

Daniel Petti

Recursion Problem Set

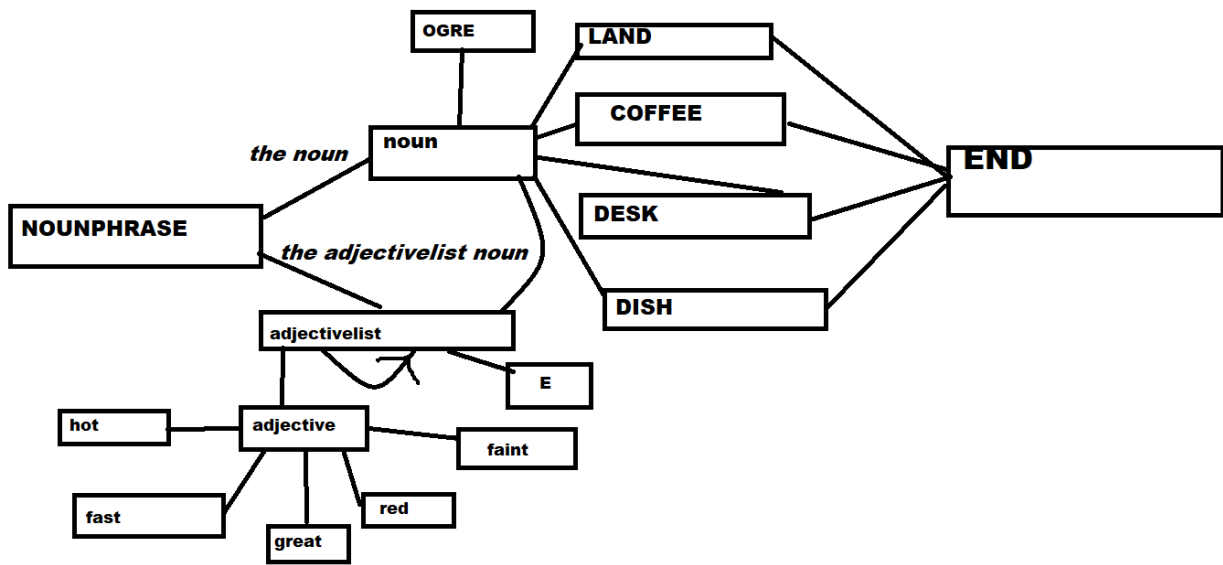
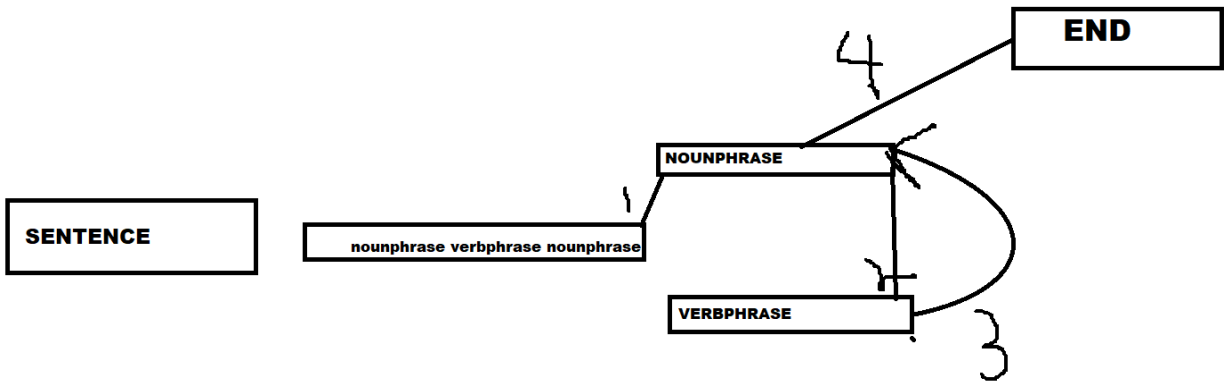
Part 1-

