

LING001

Introduction to Linguistics

Lecture 15

Syntax I

03/30/2020

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This week

- Monday and Wednesday: Lectures on Syntax
- Thursday and Friday: Recitations
- **Friday: Exam 3 released**

Next week

- **Q&A during lecture time:** I'll solve practice problems and answer questions by request
- Piazza thread to make requests
- I won't answer questions about the exam problems, but I will answer questions about all practice problems

Your goal this week

Practice your syntax skills

Specific skills to practice on practice problems:

1. Constituency tests
2. Phrase structure rules
3. Drawing trees
4. Identifying recursive structures
5. Identifying traces

How to do well this week

Goal: practice your syntax skills

- **2 hours:** practice problems and recitation
- **4 hours:** *lectures*, practice problems, and recitation
- **5+ hours:** *read*, lectures, practice problems, recitation

No matter what, if you get to the end of the week and haven't figured it out, meet with us!

Language

- In the course, we've emphasized that language is an unbounded discrete combinatorial system
- Sounds combine to form morphemes, morphemes to words, words to phrases, phrases to sentences.
- Knowing a language involves knowing the parts at each level, and the rules for combining the parts
- A finite number of parts and rules can combine to form an infinite number of new sentences

Infinite use of finite means

Coronavirus headlines

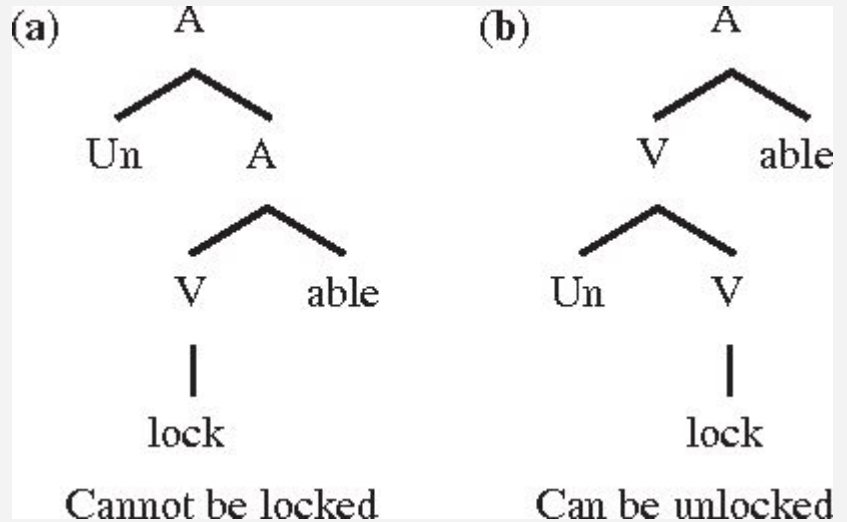
- Group activities that are not in compliance with obvious physical and social distancing will be banned
- Supermarket forced to throw out \$35,000 of fresh food after woman purposefully coughs on it

Onion headlines

- Annual ninja parade once again passes through town unnoticed
- Archaeological Dig Uncovers Ancient Race Of Skeleton People
- Lunar Olympic Officials Still Searching For Missing Pole Vaulter

Structure and function

- As we saw in our discussion of phonology and morphology, structure is a crucial part of function



Overview of our syntax week

Structure is critical in syntax as well. This week, we'll focus on two major points:

- Monday (today): **Simple phrases**
 - Why do some sequences of words 'go together' more than others?
What makes something a syntactic constituent?
- Wednesday: **Phrase structure rules and movement:**
 - How phrases and larger objects are derived by rules, and how phrases can be moved from one position to another.

Structure of English Questions

The cat is on the balcony.

Is the cat ___ on the balcony?



- Rule could be something like: 'move the auxiliary (the **is**) to the front of the sentence'

Structure of English Questions

The cat that is on the balcony is chasing the mouse.

**Is the cat that ___ on the balcony is chasing the mouse?*



Is the cat that is on the balcony ___ chasing the mouse?



- **Our rule is not adequate.** When there is more than one auxiliary, we need to know which one is affected

Complex structures

- We cannot move an auxiliary that is 'inside' a complex subject. What does this mean?
 - (1) John is in the garden.
 - (2) The boy is in the garden
 - (3) The woman with the red hat is in the garden
 - (4) The woman with the red hat that John was talking to yesterday when he went to the store to buy some batteries for his camera is in the garden
- The **subject** can be arbitrarily long, and it cannot be broken apart to form a question

Complex structures

- Subjects can be very different, but, when forming a question, they behave **in exactly the same way**.
- The rule for forming these questions ignores subjects and their internal structure, treating them all the same.
- So rules aren't linear. They have to be stated in terms of the complex organization of the sentence

Our first phrase

- (1) John is in the garden.
 - (2) The boy is in the garden
 - (3) The woman with the red hat is in the garden
 - (4) The woman with the red hat that John was talking to yesterday when he went to the store to buy some batteries for his camera is in the garden
- In terms of sentence structure, each of these behaves in the same way: **a phrase**.
 - What kind of phrase? Phrases have properties of the **head**, independent of what else might be there

What's a head?

