Radu Ceaca

HW3

3. Construct a cfg for $L = \{ w \text{ in } \{a, b, c\}^* \mid no_a(w) = no_b(w) = no_c(w) \}$, where $no_a(w)$ denotes number of symbols 'a' in the ~~sentence~~ sequence 'w'

$S \to abc \mid \sout{abc}\ aSbc \mid abSc \mid aTbc \mid abTc$

$T \to bac \mid bSac \mid baSc \mid bTac$

$\Rightarrow \quad k = 1..5$

$S_0 \to abc \mid aS_kbc \mid abS_kc \mid aS_kbS_kc$

$S_1 \to acb \mid aS_kcb \mid acS_kb \mid aS_kcS_kb$

$S_2 \to bca \mid bS_kca \mid bcS_ka \mid bS_kcS_ka$

$S_3 \to bac \mid bS_kac \mid baS_kc \mid bS_kaS_kc$

$S_4 \to cab \mid cS_kab \mid caS_kb \mid cS_kaS_kb$

$S_5 \to cba \mid cS_kba \mid cbS_ka \mid cS_kbS_ka$