ALGORITMO CYK (Ejemplo):

$$P:\begin{cases} S \to AB|BC \\ A \to BA|a \\ B \to CC|b \\ C \to AB|a \end{cases}$$ Averiguar si $x = bbab$ pertenece a $L(G)$.

1. Cálculo $N_{i1}(x)$:

$$N_{11} = N_{21} = N_{41} = \left\{b \overset{(2)}{\leftarrow} B\right\}; \qquad N_{31} = \{a \overset{(5)}{\leftarrow} A, C\}$$

2. $N_{i2}$:

$$N_{12} = \emptyset \qquad N_{12}: N_{11}N_{21} = \{BB \leftarrow\}$$

$$N_{22} = \{A, S\} \qquad N_{22}: N_{21}N_{31} = \{BA \overset{(4)}{\leftarrow} A;\ BC \leftarrow S\}$$

$$N_{32} = \{C, S\} \qquad N_{32}: N_{31}N_{41} = \{AB \leftarrow S, C; CB \leftarrow\}$$

3. $N_{i3}$:

$$N_{13} = \{A\} \qquad N_{13}: \begin{cases} N_{11}N_{22} = \{BA \overset{(3)}{\leftarrow} A; BS \leftarrow\} \\ N_{12}N_{31} = \{\emptyset A \leftarrow; \emptyset C \leftarrow\} \end{cases}$$

$$N_{23} = \{S, C\} \qquad N_{23}: \begin{cases} N_{21}N_{32} = \{BC \leftarrow S; BS \leftarrow\} \\ N_{22}N_{41} = \{AB \overset{(7)}{\leftarrow} S, C; SB \leftarrow\} \end{cases}$$

4. $N_{i4}$:

$$N_{14} = \{S, C\} \qquad N_{14}: \begin{cases} N_{11}N_{23} = \{BS \leftarrow A; BC \overset{(6)}{\leftarrow} S\} \\ N_{12}N_{32} = \{\emptyset C \leftarrow; \emptyset S \leftarrow\} \\ N_{13}N_{41} = \{AB \overset{(1)}{\leftarrow} S, C\} \end{cases}$$

Como $S \in N_{1n}$, entonces $x \in L(G)$.

$$S \overset{(1)}{\Rightarrow} AB \overset{(2)}{\Rightarrow} Ab \overset{(3)}{\Rightarrow} BAb \overset{(2)}{\Rightarrow} bAb \overset{(4)}{\Rightarrow} bBAb \overset{(2)}{\Rightarrow} bbAb \overset{(5)}{\Rightarrow} bbab$$

$$S \overset{(6)}{\Rightarrow} BC \overset{(2)}{\Rightarrow} bC \overset{(7)}{\Rightarrow} bAB \overset{(2)}{\Rightarrow} bAb \overset{(4)}{\Rightarrow} bBAb \overset{(2)}{\Rightarrow} bbAb \overset{(5)}{\Rightarrow} bbab$$