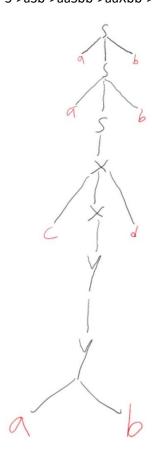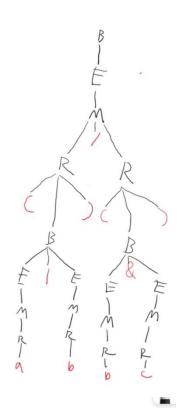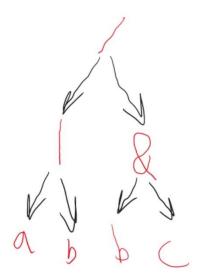1. $a^n c^o a^m b^m d^o b^n$
2. S->aSb->aaSbb->aaXbb->aacXdbb->aacYdbb->aacabdbb

3.
4. S→SS→(S)S→()S→()
   S→S→(S)→()
5. B→B|E | B&E | E
   E→E+M | E-M | M
   M→ M*R | M/R | R
   R→(B) | a | b | c

B
E
M
R   R
(C)   C)
B   B
E   E   &
M   M   E   E
R   R   M   M
a   b   R   R
           b   c

6.

(parse tree with | at top, | and & branches, leaves a b b c)

7.
8. /|ab&bc
9. ab|bc&/