17th Nov 2023 CC

PRACTICE QUESTIONS

① $E \rightarrow E+T \mid E-T \mid T$

$T \rightarrow T \times F \mid F$

$F \rightarrow (E) \mid n$

②

$S \rightarrow g \mid other$

$g \rightarrow if(E)SP$

$E \rightarrow 0 \mid 1$

$P \rightarrow else\ S \mid \varepsilon$

figure out the first sets

Rules	Pass 1	Pass 2	Pass 3
$E \rightarrow E+T$	skip	skip	FIRST(E) = {(, n}
$E \rightarrow E-T$	skip	skip	"
$E \rightarrow T$	skip	skip	"
$T \rightarrow T \times F$	skip	FIRST(T) = {(, n}	
$T \rightarrow F$	skip	FIRST(F) = {(, n}	
$F \rightarrow (E)$	FIRST(F) = {(}		
$F \rightarrow n$	FIRST(F) = {(, n}		

FIRST(E) = {(, n}

FIRST(T) = {(, n}

FIRST(F) = {(, n}

(2)

Rules	Pass 1	Pass 2
$S \to \mathcal{I}$	skip	FIRST(S) = {other, if}
$S \to other$	FIRST(S) = {other}	
$\mathcal{I} \to if\ (E)SP$	FIRST($\mathcal{I}$) = {if}	
$E \to 0$	FIRST(E) = {0}	
$E \to 1$	FIRST(E) = {1}	
$P \to else\ S$	FIRST(P) = {else}	
$P \to \varepsilon$	FIRST(P) = {else, ε}