LIN 001: Introduction to Linguistics (Spring 2024)

Week 4 Discussion - Sections A05 and A06

Instructor: Dr. Luna Filipović-Hawkins, TA: Nick Aoki

Agenda

1. **The Plan for Weeks 4-6**
2. Assignment 2 Questions [Part B Only]
3. Key Terms and Concepts Not Covered in Assignment 2
4. Explaining Key Terms and Concepts In More Detail
5. Note About Extra Resources
6. Re-Drawn Trees from Week 4 Lecture
7. Open Floor

The Midterm Exam

- The midterm exam will take place on **Wednesday, May 8th [Week 6]** during the regular class slot (4:40-5:40pm) in Peter A Rock Hall 194.

- If you need accommodations, please contact the instructor as soon as possible.

- The exam has not been finalized yet, but here is what I can tell you right now:

    - Uncurved, worth 30% of your final grade

    - Only covers Weeks 1-4 (introductory concepts, phonetics + phonology, morphology, syntax)

    - Only short-answer questions, not focused on memorization

    - To succeed, you have to understand the concepts we have covered and apply them to new problems. **You will not be able to simply guess your way through the questions.**

The Plan for Weeks 4-6

- Week 4: Finish Up Morphology, Start Syntax

- Week 5: Go Over the Midterm Study Guide, Finish Syntax

- Week 6: Midterm Practice

- **IMPORTANT:** Although we will do some midterm practice during Week 6 discussion, **note that the Week 6 discussion is the same day as the midterm!**

    - This means that during Week 6 discussion, you should be feeling confident, having already studied for the midterm.

Extra Help for the Midterm

- I am working on creating a midterm study guide right now, which I will post on Canvas on May 1st (Wednesday of Week 5).

    - **By May 1st, all of the materials you need to succeed will be on Canvas** (lecture slides, finalized discussion slides, exam charts, midterm study guide). This means that **you have a full week to study for the midterm**.

- I will be offering extra office hours at the start of Week 6 (time TBA).

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1. Housekeeping
2. **Assignment 2 Questions [Part B Only]**
3. Key Terms and Concepts Not Covered in Assignment 2
4. Explaining Key Terms and Concepts In More Detail
5. Note About Extra Resources
6. Re-Drawn Trees from Week 4 Lecture
7. Open Floor

Materials Needed for Today

- Week 4 Lecture Slides (Syntax)

- Phrase-Structure Rule Sheet (see “Exam Charts” on Canvas)

- Homework (Assignment 2, Part B)

Agenda

2. Assignment 2 Questions [Part B Only]

- Brief Syntax Review

- How to Draw Phrase Structure Trees [Q4]

- Syntactic Ambiguity [Q5]

- Cross-Linguistic Data and Differences [Q1, Q3, Q7]

- Constructions [Q8]

- Note that there is no Question 2.

- I will provide a YouTube video walkthrough for Q6.

Constituents

- Intuitively, we know that sentences can be grouped into meaningful units:
    - ex. A small child played in the park.
    - There are 2 main parts of this sentence: (1) the subject (“a small child”); (2) the action performed by the subject (“played in the park”).
- constituent: a word or group of words that act as a unit
    - ex. “a small child” and “played in the park” are both constituents

Heads, Dependents, Phrases

- head: word that determines the lexical category of a constituent
    - “a small child” is a noun => “child” is the head
    - “played in the park” is a verb => “played” is the head
- dependent: any word within a constituent that is not a head
    - “a small child” => “a”, “small” are dependents
    - “played in the park” => “in”, “the”, “park” are dependents
- phrases are defined by their heads
    - “a small child” = noun phrase
    - “played in the park” = verb phrase

Some Examples of Different Types of Phrases

- Examples of phrases, with the heads in bold and underlined:
  - noun phrase: “a small **child**”
  - verb phrase: “**played** in the park”
  - adjective phrase: “very **happy**”
  - prepositional phrase: “**in** the park”
  - complementizer phrase: “**that** John likes”

Phrase-Structure Rules

- We cannot place words in a random order. For example, in many English declarative sentences, the noun phrase has to come before the verb phrase:

    - Grammatical = “A small child played in the park”

    - Ungrammatical = “Played in the park a small child”

- We can represent this idea in English syntax with a rule:

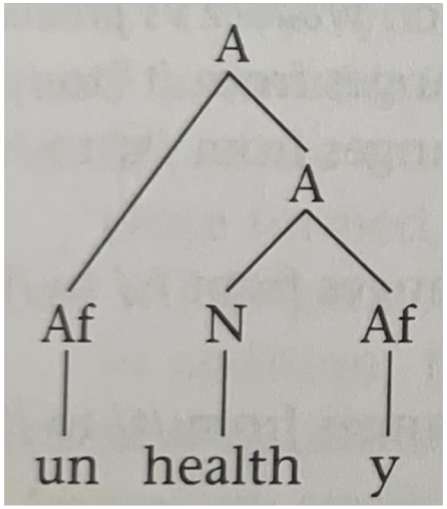
    - Full Version: Sentence -> Noun Phrase Verb Phrase

    - Abbreviated: S -> NP VP

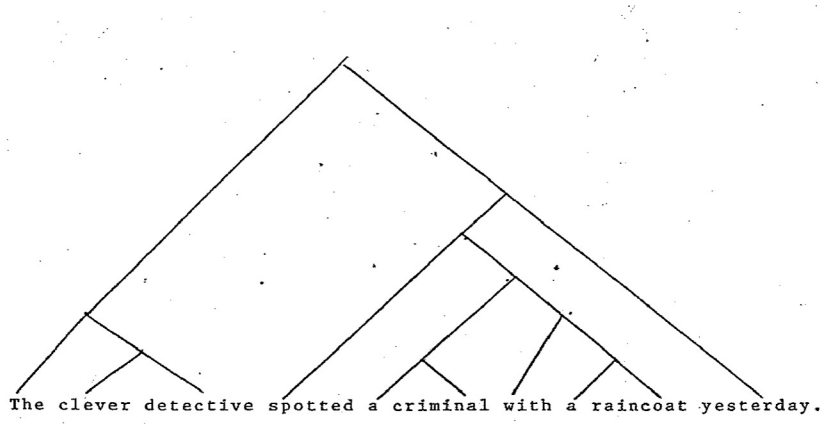
Phrase-Structure Trees

- Last Week: Morphology trees illustrate how we combine *morphemes to form words*.

- Phrase-structure trees illustrate how we combine *words to form sentences*.



Morphology Tree



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How to Draw Phrase Structure Trees [Q4]

- Understanding the Phrase-Structure Rule Chart

- Step-by-Step Walkthrough of a Simple Example (“The student eats cheese”)

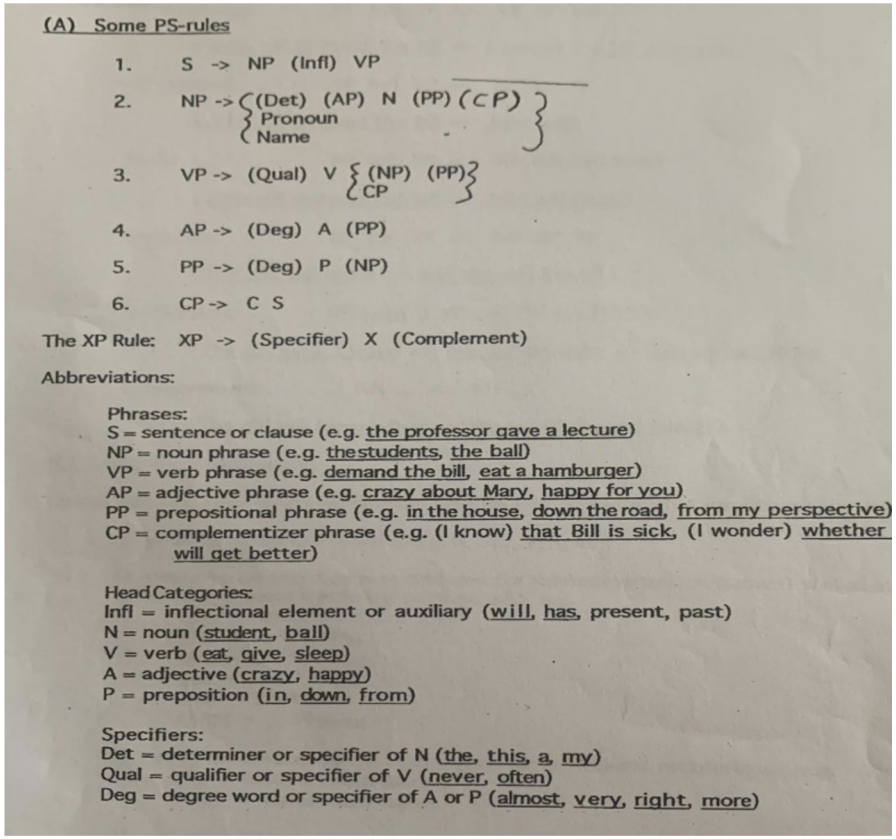
- Step-by-Step Walkthrough of Question 4.4 (“The rich lady gave a very large donation to the charity of her choice”)

- Check Your Understanding: Questions 4.5 and 4.6

Understanding the Phrase-Structure Rule Chart

- On both exams, you will be given the chart on the right to help you draw phrase-structure trees.

- However, in order for the chart to be useful, you need to understand how it works - let's break it down step-by-step.



(A) Some PS-rules

1. S -> NP (Infl) VP
2. NP -> { (Det) (AP) N (PP) (CP) / Pronoun / Name }
3. VP -> (Qual) V { (NP) (PP) / CP }
4. AP -> (Deg) A (PP)
5. PP -> (Deg) P (NP)
6. CP -> C S

The XP Rule: XP -> (Specifier) X (Complement)

Abbreviations:

Phrases:
S = sentence or clause (e.g. the professor gave a lecture)
NP = noun phrase (e.g. the students, the ball)
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Specifiers:
Det = determiner or specifier of N (the, this, a, my)
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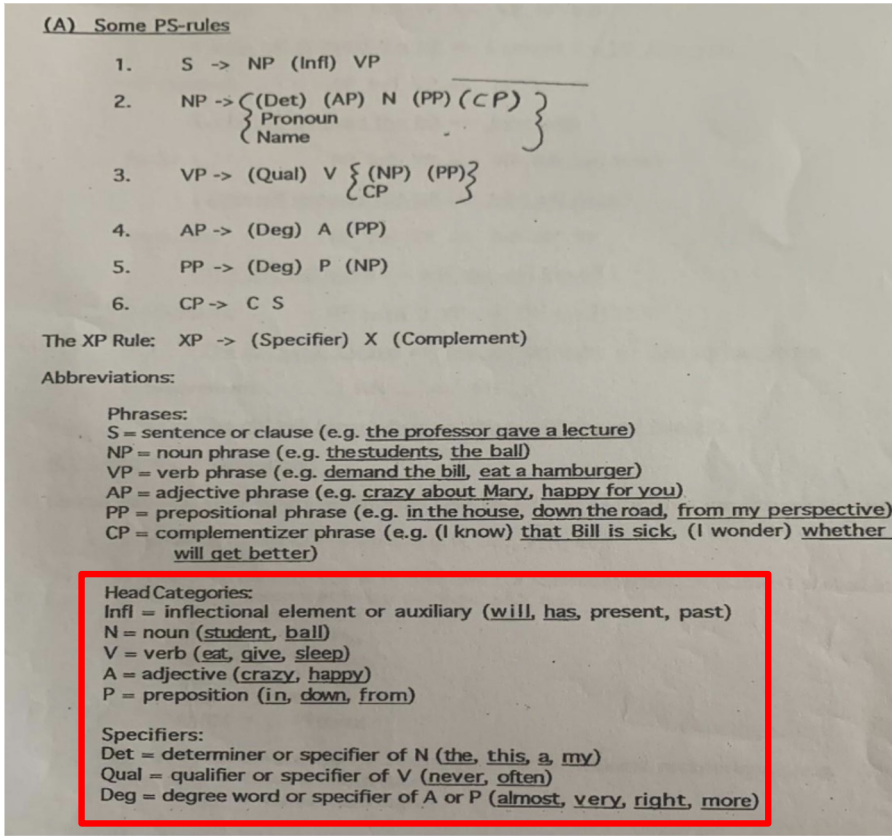
The Phrase-Structure Rule Chart: Categories

- We know that words can be placed into lexical categories.

- You've probably heard of some of the categories in the chart (noun, verb, adjective, preposition)...

- …but others might be new to you ("Infl", "Det", "Qual", Deg")

- Note: Don't worry about "specifiers".



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The Phrase-Structure Rule Chart: Categories

- Infl: “inflectional element or auxiliary”

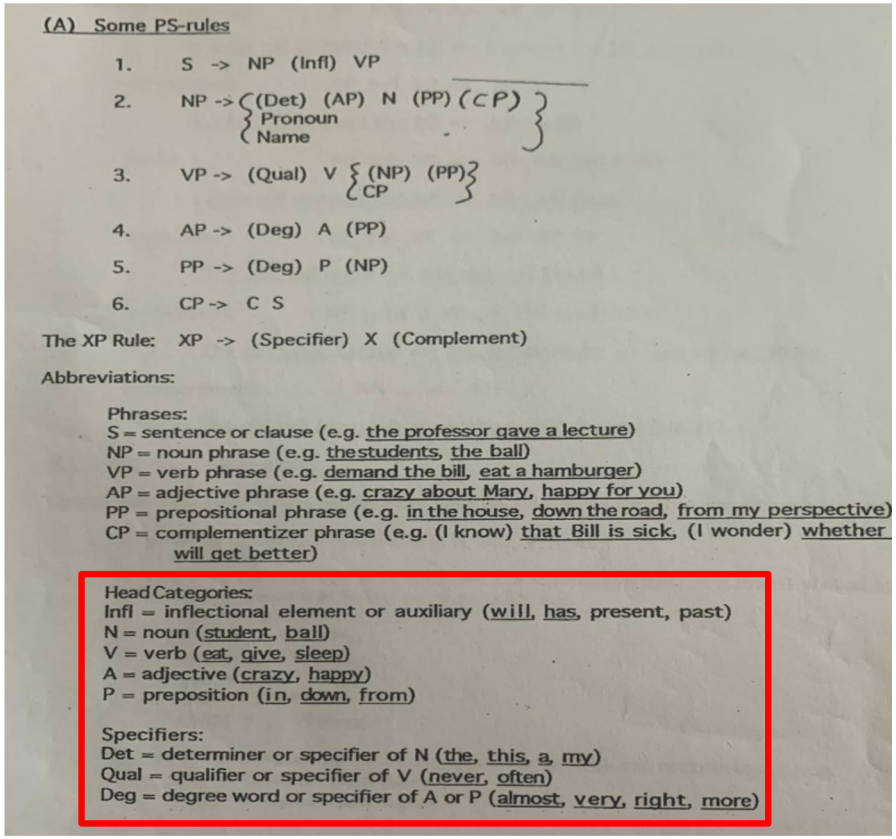
- In English, we sometimes place words between the subject and the verb phrase:

  - The gardener will water the plants.

