

## CS3311 Chapter 4 handout

### Algorithm for constructing the REACH set

#### Algorithm 4.4.4

#### Construction of the set of reachable variables

Input: Context-free grammar  $G = (V, \Sigma, P, S)$

private:

NEW : newly added variables

PREV : the set from the previous iteration

1. REACH := { S }
  2. PREV :=  $\emptyset$
  3. **repeat**
    - 3.1 NEW := REACH - PREV
    - 3.2 PREV := REACH
    - 3.3 **for** each variable  $A \in$  NEW **do**  
    **for** each rule  $A \rightarrow w$  **do**  
        add all variables in  $w$  to REACH
- until** REACH = PREV
- return** REACH