

Intro to syntax

- **Grammaticality judgments**
- **Constituents**

Background reading/preparation:

- CL Ch 1, sec 2 (review)
- LingVids Syntax #1, “a bracelet or a mobile?”
- CL Ch 5, sec 1.4

1. Syntax in the mental grammar

- So far, we have looked at
 - ***phonetics*** — the articulation (and acoustics and perception) of **speech sounds**
 - ***phonology*** — how **speech sounds** are represented and altered by the mental grammar
 - ***morphology*** — how the mental grammar puts **morphemes** together to form **words**
- Now we will look at ***syntax*** — how the mental grammar puts **words** together to form **phrases** and **sentences**

1. Syntax in the mental grammar

- The mental grammar must include a mechanism for **generating** and **analyzing** previously unknown sentences — *Why?*

1. Syntax in the mental grammar

- The mental grammar must include a mechanism for **generating** and **analyzing** previously unknown sentences — *Why?*
 - Human syntax is **creative**: humans can produce and understand sentences never seen before
- Linguists want to know: What is this mechanism?
 - How does the mental grammar combine words into phrases and sentences?

1. Syntax in the mental grammar

Review (from the first week of class)

- **Descriptive** grammar
 - A set or *system* of rules and principles that describes what people **do** say (and understand)
- **Mental** grammar = **Linguistic competence**
 - A *system* of rules and principles that are **part of human cognition** and **cause** language behavior
 - “What do we know when we know a language?”
- Compare **prescriptive** grammar: A set of rules and principles that describes *what some authority thinks* people **should** say or write

1. Syntax in the mental grammar

Review (from the first week of class)

- **Linguistics is a scientific approach to language**
 - Our **data** (facts about the world):
What people say (and understand)
 - Using this data, we can:
 - Write descriptive grammars of different languages
 - Aspire to build a **model** of human **mental grammar** for a single language, and for human language as a whole

1. Syntax in the mental grammar

- *Data:* We want to know how a native speaker would do the following:
 - Classify possible sentences (arrangements of words and phrases) as **grammatical** versus **ungrammatical**
 - Group the words in a sentence into larger units (called syntactic **constituents**)

1. Syntax in the mental grammar

- After we discover what native speakers *do*, **we want to determine what speakers' mental grammar *must be like*** for their language to be that way
- We do this by **developing a model of mental grammar** that can:
 - Produce sentences that native speakers find **grammatical**, and *not* produce sentences that native speakers find *ungrammatical*
 - Make the right predictions about which words in a sentence form **constituents** (units, subgroups)

2. Grammatical? Mental grammar as a “judge”

Review (from the first week of class)

- A native speaker’s **mental grammar** makes **grammaticality judgments**

These are **judgments** about whether a given linguistic structure is

- **grammatical** (allowed, acceptable, legal), *or*
 - **ungrammatical** (unacceptable, illegal)
- Note: A speaker’s mental grammar of a *non*-native language may also be able to make grammaticality judgments
 - Sometimes these are subtly different from those of a native speaker — this is an interesting research area!

2. Grammatical? Mental grammar as a “judge”

- The **ungrammaticality reaction** that your mental grammar produces is a “gut reaction” — try to learn to recognize it (when you encounter data from your native language)
 - When you hear a word, sentence, etc., that is ungrammatical in your native language, you may “feel your brain get stuck for a second”, or you may feel a reaction similar to “no way, that’s not part of my language!”

2. Grammatical? Mental grammar as a “judge”

- The ungrammaticality reaction is a “gut reaction” — try to learn to recognize it (when you encounter data from your native language)
- **Some examples** (English) — Sentence structure
 - Grammatical
 - The puppy found the bone.*
 - Oscar wants Grover to be a grouch.*
 - Ungrammatical (marked with a star, '*')
 - *The puppy found quickly.*
 - *Oscar tries Grover to be a grouch.*

2. Grammatical? Mental grammar as a “judge”

- The ungrammaticality reaction is a “gut reaction” — try to learn to recognize it (when you encounter data from your native language)
- **Some examples** (English) — Sound structure
 - Grammatical (“possible” but non-existing words)
 - [kɪɛf] *“kreff”*
 - [palkim] *“palkeam”*
 - Ungrammatical (impossible as words)
 - *[ɹkɛf] *“rkeff”*
 - *[palikm] *“paleakm”*

2. Grammatical? Mental grammar as a “judge”

- A word, sentence, etc. is **grammatical** with respect to a particular language (variety) if:
 - Native speakers produce it (and it's not a speech error)
 - When native speakers hear it, their mental grammar classifies it as grammatical (part of the language; structurally acceptable)
- Note that this **varies** by language (and variety)!
 - In English, the word shape [kʌɛf] is grammatical
 - In Japanese, [kʌɛf] is ungrammatical

3. What grammaticality is *not*

This next part is very important to understand.

