

SLR(1) Parse Table

প্রথমে non terminal এর জন্য first set ও follow set বের করা হবে।

সিদ্ধান্ত

First set

First (E)

Follow (T)

Follow (F)

→ ignore the augmentation rule

Follow set

Follow (E)

Follow (T)

Follow (F)

$E \rightarrow E + T$	(1)
$E \rightarrow T$	(2)
$T \rightarrow T * F$	(3)
$T \rightarrow F$	(4)
$F \rightarrow (E)$	(5)
$F \rightarrow id.$	(6)

করা first বের করা হবে।

$$\text{First}(E) = \{ (, id \}$$

$$E \rightarrow E + T$$

$$E \rightarrow T$$

$$\text{First}(T) = \{ (, id \}$$

$$T \rightarrow T * F$$

$$T \rightarrow F$$

$$\text{First}(F) = \{ (, id \}$$

$$F \rightarrow (E)$$

$$F \rightarrow id$$

Other

$$\text{First}(F) = \{ *, id, \epsilon \}$$

$$E \rightarrow F T G$$

$$* T G$$

$$* * G$$

$$\text{First}(T) = \{ \epsilon \}$$

$$\text{First}(G) = \{ (, \epsilon \}$$

এখন, G এর first set ϵ হলে ϵ যাবে, যা ϵ না হলে হলে first set ϵ যাবে।

first set

- কোনসময় কোনসময় production head এ E আছে বা identify
- তার production body ত একবার first এ হয় আছে হয় অন্যভাবে first,
 - ↳ non terminal এর first-sets নিয়ে যত পারেন না
- হয় non terminal কোনসময় তার first set এর element-গুলো - E এর first set এ copy হয়ে যাবে,
- Terminal হলে direct first set এ যাবে
- ϵ হলে enough problem

$$\begin{aligned}
 E &\rightarrow F + TG \\
 &\quad * + TG \\
 &\quad id + TG \\
 &\quad \epsilon + TG
 \end{aligned}$$

$$\text{first}(E) = \{*, id, +\}$$

$$\text{first}(E) = \{*, id, +, \epsilon, \epsilon\}$$

↓

$$\# \text{ first}(\epsilon) = \epsilon, \epsilon$$

Phase: 01:-

$E \rightarrow TE'$
 $E' \rightarrow +TE \mid \epsilon$
 $T \rightarrow FT'$
 $T' \rightarrow *FT \mid \epsilon$
 $F \rightarrow (E) \mid id.$

$E \rightarrow TE'$
 $E' \rightarrow +TE$
 $E' \rightarrow \epsilon$
 $T \rightarrow FT'$
 $T' \rightarrow *FT$
 $T' \rightarrow \epsilon$
 $F \rightarrow (E)$
 $F \rightarrow id$

$First(E) = \{ (, id \}$

$First(E') = \{ +, \epsilon \}$

$First(T) = \{ (, id \}$

$First(T') = \{ *, \epsilon \}$

$First(F) = \{ (, id \}$

example 02:-

$S \rightarrow Bb$
 $S \rightarrow Cd$
 $B \rightarrow aB$
 $B \rightarrow \epsilon$
 $C \rightarrow cC$
 $C \rightarrow \epsilon$

$First(S) = \{ a, b, c, d \}$

$First(B) = \{ a, \epsilon \}$

$First(C) = \{ c, \epsilon \}$

$Follow(S) = \{ \$ \}$

$Follow(B) = \{ b, \}$

$Follow(C) = \{ d \}$

$S \rightarrow Bb \rightarrow S \rightarrow (ab$
 $B \rightarrow aB \mid \epsilon, S \rightarrow \epsilon b$

example 03:-

$S \rightarrow ABCDE$

$A \rightarrow a$

$A \rightarrow \epsilon$

$B \rightarrow b$

$B \rightarrow \epsilon$

$C \rightarrow c$

$D \rightarrow d$

$D \rightarrow \epsilon$

$E \rightarrow 'e' \mid \epsilon$

$First(S) = \{ a, b, c \}$

$First(A) = \{ a, \epsilon \}$

$First(B) = \{ b, \epsilon \}$

$First(C) = \{ c \}$

$First(D) = \{ d, \epsilon \}$

$Follow(S) = \{ \$ \}$

$Follow(A) = First(B) = \{ b, c \}$

$Follow(B) = First(C) = \{ c \}$

$Follow(C) = First(D) = \{ d, \epsilon, \$ \}$

$Follow(D) = First(E) = \{ e, \$ \}$

$Follow(E) = \{ \$ \}$

$First(E) = \{ e, \epsilon \}$

$$S \rightarrow AB\epsilon$$

$$A \rightarrow a|b|\epsilon$$

$$B \rightarrow c|d|\epsilon$$

$$C \rightarrow e|f|\epsilon$$

$$\therefore \text{First}(C) = \{e, f, \epsilon\}$$

$$\text{First}(B) = \{c, d, \epsilon\}$$

$$\text{First}(A) = \{a, b, \epsilon\}$$

$$\text{First}(S) = \{a, b, c, d, e, f, \epsilon\}$$