3- $S \to aSbSc \mid aBc \mid \varepsilon$ (variável inicial)

/ /

Passo 5

$S_0 \to U_1Z_1 \mid U_1Z_4 \mid U_1Z_5 \mid U_1Z_2 \mid U_1Z_6 \mid U_1U_3 \mid \varepsilon$

$Z_1 \to SZ_2$

$Z_2 \to U_2Z_3$

$Z_3 \to SU_3$

$Z_4 \to U_2U_3$

$Z_6 \to SZ_4$

$Z_6 \to BU_3$

$S \to U_1Z_1 \mid U_1Z_4 \mid U_1Z_5 \mid U_1Z_2 \mid U_1Z_6 \mid U_1U_3$

$B \to U_2B \mid b \mid U_1Z_1 \mid U_1Z_4 \mid U_1Z_5 \mid U_1Z_2 \mid U_1Z_6 \mid U_1U_3$

$U_1 \to a$

$U_2 \to b$

$U_3 \to c$

4- $f(n)\ O(g(n))$

$\exists\ c_0\ n_0$ tq $c_0 g(n) \geq f(n)\ \ n \geq n_0$

$g(n) = n^3$

$f(n) = 10n^2 + 5n + 7$

$c_0 = 1$

$n_0 = 11$ — base

$n^3 = 1331$

$10n^2 + 5n + 7 = 1210 + 55 + 7 = 1272$

$1331 > 1272$

Não posso pular de um lado pro outro

hipótese $n^3 \geq 10n^2 + 5n + 7$ p/ $n \geq 11$

tese $(n+1)^3 \geq 10(n+1)^2 + 5(n+1) + 7$

$(n+1)(n+1)(n+1) \geq 10(n^2 + 2n + 1) + 5n + 5 + 7$

$(n^2 + 2n + 1)(n+1) \geq 10n^2 + 20n + 10 + 5n + 5 + 7$

$n^3 + n^2 + 2n^2 + 2n + n + 1 \geq 10n^2 + 25n + 22$

$n^3 + 3n^2 + 3n + 1 \geq 10n^2 + 25n + 22$

Hip: $n^3 \geq 10n^2 + 5n + 7$