Ch 3

9) $S \to aSB \mid \lambda$
$B \to bBC \mid \lambda$
$C \to cC \mid c$

11) $S \to aSBA \mid \lambda$
$B \to bB \mid b$
$A \to aA \mid \lambda$

37) $S_0 \to S_1aab \mid aS_1ab \mid aaS_1b \mid aabS_1 \mid S_1aba \mid aS_1ba \mid abS_1a \mid abaS_1 \mid S_1baa \mid bS_1aa \mid baS_1a \mid baaS_1$

$S_1 \to S_0 \mid \lambda$

BC: L_0 = aab, aba, baa all are $N_a u = 2N_b u$

IH: Assume $N_a u = 2N_b u$ for $L(n)$

Prove for $L(n+1)$.

Every recursive case adds two a's for every b. Therefore, from the base case for every b added 2 a's will be added. So, $N_a u = 2N_b u$ for $L(n+1)$.