LB = \max\{$ CPX get bestobj; val, $LB\}$

CPX get x (xstar)

build_sol (xstar, succ, comp, \checkmark)

if (ncomp ≥ 2) {

add sec1 to CPLEX

patching HEURISTIC

update UB (incumbent)

} else


update UB with xstar

}

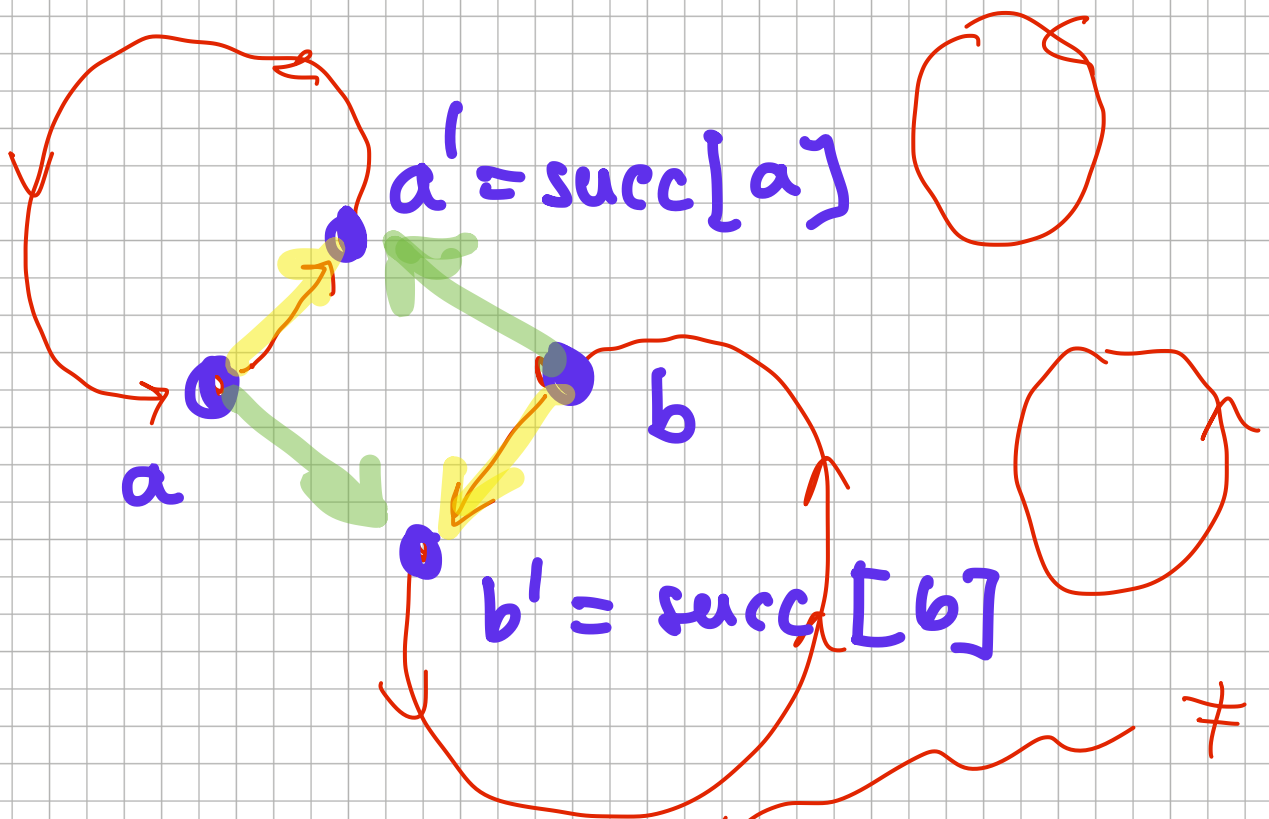
(*) update CPLEX time limit

TIME LIMIT

• $inst \rightarrow t_{start} \approx second()$
in the MAIN

• $(second() - inst \rightarrow t_{start})$ 
to compared with
 $inst \rightarrow time\ limit$

PATCHING HEURISTIC



$\Rightarrow (a^*, b^*)$ s.t. $\Delta(a^*, b^*)$ minimal.

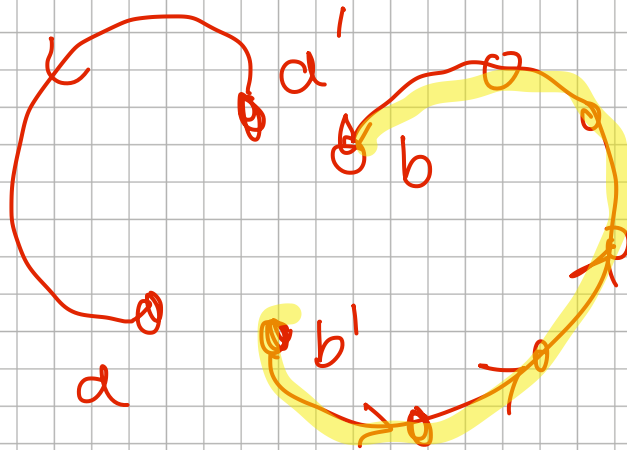
UPDATE $succ$, $comp$, $comp$

$$succ[a] = b'$$

$$succ[b] = a'$$

$comp$

update $comp[]$



$$compA = comp[a]$$

$$b' \rightarrow succ[b'] \rightarrow \dots \rightarrow b$$

$$comp[b] = compA$$

\Rightarrow APPLY ?-OBT

\Rightarrow ADD SECT'S ON THE NEW CYCLES?