

## First

- 1)  $F(P') = F(P)$   
 $F(P') = \{imicio\}$
- 2)  $F(P) = F(imicio)$   
 $F(P) = \{imicio\}$
- 3)  $F(V) = F(varimicio)$   
 $F(V) = \{imicio\}$
- 4)  $F(LV) = F(D) \cup F(varfim)$   
 $F(LV) = \{imicio, real, literal, varfim\}$
- 6)  $F(D) = F(TIPO)$   
 $F(D) = \{imicio, real, literal\}$
- 7)  $F(L) = F(id)$   
 $F(L) = \{id\}$
- 8)  $F(TIPO) = F(imicio) \cup F(real) \cup F(literal)$   
 $F(TIPO) = \{imicio, real, literal\}$
- 11)  $F(A) = F(ES)$   
 $F(A) = \{leia, escreva\}$
- 12)  $F(ES) = F(leia) \cup F(escreva)$   
 $F(ES) = \{leia, escreva\}$
- 14)  $F(ARG) = F(lit) \cup F(num) \cup F(id)$   
 $F(ARG) = \{lit, num, id\}$
- 17)  $F(A) = F(CMD)$   
 $F(A) = \{id\}$
- 18)  $F(CMD) = F(id)$   
 $F(CMD) = \{id\}$
- 19)  $F(LD) = F(OPRD) \cup F(OPRD)$   
 $F(LD) = \{id, num\}$
- 21)  $F(OPRD) = F(id) \cup F(num)$   
 $F(OPRD) = \{id, num\}$
- 23)  $F(A) = F(cond)$   
 $F(A) = \{pe\}$
- 24)  $F(cond) = F(CAB)$   
 $F(cond) = \{pe\}$
- 25)  $F(CAB) = F(pe)$   
 $F(CAB) = \{pe\}$

- 26)  $F(EXP\_R) = F(OPRD)$   
 $F(EXP\_R) = \{id, num\}$
- 27)  $F(CP) = F(ES) \cup F(CMD) \cup F(COND) \cup F(fim)$   
 $F(CP) = \{leia, escreva, id, pe, fim, id\}$
- 31)  $F(A) = F(R)$   
 $F(A) = \{supita\}$
- 32)  $F(R) = F(CABR)$   
 $F(R) = \{supita\}$
- 33)  $F(CABR) = F(supita)$   
 $F(CABR) = \{supita\}$
- 34)  $F(CPR) = F(ES) \cup F(CMD) \cup F(COND) \cup F(fim)$   
 $F(CPR) = \{leia, escreva, id, pe, fim, supita\}$
- 38)  $F(A) = F(fim)$   
 $F(A) = \{fim\}$

Unindo todas as produções de A

$$F(A) = \{leia, escreva, id, pe, fim, supita\}$$

- 1)  $FW(P') = \{\$ \}$
- 2)  $FW(P) = FW(P') = \{\$ \}$   
 $P \xrightarrow{\alpha} \tilde{P} \xrightarrow{\beta} P$
- 3)  $FW(V) = F(A) = \{lua, ucruc, id, m, fim, ucruc\}$   
 $P \xrightarrow{\alpha} \tilde{V} \xrightarrow{\beta} A$
- 4)  $FW(LV) = FW(V) \cup FW(LV)$   
 $V \xrightarrow{\alpha} \tilde{LV} \xrightarrow{\beta} P = \{lua, ucruc, id, m, ucruc\}$   
 $LV \xrightarrow{\alpha} \tilde{LV} \xrightarrow{\beta} P$
- 6)  $FW(D) = F(LV) = \{lua, ucruc, id, m, ucruc\}$   
 $LV \xrightarrow{\alpha} \tilde{D} \xrightarrow{\beta} LV$
- 7)  $FW(L) = F(pt-v) = \{pt-v\}$   
 $D \xrightarrow{\alpha} \tilde{L} \xrightarrow{\beta} pt-v$
- 8)  $FW(TIPO) = F(L) = \{id\}$   
 $D \xrightarrow{\alpha} \tilde{TIPO} \xrightarrow{\beta} L \xrightarrow{\gamma} pt-v$
- 11)  $FW(A) = FW(P) \cup FW(A) = \{\$ \}$   
 $P \xrightarrow{\alpha} \tilde{V} \xrightarrow{\beta} A$   
 $A \xrightarrow{\alpha} \tilde{ES} \xrightarrow{\beta} A$   
 $A \xrightarrow{\alpha} \tilde{CMD} \xrightarrow{\beta} A$   
 $A \xrightarrow{\alpha} \tilde{COND} \xrightarrow{\beta} A$   
 $A \xrightarrow{\alpha} \tilde{R} \xrightarrow{\beta} A$
- 12)  $FW(ES) = F(A) \cup F(CP) \cup F(CPR)$   
 $A \xrightarrow{\alpha} \tilde{ES} \xrightarrow{\beta} A = \{lua, ucruc, id, m, fim, fim, fim, fim\}$   
 $CP \xrightarrow{\alpha} \tilde{ES} \xrightarrow{\beta} CP$   
 $CPR \xrightarrow{\alpha} \tilde{ES} \xrightarrow{\beta} CPR$
- 14)  $FW(ARG) = F(pt-v) = \{pt-v\}$   
 $ES \xrightarrow{\alpha} \tilde{ARG} \xrightarrow{\beta} pt-v$

