

TM algorithms

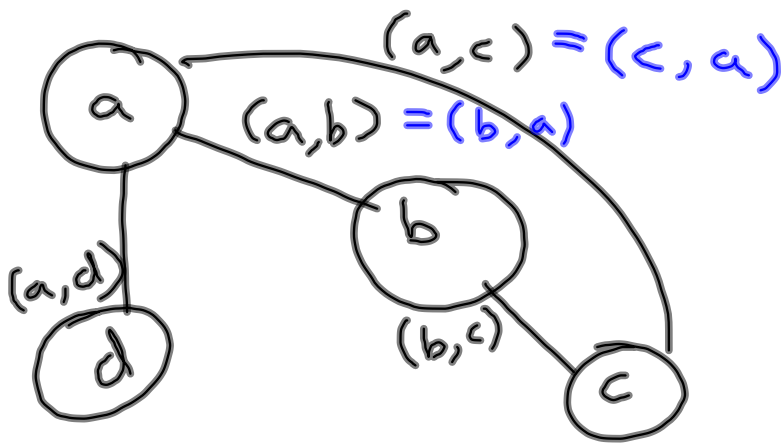
1. formal description
2. implementation "
3. high level "

Object O on input

- polynomial
- graph
- grammar

$\langle O \rangle$ - encoding of O on the input.

$A = \{ \langle G \rangle \mid G \text{ is a connected undirected graph} \}$



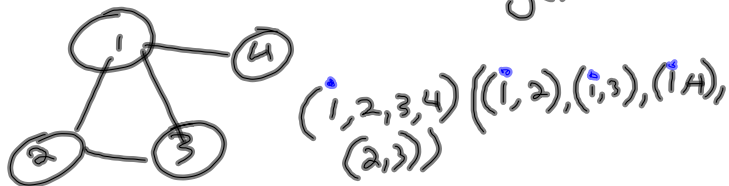
Machine M decides A .
(high level)

$M = \text{On input } \langle G \rangle$

1. Select the 1st node and mark it.
2. repeat step 3 until no new nodes are marked.
3. For each ^{unmarked} node in G mark it if it is attached to by an edge to another marked node.
4. Scan all nodes of G
If they are all marked, accept.
Otherwise, reject.

Implementation Level:

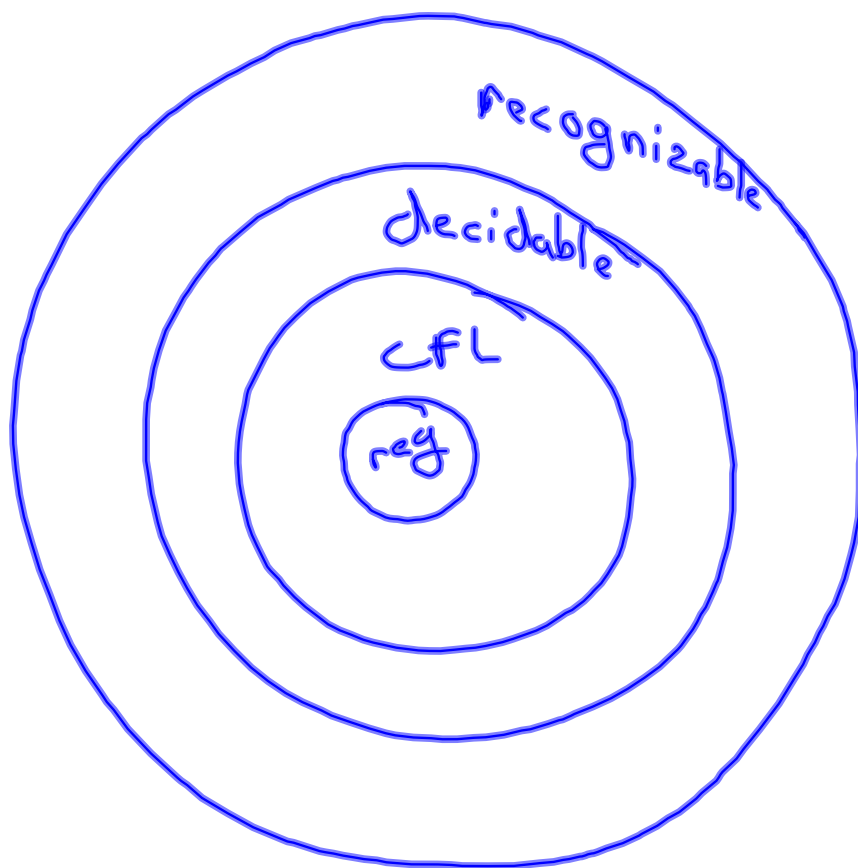
$\langle G \rangle = (\text{nodes}) \underbrace{(() \dots ())}_{\text{edges}}$



step 1: mark node w/ a_i
 $1 \rightarrow i$ $2 \rightarrow 2$

step 2/3: • newly marked nodes
— previously marked node

Formal description.

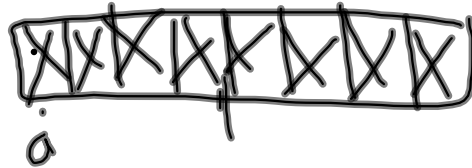


$L = \{ ww \mid w \in \Sigma^* \}$ - not context free

TM. M recognizes L : - not regular

$M =$ On input s

1. find the middle?
- work from the ends



OR - non-det Test for middle

2. insert #