

EQUIVALENCIA ENTRE AP Y GI : PASO DE GI A AP

$$L \in GI \Rightarrow \exists G = (U, T, P, S) : L = L(G)$$

Construimos el AP P_v a partir de G

$$P_v = (\{q\}, T, T \cup U, \delta, q, S, \emptyset)$$

$$\delta(q, \epsilon, A) = \{ (q, \beta) \mid A \rightarrow \beta \in P \} \quad \forall A \in U$$

$$\delta(q, a, a) = \{ (q, \epsilon) \} \quad \forall a \in T$$

$$\Rightarrow L(G) = L_v(P_v)$$

$$\begin{array}{l} \overline{P}: \\ \epsilon \rightarrow \epsilon + \epsilon \mid \epsilon * \epsilon \mid N \\ N \rightarrow 0 \mid 1 \end{array}$$

AP:



$\epsilon, \epsilon \mid \epsilon + \epsilon$
 $\epsilon, \epsilon \mid \epsilon * \epsilon$
 $\epsilon, \epsilon \mid N$
 $\epsilon, N \mid 0$
 $\epsilon, N \mid 1$
 $0, 0 \mid \epsilon$
 $1, 1 \mid \epsilon$
 $+, + \mid \epsilon$

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PASO DE AP A GI:

$$P_v : L = L_v(P_v) \Rightarrow \exists G \in GI : L = L(G)$$

"
($Q, \Sigma, \Gamma, \delta, q_0, z_0, \emptyset$)

CONSTRUIAMOS G

- Símbolo inicial S'

- Variables : $[p X q] \in V$ si desde p se puede ir a q consumiendo X de la pila.

- Por cada transición: $p \xrightarrow{a, A / B_1 \dots B_m} q$

introducimos una serie de producciones:

$$[p A q] \longrightarrow a [p_1 B_1 p_2] [p_2 B_2 p_3] \dots [p_m B_m q]$$

para toda secuencia $p_1 \dots p_m$

- Para el símbolo inicial S' tenemos las siguientes producciones:

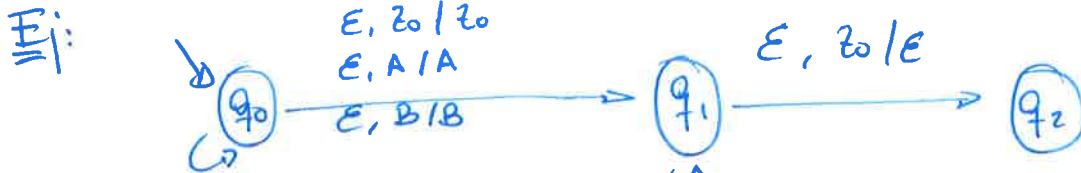
$$S' \longrightarrow [q_0 z_0 q] \quad \forall q \in Q \text{ del AP.}$$

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PASO DE AP A 67:



- a, z0/Az0 b, z0/Bz0
- a, A/AA b, B/BB
- a, B/AB b, A/BA

- a, A/E
- b, B/E

$$S \rightarrow [q_0 z_0 q_0] \mid [q_0 z_0 q_1] \mid [q_0 z_0 q_2]$$

$$[q_0 z_0 q_0] \rightarrow a [q_0 A q_0] [q_0 z_0 q_0] \mid a [q_0 A q_1] [q_1 z_0 q_0] \mid$$

} $\begin{matrix} \textcircled{q_0} \\ \uparrow \\ a, z_0/Az_0 \end{matrix}$

$$a [q_0 A q_2] [q_2 z_0 q_0] \mid$$

$$b [q_0 B q_0] [q_0 z_0 q_0] \mid b [q_0 B q_1] [q_1 z_0 q_0] \mid$$

} $\begin{matrix} \textcircled{q_0} \\ \uparrow \\ b, z_0/Bz_0 \end{matrix}$

$$b [q_0 B q_2] [q_2 z_0 q_0] \mid$$

pg. con ϵ
de q_0 para q_1

$$\epsilon [q_1 z_0 q_0]$$

$$q_0 \xrightarrow{\epsilon, z_0/z_0} q_1$$

$$[q_0 A q_0] \rightarrow a [q_0 A q_0] [q_0 A q_0] \mid a [q_0 A q_1] [q_1 A q_0] \mid$$

} $\begin{matrix} \textcircled{q_0} \\ \uparrow \\ a, A/AA \end{matrix}$

$$a [q_0 A q_2] [q_2 A q_0] \mid$$

$$b [q_0 B q_0] [q_0 A q_0] \mid b [q_0 B q_1] [q_1 A q_0] \mid$$

} $\begin{matrix} \textcircled{q_0} \\ \uparrow \\ b, A/BA \end{matrix}$

$$b [q_0 B q_2] [q_2 A q_0] \mid$$

$$\epsilon [q_1 A q_0]$$

$$q_0 \xrightarrow{\epsilon, A/A} q_1$$

$$[q_0 A q_1] \rightarrow a [q_0 A q_0] [q_0 A q_1] \mid a [q_0 A q_1] [q_1 A q_1] \mid$$

} $\begin{matrix} \textcircled{q_0} \\ \uparrow \\ a, A/AA \end{matrix}$

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$[q_0 A q_2] \rightarrow$ Anélope a los dos autores

$[q_0 B q_0]$
 $[q_0 B q_1]$
 $[q_0 B q_2]$

} Análogos a los 3 anteriores.

$[q_1 z_0 q_2] \rightarrow$ Sin reglas

$[q_1 A q_1] \rightarrow a$

$[q_1 B q_1] \rightarrow b$

$[q_1 z_0 q_2] \rightarrow \epsilon$

$[q_1 A q_2]$
 $[q_1 B q_2]$

} \rightarrow Sin reglas

$[q_1 A q_0]$
 $[q_1 B q_0]$

} \rightarrow Sin reglas

$[q_1 z_0 q_0] \rightarrow$ Sin reglas

$[q_0 z_0 q_1] \rightarrow a [q_0 A q_0] [q_0 z_0 q_2] \mid a [q_0 A q_1] [q_1 z_0 q_1]$

} $\left. \begin{matrix} q_0 \\ a, z_0 / A z_0 \end{matrix} \right\}$

$a [q_0 A q_2] [q_2 z_0 q_1] \mid$

$b [q_0 B q_0] [q_0 z_0 q_1] \mid b [q_0 B q_1] [q_1 z_0 q_1]$

} $\left. \begin{matrix} q_0 \\ b, z_0 / B z_0 \end{matrix} \right\}$

$b [q_0 B q_2] [q_2 z_0 q_1] \mid$

$\epsilon [q_1 z_0 q_1] \quad \left. \begin{matrix} \epsilon, z_0 / z_0 \\ q_0 \end{matrix} \right\} \xrightarrow{\quad} q_1$

$[q_0 z_0 q_2] \rightarrow$ Análogo al anterior.

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¿OLA?