  - Many hungry students have eaten my soup.

  - They should eat their vegetables.

- Sample members of the “Infl” category: will, have, should...



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The Phrase-Structure Rule Chart: Categories

- Det: “determiner”

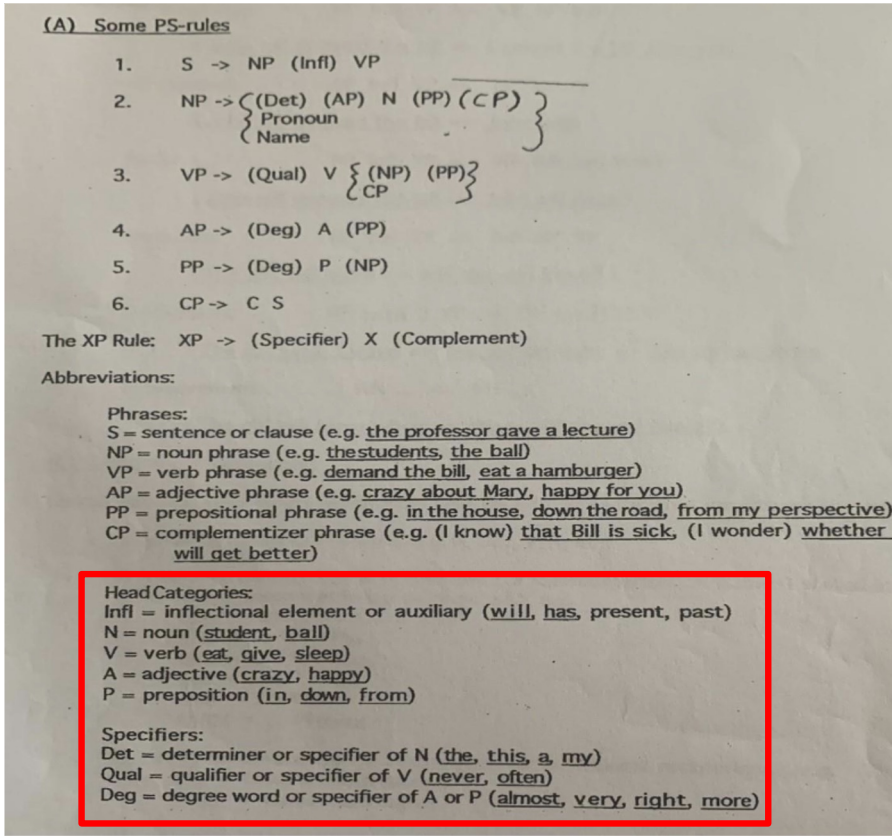
- In general, special words placed at the beginning of noun phrases:

  - the gardener

  - many hungry students

  - a very hungry boy

- Sample members of the “Det” category: the, many, a...



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The Phrase-Structure Rule Chart: Categories

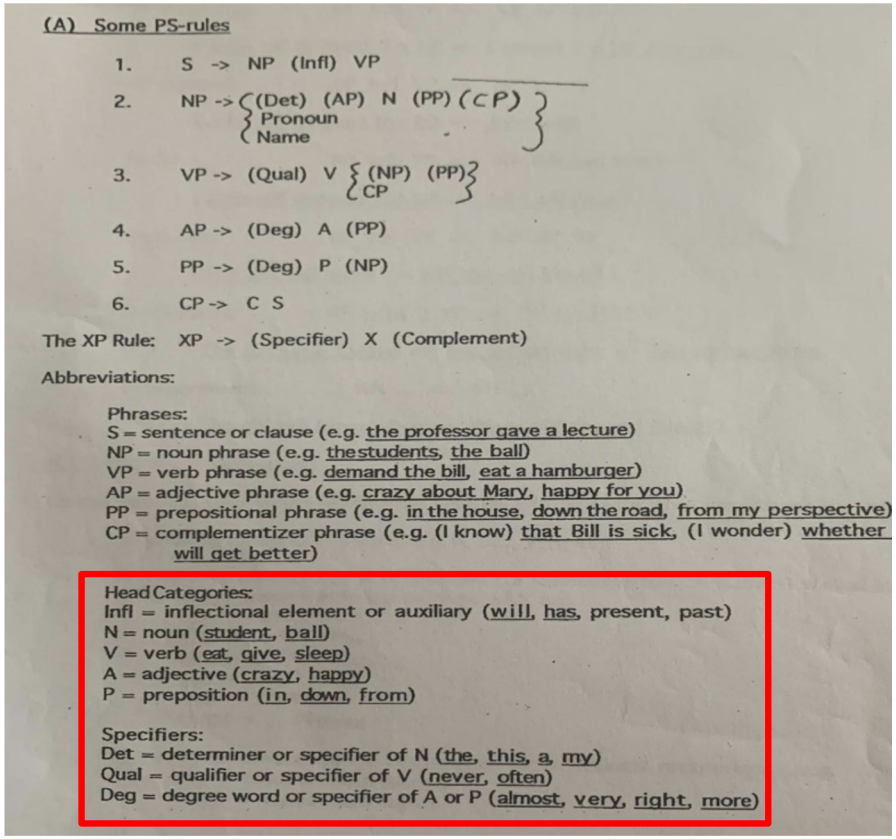
- Qual: “qualifier of the verb”

- A fancy way of saying adverbs:

  - She never waters the plants.

  - She slowly eats the broccoli.

- Sample members of the “Qual” category: never, slowly...



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The Phrase-Structure Rule Chart: Categories

- Deg: “degree word”

- Descriptors of adjectives or prepositional phrases (typically occur at the beginning of phrases):

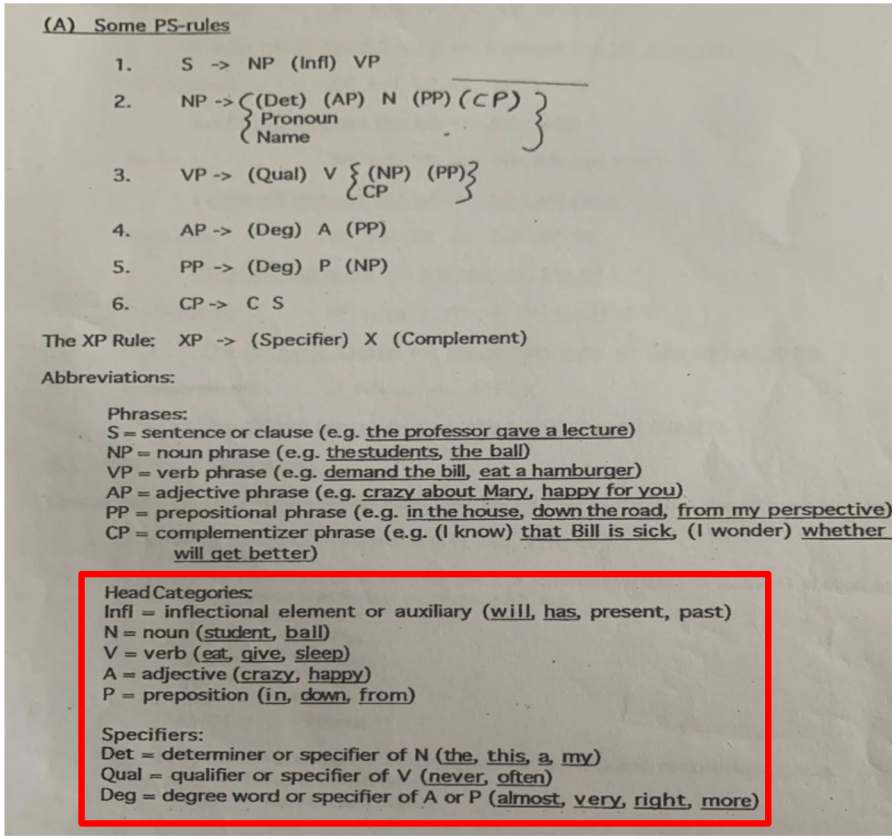
    - In an adjective phrase:

        - very happy

    - In a prepositional phrase:

        - right down the road

- Sample members of the “Deg” category: very, right...



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The Phrase-Structure Rule Chart: Categories

- There is actually a head category that is missing from the chart: C.

- C: “complementizer”

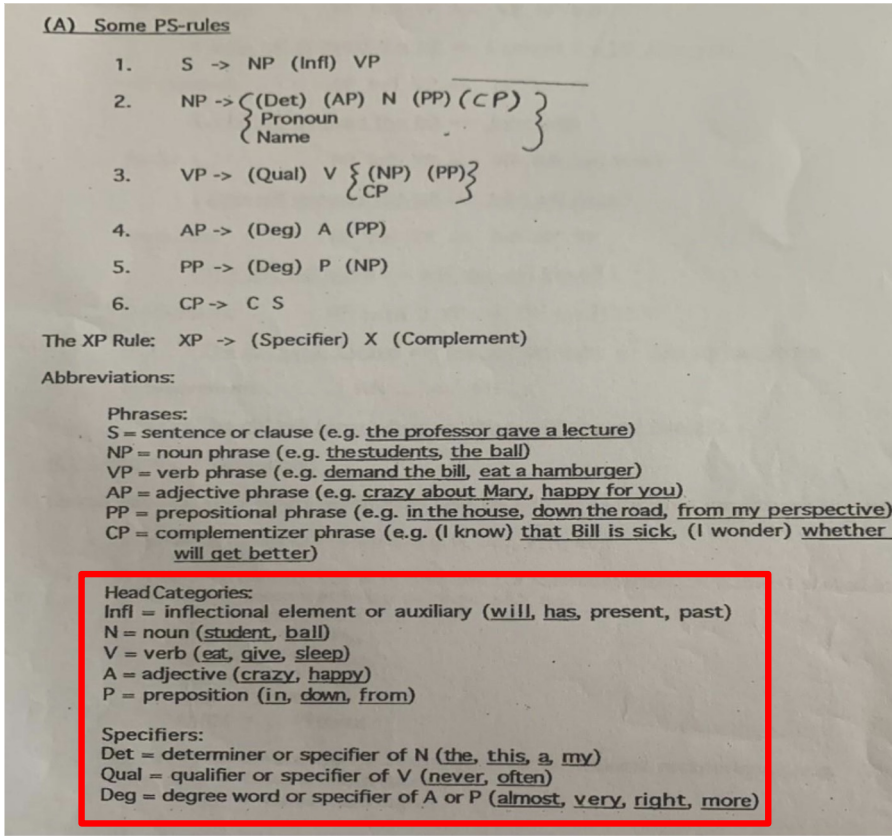
- Special words that introduce another clause or sentence:

  - I think that we should eat apples.

  - I will sit if I eat an apple.

  - I wonder whether he will eat beef.

- Sample members of the “C” category: that, if, whether...



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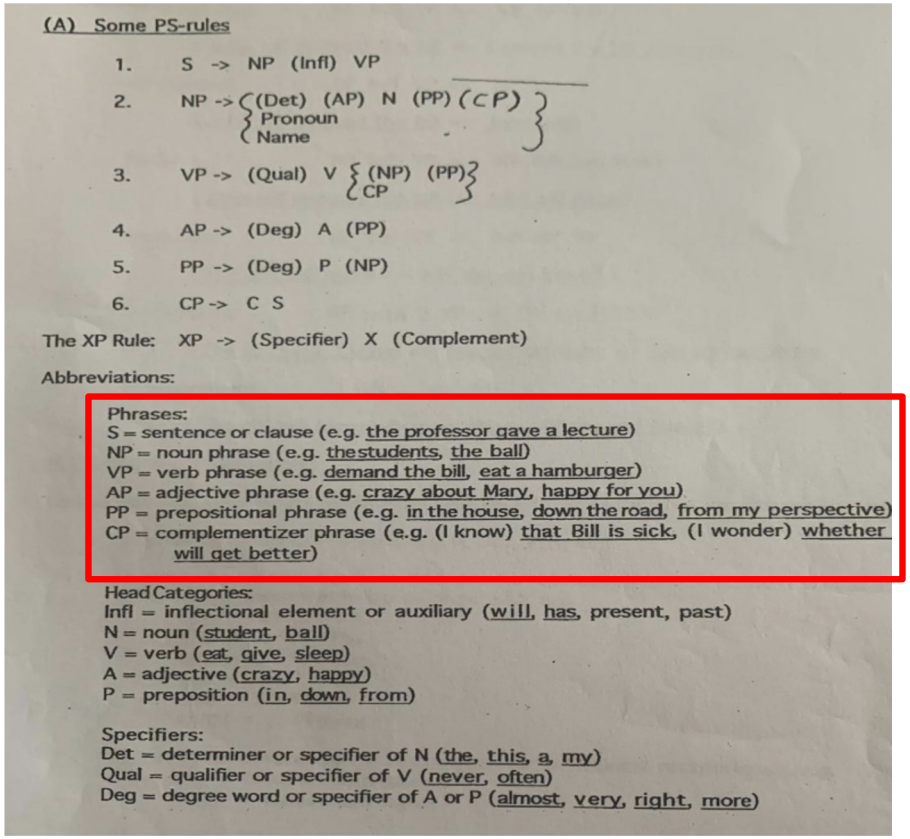
The Phrase-Structure Rule Chart: Phrases

- The next portion of the chart involves the phrases:

  - Abbreviated with 2 letters, XP, where “X” indicates the phrasal head.

  - ex. NP is a “noun phrase” because the head is a noun (N).

  - The only exception to this abbreviation system is S (refers to the entire sentence or clause).



