

### Homework 3

① Given the CFG below, give the leftmost and rightmost derivations for  $w$  and draw the syntax tree.

$$b) G = (\{E, T, F\}, \{a, +, *, (, )\},$$

$$\{E \rightarrow E+T \mid T,$$

$$T \rightarrow T*F \mid F,$$

$$F \rightarrow (E) \mid a\}, E)$$

$$w = a*(a+a)$$

② Build the parse tree using the recursive descent parser (last exercise from Seminar 7) for:

$$G = (N, \Sigma, P, S)$$

$$N = \{S, A, B\}, \Sigma = \{a, b\}$$

$$P: S \rightarrow aB \mid bA$$

$$A \rightarrow a \mid aS \mid bAA$$

$$B \rightarrow b \mid bS \mid aBB$$

$$a) w = abba$$

$$b) w = abaabb$$

$$c) w = bb$$