**4.1** *Give context-free grammars generating the following sets*

1. The set of palindromes (strings that read the same forward as backward) over alphabet (a,b)
2. The set of all strings of balanced parentheses, i.e.. each left parenthesis has a matching right parenthesis and pairs pf matching parentheses are properly nested.

***4.8*** *Let G be the gramar*

***S-> aB|bA***

***A-> a|aS|bAA***

***B->b|bS|aBB***

1. leftmost derivation.
2. rightmost derivation.
3. Parse tree.