Lis NP-Complete

1. Lin NP
2. All other NP languages reduce to $L$ in poly-time.
if $L$ is NPC and $L$ is in $P$ then $P=N P$.

HAMPATH $=\{\langle G$, s,,$\rangle \mid G$ is
a directed graph w/ a Ham. path from s to $t\}$

1. show NP. $V$
2. show all NP languages reduce to it.

$$
\begin{aligned}
& 3 S A T \leq_{p} \text { HAMPATH } \\
& \boldsymbol{\phi}=\left(a_{1} \vee b_{1} \vee c_{1}\right) \wedge\left(a_{2} \vee b_{2} \vee c_{2}\right) \wedge \ldots \\
& \cdots \wedge\left(a_{k} \vee b_{k} \vee c_{k}\right)
\end{aligned}
$$

$a, b \leqslant$ i literals either $x_{i}$ or $\overline{X_{i}}$ variables: $X_{1} \ldots X_{l}$

(c.) $C_{2} C_{3} \cdots C_{k}$




