Data la gramm. seguente:

$$S \to AB$$
$$A \to a \mid aA$$
$$B \to b \mid bB$$

Si dimostri formalmente che

aab appartiene al linguaggio generato senza usare gli alberi di derivazione Teo. Ric.

$$T_S(S, A, B) = AB$$

$$T_A(S, A, B) = \{a\} \cup \{a\} A$$

$$T_B(S, A, B) = \{b\} \cup \{b\} B$$

$T_S^0(\{\}, \{\}, \{\})$ $\qquad$ $S^\emptyset = \{\}$

$T_A^0(\{\}, \{\}, \{\})$ $\qquad$ $A^\emptyset = \{\}$

〃 $\qquad$ $B^0 = \{\}$

$$S^1 = T_S\left(T_S^{\emptyset}(\{\},\{\},\{\}), T_A^{0}(\{\},\{\},\{\}), T_B^{0}(\{\},\{\},\{\}) \right) = \{\}$$

$$A^1 = \{a\}$$

$$B^1 = \{b\}$$

$$S^2 = T_S(\{\}, \{a\}, \{b\}) = \{ab\}$$

$$A^2 = T_A \quad '' \quad = \{a, aa\}$$

$$B^2 = T_B \quad '' \quad = \{b, bb\}$$

$$S^3 = \{ab, abb, \underline{aa}b, aabb\}$$

$$A^3 = \{a, aa, aaa\}$$

$$B^3 = \{b, bb, bbb\}$$

$L = \{ a^k b^h \mid k, h > 0 \}$ $\Sigma = \{a, b\}$

definire una grammatica che genera il linguaggio

$$L' = \{ \alpha_1 \dots \alpha_n \mid n > 0 \wedge \alpha_i \in L \}$$

$$\underbrace{abb}\,\underbrace{aabb}\,\underbrace{ab} \in L'$$

$ababab \in L'$ $abaa \notin L'$

$S' \to S \mid SS'$
$S \to AB$
$A \to aA \mid a$
$B \to bB \mid b$

$S \to ABS \mid AB$
$A \to a \mid aA$
$B \to b \mid bB$

$S \to AB \mid SS$

$S \to ab \mid A$
$A \to aA \mid aB$
$B \to bB \mid b \mid S$

$S \to aLb \mid ab$
$L \to aL \mid bL \mid a \mid b$

$\cancel{S \to ABZ}$
$\cancel{A \to a \mid aA}$
$\cancel{B \to b \mid bB}$
$\cancel{Z \to AB}$

$S \to AB$
$A \to aA \mid a \mid S$
$B \to bB \mid b \mid S$

aababb

$S \to aS \mid aB$
$B \to bB \mid b \mid S$

ababab

$S \to aS'b$
$S' \to aS' \mid bS' \mid \varepsilon$

$L_G = \{a^n b^n c^n \mid n > 0\}$ non è un ling. generabile da una gram. libera

$G = (\underline{\{a, b, c\}}, \underline{V}, \underline{S}, \underline{P})$

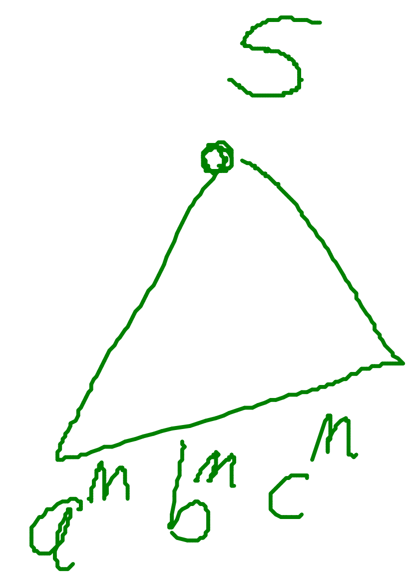
$G' = (\{a, b, c\}, V \cup V', S', P \cup P')$

