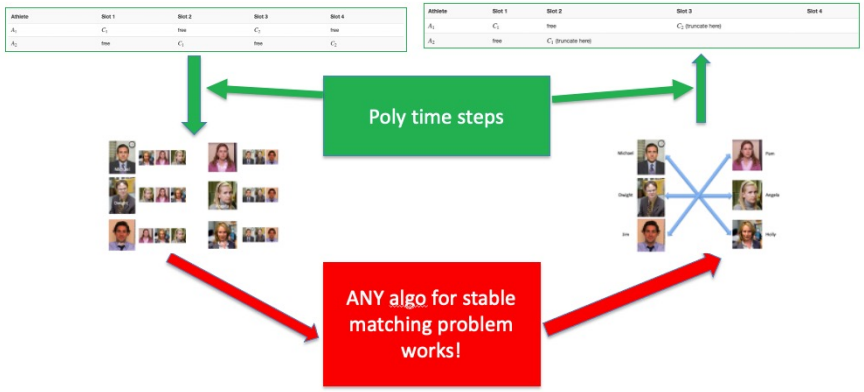
Lecture 37

CSE 331

May 3, 2021

$Y \leq_P X$

Question 2 (Crimson Hawks are in town) $\leq_P$ NRMP



Arbitrary Y instance

Pre-process the input

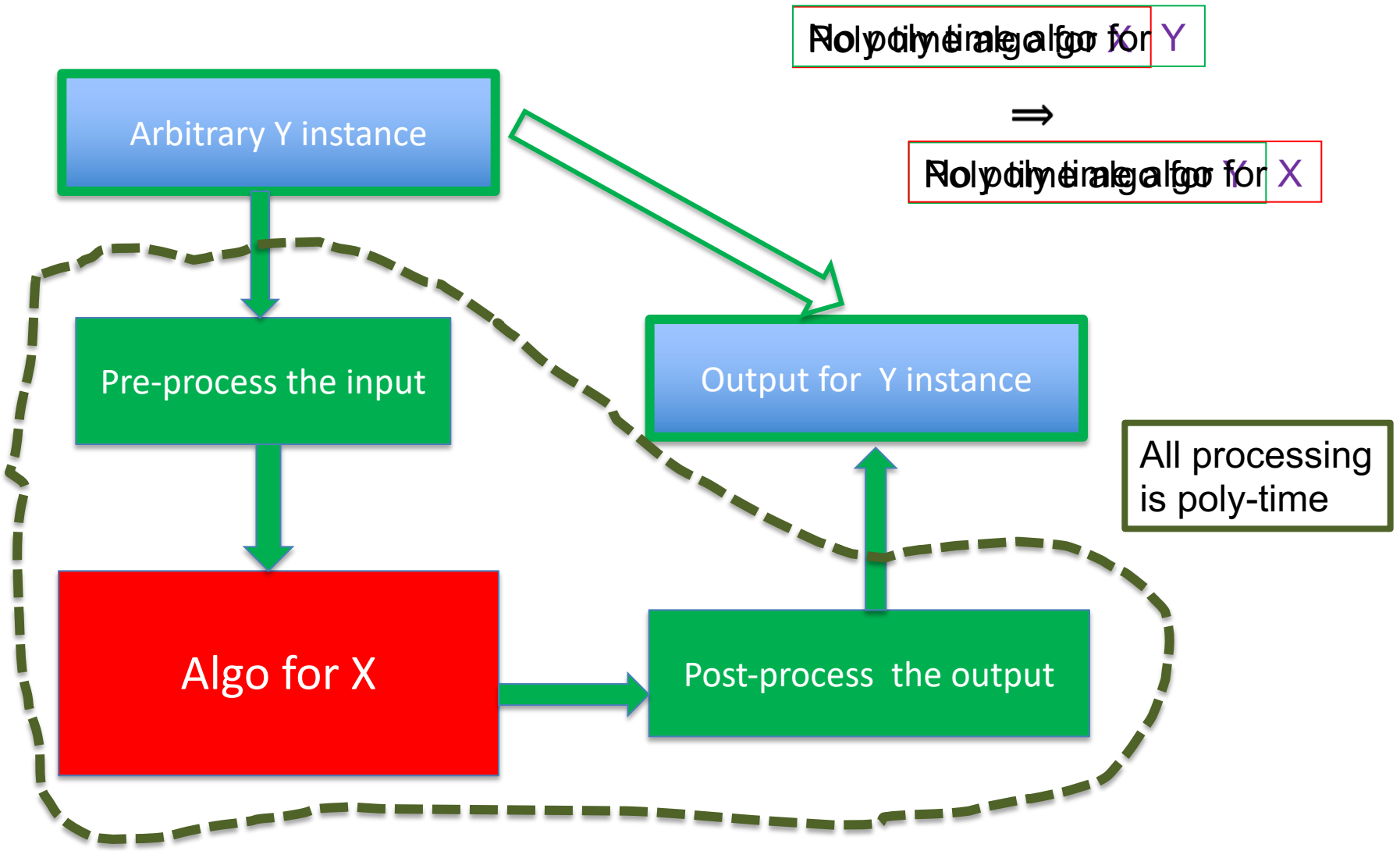
Algo for X

Post-process the output

Output for Y instance

All processing is poly-time

Implications of $Y \leq_P X$



Poly-time algo for Y

$\Rightarrow$

Poly-time algo for X

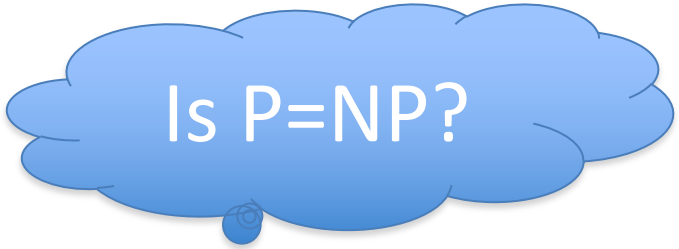
Last lecture

$$\text{3-SAT} \leq_P \text{Independent Set}$$

Read Sec 8.2 of [KT]

P vs NP question

P: problems that can be solved by poly time algorithms



NP: problems that have polynomial time verifiable witness to optimal solution