- The **head** of a phrase defines its 'aboutness':
 - (1) The big cat
 - (2) The cat that made a mess
 - (3) The cat in the hat
 - (4) The hat-wearing cat
 - (5) The cat that came back
 - (6) The cat that came back in a hat
- These phrases all have the same head: *cat*. Since cat is a noun, we call them **Noun Phrases**, or **NPs**

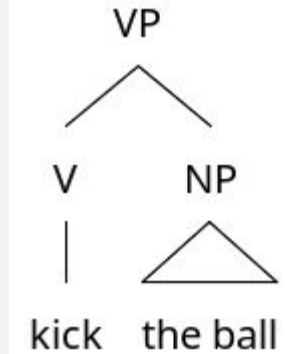
Heads of phrases

- Every phrase has a head
- The head is the important lexical category that determines the properties of the phrase.

Phrase	Head is	Phrase is
[<i>the big cat</i>]	Noun	Noun Phrase (NP)
[<i>kick the ball</i>]	Verb	Verb Phrase (VP)
[<i>in the garden</i>]	Preposition	Prepositional Phrase (PP)

Phrases can contain other phrases

- This allows us to start with words and assemble them into larger and larger objects
- **Example:** Verb Phrase [*kick the ball*]
 - The **VP** is headed by the **V(erb)** *kick*
 - Along with the **V** *kick*, we have an **NP** [*the ball*]



Phrases can stand alone

- Which of the following are phrases?
 - (1) in front of the mirror
 - (2) be patient
 - (3) drink plenty of
 - (4) peter likes
 - (5) the big bad wolf

Toddlers already know this

- (1) The warm milk is **for cookies**
 - (2) The apple juice is **all gone**
 - (3) This one is too small. I want **that truck**
 - (4) Kitties **like sleeping**
 - (5) Cookie monster has ***cookies for** supper
 - (6) Daddy's ***gone all** the time
 - (7) I don't want a ***truck that** small
 - (8) You are ***sleeping like** a baby
- Toddlers truncate sentences in some ways but not others

Toddlers already know this

- (1) The warm milk [is [**for cookies**]]
 - (2) The apple juice [is [**all gone**]]
 - (3) This one is too small. I [want [**that truck**]]
 - (4) Kitties [**like sleeping**]
 - (5) Cookie monster [has ***cookies** [**for** supper]]
 - (6) Daddy's [***gone** [**all** the time]]
 - (7) I don't want [a ***truck** [**that** small]]
 - (8) You are [***sleeping** [**like** a baby]]
- Toddlers already have some knowledge of structure

Constituency tests

- The organization of words and phrases into larger units involves the notion of a **constituent** (a unit)
- Some things form a syntactic constituent and some things do not. How do we tell?
- We can use constituency tests:
 - **Test 1: Substitution test** (pro-form substitution)
 - **Test 2: Movement test**
 - **Test 3: Clefting**

Test 1: Substitution

- If you can **replace with a single word** (or simple phrase), then it's a constituent.
- The best words to use are **pro-forms**
 - Pronouns: *he/him, she/her, it, they/them, one, that*
 - Pro-verbs: *do (so), be, have*
 - For prepositions: *there, then, such*

Substitution test in action

The cat was sleeping on the desk

Group of words	Substitution test	Constituent?
<i>the cat</i>	The cat <u>She</u> was sleeping on the desk.	Yes
<i>on the desk</i>	The cat was sleeping <u>there</u> on the desk .	Yes
<i>sleeping on the desk</i>	The cat was sleeping on the desk <u>doing so</u> .	Yes
<i>the desk</i>	The cat was sleeping on the desk <u>it</u> .	Yes
<i>on the</i>	*The cat was sleeping <u>{it/there/then/such/do so}</u> on the desk.	No
<i>cat was</i>	*The eat was <u>{it/there/then/such/do so}</u> sleeping on the desk.	No

Test 2: Movement

- If it can be **moved together and make a grammatical sentence**, then it's a constituent.
- To use: **be Yoda!** Move a group of words to the front of a sentence and see whether the result is grammatical

- (1) Judge me by my size do you _____?
- (2) When nine hundred years old you reach _____,
look as good you will not _____.



