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Section: 4

Course: CSE 420

Assignment: 6

Ans to the Q: N: a

$$E \rightarrow [L] | a$$

$$L \rightarrow ET$$

$$T \rightarrow , L | \epsilon$$

firsts:

$$\text{first}(E) = \{[, a\}$$

$$\text{first}(L) = \{[, a\}$$

$$\text{first}(T) = \{[, \}$$

Follows:

$$\text{follow}(E) = \{], ', \$\}$$

$$\text{follow}(L) = \{] \}$$

$$\text{follow}(T) = \{] \}$$

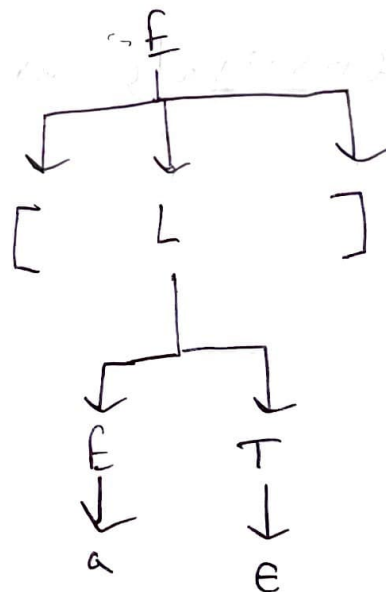
~~Parse~~

Constructing a parsing Table:

	[]	,	a
E	$E \rightarrow [L]$			$E \rightarrow a$
L	$L \rightarrow ET$			$L \rightarrow ET$
T		$T \rightarrow E$	$T \rightarrow , L$	

Given String: $[a]$

Parse Tree:



$\therefore [a]$ can be parsed.

(b)

~~Y →~~

$Y \rightarrow S$

$S \rightarrow cW \mid dTW \mid qSW$

$W \rightarrow zX \mid E$

$X \rightarrow rW \mid TW$

$T \rightarrow d \mid UV$

$U \rightarrow zh \mid E$

$V \rightarrow dVr \mid E$

Non-Terminals are: Y, S, W, X, T, U, V



	first	follow
Y	$\{e, d, q\}$	$\{ \$ \}$
S	$\{e, d, q\}$	$\{z, \$\}$
W	$\{z, e\}$	$\{z, \$\}$
X	$\{n, d, z, e\}$	$\{z, \$\}$
T	$\{d, z, e\}$	$\{z, \$\}$
U	$\{z, e\}$	$\{d\}$
V	$\{d, e\}$	$\{n, z, \$\}$

Parsing Table:

	c	d	q	n	z	\$
Y	$Y \rightarrow S$	$Y \rightarrow S$	$Y \rightarrow S$			
S	$S \rightarrow cW$	$S \rightarrow dTW$	$S \rightarrow qSW$			
W					$W \rightarrow zX$	$W \rightarrow \$$
X		$X \rightarrow TW$		$X \rightarrow nW$	$X \rightarrow TW$	$X \rightarrow TW$
T		$T \rightarrow d$ $T \rightarrow UV$			$T \rightarrow UV$	$T \rightarrow UV$
U		$U \rightarrow \epsilon$			$U \rightarrow z$ $U \rightarrow \epsilon$	$U \rightarrow \epsilon$
V		$V \rightarrow dVn$		$V \rightarrow \epsilon$	$V \rightarrow \epsilon$	$V \rightarrow \epsilon$

Stack	Input Left	Output	Matched
\$Y	c z n z d n \$		
\$S	c z n z d n \$	$Y \rightarrow S$	
\$W	<u>c</u> z n z d n \$	$S \rightarrow cW$	c
\$X	z n z d n \$	$W \rightarrow zX$	z
\$W	<u>n</u> z d n \$	$X \rightarrow nW$	n
\$X	<u>z</u> d n \$	$W \rightarrow zX$	z
\$TW	d n \$	$X \rightarrow TW$	
\$W	<u>d</u> n \$	$T \rightarrow d$	d
\$W	n \$		

from W, we cannot generate n. &

\therefore c z n z d n \$ cannot be parsed.