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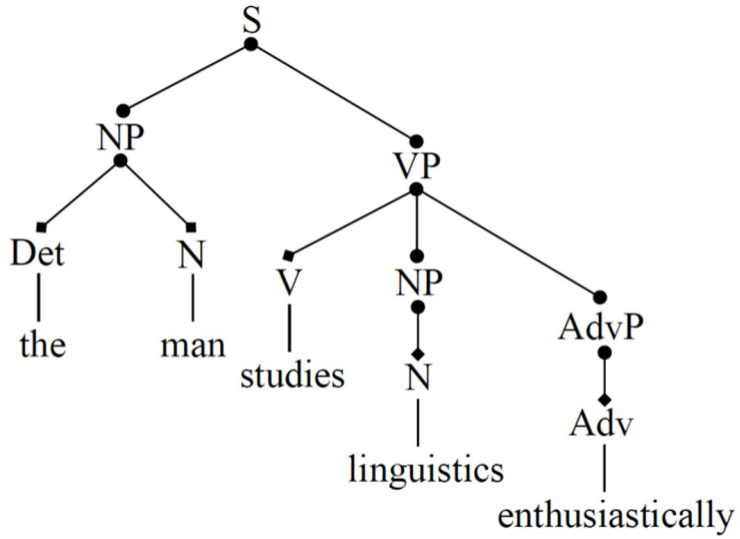
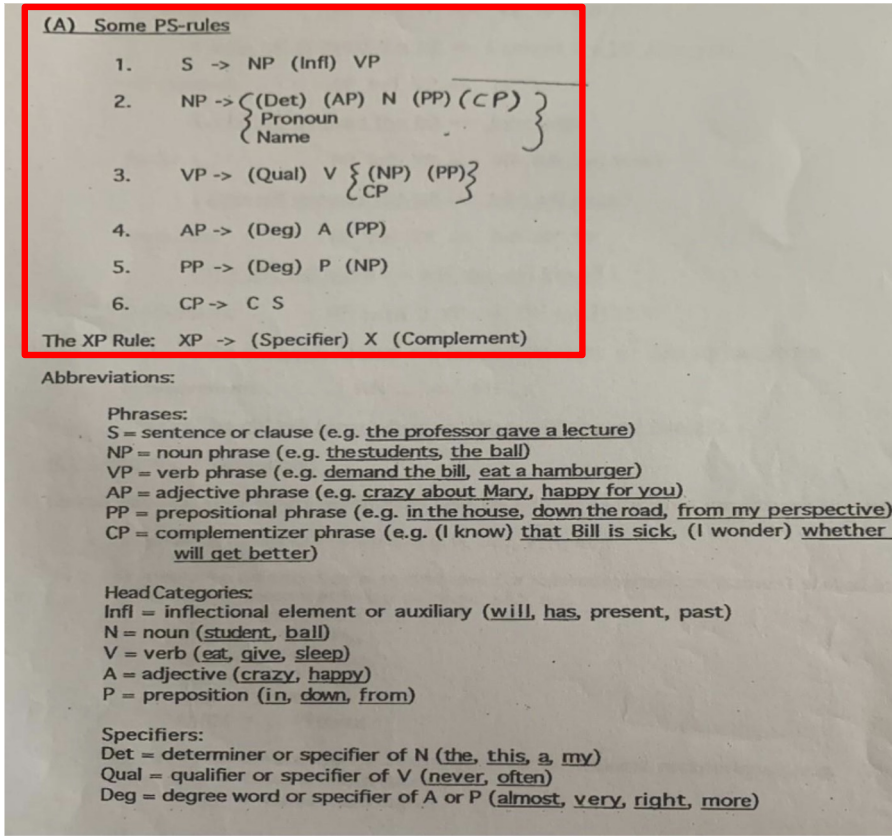
The Phrase-Structure Rule Chart: Rules

- Before explaining the rules, we need to talk about *nodes* first:



Each black dot in the tree above is a *node*.



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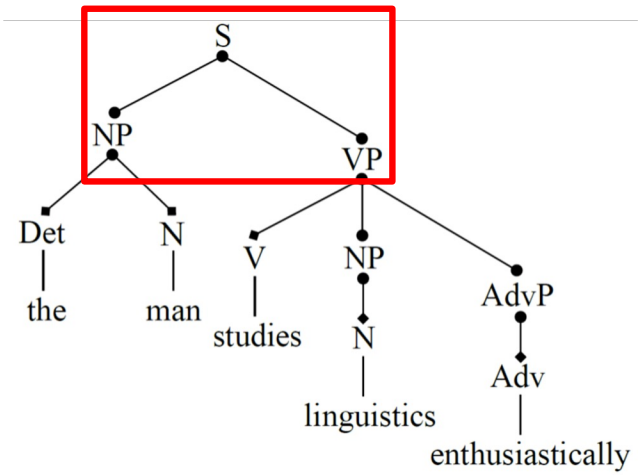
The Phrase-Structure Rule Chart: Rules

- Each rule indicates a particular node that branches off into “daughter nodes”.

  - ex. When we have a node S that branches off into NP and VP, we use Rule 1 (S -> NP VP)



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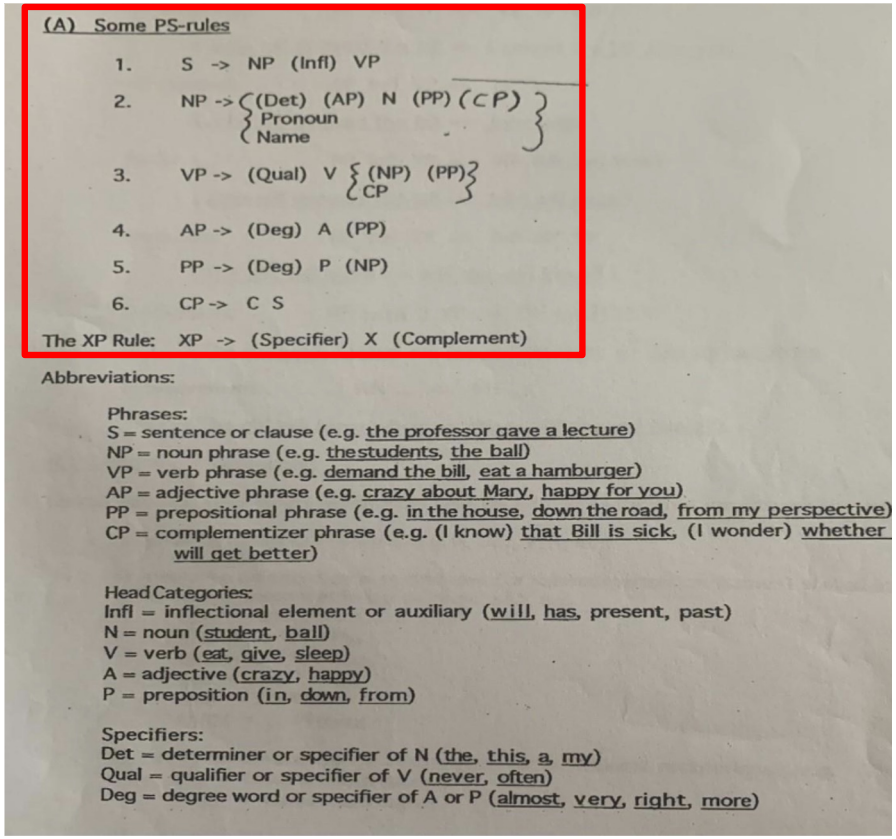
The Phrase-Structure Rule Chart: Rules

- Note that in the rules, some elements on the right are in parentheses and others are not; ex. Rule 1: S -> NP (Infl) VP

  - The elements without parentheses are always daughter nodes.

  - The elements in parentheses may be daughter nodes, depending on the sentence.

  - ex. According to Rule 1, S always branches off into NP and VP. However, if there happens to be an Infl element, then we add a third Infl daughter node.



(A) Some PS-rules

1. S -> NP (Infl) VP
2. NP -> { (Det) (AP) N (PP) (CP) / Pronoun / Name }
3. VP -> (Qual) V { (NP) (PP) / CP }
4. AP -> (Deg) A (PP)
5. PP -> (Deg) P (NP)
6. CP -> C S

The XP Rule: XP -> (Specifier) X (Complement)

Abbreviations:

Phrases:
S = sentence or clause (e.g. the professor gave a lecture)
NP = noun phrase (e.g. the students, the ball)
VP = verb phrase (e.g. demand the bill, eat a hamburger)
AP = adjective phrase (e.g. crazy about Mary, happy for you)
PP = prepositional phrase (e.g. in the house, down the road, from my perspective)
CP = complementizer phrase (e.g. (I know) that Bill is sick, (I wonder) whether will get better)

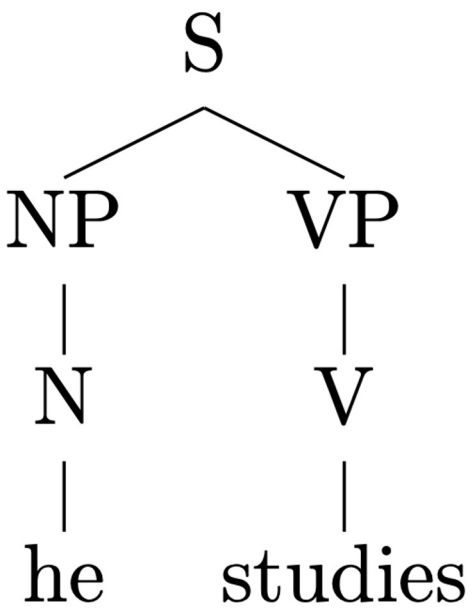
Head Categories:
Infl = inflectional element or auxiliary (will, has, present, past)
N = noun (student, ball)
V = verb (eat, give, sleep)
A = adjective (crazy, happy)
P = preposition (in, down, from)

Specifiers:
Det = determiner or specifier of N (the, this, a, my)
Qual = qualifier or specifier of V (never, often)
Deg = degree word or specifier of A or P (almost, very, right, more)

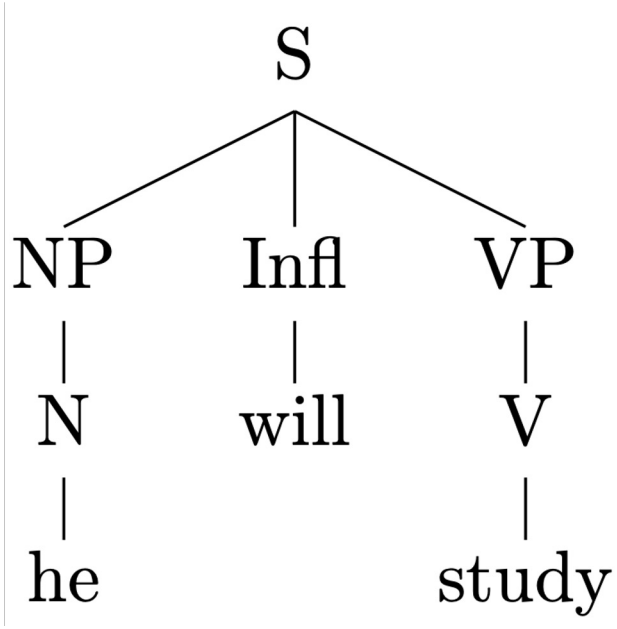
Rule 1: S-> NP (Infl) VP

- According to Rule 1, S always branches off into NP and VP. However, if there happens to be an Infl element, then we add a third Infl daughter node.

He studies.

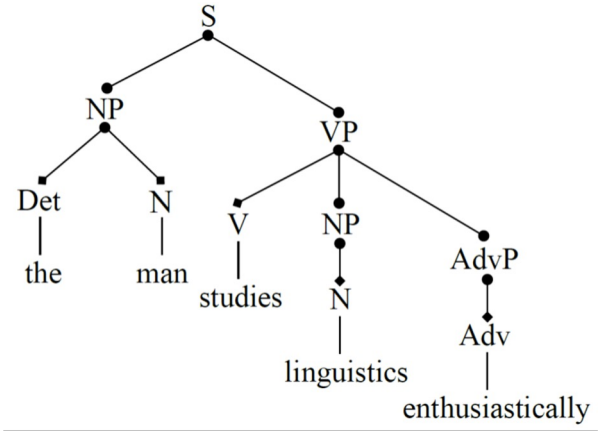


He will study.



The Phrase-Structure Rule Chart: Rules

- Some additional points to keep in mind:
  - Don't worry about the "XP Rule".
  - If you have a correct tree, then the words should be positioned so that you can read the sentence from left to right.



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Head Categories:
Infl = inflectional element or auxiliary (will, has, present, past)
N = noun (student, ball)
V = verb (eat, give, sleep)
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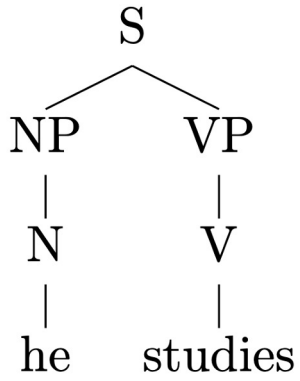
Specifiers:
Det = determiner or specifier of N (the, this, a, my)
Qual = qualifier or specifier of V (never, often)
Deg = degree word or specifier of A or P (almost, very, right, more)

The Phrase-Structure Rule Chart: Rules

- Some additional points to keep in mind:

  - Each branch should end with a category, not a phrase.

  - Even if a phrase only has one element, you still have to draw a single branch to end with a category.



(A) Some PS-rules

1. S -> NP (Infl) VP
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The XP Rule: XP -> (Specifier) X (Complement)

Abbreviations:

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Agenda

How to Draw Phrase Structure Trees [Q4]

- Understanding the Phrase-Structure Rule Chart

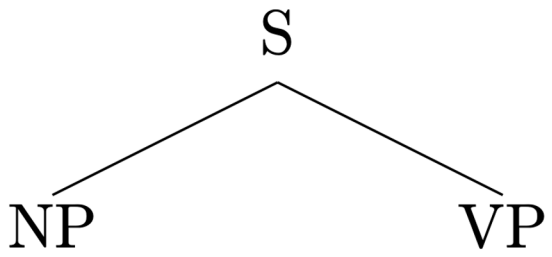
- Step-by-Step Walkthrough of a Simple Example ("The student eats cheese")

- Step-by-Step Walkthrough of Question 4.4 ("The rich lady gave a very large donation to the charity of her choice")

- Check Your Understanding: Questions 4.5 and 4.6

Step-by-Step Walkthrough for a Simple Example

Sentence: The student eats cheese.

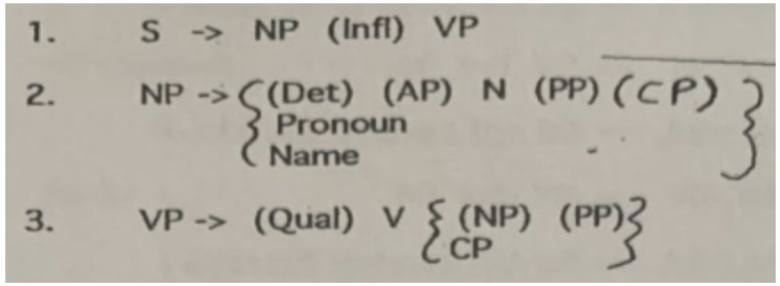


- Step 1: We always start with PS (Phrase Structure) Rule 1.

