

获得的答案

Class- P : P is a class of languages that are decidable in polynomial time on a deterministic single – tape Turing machine.

Now we have to prove that NP is closed under star operation.

- Let L be the language that decided by NP – machine
- Now we will construct a non deterministic Turing machine $NTM N$ to decide L^* in nondeterministic polynomial time
- Construction of N is as follows:

$N =$ "On input w :

1. If $w = \epsilon$ then accept.
2. Non-deterministically split w into k pieces $w = w_1 w_2 \dots w_k$
3. For each w_i , non-deterministically guess the certificates that show $w_i \in L$
4. Verify all certificates
 - (a) If verification is done then accept.
 - (b) else if verification fails, then reject."

Thus we constructed a $NTM N$ that decides L^* in nondeterministic polynomial time.

Hence NP is closed under star operation.