Movement test in action

The cat was sleeping on the desk

Group of words	Movement test	Constituent?
<i>on the desk</i>	On the desk, the cat was sleeping _____.	Yes
<i>sleeping on the desk</i>	Sleeping on the desk, the cat was _____.	Yes
<i>the desk</i>	The desk the cat was sleeping on _____.	Yes
<i>on the</i>	*On the, the cat was sleeping _____ desk.	No
<i>cat was</i>	*Cat was, the _____ sleeping on the desk.	No

Test 3: Clefting


- Construct a **cleft**: a sentence in which a constituent is displaced (or moved) to the left.
- You can use the general form: ***It was X that Y***
 - Where *X* is the displaced constituent and *Y* is the rest

Clefting test in action

The cat was sleeping on the desk

- Our test form: **It was X that Y**

Group of words	Clefting test	Constituent?
<i>on the desk</i>	It was <u>on the desk</u> that the cat was sleeping _____.	Yes
<i>the cat</i>	It was <u>the cat</u> that _____ was sleeping on the desk.	Yes
<i>on the</i>	*It was <u>on the</u> that the cat was sleeping _____ desk.	No
<i>sleeping on the desk</i>	*It was <u>sleeping on the desk</u> that the cat was.	No

 **Use caution!** A grammatical cleft means **Yes**, but an ungrammatical cleft doesn't guarantee **No**!

Putting it together

- So far, we have concentrated on establishing that words are assembled into phrases
- Larger units like clauses and sentences involve hierarchical structures as well
- They involve the arrangement of these phrases with respect to one another.

A simple sentence

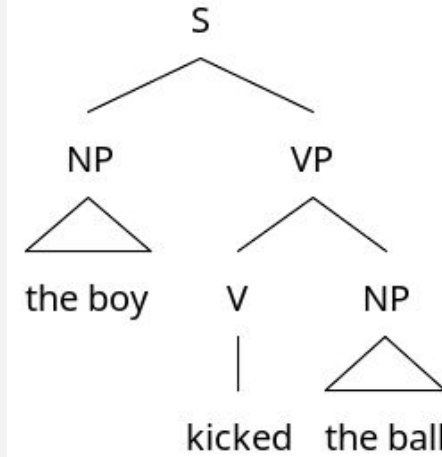
The boy kicked the ball

- We have three lexical categories here: two nouns (*boy and ball*) and one verb (*kick*)
- This gives us three phrases!
- Determining how these phrases are organized into the sentence involves the same reasoning we applied before

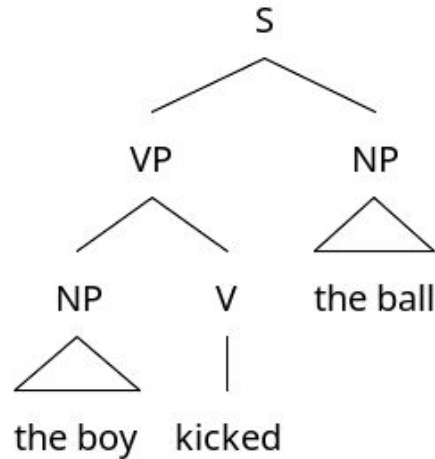
Possible structures

- The three phases could be arranged in two ways; two possible sentence structures. Which is it?

Structure 1



Structure 2



Object and
verb form VP

Subject and
verb form VP

Constituency tests to find out which

The boy kicked the ball

- Is *kicked the ball* a constituent?

The boy did so ~~kicked the ball~~.

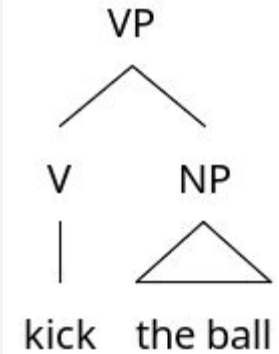
- Is *the boy kicked* a constituent?

~~*The boy kicked~~ {he/then/there/such/do so} the ball.

- Our tests indicate that Verb + Object behave like a constituent (Subj + Verb do not), so structure 1 is right!

Phrases can contain other phrases

- Mentioned before: This allows us to start with words and assemble them into larger and larger objects
- **Example:** Verb Phrase [*kick the ball*]
 - The **VP** is headed by the **V(erb)** *kick*
 - Along with the **V** *kick*, we have an **NP** [*the ball*]



Phrases can contain themselves (recursion)

- A phrase can include another phrase of the same type
- **Toddlers:** “This is the dog that worried the cat that chased the rat that ate the cheese that lay in the house that Jack built”
- **Teens:** “There is a rumor going around that she told me that you told her that I saw you kissing Jim that he told you not to”