- PS1: S -> NP (Infl) VP

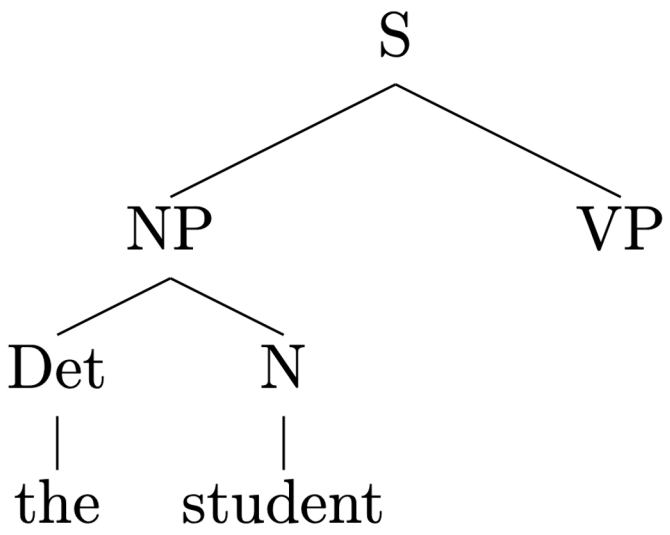
NP: the student

VP: eats cheese



Step-by-Step Walkthrough for a Simple Example

Sentence: The student eats cheese.

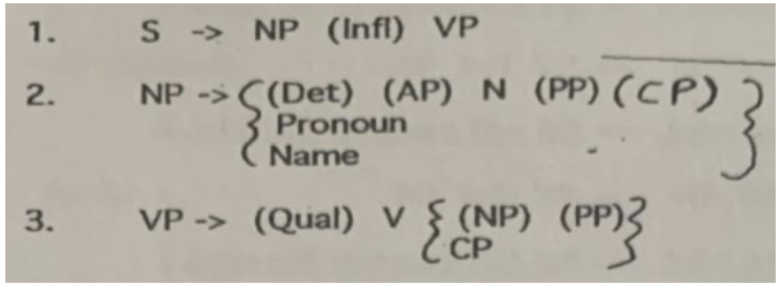


- Step 2: Use Rule 2 to break down the NP (“the student”).

- PS2: NP -> (Det) (AP) N (PP) (CP)

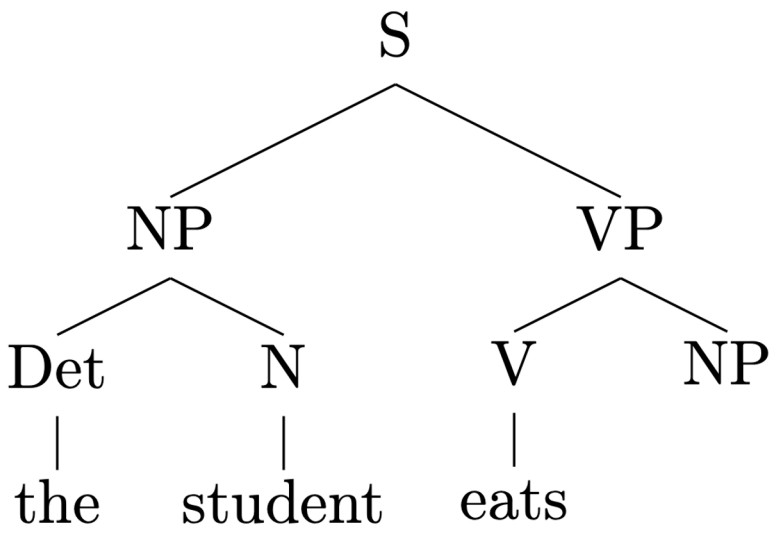
Det: the

N: student



Step-by-Step Walkthrough for a Simple Example

Sentence: The student eats cheese.

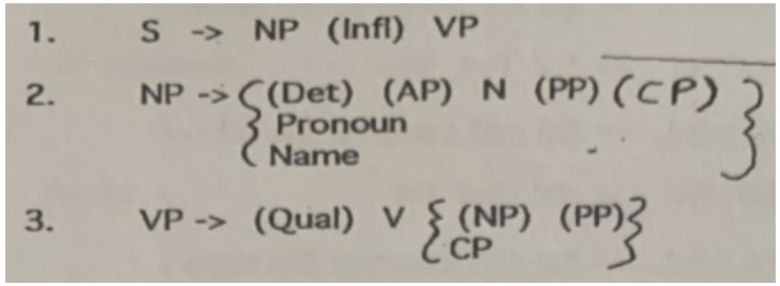


- Step 3: Use Rule 3 to break down the VP ("eats cheese").

- PS3: VP -> (Qual) V (CP) (NP) (PP)

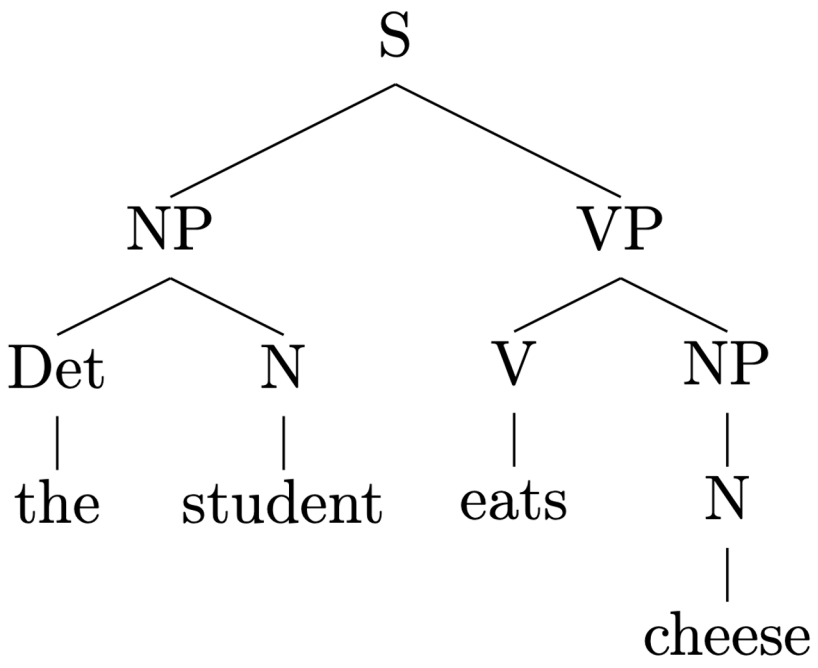
V: eats

NP: cheese



Step-by-Step Walkthrough for a Simple Example

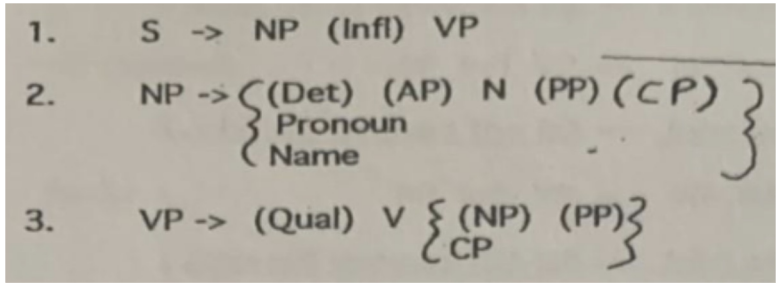
Sentence: The student eats cheese.



- Step 4: Use Rule 2 to break down the NP (“cheese”).

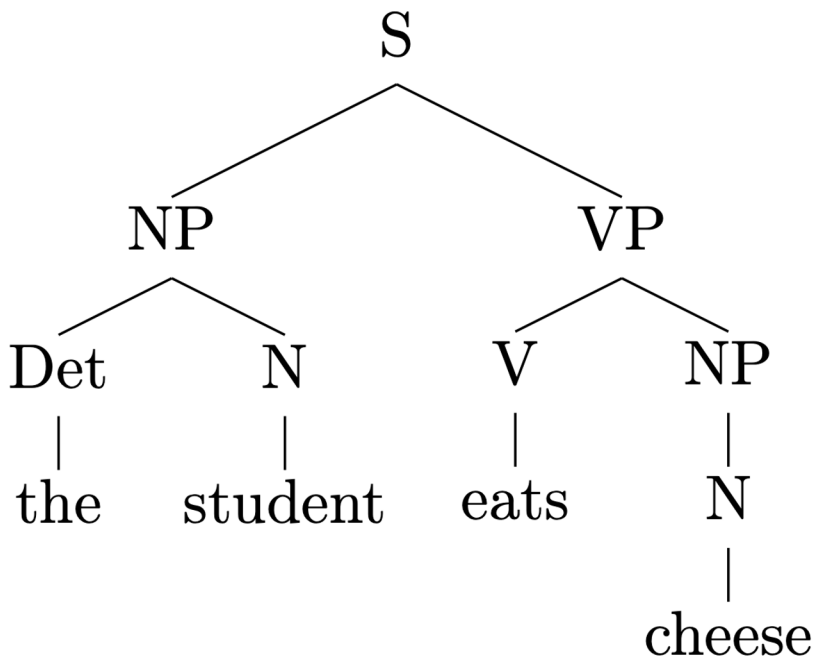
- PS2: NP -> (Det) (AP) N (PP) (CP)

N: cheese



The Final Solution for a Simple Example

Sentence: The student eats cheese.



Agenda

How to Draw Phrase Structure Trees [Q4]

- Understanding the Phrase-Structure Rule Chart

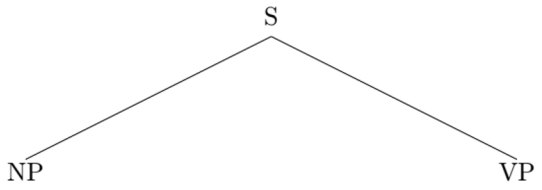
- Step-by-Step Walkthrough of a Simple Example (“The student eats cheese”)

- Step-by-Step Walkthrough of Question 4.4 (“The rich lady gave a very large donation to the charity of her choice”)

- Check Your Understanding: Questions 4.5 and 4.6

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 1: We always start with PS (Phrase Structure) Rule 1.

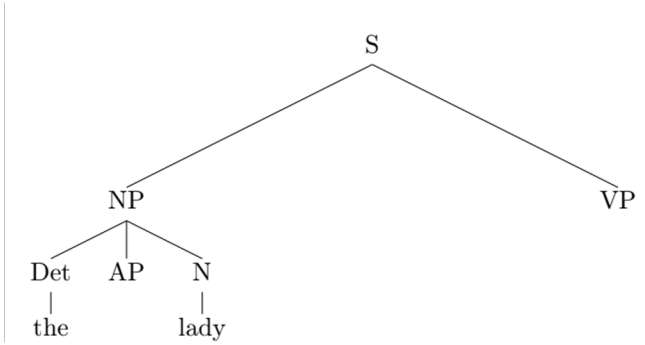
- PS1: S -> NP (Infl) VP

NP: the rich lady

VP: gave a very large donation to the charity of her choice

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 2: Draw the NP structure for the subject ("the rich lady").

- PS2: NP -> (Det) (AP) N (PP) (CP)

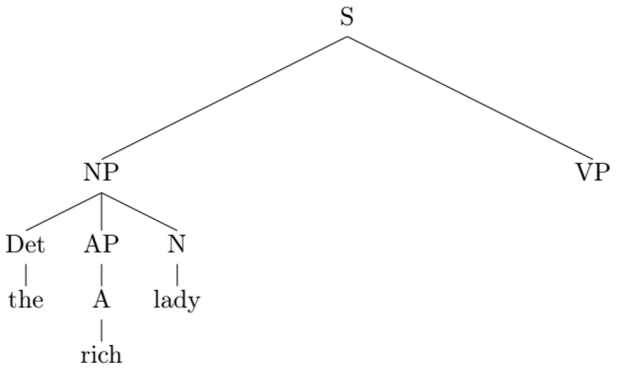
Det: the

AP: rich

N: lady

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



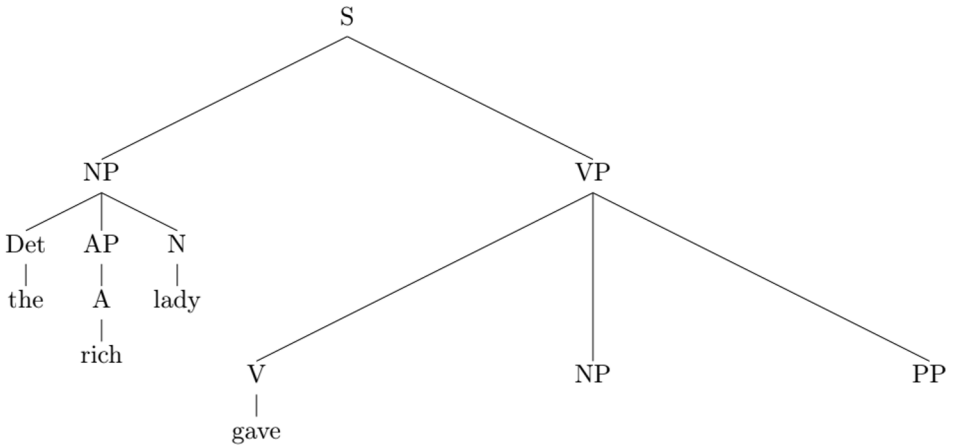
- Step 3: Draw the AP structure within the NP subject ("rich").

- PS4: AP -> (Deg) A (PP)

A: rich

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 4: Draw the VP structure for the predicate ("gave a very large donation to the charity of her choice").

- PS3: VP -> (Qual) V (CP) (NP) (PP)

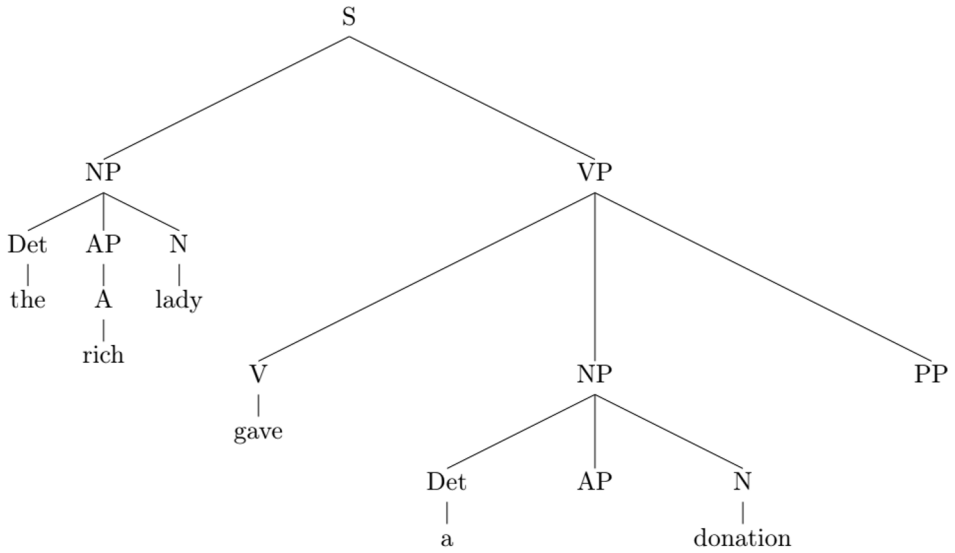
V: gave

NP: a very large donation

PP: to the charity of her choice

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 5: Draw the NP structure within the VP predicate ("a very large donation").

