3.3. EQUIVALENCIAS

3.3.1. GIC \Rightarrow AA

Ejemplo:

$$G = (\{E, I\}, \{+, *, (,), a, b, 0, 1\}, P, E)$$

$$P = \{$$

$$E \rightarrow I \mid E+E \mid E*E \mid (E)$$

$$I \rightarrow a \mid b \mid Ia \mid Ib \mid I0 \mid I1$$

$$\}$$

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$3.3.2. \text{ AA} \Rightarrow \text{GIC}$

$\mathbf{A}\mathbf{A}$

$$A = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, \emptyset)$$

GIC

$$\begin{split} G &= \; (N, \Sigma, P, S) \\ N &= \; \{S\} \cup \{[p, Z, q] \, / \, p \, , q \in Q \, , Z \in \Gamma \} \\ P &: \\ S &\to [q_0, Z_0, q] \\ [q, Z, q_{m+1}] &\to a \, [q_1, X_1, q_2] \, [q_2, X_2, q_3] \, ... \, [q_m, X_m, q_{m+1}] \end{split}$$

$$\begin{split} \forall \ q \in Q \\ \forall \ q, q_1, q_2, \ldots, q_{m+1} \in Q \\ \forall \ Z, X_1, X_2, \ldots, X_m \in \Gamma \\ \forall \ a \in (\Sigma \cup \{\epsilon\}) \\ (q_1, X_1 \ X_2 \ldots X_m) \in \delta(q, a, Z) \end{split}$$

Ejemplo:

$$A = (\{q\}, \{i, e\}, \{Z\}, \delta, q, Z, \emptyset)$$

$$\begin{split} \delta(q,\,i,\,Z) &= \{(q,\,ZZ)\} \\ \delta(q,\,e,\,Z) &= \{(q,\,\epsilon)\} \end{split}$$

Ejercicio:

$$A = (\{q_0, q_1\}, \{0, 1\}, \{X, Z_0\}, \delta, q_0, Z_0, \emptyset)$$

$$\begin{split} &\delta(q_0,\,0,\,Z_0) = \{(q_0,\,XZ_0)\} \\ &\delta(q_0,\,0,\,X) = \{(q_0,\,XX)\} \\ &\delta(q_0,\,1,\,X) = \{(q_1,\,\epsilon)\} \\ &\delta(q_1,\,1,\,X) = \{(q_1,\,\epsilon)\} \\ &\delta(q_1,\,\epsilon,\,X) = \{(q_1,\,\epsilon)\} \\ &\delta(q_1,\,\epsilon,\,Z_0) = \{(q_1,\,\epsilon)\} \end{split}$$

Tarea:

$$A = (\{q_0, q_1, q_2\}, \{a, b\}, \{A, B, Z_0\}, \delta, q_0, Z_0, \emptyset)$$

$$\begin{split} &\delta(q_0,\,a,\,Z_0) = \{(q_1,\,AZ_0)\} \\ &\delta(q_0,\,b,\,Z_0) = \{(q_1,\,BZ_0)\} \\ &\delta(q_0,\,\epsilon,\,Z_0) = \{(q_2,\,\epsilon)\} \\ &\delta(q_1,\,a,\,A) = \{(q_1,\,AA)\} \\ &\delta(q_1,\,b,\,B) = \{(q_1,\,BB)\} \\ &\delta(q_1,\,a,\,B) = \{(q_1,\,\epsilon)\} \\ &\delta(q_1,\,b,\,A) = \{(q_1,\,\epsilon)\} \\ &\delta(q_1,\,\epsilon,\,Z_0) = \{(q_0,\,Z_0)\} \end{split}$$