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!
 - These factors have nothing to do with whether or not the mental grammar can produce, or will accept, the **structure** of a particular word or sentence

3. What grammaticality is *not*

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!
 - A sentence that **isn't true** is one that fails to **match** the state of affairs **in the real world**
 - But: its **structure** could still be **acceptable** to the mental grammar (**grammatical**)

3. What grammaticality is *not*

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!
 - A sentence that doesn't make sense is one where you **don't understand what the speaker meant**, or one where the **word meanings are inconsistent** with each other
 - But: its **structure** could still be **acceptable** to the mental grammar (grammatical)

3. What grammaticality is *not*

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!

(1) *Every basketball player at UNC is named Susan.*

- Is this sentence **true**?
- Does this sentence **make sense**?
- Is this sentence **grammatical** in your variety of English?

3. What grammaticality is *not*

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!

(2) *I walked over to the table and put the book.*

- Is this sentence **true**? (*Depends on what happened in the world!*)
- Does this sentence **make sense**?
- Is this sentence **grammatical** in your variety of English?

3. What grammaticality is *not*

- Being **grammatical** is NOT the same thing as “being true” or “making sense”!

(3) *Colorless green ideas sleep furiously.*

- Does this sentence **make sense**?
- Is this sentence **grammatical** in your variety of English?
- [Some colorless green poems!](#)
(optional, just for fun)

4. Syntax in the mental grammar, revisited

- *Data:* We want to know how a native speaker would do the following:
 - Classify possible sentences (arrangements of words and phrases) as **grammatical** versus **ungrammatical**
 - We will continue to use grammaticality judgments about phrases and sentences as we develop our model of syntax
 - Group the words in a sentence into larger units (called syntactic **constituents**)
 - For the rest of today's class, we will look at this question in more depth