- PS2: NP -> (Det) (AP) N (PP) (CP)

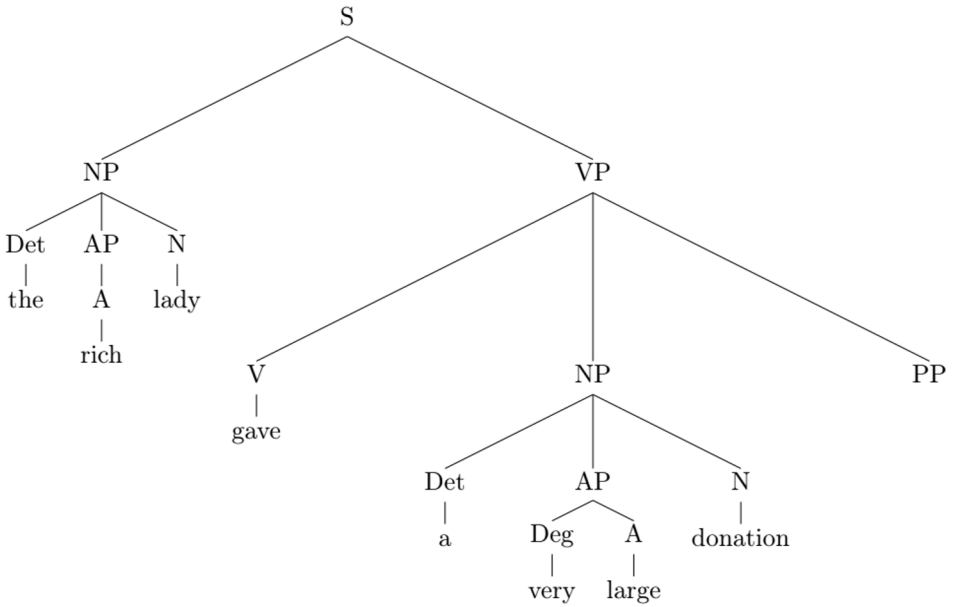
Det: a

AP: very large

N: donation

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 6: Draw the AP structure within the NP ("very large").

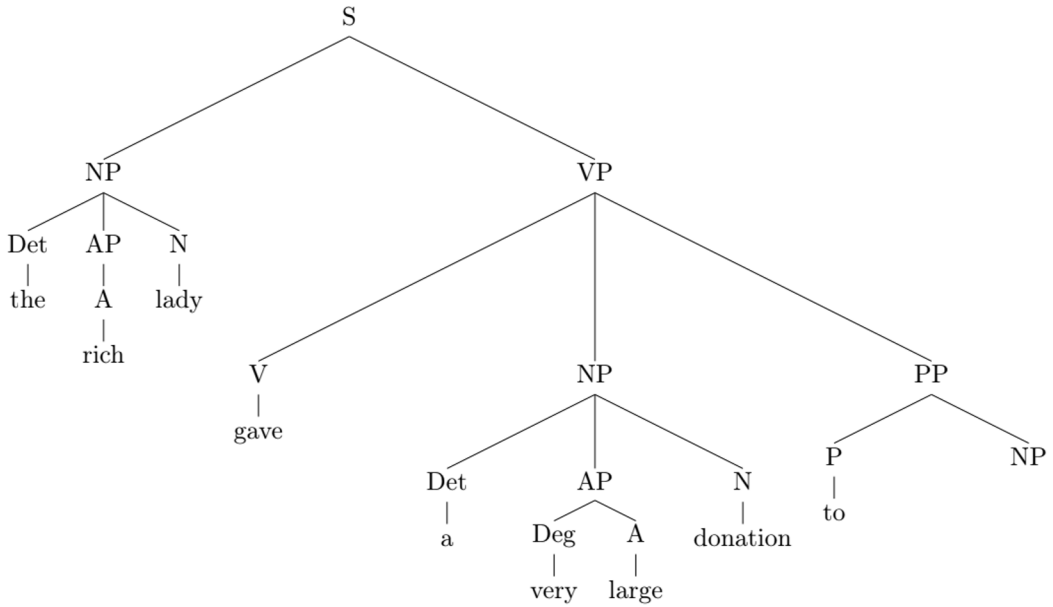
- PS4: AP -> (Deg) A (PP)

Deg: very

A: large

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 7: Draw the PP structure within the VP predicate ("to the charity of her choice").

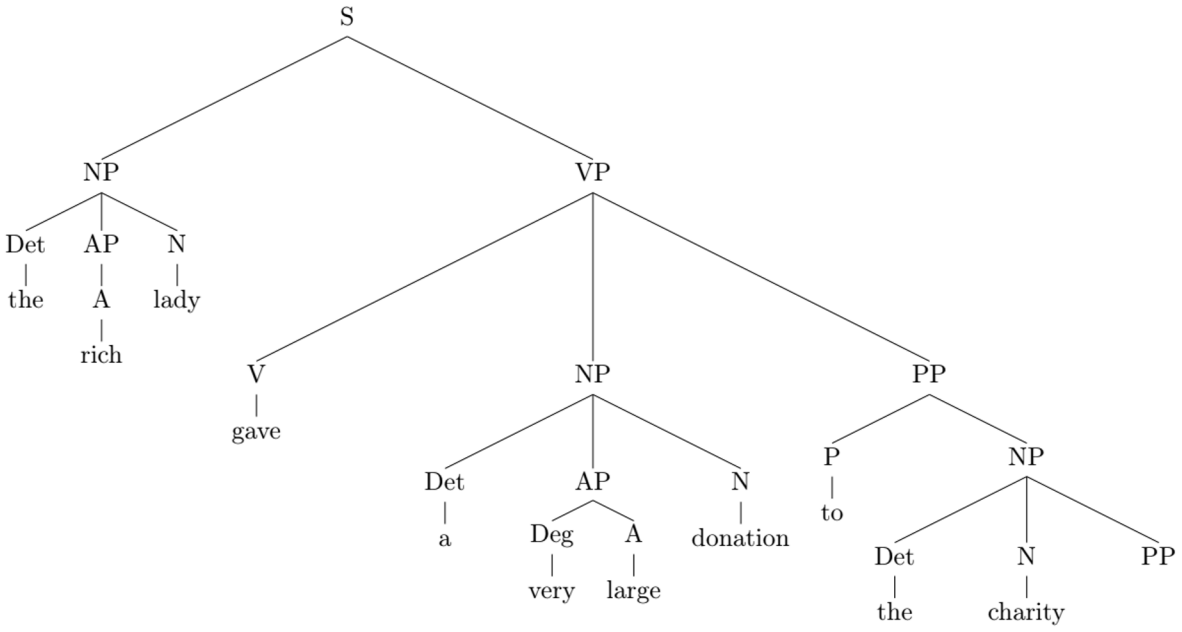
- PS5: PP -> (Deg) P (NP)

P: to

NP: the charity of her choice

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 8: Draw the NP structure within the PP ("the charity of her choice").

- PS2: NP -> (Det) (AP) N (PP) (CP)

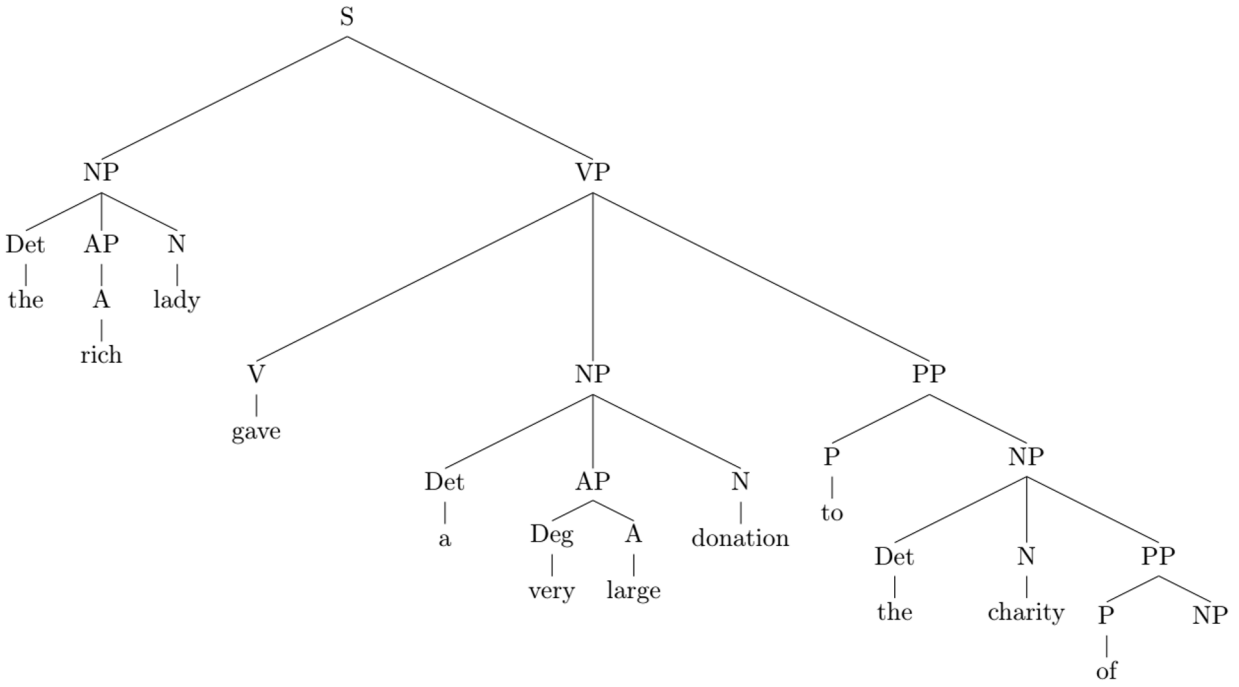
Det: the

N: charity

PP: of her choice

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 9: Draw the PP structure within the NP ("of her choice").

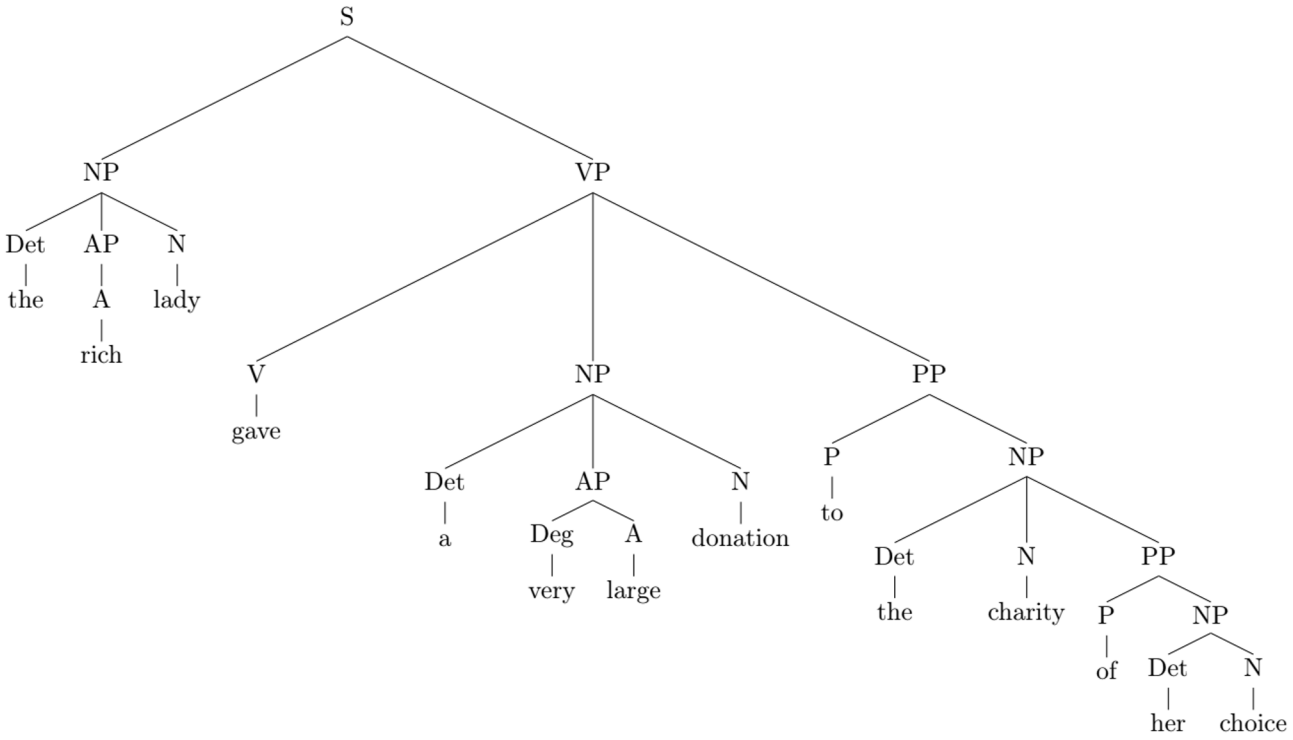
- PS5: PP -> (Deg) P (NP)

P: of

NP: her choice

Step-by-Step Solution to Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



- Step 10: Draw the NP structure within the PP ("her choice").

