Lecture 40

CSE 331

$Y \leq_P X$

Question 2 (Big G is in town)

$\leq_P$

NRMP
National Resident Matching Program

Poly time steps

ANY algo for stable matching problem works!

Arbitrary Y instance

Pre-process the input

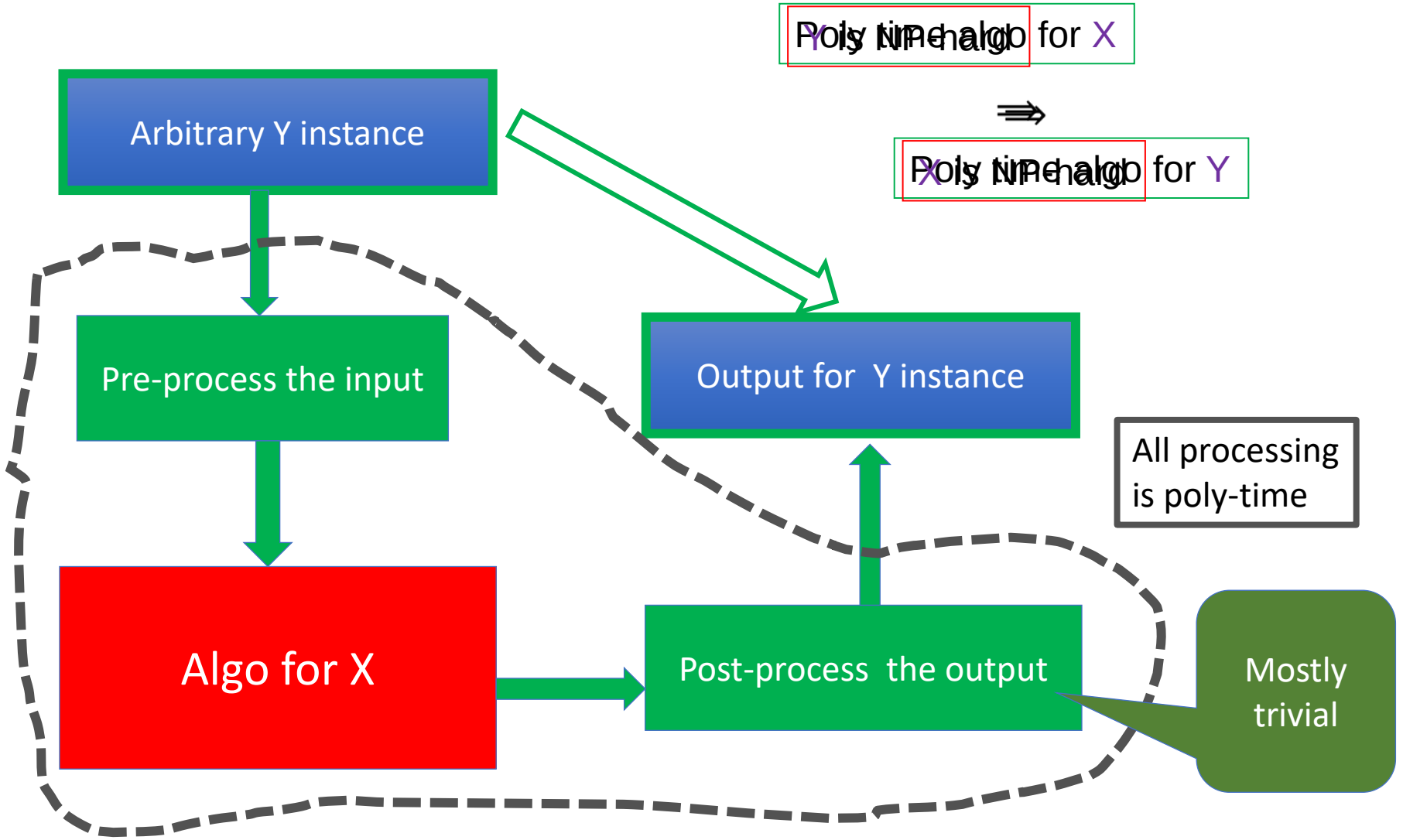
Algo for X

Post-process the output

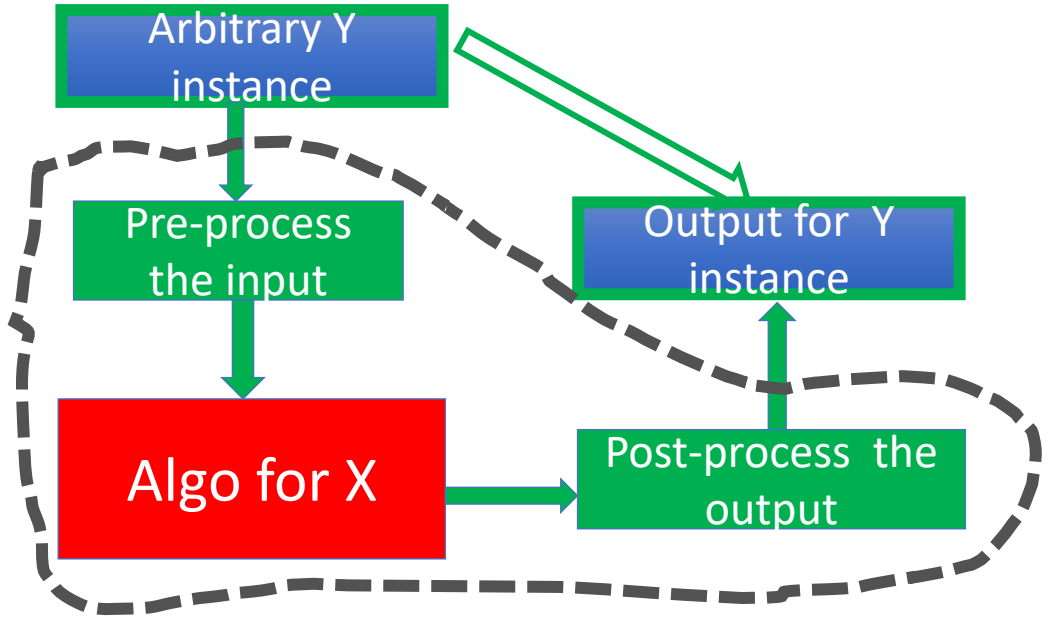
Output for Y instance

All processing is poly-time

Implications of $Y \leq_P X$



Independent Set $\leq_P$ Vertex Cover




```
AlgoIS (G,k)

    G' = G
    k' = n-k
    b = AlgoVC(G',k')
    return b
```

Today’s agenda

NP-completeness of k-colorability

Beyond NP-completeness

Anything > NP and < undecidability?