

Lecture 03: Constituents

Andrei Antonenko

LIN 311: Syntax

September 4, 2018

Outline

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Constituency

Intuitions about relations of words

Relations between words

- We have an intuition that some words are more closely related to each other than other.

(1) Three pink elephants flew over the capital of China.

- Which words are related to each other?
 - *three, pink, and elephants*
 - *the, capital, and China*
 - ...

Constituents

Constituent is a group of words that **functions together as a unit**.

Three pink elephants flew over the capital of China

- *three pink elephants*
- *the capital of China*
- ...

Problems

Sometimes it is unclear whether something is a constituent:

- *flew over*
- *over the capital of China*
- *elephants flew*

Constituency

Constituency tests

To determine that a “chunk” of a sentence is a constituent, there are several **constituency tests**:

- ① Movement
- ② Substitution
- ③ Deletion/Ellipsis
- ④ Stand alone
- ⑤ Coordination

These tests are not fool proof. You should always apply a few of them, just in case some of them give you false results for any reason.

Constituency tests: Movement

Movement test

If you can **move a group of words together**, they are functioning as a unit, and form a constituent.

Clefting

(2) It is/was _____ that ...

- (3) a. It was [three pink elephants] that flew over the capital of China
- b. It was [the capital of China] that three pink elephants flew over.

Constituency tests: Movement

Movement test

If you can **move a group of words together**, they are functioning as a unit, and form a constituent.

Preposing

(4) **[Over the capital of China]** flew three pink elephants.

Notice, that's a new constituent which we didn't mention before!

Constituency tests: Movement

Movement test

If you can **move a group of words together**, they are functioning as a unit, and form a constituent.

Preposing

- (5) a. John ran **up the hill**.
b. John ran **up the bill**.
- (6) a. **Up the hill**, John ran.
b. ***Up the bill**, John ran.

- *Up the hill* is a constituent, but *up the bill* is not.

Constituency tests: Movement

Movement test

If you can **move a group of words together**, they are functioning as a unit, and form a constituent.

Preposing

- (7) a. John will **run up the hill**.
b. John will **run up the bill**.
- (8) a. **Run up the hill**, John will.
b. **Run up the bill**, John will.

- *Run up the hill* is a constituent, and so it *run up the bill*.

Constituency tests: Movement – Practice

Movement test

(9) Homer told Lisa that the earth is flat on Thursday.

Constituency tests: Movement – Practice

Movement test

- (10)
- a. Lisa, Homer told that the earth is flat on Thursday.
 - b. That the earth is flat, Homer told Lisa on Thursday.
 - c. On Thursday, Homer told Lisa that the earth is flat.

Movement test

In the sentence

(11) Homer told Lisa that the earth is flat on Thursday.

is the string *Lisa that the earth is flat* a constituent? **No!**

(12) *Lisa that the Earth is flat, Homer told on Thursday.

Constituency tests: Substitution

Substitution test

If you can **replace a group of words** with a single word (keeping the meaning roughly the same) then they form a constituent.

Substitution

- (13) a. **Three pink elephants** flew over the capital of China.
b. **They** flew over the capital of China.
- (14) a. Three pink elephants flew over **the capital of China**.
b. Three pink elephants flew over **it**.

Constituency tests: Substitution

Substitution test

If you can **replace a group of words** with a single word (keeping the meaning roughly the same) then they form a constituent.

Substitution

- (15) a. John ran **up the hill**.
 b. John ran **there**.

- (16) a. John ran **up the bill**.
 b. *John ran **there**.
 c. *John ran **it**.

Different meaning

Different meaning

- *Up the hill* is a constituent, but *up the bill* is not.

Constituency tests: Substitution

Substitution test

If you can **replace a group of words** with a single word (keeping the meaning roughly the same) then they form a constituent.

Substitution

- (17) a. Bonnie **raided the truck with diamond jewelry** ...
 b. ... and Clyde **did (so)** too.

- *Raid the truck with diamond jewelry* is a constituent.

Constituency tests: Substitution – Practice

Substitution test

- (18)
- a. Homer left a tip on the table.
 - b. Bart gets a new radio on his birthdays.
 - c. Homer bought the green deck chair with solar-heated footbath.

Constituency tests: Substitution – Practice

Substitution test

- (19)
- Homer left a tip on the table, but Lisa left a tip under *it*.
 - I left a tip on the table, but Bart didn't leave a tip *there*.
 - Bart gets a new radio on his birthdays, but Milhouse always gets a new synchrotron *then*.
 - Homer bought the green deck chair with solar-heated footbath, and Moe bought the blue *one*.