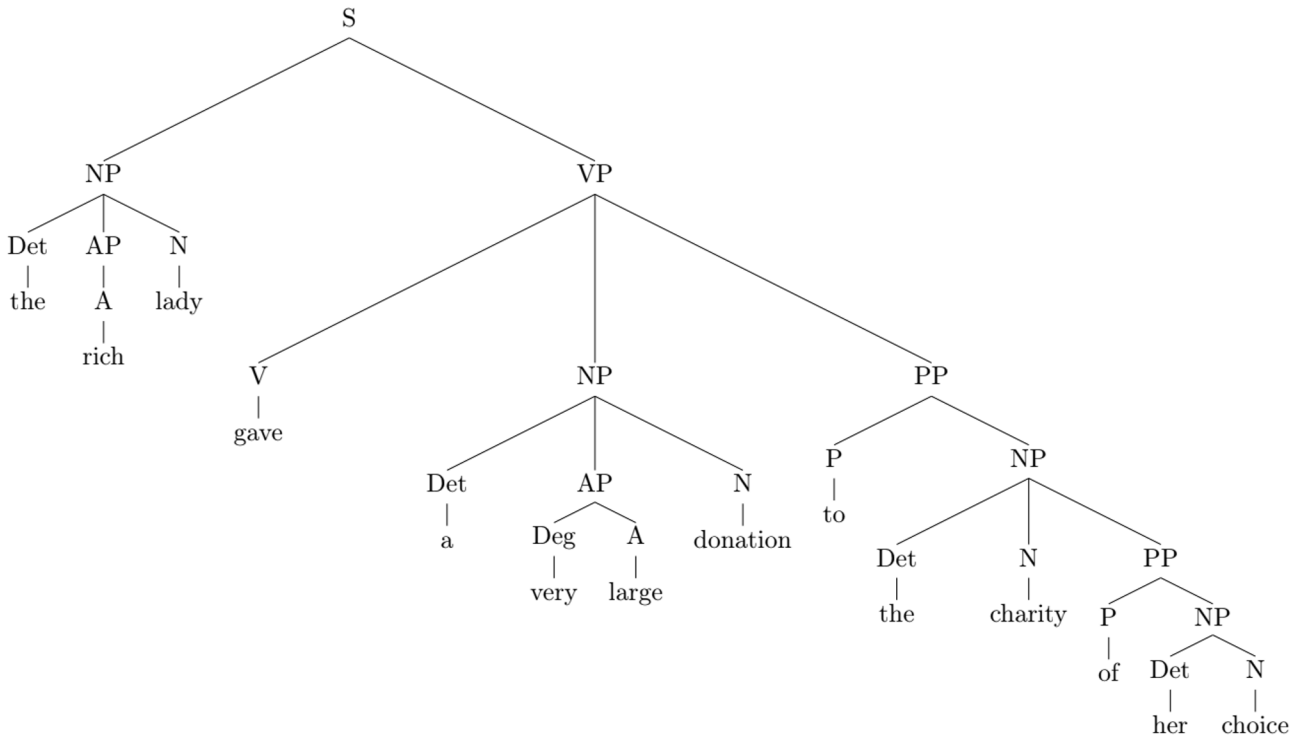
- PS2: NP -> (Det) (AP) N (PP) (CP)

Det: her

N: choice

The Final Answer for Question 4.4

Sentence: The rich lady gave a very large donation to the charity of her choice.



Agenda

How to Draw Phrase Structure Trees [Q4]

- Understanding the Phrase-Structure Rule Chart

- Step-by-Step Walkthrough of a Simple Example (“The student eats cheese”)

- Step-by-Step Walkthrough of Question 4.4 (“The rich lady gave a very large donation to the charity of her choice”)

- Check Your Understanding: Questions 4.5 and 4.6

Check Your Understanding: Q4.5 and Q4.6

Using the Phrase Structure rules given in class, draw the phrase structure trees for the following sentences:

5. The professor has said that this course will end in a short time.

6. The poor man in filthy clothes never bought new shoes.

Agenda

2. Assignment 2 Questions [Part B Only]

- Brief Syntax Review
- How to Draw Phrase Structure Trees [Q4]
- **Syntactic Ambiguity [Q5]**
- Cross-Linguistic Data and Differences [Q1, Q3, Q7]
- Constructions [Q8]

- Note that there is no Question 2.
- I will provide a YouTube video walkthrough for Q6.

Syntactic Ambiguity

ex. “Jane saw the man with the binoculars” has 2 potential readings (Slides 36-38, Week 4 Lecture)

Reading 1:

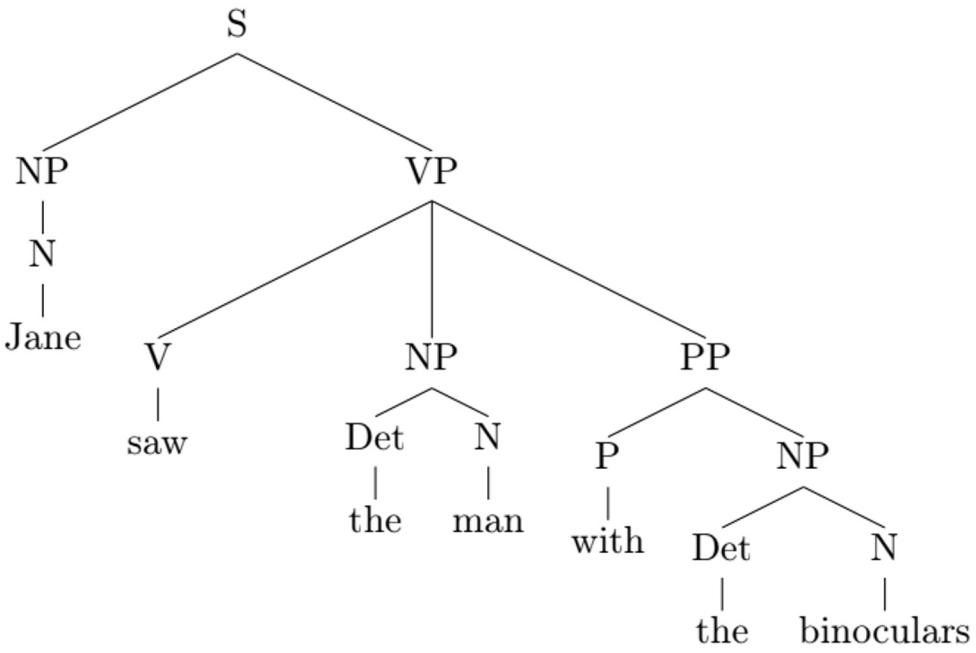
There is a woman named Jane. Jane was using her binoculars and saw a man through them. We don’t know whether the man had binoculars.

Reading 2:

A man had some binoculars. A woman named Jane saw this man. We don’t know whether Jane had binoculars.

Reading 1: Phrase Structure Tree

Sentence: Jane saw the man with the binoculars.

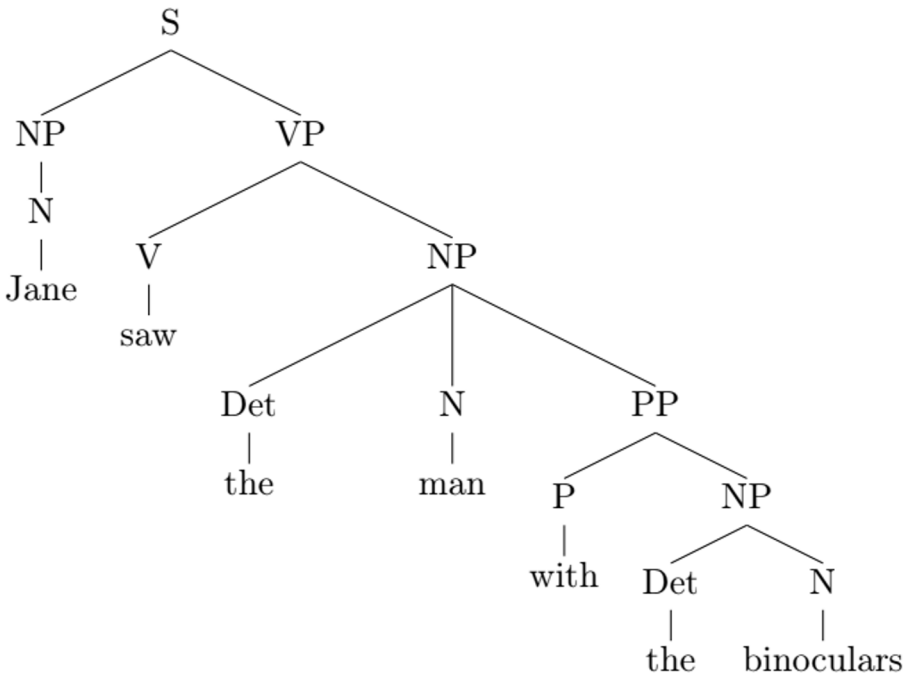


- The PP (“with the binoculars”) merges with the verb (“saw”).

- Under Reading 1, Jane is the one with the binoculars. The verb “saw” is associated with “Jane” (“Jane” is the one doing the seeing).

Reading 2: Phrase Structure Tree

Sentence: Jane saw the man with the binoculars.

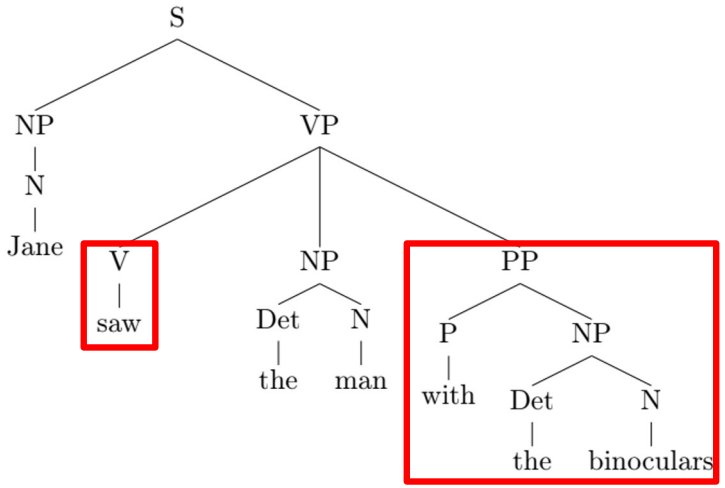


- The PP (“with the binoculars”) merges with the noun (“man”).

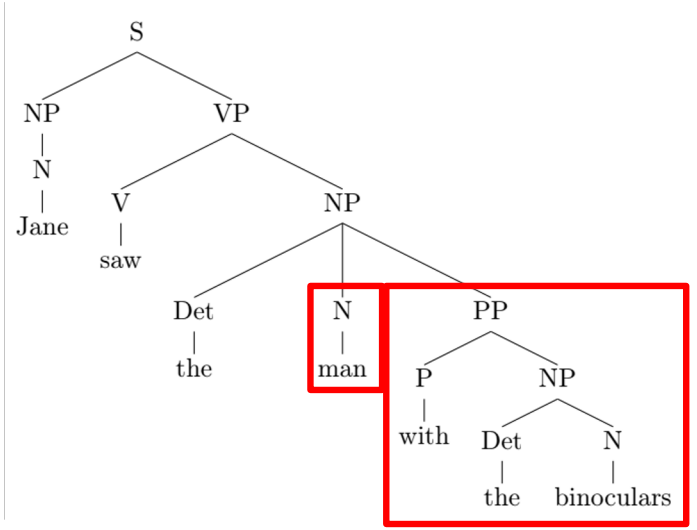
- Under Reading 2, the man is the one with the binoculars.

Comparing the Trees for Readings 1 and 2

Sentence: Jane saw the man with the binoculars.



PP (“with the binoculars”) merges with V (“saw”).



PP (“with the binoculars”) merges with N (“man”).

Check Your Understanding: Q5

The following sentence is ambiguous: “John identified the man with spectacles”. It has two meanings and two structures that can be represented by two phrase structure trees.

1. What are the two different meanings?

2. Draw the two trees adding words as terminal elements.

- Hint: The meanings and structures parallel that for “Jane saw the man with binoculars”.

Agenda

2. Assignment 2 Questions [Part B Only]

- Brief Syntax Review
- How to Draw Phrase Structure Trees [Q4]
- Syntactic Ambiguity [Q5]
- **Cross-Linguistic Data and Differences [Q1, Q3, Q7]**
- Constructions [Q8]

- Note that there is no Question 2.
- I will provide a YouTube video walkthrough for Q6.

Preview to Questions 1 and 3: Glosses

- gloss: a way of annotating text or transcribed speech

- used in linguistics to mark the meanings and grammatical properties of words

- In linguistics, glosses often have 3 different components:

---

tuntu- ssur- qatar- ni- ksaite- ngqiggte- uq
[reindeer- hunt- FUT- say- NEG- again- 3SG.IND]
"He had not yet said again that he was going to hunt reindeer."

- ex. In the Yupik example above (see Lecture 3, Slide #38), there are 3 lines:

  - Line 1: words in Yupik

  - Line 2: grammatical categories and meanings of words in English

  - Line 3: English translation

Question 1

- Question 1 asks you to use glosses to identify whether languages are prepositional or postpositional (See Week 4 Lecture, Slide #13 for definitions).

Japanese	French
(1) Taroo ga Tokyo kara ryokoosita.	(2) Marie voyage à Paris.
Taroo SU Tokyo from travelled	Marie travels to Paris
'Taroo travelled from Tokyo'	'Marie travels to Paris'

- To answer this question, you: (1) find the PP in the English translation in Line 3; (2) use Line 2 to determine the ordering within the PP (does the adposition come before or after the noun?).

Question 3

Question 3 asks you to use glosses to identify a language's word order (See Week 4 Lecture, Slide #31 for more information).

- What do we mean by "word order"?

    - In sentences with a subject (S), object (O), and verb (V), how are these 3 components typically ordered in a particular language?

    - English is an SVO language: "The student eats cheese".

- Q3: If the Malagasy sentence below means "The student saw the woman", what is the likely word order of Malagasy?

(3) Nahita ny vehivavy ny mpianatra

saw the woman the student

Q7: Let's look at some data from Russian…

a. *rabótnik zaščiščájet žénščinu*	'The workman defends the woman'
b. *rabótniki zaščiščájut žénščinu*	'The workmen defend the woman'
c. *rabótnik zaščiščájet žénščin*	'The workman defends the women'
d. *rabótniki zaščiščájut žénščin*	'The workmen defend the women'
e. *stáryj rabótnik zaščiščajet ženščinu*	'The old workman defends the woman'
f. *stáraja mát' zaščiščajet ženščinu*	'The old mother defends the woman'

Note: Russian has a SVO (Subject-Verb-Object) word order. You can ignore the determiner "the" for the questions below.

i. List all Russian forms for each of the following words.

- "workman", "workmen", "woman", "women", "defend", "old", "mother"

ii. Based on the data above, what grammatical category does the Russian noun inflect for?

iii. Based on the data above, what grammatical category does the Russian adjective inflect for?

Agenda

2. Assignment 2 Questions [Part B Only]

- Brief Syntax Review
- How to Draw Phrase Structure Trees [Q4]
- Syntactic Ambiguity [Q5]
- Cross-Linguistic Data and Differences [Q1, Q3, Q7]
- **Constructions [Q8]**

- Note that there is no Question 2.
- I will provide a YouTube video walkthrough for Q6.

