

procedure NFAToDFA(N an NFA)

Let $T[\text{row}][\text{col}]$ be an empty transition table defining D . $T[\text{row}][\cdot]$ is uniquely identified by a set of states from N , each $T[\cdot][\text{col}]$ uniquely identifies a character $c \in \Sigma$.

```
let  $L$  be an empty stack
let  $A$  be the set of accepting states for  $N$ 
let  $i$  be the starting state of  $N$ 
 $B \leftarrow \text{FollowLambda}(\{i\})$ 
initialize row  $T[B][\cdot]$ 
mark  $T[B][\cdot]$  as the starting state of  $D$ 
if (  $A \cap B \neq \emptyset$  ) then (
    mark  $T[B][\cdot]$  as an accepting state of  $D$ 
)
push  $B$  onto  $L$ 
repeat (
     $S \leftarrow \text{pop } L$ 
    foreach (  $c \in \Sigma$  ) do (
         $R \leftarrow \text{FollowLambda}(\text{FollowChar}(S, c))$ 
         $T[S][c] \leftarrow R$ 
        if (  $|R| > 0$  AND  $T[R][\cdot]$  does not exist ) then (
            initialize row  $T[R][\cdot]$ 
            if (  $A \cap R \neq \emptyset$  ) then (
                mark  $T[R][\cdot]$  as an accepting state of  $D$ 
)
            push  $R$  onto  $L$ 
)
    )
)
)
while (  $|L| > 0$  )
```

T now defines a DFA D equivalent to N

procedure FollowLambda(S a \subseteq of NFA N states)
returns the set of NFA states encountered by
recursively following only λ transitions
from states in S

Let M be an empty stack
foreach (state $t \in S$) push t onto M
while ($|M| > 0$) **do** (

$t \leftarrow$ pop M
foreach (λ transition from t to state q) **do** (

if ($q \notin S$) **then** (

add q to S
push q onto M

)

)

)

return S

procedure FollowChar(S a \subseteq of NFA N states, $c \in \Sigma$)
returns the set of NFA states obtained from following
all c transitions from states in S

Let F be an empty set
foreach (state $t \in S$) **do** (
 foreach (c transition from t to state q) **do** (
 add q to F
)
)
return F