

FNLP Tutorial 3

Question 1. Constituency Tests

In the following sentences, are the underlined sequences constituents? Support your answer by referring to the constituency tests of substitution, (wh-)movement, coordination and clefting. Apply multiple tests where possible.

1. The lecture that the professor prepared was absolutely brilliant.
2. The lecture that the professor prepared was absolutely brilliant.
3. Students are reading the paper by Alan Turing.
4. I joined the meeting in my office on Tuesday.
5. I joined the meeting in my office on Tuesday.
6. I joined the meeting in my office on George Street.
7. The young man the GPUs.
8. The young man the GPUs.

Question 2. Attachment Ambiguity in Trees

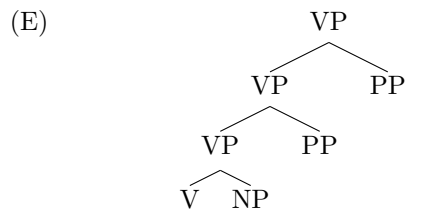
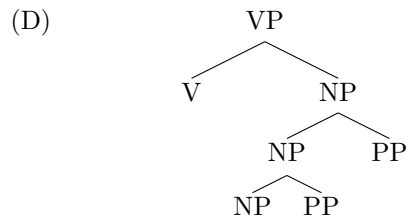
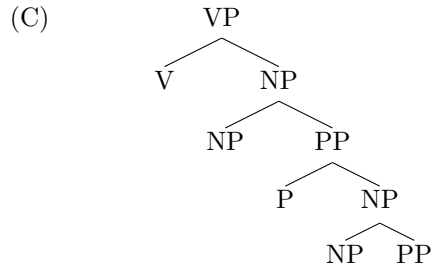
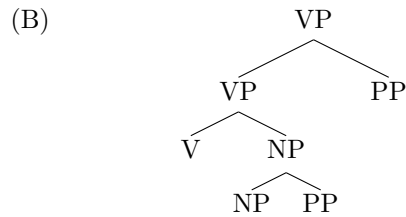
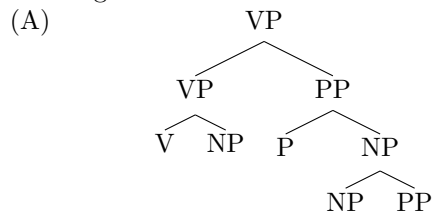
A common source of attachment ambiguity in English comes from prepositional phrases, as you may have already noticed in Question 1. The relevant grammar rules include:

$$\begin{aligned} VP &\rightarrow V NP \\ VP &\rightarrow VP PP \\ NP &\rightarrow NP PP \\ PP &\rightarrow P NP \end{aligned}$$

Here are five verb phrases:

1. read the paper about the Turing test on my laptop
2. read the paper about the success of Transformer
3. read the paper by Alan Turing about the Turing test
4. joined the meeting in the office with the blue door
5. joined the online meeting from my office via Zoom

Pictured below are five partial trees. Match the phrases to the trees which best capture their meanings.



Question 3. Writing a context free grammar

Consider this small corpus of English noun phrases.

1. this book
2. the great green dragon
3. these green leaves
4. the leaves in the hallway

- Write a context-free grammar that generates at least the above noun phrases. Use part-of-speech tags as preterminal symbols, as we did in the lecture.
- Show a derivation tree of a grammatical noun phrase that is not included in the corpus. Does your grammar overgenerate? That is, does it generate sequences that are not grammatical English noun phrases? If so, refine your grammar to fix the issue that you mentioned.