

## CS3311 Chapter 4 handout

### Algorithm for constructing the `NULL` set

#### Algorithm 4.2.1

#### Construction of the set of nullable variables

input: context-free grammar  $G = (V, \Sigma, P, S)$

private: `PREV` : the set from the previous iteration

1. `NULL` :=  $\{A \mid \text{there is a rule } A \rightarrow \lambda \in P\}$

2. **repeat**

    2.1 `PREV` := `NULL`

    2.2 **for** each variable  $A \in V$  **do**

**if** there is an  $A$  rule  $A \rightarrow w$  and  $w \in \text{PREV}^*$  **then**

`NULL` := `NULL`  $\cup$   $\{A\}$

**until** `PREV` = `NULL`

**return** `NULL`