5. Constituents in language structure

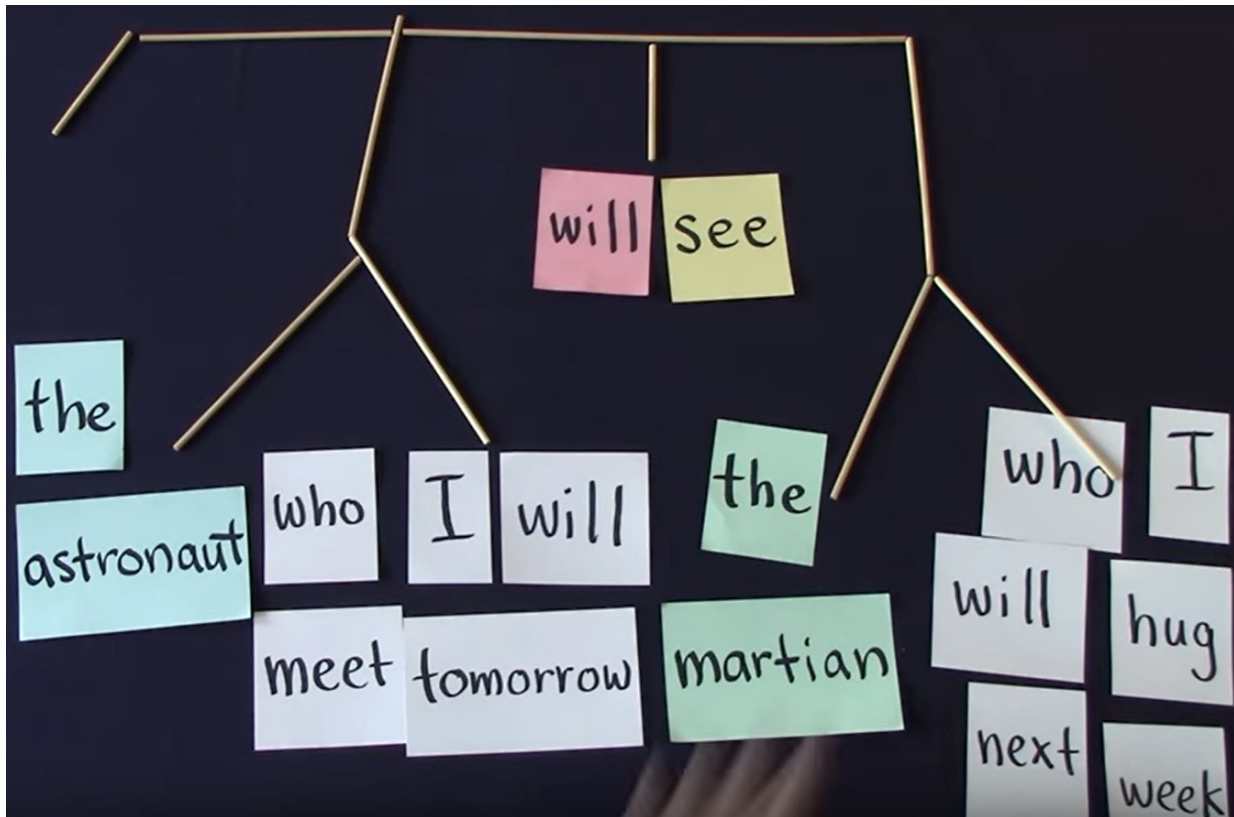
- “Sentences are not formed by simply stringing words together like beads on a necklace.” (*CL*, p 172)
 - Words (and phrases) are **grouped** into larger phrases
 - The structure inside a sentence is not flat, but **hierarchical**
- We have already modeled hierarchical structure inside words with **word trees** (which affix attaches first?)
 - Soon we will apply a similar tree technique in analyzing **phrase and sentence structure**

5. Constituents in language structure

- A smaller piece of structure within a sentence is known as a **constituent**—a “subunit”
- To be successful, a model of syntax needs to form constituents inside sentences in the same way that a native speaker does
- So, in order to assess our model, we need to know:
Which groups of words or phrases function as constituents for native speakers?

5. Constituents in language structure

- How can we collect data about **constituent structure** (the grouping of words) in sentences?
 - What argument was made in the video?



6. Constituency tests

- There are **tests** that we can use (if we have access to **native-speaker judgments**) to see whether some sequence of words is a constituent
 - *Warning #1:* Not all tests work for all types of constituents. Always try several tests to see if you can find evidence for constituency.
 - *Warning #2:* When you perform constituency tests, you have to make sure you aren't *deforming the meaning* of the original sentence (*changing* the constituency).

6. Constituency tests

Some useful constituency tests (*CL* Ch 5, sec 1.4)

- **Substitution test**: Can the group of words be **substituted by a single word** (such as a pronoun, a location adverb like *there*, or *do* or *do so* [yes, that last one is technically two words]), keeping the meaning intact?
- Example:

The children will stop at the corner.

→ They will stop at the corner. *ok*

We conclude that *the children* is a constituent in this sentence

6. Constituency tests

- Do the underlined words pass the substitution test?

The children will stop at the corner.

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the substitution test?

The children will stop at the corner.

→ The children will stop there. *ok*

Conclusion: *at the corner* **is** a constituent here

The children will stop at the corner.

→ *The children will ??? corner. * (ungrammatical)

Conclusion: *stop at the* is **not** a constituent here

6. Constituency tests

- Do the underlined words pass the substitution test?

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the substitution test?

The children will stop at the corner.

→ The children will do so. *ok*

Conclusion: *stop at the corner* **is** a constituent here

6. Constituency tests

- It matters what sentence we are looking at!

What are your judgments in the sentences below?

The student tutored me.

→ She tutored me.

(*Is the student a constituent here?*)

The student of physics tutored me.

→ She of physics tutored me.

(*Is the student a constituent here?*)

6. Constituency tests

- It matters what sentence we are looking at!

What are your judgments in the sentences below?

The student tutored me.

→ She tutored me. *ok*

Here, *the student* **is** a constituent

The student of physics tutored me.

