编译原理
第四章作业

1.(1) $S \to PuTS'$

$S' \to \varepsilon \mid in$

$T \to hiTT'$

$T' \to oPT' \mid \varepsilon$

$P \to union$

(2) $FIRST(S) = \{u\}$ $FIRST(S') = \{\varepsilon, i\}$

$FIRST(T) = \{h\}$ $FIRST(T') = \{o, \varepsilon\}$

$FIRST(P) = \{u\}$

$FOLLOW(S) = \{\#\}$ $FOLLOW(S') = \{\#\}$

$FOLLOW(T) = \{\#, i, o\}$ $FOLLOW(T') = \{\#, i, o\}$

$FOLLOW(P) = \{o, u, i, \#\}$

(3)

	h	i	n	o	u	#
S					$S \to PuTS'$	
S'		$S' \to in$				$S' \to \varepsilon$
T	$T \to hiTT'$					
T'		$T' \to \varepsilon$		$T' \to oPT'$ $T \to \varepsilon$		$T' \to \varepsilon$
P					$P \to union$	

(4) 不是LL(1)文法，因为预测分析表中存在多重入口。

2.(1) $S \to NoWS'$

$S' \to ar \mid \varepsilon$

$N \to aSSN'$

$N' \to atoN' \mid \varepsilon$

$W \to SiN$

(2) $FIRST(S) = \{a\}$ $FIRST(S') = \{a, \varepsilon\}$

$FIRST(N) = \{a\}$ $FIRST(N') = \{a, \varepsilon\}$

$FIRST(W) = \{a\}$

$FOLLOW(S) = \{a, \#, i, o\}$

$FOLLOW(S') = \{a, \#, i, o\}$

$FOLLOW(N) = \{a, \#, i, o\}$

$FOLLOW(N') = \{a, \#, i, o\}$

$FOLLOW(W) = \{a, \#, i, o\}$

(3)

	a	i	o	r	t	$\#$
S	$S \to NoWS'$					
S'	$S' \to ar$ $S' \to \varepsilon$	$S' \to \varepsilon$	$S' \to \varepsilon$			$S' \to \varepsilon$
N	$N \to aSSN'$					
N'	$N' \to atoN'$ $N' \to \varepsilon$	$N' \to \varepsilon$	$N' \to \varepsilon$			$N' \to \varepsilon$
W	$W \to SiN$					

(4) 不是 LL(1) 文法，因为预测分析表有多重入口。