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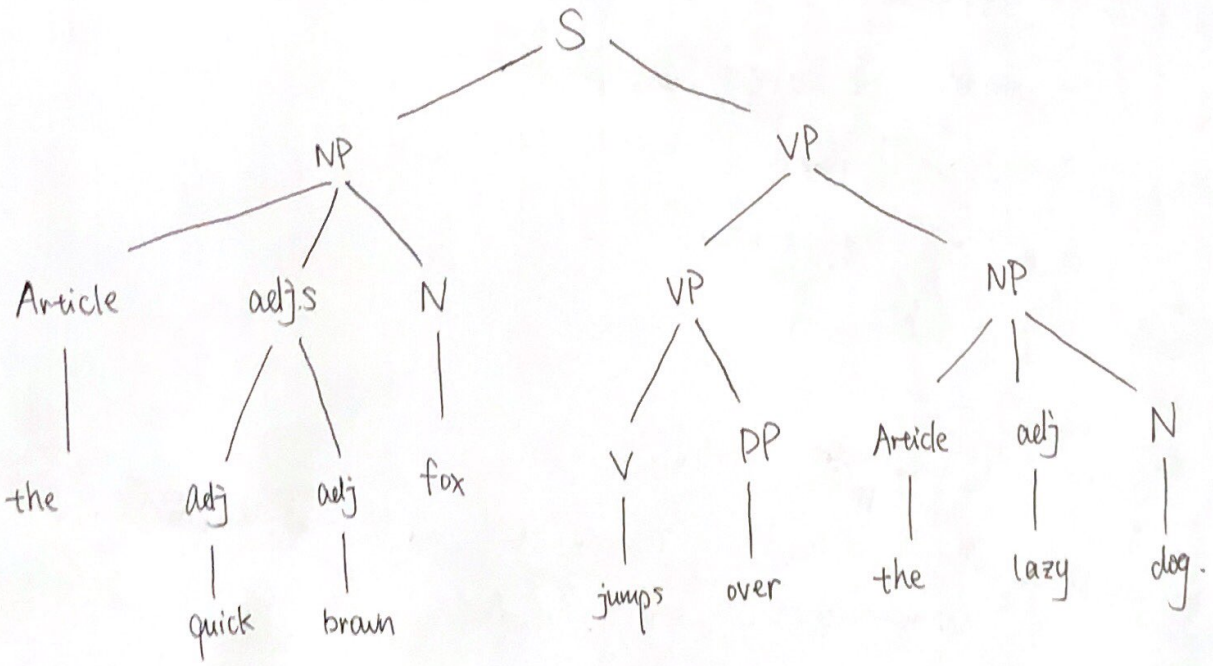
1. "The quick brown fox jumps over the lazy dog."



CFG rules:

S → NP VP
NP → Article adjs N | Article adj N
VP → VP NP | V PP
adjs → adj adj
Article → the
adj → quick | brown | lazy
N → fox | dog
V → jumps
PP → over.

2. a) Assumption to be false means that the words that are used as predictors are not independent. For example, words in category "gaming" may be strongly correlated to "tech".

b) # input nodes: T.
The document (associated with the tokens) is represented in each node.

c) Because RNN "remembers" pass inputs b/c it uses the state of the network as feedback input, so it's not necessary to pad long sentences.

d) - Frequency of every POS after other POS
- Frequency of possible words given POS.

e) Probability of all POS at different hidden states of Recurrent Neural Network.