Question 8

Give one example for each sentence type:

(a) Declarative, negative, active

(b) Declarative, affirmative, passive

(c) Interrogative, affirmative, active

(d) Interrogative, negative, passive

- See Week 4 Slides (#30)

Agenda

1. Housekeeping
2. Assignment 2 Questions [Part B Only]
3. **Key Terms and Concepts Not Covered in Assignment 2**
4. Explaining Key Terms and Concepts In More Detail
5. Note About Extra Resources
6. Re-Drawn Trees from Week 4 Lecture
7. Open Floor

Key Terms for Week 4

Key terms

- Clause
- Constituent
- Phrase-Noun Phrase, Verb Phrase, Pre-/Postposition Phrase
- Argument Structure
- Transitivity: Transitive, Intransitive, Ditransitive
- Grammatical relations: Subject, Object, Indirect Object
- Complex Sentences
- Coordination vs. Subordination

See Slide 2 in the Week 4 Slides

What we've covered in discussion so far:

- Clause ❌
- Constituent ✅
- Phrase (Noun Phrase, Verb Phrase, Pre-/Postposition Phrase) ✅
- Argument Structure ❌
- Transitivity (Transitive, Intransitive, Ditransitive) ❌
- Grammatical Relations (Subject, Object, Indirect Object) ❌
- Complex Sentences ❌
- Coordination vs. Subordination ❌

Where to Review Compounds And Other Important Terms You Should Know

- Clauses (Slide 27)
- Argument Structure (Slides 25, 28)
- Transitivity (Slide 28)
- Grammatical Relations (Slide 29)
- Complex Sentences (Slide 34)
- Coordination vs. subordination (Slides 33-34)
- Recursion (Slide 12)

Refers to the Week 4 Lecture

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Agenda

4. Explaining Key Terms and Concepts In More Detail

- Argument Structure and Transitivity

- Grammatical Relations (Subject, Direct Object, Indirect Object)

- Recursion

- Clauses, Complex Sentences, Coordination + Subordination

Arguments

- argument: a noun phrase (NP) or prepositional phrase (PP) that must go with a verb
    - ex. “Angelo gave fifty dollars to the foodbank”
    - the verb “give” has 3 arguments (“Angelo”, “fifty dollars”, “to the foodbank”)
- We can categorize verbs based on how many arguments they normally take:
        - intransitive: 1 argument (ex. “sneeze”, as in “She sneezed”)
        - transitive: 2 arguments (ex. “push”, as in “She pushed the wheelbarrow”)
        - ditransitive: 3 arguments (ex. “give”, as in the example above)
- If a verb does not have the required number of arguments, it sounds odd.

More on Arguments…

- If a verb does not have the required number of arguments, it sounds odd. Imagine if someone came up to you and said the sentences below:

1. Sneezed.
2. She pushed.
3. Angelo gave to the foodbank.

- You might ask: “Who sneezed?”, “What did she push?”, “What did Angelo give to the foodbank?”

- The verbs above need the correct number of arguments in order to make sense.

Even More on Arguments…

- Note: a word or phrase can be associated with the verb, but not be an “argument”.
    - ex. She sneezed loudly in the kitchen.
    - The verb “sneeze” is still intransitive (1 argument), even though there are 3 phrases that describe the verb (“she”, “loudly”, “in the kitchen”)
    - This is because “sneeze” only requires 1 NP subject to complete its meaning; everything else is optional
    - i.e., we can omit “loudly” and “in the kitchen” and still have a valid sentence:
        - She sneezed loudly.
        - She sneezed in the kitchen.
        - She sneezed.

Agenda

4. Explaining Key Terms and Concepts In More Detail

- Argument Structure and Transitivity

- Grammatical Relations (Subject, Direct Object, Indirect Object)

- Recursion

- Clauses, Complex Sentences, Coordination + Subordination

Grammatical Relations

- Ditransitive verbs have 3 argument types: subject, direct object, indirect object
    - subject: the performer of the action
    - direct object: what is being acted upon
    - indirect object: acted upon indirectly (think: “to who/what?”, “for who/what?”)
- ex. Mary gave the apple to John.
    - subject: Mary (“the giver”)
    - direct object: the apple (“what is being given”)
    - indirect object: John (“who the apple is being given to”)
- Intransitive verbs only have a subject (1 argument), while transitive verbs only have a subject and direct object (2 arguments).

More on Grammatical Relations…

- Sentences with ditransitive verbs in English can have two different orderings. For example, the 2 sentences below are both acceptable.

    - Mary gave the apple to John.

    - Mary gave John the apple.

- Note that in the sentences above, even though the order of the objects is different, *the relationship of the objects to the verb is the same*.

    - i.e., in both sentences, “the apple” is still the direct object (what is being given) and “John” is still the indirect object (who the apple is being given to)

Even More on Grammatical Relations…

- Languages have different ways of encoding what the direct + indirect objects are. For example, see the Japanese translation below of “Mary gave the apple to John”).

  - English: Mary gave the apple to John.

  - Japanese: Mary-ga John-ni ringo-wo ageta

- In Japanese, the subject, direct object, and indirect objects are labeled with particles called “case markers” (this also happens in other languages like Serbian; see Slide 29 of Week 4 lecture).

Agenda

4. Explaining Key Terms and Concepts In More Detail

- Argument Structure and Transitivity
- Grammatical Relations (Subject, Direct Object, Indirect Object)
- **Recursion**
- Clauses, Complex Sentences, Coordination + Subordination

Recursion

- Informal definition: A procedure is said to be *recursive* if one of the steps involves invoking the procedure itself.

- We can see this in syntax:

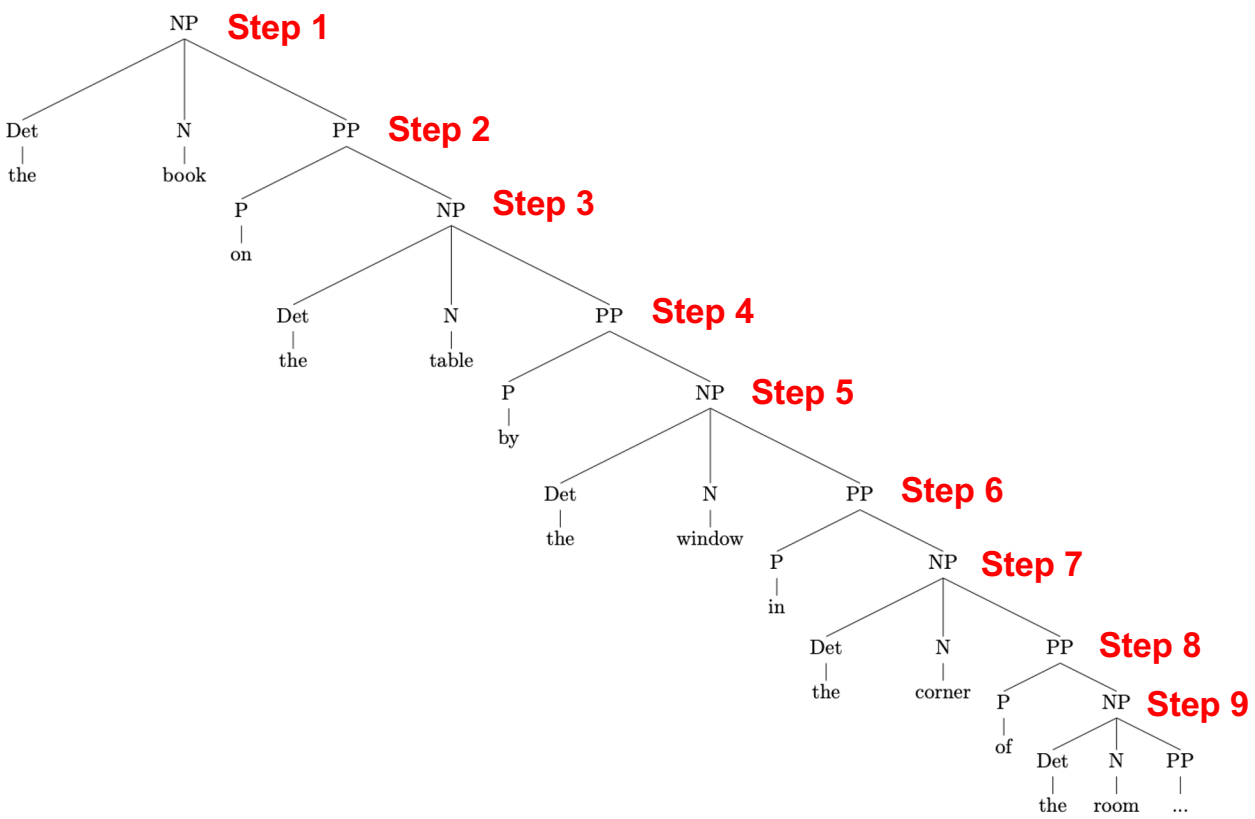
    - ex. Take the following phrase: “the book”.

    - We can add an infinite number of prepositional phrases onto “the book”:

    - “the book on the table”, “the book on the table by the window”, “the book on the table by the window in the corner”, “the book on the table by the window in the corner of the room”, …

- We can explain this with Phrase-Structure Rule 2 (NP -> Det N PP) and Rule 5 (PP -> P NP)...see the next slide for a visual explanation.

Example of Recursion



- Note that in this tree, we're cycling through Rules 2 and 5:

Step 1: NP -> Det N PP (Rule 2)

Step 2: PP -> P NP (Rule 5)

Step 3: NP -> Det N PP (Rule 2)

Step 4: PP -> P NP (Rule 5)

Step 5: NP -> Det N PP (Rule 2)

Step 6: PP -> P NP (Rule 5)

Step 7: NP -> Det N PP (Rule 2)

Step 8: PP -> P NP (Rule 5)

Step 9: NP -> Det N PP (Rule 2)

More on Recursion…

- Recall: A procedure is said to be *recursive* if one of the steps involves invoking the procedure itself.

    - Also note that these are all noun phrases: “the book”, “the book on the table”, “the book on the table by the window”, “the book on the table by the window in the corner”, “the book on the table by the window in the corner of the room”,...

    - The tree on the prior slide is thus a clear example of recursion: Our “procedure” is forming a noun phrase (Rule 2), and we repeatedly invoke Rule 2 to form longer and longer noun phrases.

- Note that there are many other examples of recursion besides adding NPs:

    - ex. Jane said that cheese is tasty, Jane said that Bob said that cheese is tasty, Jane said that Jane said that Bob said that Bill said that cheese is tasty…

Even More on Recursion…

- Because of our cognitive limitations, sentences with excessive recursion become too difficult for us to process, so we don't normally encounter them in everyday life …, but they are still grammatical and theoretically possible.

- ex. Even though "Jane said that Bob said that Bill said that cheese is tasty" is a very long sentence, it is still an *acceptable* sentence.

- Some scholars believe that recursion is a key feature that differentiates humans from other animal species (but this is controversial).

Agenda

4. Explaining Key Terms and Concepts In More Detail

- Argument Structure and Transitivity
- Grammatical Relations (Subject, Direct Object, Indirect Object)
- Recursion
- **Clauses, Complex Sentences, Coordination + Subordination**

Clauses and Sentences

- clause: the basic unit of grammar (contains a subject and predicate, can often stand alone as a grammatical utterance)

    - ex. “The sun came up”

- sentence: unit of grammar containing 1 or more clauses (can often stand alone)

    - ex. “The sun came up”, “The sun came up and it shone in my eyes”

- complex sentence: contains more than 1 clause

    - ex. “The sun came up and it shone in my eyes”

Coordination and Subordination: Two Ways of Creating Complex Sentences

- coordination: linking multiple clauses with a conjunction, such as “and”, “or”

    - ex. The sun came up and it shone in my eyes.

- subordination: basically, any time multiple clauses are linked without a conjunction (this is a complex topic, please see me at office hours if you’d like a more in-depth explanation)

    - the main clause is called the “matrix clause”; the other is called the “subordinate clause”

    - See the next slide for some examples of subordination

Types of Subordination

- The examples below come from Slide 34 in the Week 4 Lecture. I've highlighted the matrix clause in orange and the subordinate clause in green.

- Adverbial (linked to matrix by an adverbial; in this case "while")

    - While I was reading he was writing.

- Complement (linked by a complementizer; in this case "that")

    - She knew that he passed by the shops.

- Relative (function as modifiers of nouns; here introduced by "who")

    - She was looking at John, who was sitting in the far corner.

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No Extra Resources for Syntax

- As the instructor mentioned during lecture, **do not try consulting the textbook or watching YouTube videos (other than my own) to study syntax**.

    - Please review the Week 4 Lecture slides and these discussion slides to study for your exams.

