6.3)

Schritt 1:

$$S \to aAA|BbB$$
$$A \to Bb|Ba|a$$
$$B \to bBC|bAC$$
$$C \to Bb|a$$

Schritt 2:

$$S \to X_aAA|BX_bB$$
$$A \to BX_b|BX_a|a$$
$$B \to X_bBC|X_bAC$$
$$C \to BX_b|a$$
$$X_a \to a$$
$$X_b \to b$$

Schritt 3:

$$S \to X_aA_1|BB_1$$
$$A_1 \to AA$$
$$B_1 \to X_bB$$
$$A \to BX_b|BX_a|a$$
$$B \to X_bB_2|X_bA_2$$
$$B_2 \to BC$$
$$A_2 \to AC$$
$$C \to BX_b|a$$
$$X_a \to a$$
$$X_b \to b$$