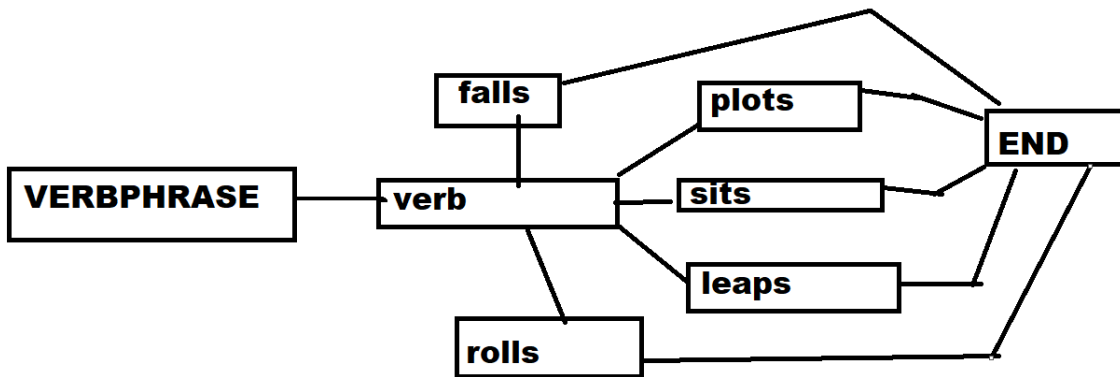
1. Recursion can be said to be ‘nested’ objects, like brackets within brackets, or Russian dolls.
 2. A recursive definition of something is not something that is defined in terms of itself, but rather in terms of simpler versions of itself.
 3. A recursive process can be represented via pushing and popping off of a stack.
 4. Music can be modeled, to some degree, via the stacking model. We keep notes in our head, and push them back further in the stack in the presence of new ones.
 5. It is this recursive nature of keys in one’s head that makes musical pieces like “*Little Harmonic Labyrinth*” so appealing.
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Part 2-

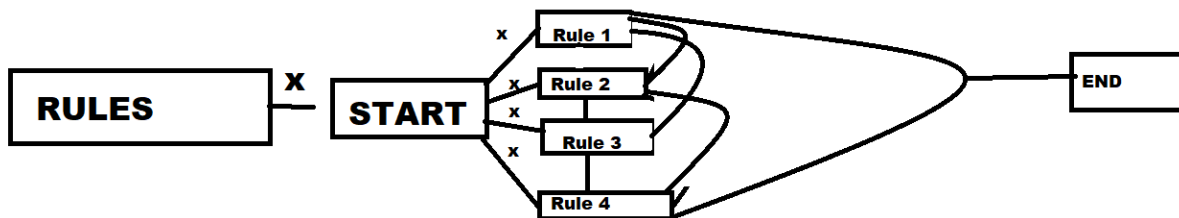
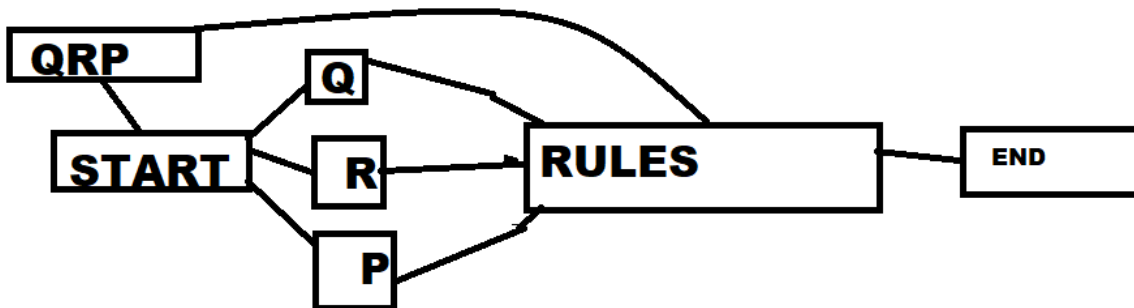
A Recursive Transition Network is a diagram showing the various paths via which one can arrive at a ‘destination’, or goal. Each path consists of nodes, connected via lines. The nodes contain either simple instructions or a reference to another RTN. These networks get more complex the more recursively their paths function, that is, the more the paths point to other nodes in the RTN. They are very similar to context-free grammars, except more visually represented.