→ *She of physics tutored me. *

Here, *the student* is **not** a constituent (by itself),
but *the student of physics* is one (try it!)

6. Constituency tests

Some useful constituency tests (*CL* Ch 5, sec 1.4)

- **Movement test**: Can the group of words be **moved** as a unit (moved to the front of the sentence as in a topicalization), keeping the meaning intact?
- Example:

The children will stop at the corner.

→ At the corner, the children will stop. *ok*

We conclude that *at the corner* is a constituent in this sentence

6. Constituency tests

- Do the underlined words pass the movement test?

The children will stop at the corner.

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the movement test?

The children will stop at the corner.

→ *At the, the children will stop corner. *

Conclusion: *at the* is **not** a constituent here

The children will stop at the corner.

→ *Children will, the stop at the corner. *

Ungrammatical — at least if we don't change the meaning of the words and phrases we are using

Conclusion: *children will* is **not** a constituent here

6. Constituency tests

- Do the underlined words pass the movement test?

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the movement test?

The children will stop at the corner.

→ Stop at the corner, the children will. *ok*

(Note: Moving a verb phrase is not perfectly grammatical for all English speakers. This may sound best if you think of it as a contrast: *Stop at the corner, the children will. But walk along next to us, they won't.*)

Conclusion: *stop at the corner* **is** a constituent here

6. Constituency tests

- Trying the movement test with *the student*...

They saw the student.

→ The student, they saw. *ok*

Here, *the student* **is** a constituent (again, this may sound better if you think of the sentence as making a contrast)

They saw the student of physics.

→ *The student, they saw of physics. *

Here, *the student* is **not** a constituent (by itself), but *the student of physics* is one (try it!)

6. Constituency tests

Some useful constituency tests (*CL* Ch 5, sec 1.4)

- **Coordination test**: Can the group of words be **linked by a conjunction** to another group of words already known to be a constituent, keeping the meaning intact?
- Example:

The children will stop at the corner.

→ [The children] or [I] will stop at the corner. *ok*

We conclude that *the children* is a constituent in this sentence

6. Constituency tests

- Do the underlined words pass the coordination test?

The children will stop at the corner.

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the coordination test?

The children will stop at the corner.

→ The children will stop [at the corner] and [here.] *ok*

Conclusion: *at the corner* **is** a constituent

The children will stop at the corner.

→ *The children will stop [at the] and [this] corner. *

→ *The children will stop [at the] and [there] corner. *

Conclusion: *at the* is **not** a constituent

6. Constituency tests

- Do the underlined words pass the coordination test?

The children will stop at the corner.

6. Constituency tests

- Do the underlined words pass the coordination test?

The children will stop at the corner.

→ The children will [stop at the corner] and [wait]. *ok*

Conclusion: *at the corner* **is** a constituent

6. Constituency tests

- Applying constituency tests can sometimes lead to apparently conflicting results
 - Sometimes, a particular type of phrase fails one (or two) of the constituency tests *for other reasons* — even though it is a constituent
 - Example: It is usually not possible to move a PP out from inside a larger NP, even though that PP is a constituent
- Strategy: Apply all three tests and consider results
 - If the group of words passes *either* Substitution or Movement, it is probably a constituent
 - But: passing *only* Coordination → might be a false positive

7. Review and context for this discussion

- Reminder: Why are constituency tests important?
- We want to know how native speakers' mental grammar groups words into constituents...
 - ...because we want our **model** of mental grammar to do this in the same way

7. Review and context for this discussion

- Syntax is **creative**: humans can produce and understand sentences never seen before
- Linguists want to know: How does this work?
- Our goal is to build a syntax **model** that can:
 - Produce only sentences that native speakers find **grammatical**
 - Make the right predictions about which words in a sentence form **constituents**
- We then hypothesize that the characteristics of our model are like those of human mental grammar

7. Review and context for this discussion

- Overview of our upcoming discussion:
 - Next week, we will look at a **linguistic model** that is designed to generate the structure of phrases within a sentence: the **X' schema**
 - Then, we will investigate how well the phrase structures produced by this model **match** native speakers' behavior concerning **grammaticality** judgments and **constituency** tests
 - We will make additions and refinements to our model when needed to account for the data!