Substitution test

In the sentence

- (20) Homer handed *the cutest little baby* to Lisa.
is the string *the cutest little baby* a constituent? **Yes!**
- (21) Homer handed *her* to Lisa.

Constituency tests: Deletion/Ellipsis

Deletion test

This is a special constituency test for a constituent called a Verb Phrase (VP). If an item is a VP, then it **can be deleted under (near) identity** with another VP.

Deletion

- (22) a. Bill [found a gold nugget in the stream] but I don't think John will \emptyset .
- b. Bill [found a gold nugget in the stream] but I don't think John will [~~find a gold nugget in the stream~~].

- *find a gold nugget in the stream* is a constituent.

Constituency tests: Deletion/Ellipsis

Deletion test

This is a special constituency test for a constituent called a Verb Phrase (VP). If an item is a VP, then it **can be deleted under (near) identity** with another VP.

Deletion

- (23) a. Bill [found a gold nugget] in the stream but I don't think John will \emptyset in the lake.
b. Bill [found a gold nugget] in the stream but I don't think John will [~~find a gold nugget~~] in the lake.

- *find a gold nugget* is also a constituent.

Constituency tests: Ellipsis – Practice

Ellipsis test

- (24)
- a. Homer left a tip on the table.
 - b. Bart gets a new radio on his birthdays.
 - c. Homer bought the green deck chair with solar-heated footbath

Constituency tests: Ellipsis – Practice

Ellipsis test

- (25)
- a. Homer left a tip on the table, but Marge didn't \emptyset .
 - b. Bart gets a new radio on his birthdays, but Milhouse always gets a new synchrotron \emptyset .
 - c. Homer bought the green deck chair with solar-heated footbath, and Moe bought the blue \emptyset .

Ellipsis test

In the sentence

- (26) I don't know why *Marge plans to visit Waxahachie*.
is the string *Marge plans to visit Waxahachie* a constituent? **Yes!**
- (27) I know that *Marge plans to visit Waxahachie*, but I don't know why \emptyset

Constituency tests: Stand Alone

Stand alone test

Can the group of words be a **response to a question?**

Stand alone

(28) Three pink elephants flew over the capital of China.

(29) a. Who flew over the capital of China?

b. [Three pink elephants.]

(30) a. Where did three pink elephants fly?

b. [Over the capital of China.]

(31) a. What did three pink elephants do?

b. [Flew over the capital of China.]

- *Three pink elephants*, *over the capital of China*, and *flew over the capital of China* are all constituents.

Constituency tests: Coordination

Coordination test

If the group of words can be **coordinated (or conjoined)** with another **string**, then it is a constituent of the same type.

Coordination

- (32) a. John [ran up a hill] and [found his wallet].
b. [John] and [the aging rock star] went to a bar together.
- (33) John ran [up a hill] and [over the valley].
- (34) John ran [up a bill] and [down the valley].

- *Ran up a hill*, *up a hill* are constituents, but *up a bill* is not.
- *Aging rock star* is a constituent.

Constituency tests: Coordination – Practice

Ellipsis test

(35) Homer talked to Marge on Monday.

Constituency tests: Coordination – Practice

Coordination test

- (36)
- a. Homer talked to Marge and to Lisa.
 - b. Homer talked to a woman and a girl.
 - c. Homer chased Bart on Monday and on Tuesday.
 - d. Homer chased Bart and chased Lisa on Monday.
 - e. Homer chased Bart on Monday and chased Lisa on Tuesday.

Coordination test

In the sentence

(37) Homer handed Lisa Maggie yesterday.

is the string *handed Lisa Maggie yesterday* a constituent? **Yes!**

(38) Homer handed Lisa Maggie yesterday and handed Lisa SLH today.

Problems with constituency tests

Coordination test

If the group of words can be **coordinated (or conjoined) with another string**, then it is a constituent of the same type.

Problems with coordination test

(39) *Andrei loved* and *Alëna hated* phonology class.

- It may seem like Subject-Verb pairs *Andrei loved* and *Alëna hated* are constituents according to the coordination test.
- It's not the case: we will talk about why this test fails here later in the semester.
- In the mean time, see what other tests give you in this case.
- **In general, never trust just one test, always use several!**

When constituency tests disagree

(40) Harry doesn't usually believe in new leaders.

(41) I bought expensive delicious sausages.

✗ Movement, ✓ Substitution

(42) a. *Leaders, Harry doesn't usually believe in new.

b. Harry doesn't usually believe in new ones.

(43) a. *Delicious sausages I bought expensive.

b. I bought expensive ones.

✓ Movement, ✗ Substitution

(44) a. *Harry doesn't usually believe in ones.

b. New leaders, Harry doesn't usually believe in.

Constituency: Example

(45) John [eats at really fancy restaurants] .

