

```

1: for each  $\alpha \in (T \cup eof \cup \epsilon)$  do
2:    $FIRST(\alpha) \leftarrow \alpha$ 
3: end for
4: for each  $A \in NT$  do
5:    $FIRST(A) \leftarrow \emptyset$ 
6: end for
7: while  $FIRST$  sets are still changing do
8:   for each  $p \in P$ , where  $p$  has the form  $A \rightarrow \beta$  do
9:     if  $\beta$  is  $\beta_1\beta_2 \cdots \beta_k$ , where  $\beta_i \in T \cup NT$  then
10:       $rhs \leftarrow FIRST(\beta_1) - \{\epsilon\}$ 
11:       $i \leftarrow 1$ 
12:      while  $\epsilon \in FIRST(\beta_i)$  and  $i \leq k - 1$  do
13:         $rhs \leftarrow rhs \cup (FIRST(\beta_{i+1}) - \{\epsilon\})$ 
14:         $i \leftarrow i + 1$ 
15:      end while
16:    end if
17:    if  $i = k$  and  $\epsilon \in FIRST(\beta_k)$  then
18:       $rhs \leftarrow rhs \cup \{\epsilon\}$ 
19:    end if
20:     $FIRST(A) \leftarrow FIRST(A) \cup rhs$ 
21:  end for
22: end while

```