

Esercizio 1

Grammatica

$S \rightarrow aABb$
 $A \rightarrow Ac \mid d$
 $B \rightarrow CD$
 $C \rightarrow e \mid \varepsilon$
 $D \rightarrow f \mid \varepsilon$

FIRST

$S: a$
 $A: d$
 $B: e, f, \varepsilon$
 $C: e, \varepsilon$
 $D: f, \varepsilon$

Controllo le produzioni $X \rightarrow \alpha Y \beta$

- $S \rightarrow aABb$ ha due mapping

$S \rightarrow a \underline{AB} b$
 $X \rightarrow a \underline{Y} \beta$

$FOLLOW(A) += FIRST(Bb) \setminus \varepsilon = \{e, f, b\}$

$S \rightarrow a \underline{AB} b$
 $X \rightarrow a \underline{Y} \beta$

$FOLLOW(B) += FIRST(b) \setminus \varepsilon = \{b\}$

- $A \rightarrow Ac$

$A \rightarrow \varepsilon A c$
 $X \rightarrow \varepsilon \underline{Y} \beta$

$FOLLOW(A) += FIRST(c) \setminus \varepsilon = \{c\}$

- $B \rightarrow CD$ ha due mapping

$B \rightarrow \varepsilon C D$
 $X \rightarrow \varepsilon \underline{Y} \beta$

$FOLLOW(C) += FIRST(D) \setminus \varepsilon = \{f\}$

$B \rightarrow C D \varepsilon$
 $X \rightarrow d \underline{Y} \beta$

Non cambia nulla

Controllo le produzioni $X \rightarrow \alpha Y \varepsilon$ e $X \rightarrow \alpha Y \beta$ con $\varepsilon \in FIRST(\beta)$

- $B \rightarrow CD$ ha due mapping

$B \rightarrow C D \varepsilon$
 $X \rightarrow \varepsilon \underline{Y} \beta$


Freccia da $FOLLOW(B)$ a $FOLLOW(D)$

$B \rightarrow \varepsilon C D$
 $X \rightarrow \varepsilon \underline{Y} \beta$ con $\varepsilon \in FIRST(\beta)$

Freccia da $FOLLOW(B)$ a $FOLLOW(C)$

Risultato dei FOLLOW

| | | |
|------|--------|----------|
| $S:$ | $\$$ | $= \$$ |
| $A:$ | $efbc$ | $= efbc$ |
| $B:$ | b | $= b$ |
| $C:$ | f | $= bf$ |
| $D:$ | | $= b$ |



Esercizio 2

Grammatica

$S \rightarrow aA \mid bBc$
 $A \rightarrow Bd \mid Cc$
 $B \rightarrow e \mid \varepsilon$
 $C \rightarrow f \mid \varepsilon$

FIRST

$S: a, b$
 $A: e, d, f, c$
 $B: e, \varepsilon$
 $C: f, \varepsilon$

Controllo le produzioni $X \rightarrow \alpha Y \beta$

- $S \rightarrow aA$ ha un mapping

$S \rightarrow a A \varepsilon$
 $X \rightarrow \alpha Y \beta$

Non cambia nulla

- $S \rightarrow bBc$

$S \rightarrow b B c$
 $X \rightarrow \alpha Y \beta$

$\text{FOLLOW}(B) += \text{FIRST}(c) \setminus \varepsilon = \{c\}$

- $A \rightarrow Bd$

$A \rightarrow \varepsilon B d$
 $X \rightarrow \alpha Y \beta$

$\text{FOLLOW}(B) += \text{FIRST}(d) \setminus \varepsilon = \{d\}$

- $A \rightarrow Cc$

$A \rightarrow \varepsilon C c$
 $X \rightarrow \alpha Y \beta$

$\text{FOLLOW}(C) += \text{FIRST}(c) \setminus \varepsilon = \{c\}$

Controllo le produzioni $X \rightarrow \alpha Y$ e $X \rightarrow \alpha Y \beta$ con $\varepsilon \in \text{FIRST}(\beta)$

- $S \rightarrow aA$

$S \rightarrow a A \varepsilon$
 $X \rightarrow \alpha Y \beta$

Freccia da $\text{FOLLOW}(S)$ a $\text{FOLLOW}(A)$

Risultato dei FOLLOW

$S: \$$ $= \$$
 $A:$ $= \$$
 $B: c, d$ $= c, d$
 $C: c$ $= c$