

## Breadth-First Bottom-Up Parsing

Input: context-free grammar  $G = (N, T, P, S)$

string  $p \in T^*$

queue  $Q$

1. initialize Tree with root  $p$ .

$INSERT(p, Q)$

2. repeat

- 2.1.  $q := REMOVE(Q)$

- 2.2. for each rule  $A \rightarrow w$  in  $P$  do

- 2.2.1. for each decomposition  $uwv$  of  $q$  with  $v \in T^*$  do

- 2.2.1.1.  $INSERT(uAv, Q)$

- 2.2.1.2. Add node  $uAv$  to Tree. Set a pointer from  $uAv$   
to  $q$ .

- End for

- End for

- until  $q = S$  or  $EMPTY(Q)$

3. if  $q = S$  then accept else reject