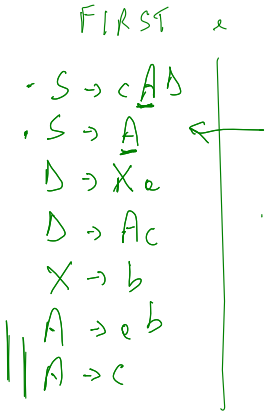
$A \to \varepsilon$

FOLLOW(S)

$e \in FIRST(S)$ ε

FIRST & FOLLOW

- $S \to cAD$
- $S \to A$
- $D \to Xe$
- $D \to Ac$
- $X \to b$
- $A \to eb$
- $A \to c$



$AB\varepsilon\ \$$

$S\ \$ \Rightarrow$

$D \Rightarrow Xe \Rightarrow be$

$D \Rightarrow Ac \Rightarrow ebc$

$\Rightarrow ec$

$FIRST(D) = \{e, b, c\}$

$S \Rightarrow cAD \Rightarrow cAXe \Rightarrow cAbe$

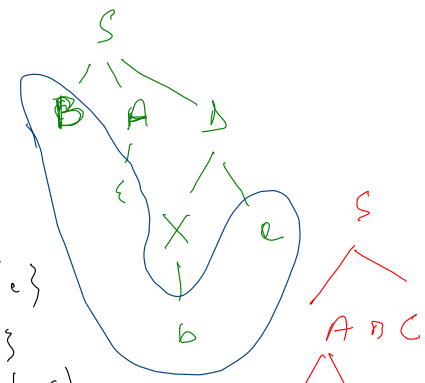
$cAAc \Rightarrow cAeb$

$\Rightarrow cAc$

$FOLLOW(A) = \{b, e, c, \$\}$

$A \to \varepsilon$

$A \to e$



$S' \to S\$$

$S \to ABc$

$A \to e$

$B \to b$

$B \to \varepsilon$

$FIRST(S) = \{e\}$

$FIRST(A) = \{e\}$

$FIRST(B) = \{b, \varepsilon\}$

$S \Rightarrow ABc \Rightarrow ebc$

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

$FOLLOW(A) = \{b, c\}$

$S \Rightarrow ABc \Rightarrow Abc$

$\Rightarrow Aec$

$A \to X_1 X_2 \dots X_n$

$FIRST(X_1 X_2 \dots X_n) = FIRST(X_1) \cup_\varepsilon FIRST(X_2) \cup_\varepsilon \dots \cup_\varepsilon \{\varepsilon\}$

$S \to AB$

$A \to a \mid \varepsilon$

$B \to b \mid \varepsilon$

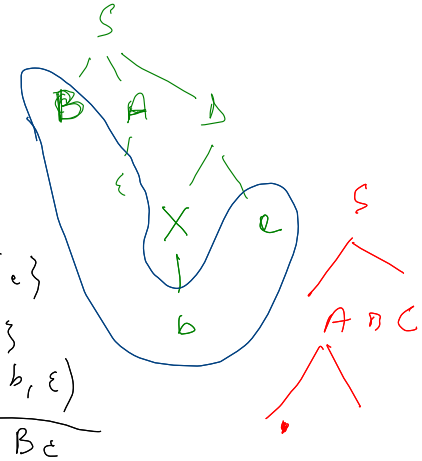
$FIRST(S) = FIRST(AB) = \{e, b, \varepsilon\}$

$= FIRST'(A) \cup_\varepsilon FIRST'(B) \cup_\varepsilon \{\varepsilon\}$

$\{a\} \cup \{b\} \cup \{\varepsilon\}$

Fi

$A \to \varepsilon$
$A \to e$



$S' \to S\,\$$
$S \to ABC$
$A \to e$
$B \to b$
$B \to \varepsilon$

FIRST $(S) = \{e\}$
FIRST $(A) = \{e\}$
FIRST $(B) = \{b, \varepsilon\}$

$S \Rightarrow ABC \Rightarrow eBC$

FOLLOW $(S) = \{\$\}$
FOLLOW $(A) = \{b, c\}$

$S \Rightarrow ABC \Rightarrow AbC$
$\Rightarrow AbC$

$A \to X_1 X_2 \dots X_n$

$FIRST(X_1 X_2 \dots X_n) = FIRST(X_1) \cup_\varepsilon FIRST(X_2) \cup_\varepsilon \cup_\varepsilon \{\varepsilon\}$

$S \to AB$
$A \to a \mid \varepsilon$
$B \to b \mid \varepsilon$

$FIRST(S) = FIRST(AB) = \{e, b, \varepsilon\}$
$= FIRST'(A) \cup_\varepsilon FIRST'(B) \cup_\varepsilon \{\varepsilon\}$
$\{a\} \cup \{b\} \cup \{\varepsilon\}$

$A \rightarrow X_1 X_2 .. X_n$

$FIRST(X_1 X_2 .. X_n) = FIRST(X_1) \cup_\varepsilon FIRST(X_2) \cup_\varepsilon \cup_\varepsilon \{\varepsilon\}$

$S \rightarrow AB$

$A \rightarrow a \mid \varepsilon$

$B \rightarrow b \mid \varepsilon$

$FIRST(S) = FIRST(AB) = \{a, b, \varepsilon\}$

$= FIRST'(A) \cup_\varepsilon FIRST''(B) \cup_\varepsilon \{\varepsilon\}$

$\{a\} \cup \{b\} \cup \{\varepsilon\}$

- $S \to cAD$
- $S \to A$ ←
- $D \to Xa$
- $D \to Ac$
- $X \to b$
- $A \to eb$
- $A \to c$

	FIRST	FOLLOW
S	c, e	$
D	c, e	b e c $
X	b	e
A	e c	b e c $

$S\$ \Rightarrow cAD\$$

$S\$ \Rightarrow A\$$

$A \to X_1 .. X_n$ $\quad$ $A \to Y_1 .. X_m$

$A \to \varepsilon$

$A \to b$

$FIRST(A) \subset FIRST(X_1 .. X_n)$

$\$ \in FOLLOW(S)$

SE $A \to \alpha B \beta$

$FOLLOW(B) \subset FIRST(\beta)$ ECCETTO ε SE $\beta \Rightarrow^* \varepsilon$

SE $A \to \alpha B$

$\ldots A * \ldots \Rightarrow \ldots \alpha B * \ldots$

$FOLLOW(B) \subset FOLLOW(A)$

SE $A \to \alpha B \beta$ e $\beta \Rightarrow^* \varepsilon$

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \varepsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \varepsilon$

$F \rightarrow (E) \mid id$

	FIRST	FOLLOW
E	(id	\$)
E'	+ ε	\$)
T	(id	+ ~~ε~~ \$)
T'	* ε	+ \$)
F	(id	* ~~ε~~ + \$)

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