

例: $G[S]: S \rightarrow aH$
 $H \rightarrow aMd$
 $H \rightarrow d$
 $M \rightarrow Ab$
 $M \rightarrow \varepsilon$
 $A \rightarrow aM$
 $A \rightarrow e$

First集: $First(S) = \{a\}$
 $First(H) = \{a, d\}$
 $First(M) = \{a, e, \varepsilon\}$
 $First(A) = \{a, e\}$

Follow集: $Follow(S) = \{\#\}$
 $Follow(H) = \{\#\}$
 $Follow(M) = \{d, b\}$
 $Follow(A) = \{b\}$

$E' \rightarrow \varepsilon$
 $T' \rightarrow \varepsilon$
 $F' \rightarrow \varepsilon$

例: $G(E): E \rightarrow TE'$
 $E' \rightarrow +E / \varepsilon$
 $T \rightarrow FT'$
 $T' \rightarrow T / \varepsilon$
 $F \rightarrow PF'$
 $F' \rightarrow *F' / \varepsilon$
 $P \rightarrow (E) | a | b | \wedge$

First集: $First(E) = \{ (, a, b, \wedge \}$
 $First(E') = \{ +, \varepsilon \}$
 $First(T) = \{ (, a, b, \wedge \}$
 $First(T') = \{ (, a, b, \wedge, \varepsilon \}$
 $First(F) = \{ (, a, b, \wedge \}$
 $First(F') = \{ *, \varepsilon \}$
 $First(P) = \{ (, a, b, \wedge \}$

Follow集: $Follow(E) = \{ \#,) \}$
 $Follow(E') = \{ \#,) \}$
 $Follow(T) = \{ +, \#,) \}$
 $Follow(T') = \{ +, \#,) \}$
 $Follow(F) = \{ (, a, b, \wedge, +, \#,) \}$
 $Follow(F') = \{ (, a, b, \wedge, +, \#,) \}$
 $Follow(P) = \{ *, (, a, b, \wedge, +, \#,) \}$

如何求FIRST集和FOLLOW集 (first集看产生式左边 follow集看产生式右边)

- ① 文法开始符, 必有 #
- ② $A \rightarrow \alpha B$ FOLLOW(B) B后为空, 将 follow(A) 加入到 follow(B) 中.
- ③ $A \rightarrow \alpha B \beta$ $\left\{ \begin{array}{l} \beta \text{ 是终结符, 直接写下来} \\ \beta \text{ 是非终结符, } first(\beta) \text{ 加入到 follow(B) 中.} \end{array} \right.$
 B后不为空
 如果 $\beta \rightarrow \varepsilon$, 带入 $A \rightarrow \alpha B \beta$ 中, 得到 $A \rightarrow \alpha B$