Parsing

Exercise 1:

Consider grammar specified bellow:

1. Remove the left recursion in the following grammar.

2. Why are left recursions bad, and for what type of parser?

```
<sentence> ::= <wordList>.
<wordList> ::= <wordList><word> | <word>
```

Exercise 2:

Extend the grammar from Exercise 1 so it can support questions (sentences ending in a question mark), exclamations (sentences ending in a exclamation mark), complex sentences (parts are divided by a comma), and the notion that the first word of a sentence must begin with a capital letter. Also, any other word in the sentence can begin with a capital letter. Assume that `<capitalWord>` is a word with a capital first letter.

Good will task (not graded): write regular expressions for `<capitalWord>` and `<word>`.

Exercise 3:

Write a grammar for parsing a 6 or 7 digit phone number with country code (i.e. +1 for USA, +47 for Switzerland, +381 for Serbia, +1246 for Barbados. There are no 5 digit country codes) and two digit area code. Assume you have $< digit >$ defined $(0 \mid 1 \mid 2 \mid 3 \mid 4 \mid 5 \mid 6 \mid 7 \mid 8 \mid 9)$. The area code should be preceded by (0). This is used when calling from the same country.
Examples:
+1246 (0) 68 1245783
+381 (0) 64 2521515
+41 (0) 31 5119636
+1 (0) 12 1234567

Comment on the difference between the solution to this task and the similar one done last week.