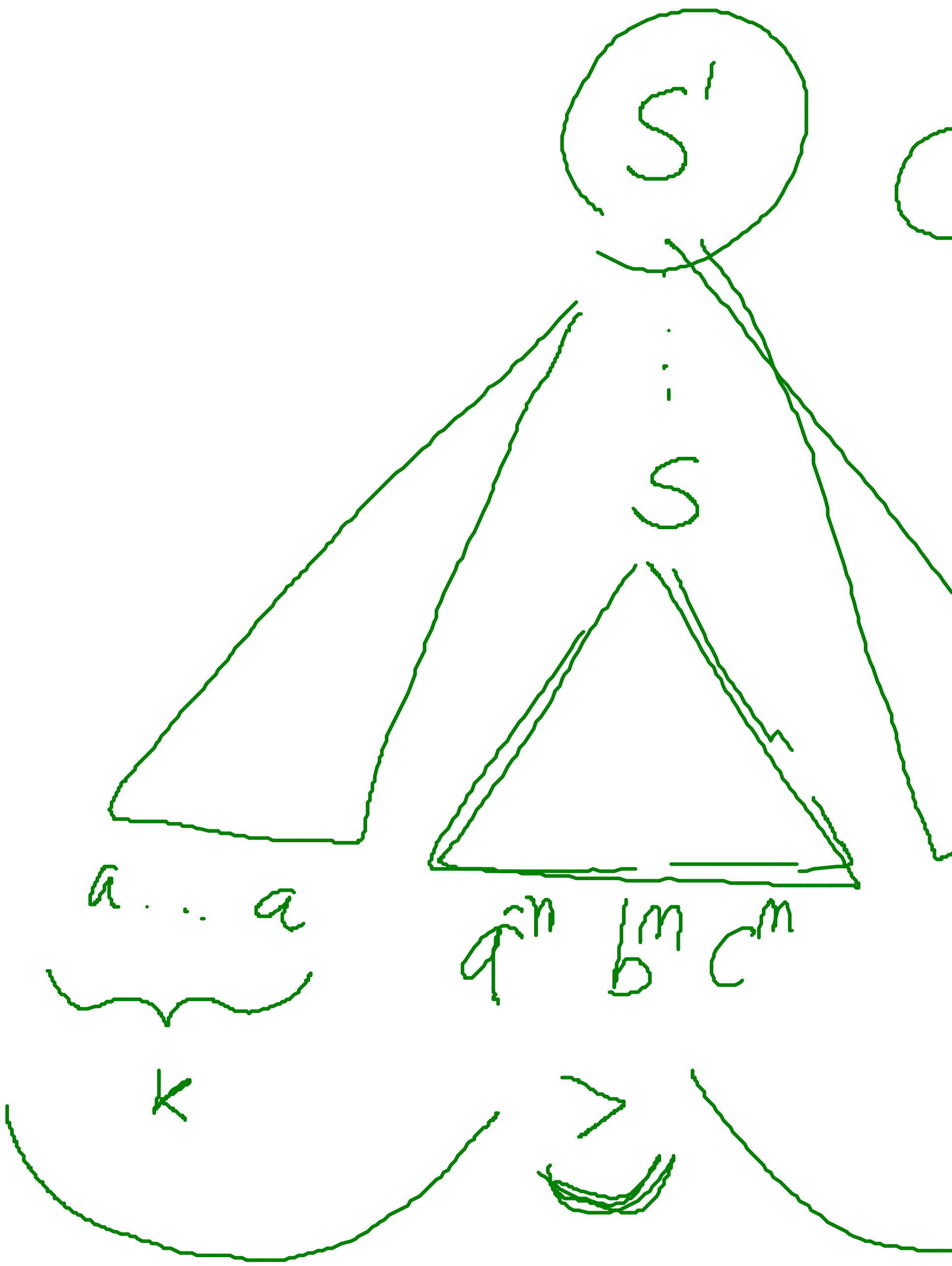
$V \cap V' = \emptyset$ | definire V', S' e P'

$S' \in V'$ | tali che

G' generi il linguaggio

$L' = \{a^n b^k c^m \mid n > m > k > \emptyset\}$





$P' = \{S' \to aS'c \mid aS' \mid aaSc\}$

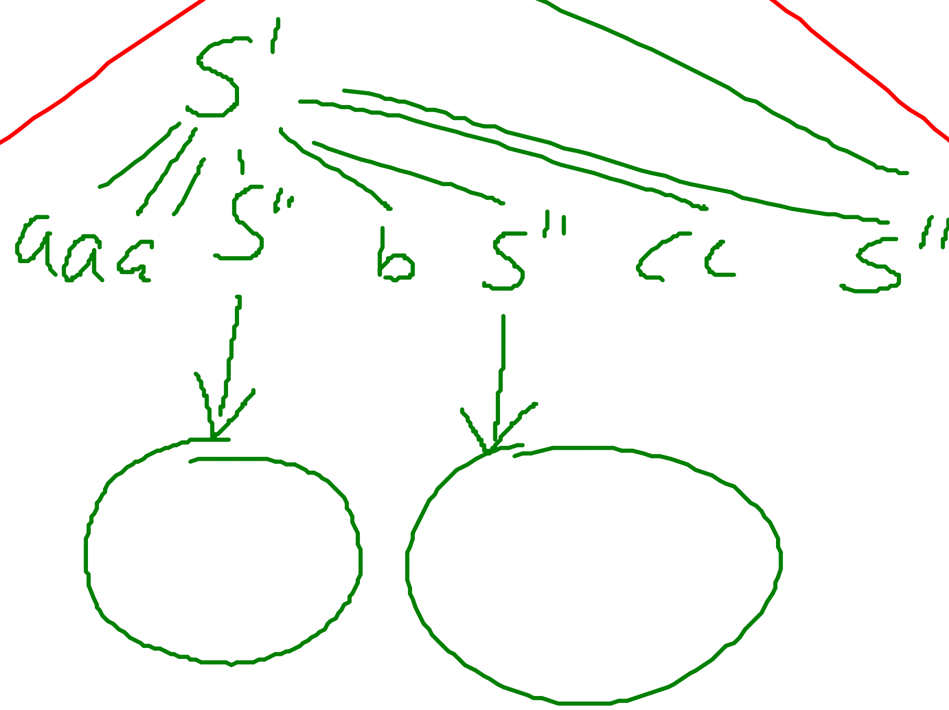
$V' = \{S'\}$

S'

$S' \notin V$

$$S' \to aaabcc \mid aaaS''bS''ccS''$$

$$S'' \to \varepsilon \mid aS'' \mid bS'' \mid cS''$$



$S' \to aS' \mid aB$

$B \to aSc \mid aBc$

$\cancel{S' \to aASC}$

$\cancel{A \to aA \mid a}$

$\cancel{C \to cC \mid c}$

$S' \to \underline{aaAc} \mid aaSc \mid$

$A \to \underline{aA} \mid \underline{aAc} \mid \underline{S}$

$S \to aS \mid Sd \mid B$

$B \to bcc \mid bBc$

aabcccd∈

$\Sigma = \{a, b, c, d\}$

Definire formalmente il linguaggio generato

$L = \{ a^n b^k c^{k+1} d^m \mid n, m \geq 0 \wedge k > 0 \}$

$b^h c^k \mid h < k$