Problem Sheet 7 to be discussed tomorrow (March 17, 2021) in the class

Construct npda's that accept the following languages on $\Sigma = \{a, b, c\}$.

(a) $L = \{a^n b^{2n} : n \geq 0\}$.

(b) $L = \{wcw^R : w \in \{a, b\}^*\}$.

(c) $L = \{a^n b^m c^{n+m} : n \geq 0, m \geq 0\}$.

(d) $L = \{a^n b^{n+m} c^m : n \geq 0, m \geq 1\}$.

(e) $L = \{a^3 b^n c^n : n \geq 0\}$.

(f) $L = \{a^n b^m : n \leq m \leq 3n\}$.

(g) $L = \{w : n_a(w) = n_b(w) + 1\}$.

(h) $L = \{w : n_a(w) = 2n_b(w)\}$.

(i) $L = \{w : n_a(w) + n_b(w) = n_c(w)\}$.

(j) $L = \{w : 2n_a(w) \leq n_b(w) \leq 3n_c(w)\}$.

(k) $L = \{w : n_a(w) < n_b(w)\}$.

Construct a CFG for the languages listed above.