Zach Baker

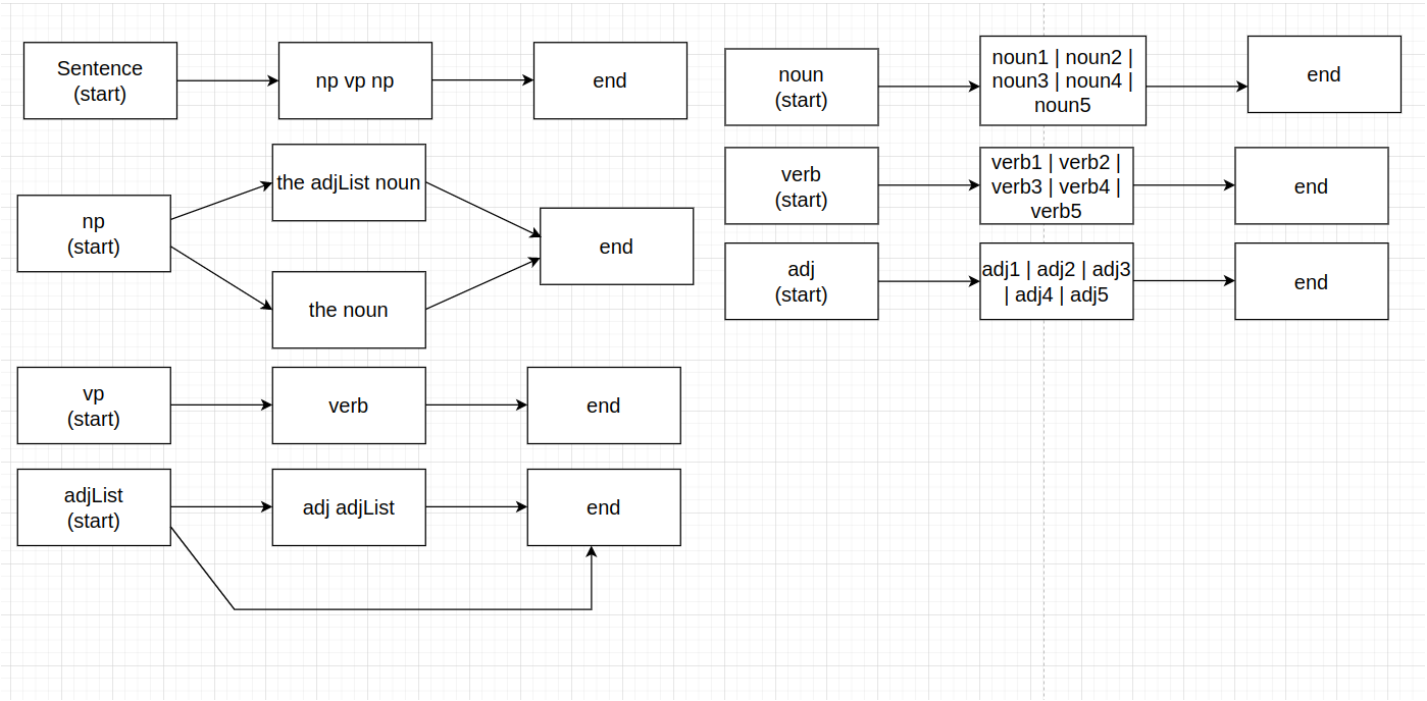
COG 356 GEB ch. 5

1.

1. A recursive definition may seem circular, but when well-formed, never is.
2. Recursion can be modeled using the stack data structure, in which a task can be postponed by pushing it onto a stack, and later retrieved by popping it.
3. Recursion can be used in music, though I may be too musically illiterate to say how.
4. Recursion has potential to be repeated an arbitrary number of times
5. A recursive transition network is used to represent possible transitions between states in the recursion.

2. A recursive transition network is a series of traversable nodes, each of which contains an instruction, which may contain another recursive transition network. They are defined with a base case, as to never be so circular that they have no end. These networks can be used for modeling various phenomena, especially phenomena which may be repeated an arbitrary number of times, such as geometric sequences, natural language, or music. A recursive transition network can be used to model the rules applied in a context-free grammar.

3.



4. I'm sorry but my version of the textbook looks like this

FORMATION RULES: If x and y are well-formed, then the following four strings are also well-formed:

(1) ~x
(2) < x y>
(3) < x y>
(4) < x y>

5. I tried pretty hard to avoid drawing this by hand but ultimately gave up.