Agenda

1. Housekeeping
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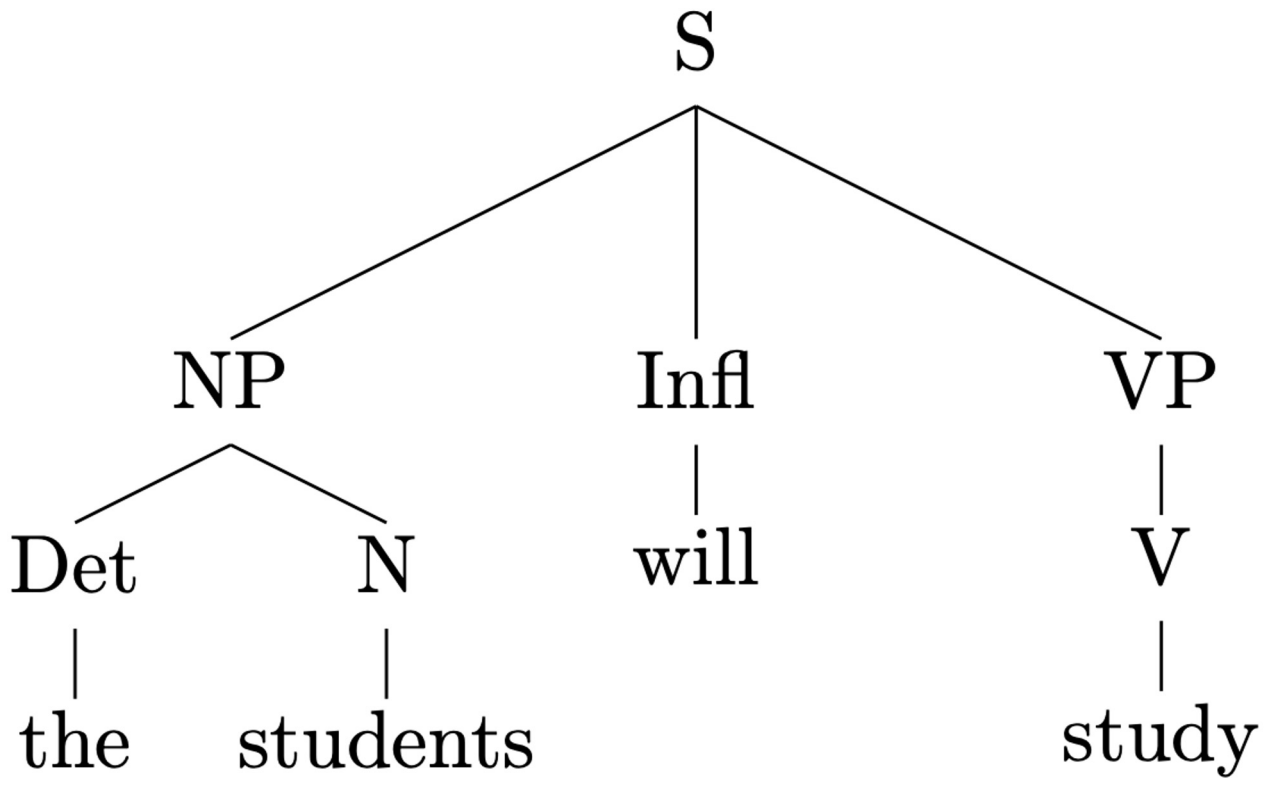
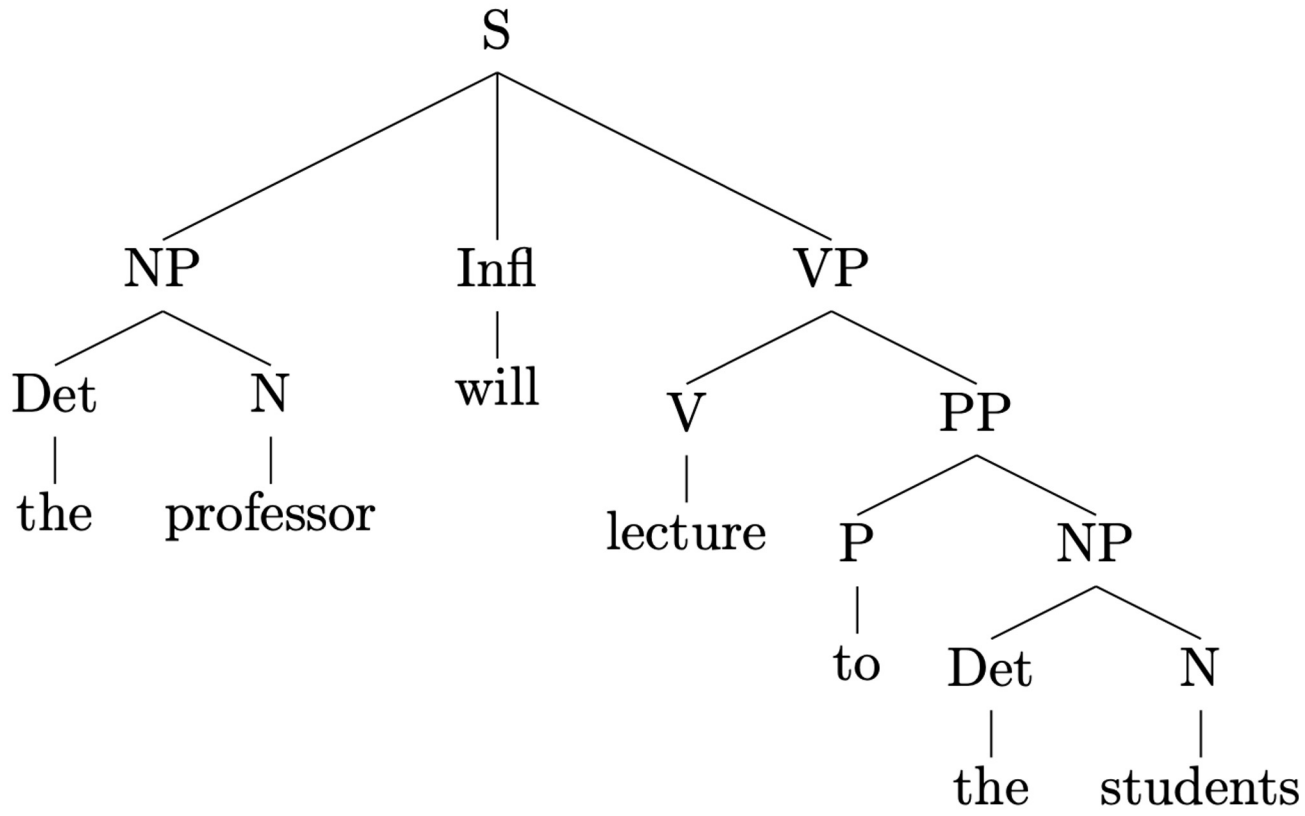
6. Open Floor

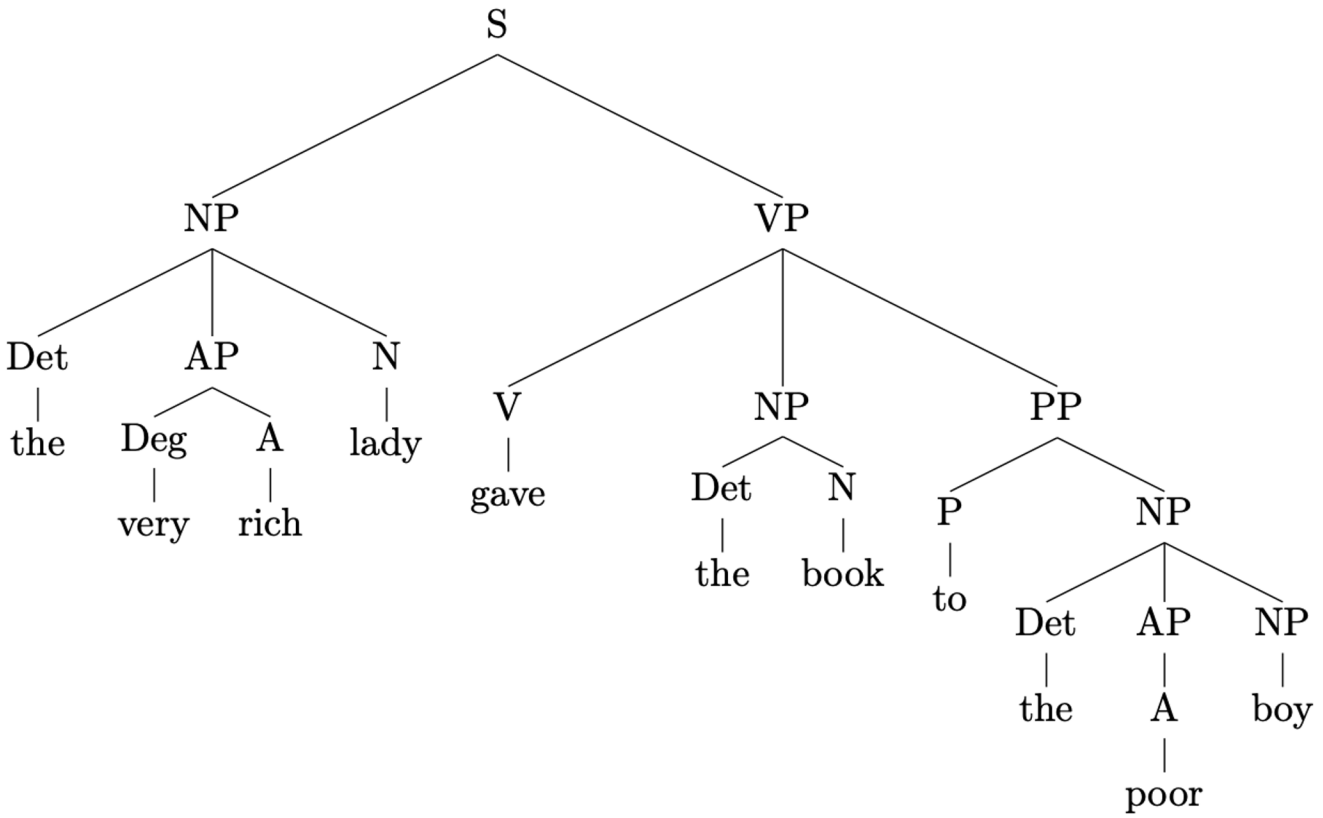
Slide 20: The students will study.



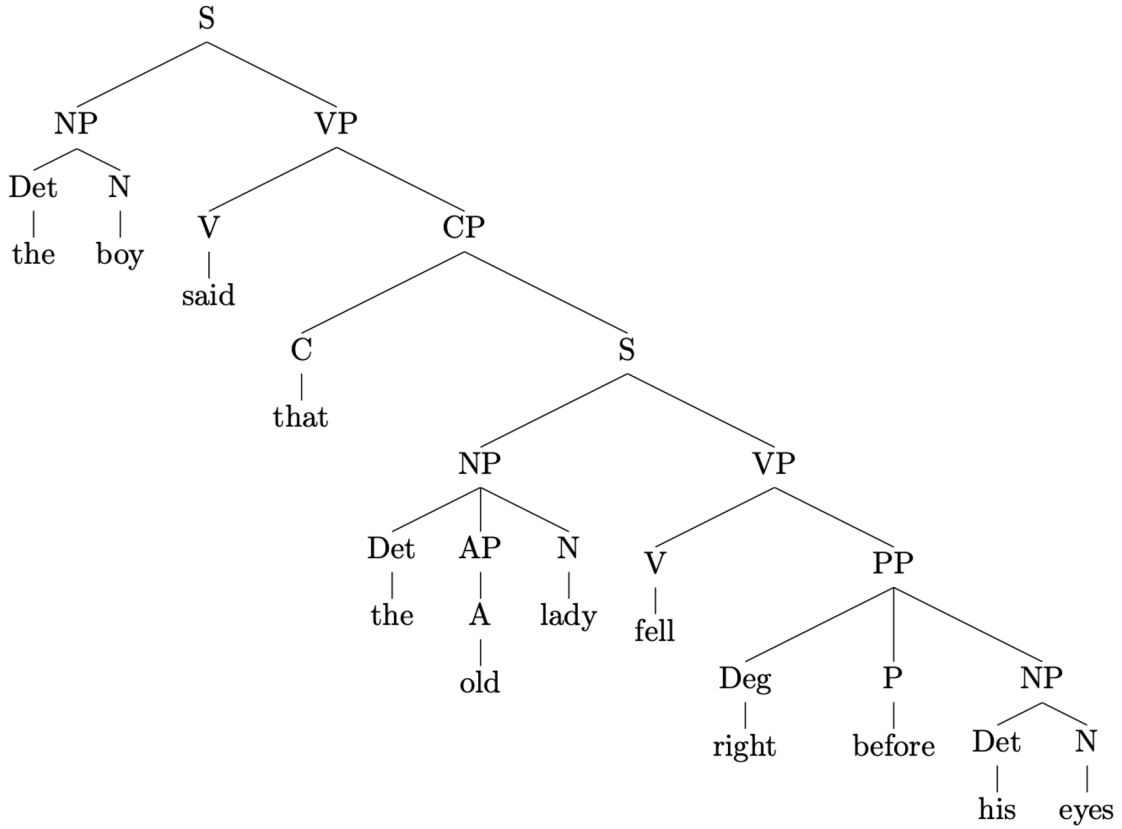
Slide 21: The professor will lecture to the students.



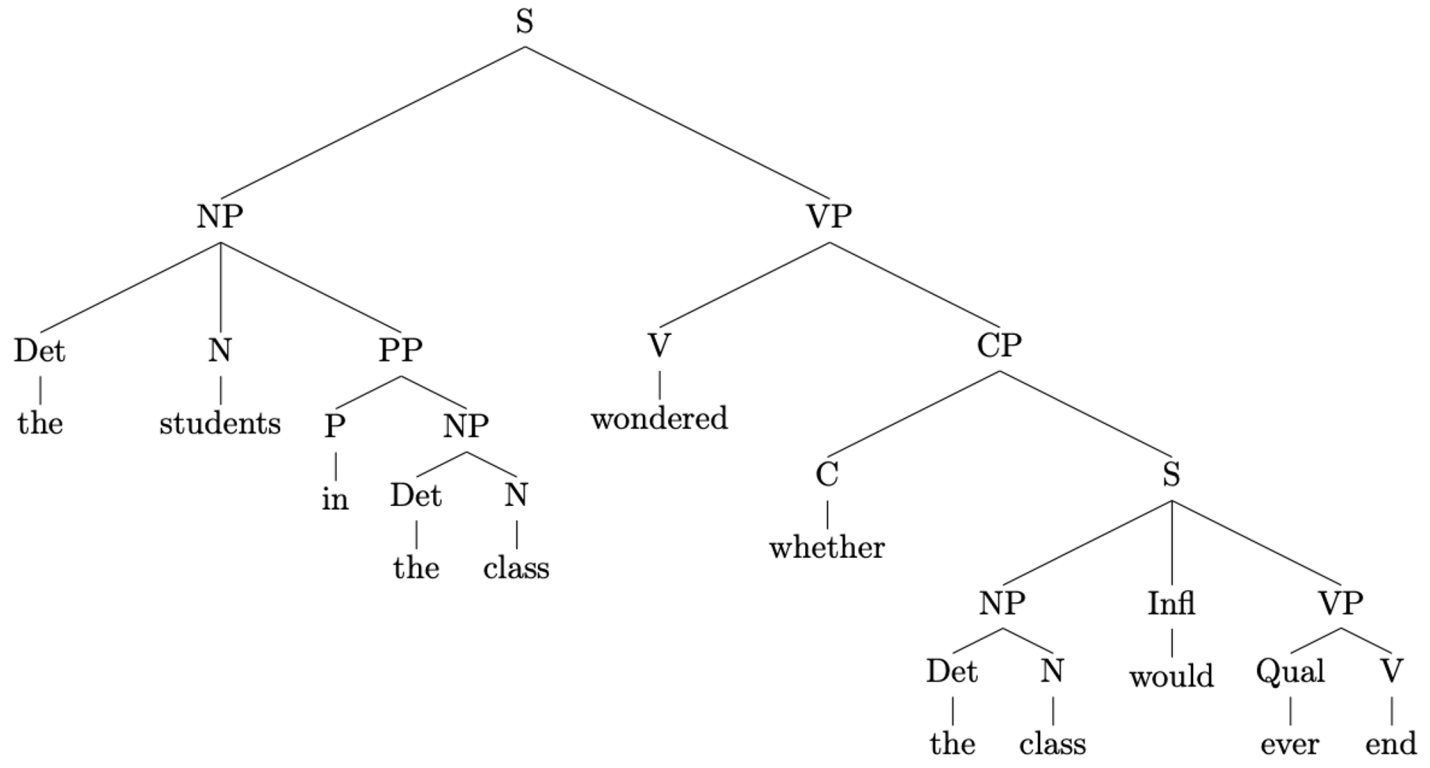
Slide 22: The very rich lady gave the book to the poor boy.



Slide 23: The boy said that the old lady fell right before his eyes.



Slide 24: The students in the class wondered whether the class would ever end.



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Any questions, comments, or concerns?

Extended Office Hours: All in Kerr 261, I will e-mail you after class with the full schedule.