Stand Alone test

- (46) a. What does John do in his spare time?
b. Eat at really fancy restaurants.

Substitution test

(47) John [eats at really fancy restaurants] and Bill [does (so) too]

Movement test

- (48) a. Eating at really fancy restaurants, that's John's favorite pastime.
b. I told John to eat at really fancy restaurants, and [eat at really fancy restaurants] he will!

Constituency: Example

(49) John [eats at really] fancy restaurants.

Stand Alone test

- (50) a. What does John do in his spare time?
b. *Eats at really.

Substitution test

- (51) *John eats at really fancy restaurants and Bill does so too dirty dives.

Movement test

- (52) a. *Eating at really is what John does fancy restaurants.
b. *It's eating at really that John does fancy restaurants.

Inside the Constituents

Noun Phrases

Inside the Noun Phrase

What can we see inside the noun phrase?

- (53)
- books
 - the books
 - interesting books
 - the interesting books
 - the new interesting books
 - a new interesting expensive book
 - *a the book
 - *the this book

- Can have 0 or 1 determiner at the beginning
- Can have multiple adjectives before N

$NP \rightarrow (D) (AdjP^*) N$

Noun Phrases

Inside the Noun Phrase

What can we see inside the noun phrase?

- (54)
- the book of poems
 - the expensive big book of poems
 - the expensive big book of poems with red cover
 - the expensive big book of poems with red cover from France

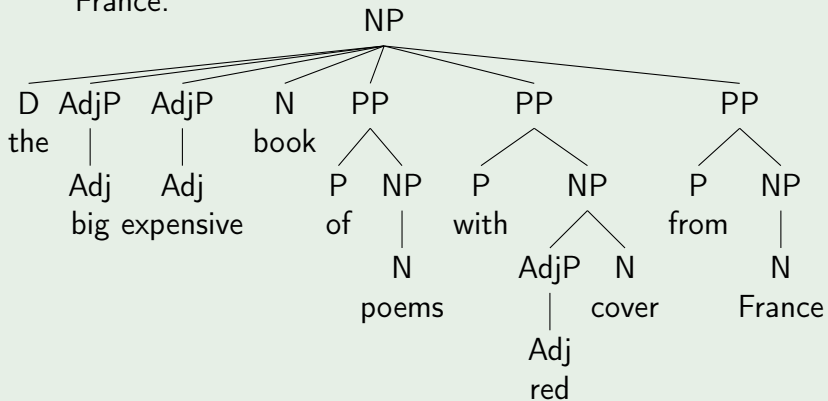
- Can have 0 or 1 determiner at the beginning
- Can have multiple adjectives before N
- Can have multiple prepositional phrases after N

$NP \rightarrow (D) (AdjP^*) N (PP^*)$

Noun Phrases

Example

(55) The big expensive book of poems with red cover from France.



Adjective and Adverb Phrases

Inside the Adverb and Adjective Phrase

What can we see inside the adjective and adverb phrase?

- (56)
- a. red book
 - b. very red book
 - c. He left quickly
 - d. He left rather quickly
 - e. He left extremely quickly

- Must have an adjective or an adverb
- Can have an optional modifier, such as *very* or *rather*.

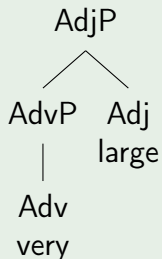
AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

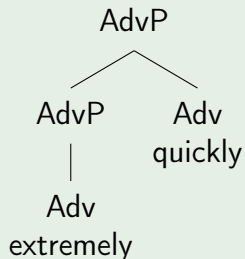
Adjective and Adverb Phrases

Example

(57) very large



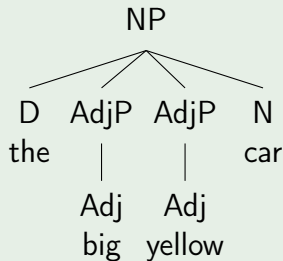
(58) extremely quickly



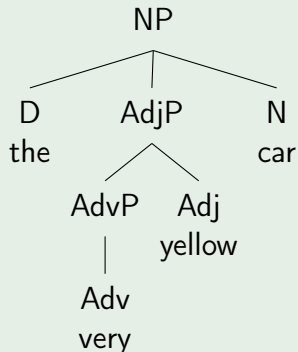
Adjective and Adverb Phrases

Example: Do not get confused what *very* is!

(59) the [big] [yellow] car



(60) the [very yellow] car



Prepositional Phrase

Inside the Prepositional Phrase

What can we see inside the prepositional phrase?