Part 3-

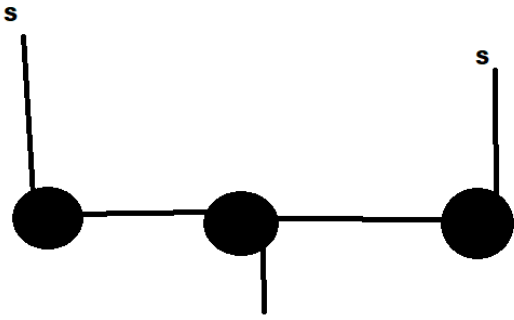




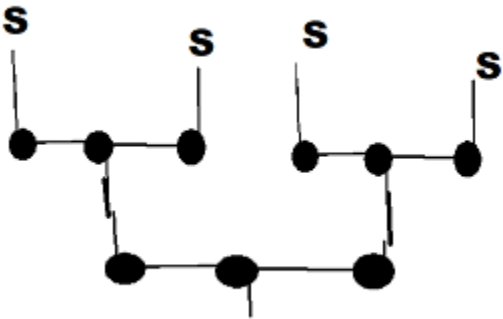
Part 4-



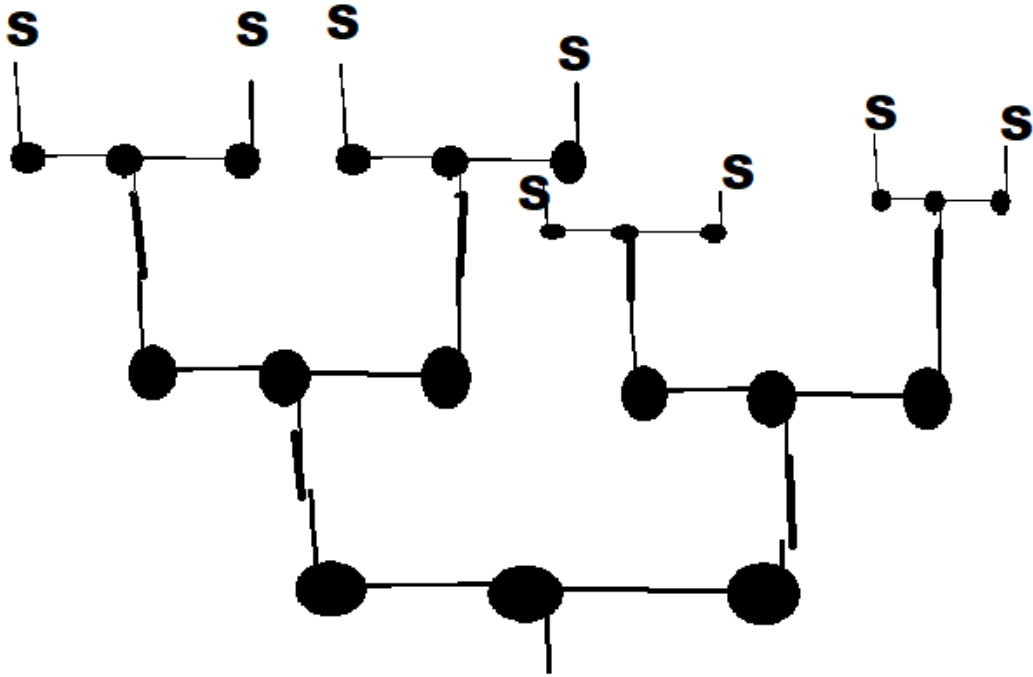
Part 5-



S(0)



S(1)



S(3)