

Tutorial 5: Grammar and Parsing

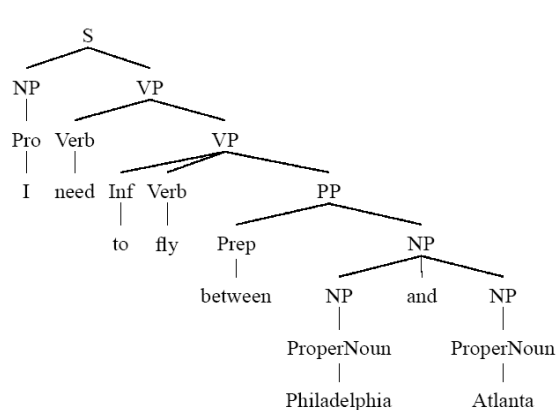
Q1. Consider the L1 grammar used in our lectures.

$S \rightarrow NP VP$	$Nominal \rightarrow Noun$	$NP \rightarrow Verb PP$
$S \rightarrow Aux NP VP$	$Nominal \rightarrow Nominal Noun$	$VP \rightarrow VP PP$
$S \rightarrow VP$	$Nominal \rightarrow Nominal PP$	$PP \rightarrow Preposition NP$
$NP \rightarrow Pronoun$	$VP \rightarrow Verb$	
$NP \rightarrow Proper-Noun$	$VP \rightarrow Verb NP$	
$NP \rightarrow Det Nominal$	$VP \rightarrow Verb NP PP$	

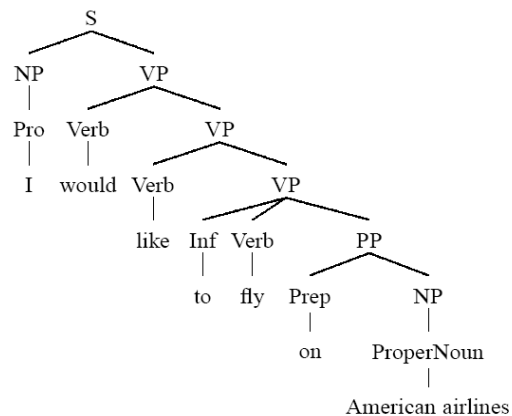
Draw the parse table for the following sentence using the L1 grammar:

Reserve a room at MBS

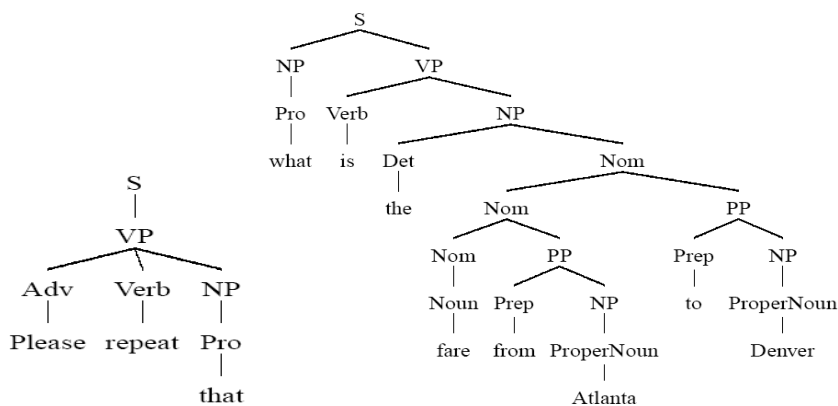
Q2. You are provided with the phrase structures for the following sentences:



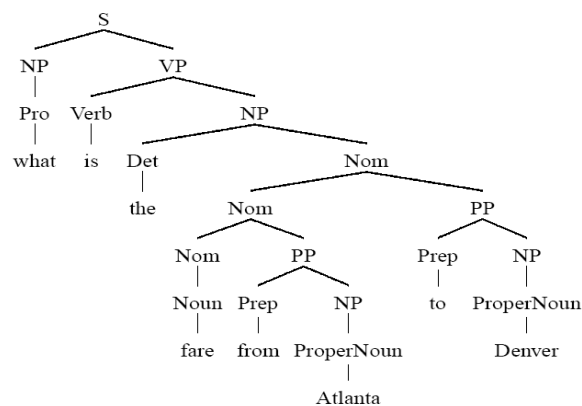
I need to fly between Philadelphia and Atlanta.



I would like to fly on American airlines.



Please repeat that.



What is the fare from Atlanta to Denver?

Revise the L1 grammar Q1 such that the revised grammar can be used to parse the above four sentences.

Q3. Use the following sentences as examples to observe the dependency structures:
<https://demos.explosion.ai/displacy>

- a) Do American airlines have a flight between five a.m. and six a.m.?
- b) I would like to fly on American airlines.
- c) Please repeat that.
- d) I need to fly between Philadelphia and Atlanta.
- e) What is the fare from Atlanta to Denver?

Q4. Draw two dependency structures for the following sentence:
They hid the letter on the wall.

Q5. **Open question:** Try and explore the Rule-based Matcher
<https://demos.explosion.ai/matcher>

Define a pattern and explain why it could be useful for a real-life use case for some text data (e.g., news articles, financial reports, medical reports, product reviews)