- 18)  $FW(CMD) = F(A) \cup F(CP) \cup F(CPR)$   
 $A \xrightarrow{\alpha} \tilde{CMD} \xrightarrow{\beta} A = \{lua, ucruc, id, m, fim, fim, fim, fim\}$   
 $CP \xrightarrow{\alpha} \tilde{CMD} \xrightarrow{\beta} CP$   
 $CPR \xrightarrow{\alpha} \tilde{CMD} \xrightarrow{\beta} CPR$
- 19)  $FW(LD) = F(pt-v) = \{pt-v\}$   
 $CMD \xrightarrow{\alpha} \tilde{LD} \xrightarrow{\beta} pt-v$
- 21)  $FW(OPRD) = F(opm) \cup FW(LD) \cup F(Exp-R) \cup FW(Exp-R)$   
 $LD \xrightarrow{\alpha} \tilde{OPRD} \xrightarrow{\beta} opm$   
 $LD \xrightarrow{\alpha} \tilde{OPRD} \xrightarrow{\beta} opm$   
 $Exp-R \xrightarrow{\alpha} \tilde{OPRD} \xrightarrow{\beta} opm$   
 $LD \xrightarrow{\alpha} \tilde{OPRD} \xrightarrow{\beta} opm$   
 $Exp-R \xrightarrow{\alpha} \tilde{OPRD} \xrightarrow{\beta} opm$
- 24)  $FW(COND) = F(A) \cup F(CP) \cup F(CPR)$   
 $A \xrightarrow{\alpha} \tilde{COND} \xrightarrow{\beta} A = \{lua, ucruc, id, m, fim, fim, fim, fim\}$   
 $CP \xrightarrow{\alpha} \tilde{COND} \xrightarrow{\beta} CP$   
 $CPR \xrightarrow{\alpha} \tilde{COND} \xrightarrow{\beta} CPR$
- 25)  $FW(CAB) = F(CP) = \{lua, ucruc, fim, fim, id\}$   
 $COND \xrightarrow{\alpha} \tilde{CAB} \xrightarrow{\beta} CP$
- 26)  $FW(Exp-R) = F(fc-p) = \{fc-p\}$   
 $CAB \xrightarrow{\alpha} \tilde{Exp-R} \xrightarrow{\beta} fc-p$   
 $CABR \xrightarrow{\alpha} \tilde{Exp-R} \xrightarrow{\beta} fc-p$
- 27)  $FW(CP) = FW(CP) \cup FW(COND) = \{ \}$   
 $CP \xrightarrow{\alpha} \tilde{CP} \xrightarrow{\beta} A = \{fim, ucruc, id, m, fim, fim, fim, fim\}$   
 $CP \xrightarrow{\alpha} \tilde{CMD} \xrightarrow{\beta} CP$   
 $CP \xrightarrow{\alpha} \tilde{COND} \xrightarrow{\beta} CP$   
 $COND \xrightarrow{\alpha} \tilde{CAB} \xrightarrow{\beta} CP$

Exercícios de follow

$$32) FW(R) = F(A) = \{ \text{lua, sexta, id, si, fim, repito} \}$$

$$A \xrightarrow{\alpha} R \xrightarrow{\beta} A$$

$$33) FW(CABR) = F(CPR) = \{ \text{lua, sexta, id, si, fim, repito} \}$$

$$R \xrightarrow{\alpha} CABR \xrightarrow{\beta} CPR$$

$$34) FW(CPR) = FW(R) \cup FW(CPR)$$

$$R \xrightarrow{\alpha} CABR \xrightarrow{\beta} CPR \xrightarrow{\gamma} \{ \text{lua, sexta, id, si, fim, repito} \}$$

$$CPR \rightarrow ES \xrightarrow{\alpha} CPR \xrightarrow{\beta}$$

$$CPR \rightarrow OND \xrightarrow{\alpha} CPR \xrightarrow{\beta}$$

$$CPR \rightarrow COM \xrightarrow{\alpha} CPR \xrightarrow{\beta}$$