Tutorial 5: Grammar and Parsing
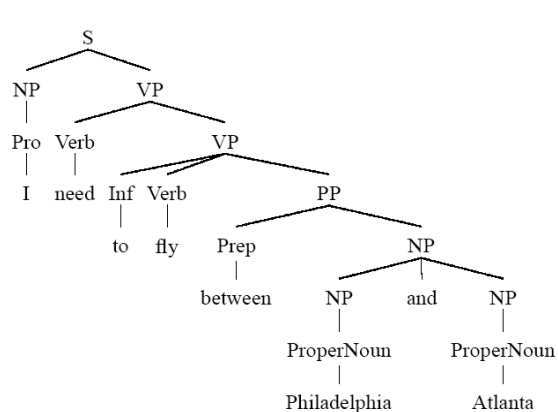
Q1   Consider the L1 grammar used in our lectures.

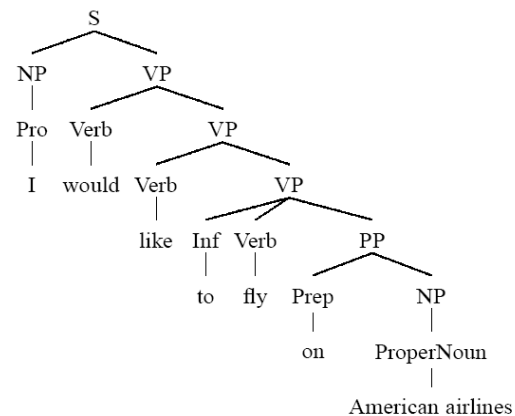|		
S→ NP VP	Nominal → Noun	NP→ Verb PP
S→ Aux NP VP	Nominal → Nominal Noun	VP → VP PP
S→ VP	Nominal → Nominal PP	PP→ Preposition NP
NP→ Pronoun	VP→ Verb	
NP→ Proper-Noun	VP→ Verb NP	
NP→ Det Nominal	VP → Verb NP PP	

Draw the parse table for the following sentence using the L1 grammar:
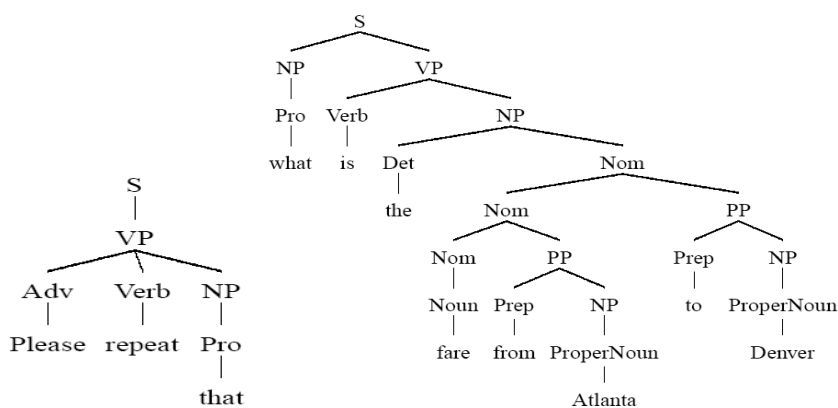
Reserve a room at MBS

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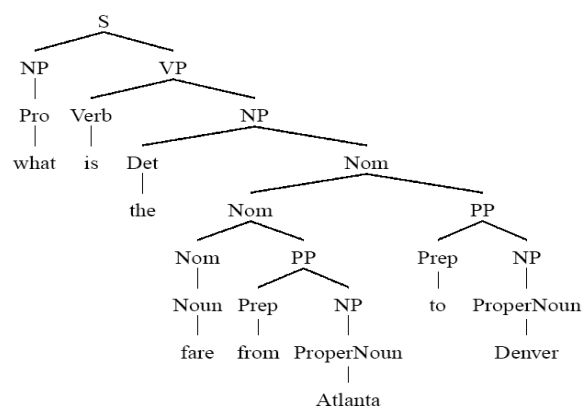

I need to fly between Philadelphia and Atlanta.   I would like to fly on American airlines.

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 example sentences to observe the dependency structures through online tools: https://demos.explosion.ai/displacy You may also use GenAI tools like ChatGPT.

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)