- (61)
- a. on the road
 - b. under the tree
 - c. directly over the rainbow

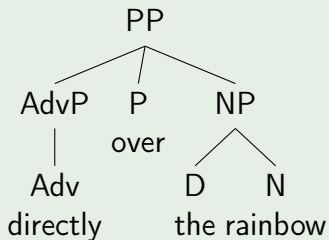
- Must have a preposition
- Must have a noun phrase after
- Can have an adverb before

$PP \rightarrow (AdvP) P NP$

Prepositional Phrases

Example

(62) directly over the rainbow



Verb Phrase

Inside the Verb Phrase

What can we see inside the verb phrase?

- (63)
- a. John sang.
 - b. John sang a song.
 - c. Mary gave John a kiss.
 - d. Mary gave John a kiss in the woods.
 - e. Mary gave John a kiss in the woods without hesitation.

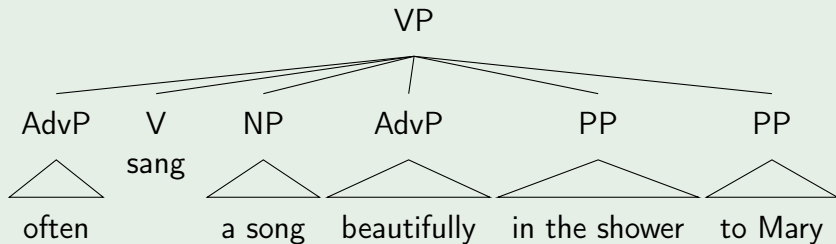
- Must have a verb
- Can have 0, 1, or 2 NPs (depending on the verb)
- Can have multiple PPs.

$$VP \rightarrow V (NP) (NP) (PP^*)$$

Verb Phrases

Example

(65) John **often sang a song beautifully in the shower to Mary.**

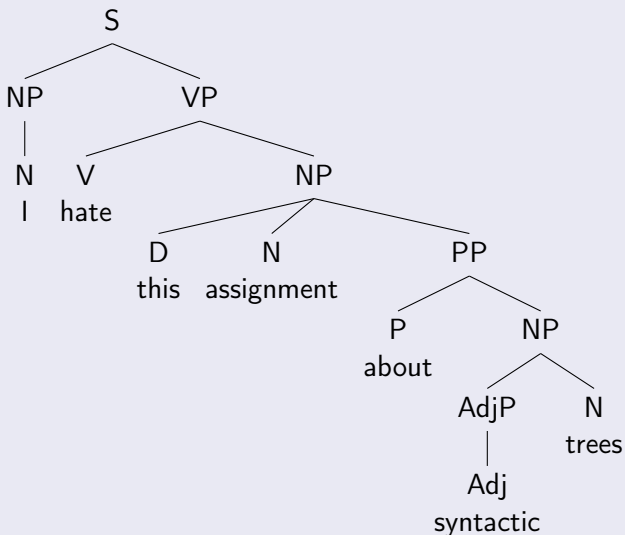


Triangles

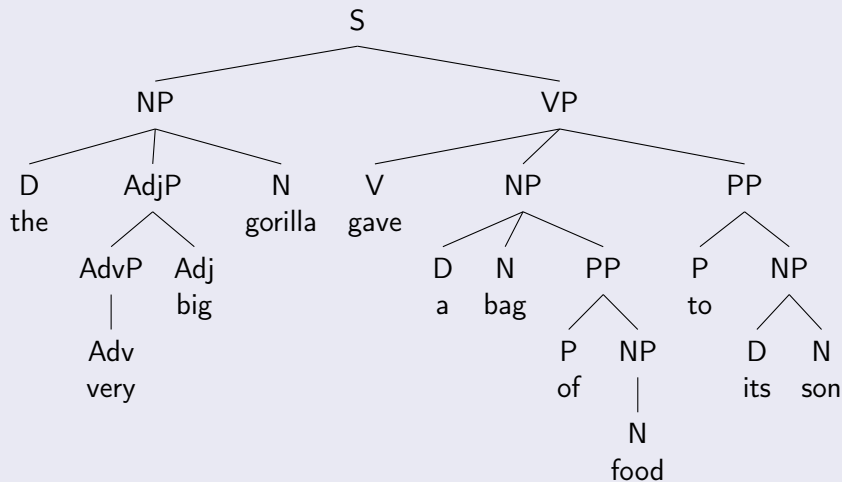
Notice that to save some space, I am using triangles in the tree instead of full phrases. **Don't do it so far in your assignments!** I will let each of you know personally when you can start abbreviating.

Tree examples

I hate this assignment about syntactic trees.



The very big gorilla gave a bag of food to its son.



Are we done?

All of these trees will soon be completely revised. . . It was a good hypothesis, but we will have to change it drastically to account for more data.

Sorry!