



Syntax II

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Previously on 201

Movement test

- If you can move a string of words **together to another place** in a sentence while meaning about the same thing, the string is a constituent.
 - **Clefting**: putting the string of words between **it was/it is** and a **that/who/who** at the beginning of the sentence
 - **Preposing**: putting the string of words before a **is/are what** or **is/are who** at the beginning of the sentence
- She bought a brand new car.
 - **Clefting**: **It was a brand new car** that she bought.
 - **Preposing**: **A brand new car was what** she bought.
- She bought a brand new car.
 - **Clefting**: * **It was bought a brand** that she (did) new car...
 - **Preposing**: * **Bought a brand was what** she (did) new car...

Previously on 201

Movement test

- If you can move a string of words **together to another place** in a sentence while meaning about the same thing, the string is a constituent.
 - **Clefting**: putting the string of words between **it was/it is** and a **that/who/who** at the beginning of the sentence
 - **Preposing**: putting the string of words before a **is/are what** or **is/are who** at the beginning of the sentence
- They played in the garden.
 - in the garden is a constituent
- They played in the garden.
 - played in the garden is a constituent
- They studied for the exam in the library.
 - studied for the exam is a constituent
- They studied for the exam in the library.
 - studied for is not a constituent

Previously on 201

constituent: a group of words that **acts together** as a **unit**

phrases: types of constituents

- Each phrase has a main word or **head**, and they are named after the **head** word's **part of speech** (PoS):
 - **noun phrase (NP)**: *man, the man, the happy man, the man with the hat*
 - **prepositional phrase (PP)**: *into the forest, by the author, for good luck*
 - **verb phrase (VP)**: *eats, eats pizza, eats quickly, eats pizza quickly at noon*
 - **adjective phrase (AdjP)**: *happy, ugly*
 - **adverb phrase (AdvP)**: *quickly, happily*

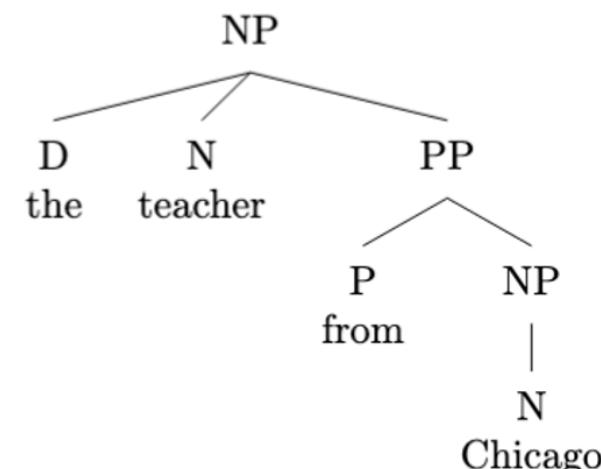
Phrase Structure Rules (PSRs)

There are (descriptive) rules that indicate **how phrases are built out of smaller units** (which could be words or other phrases)

- These rules are called **phrase structure rules**
- They indicate the order and position of the smaller units in a phrase

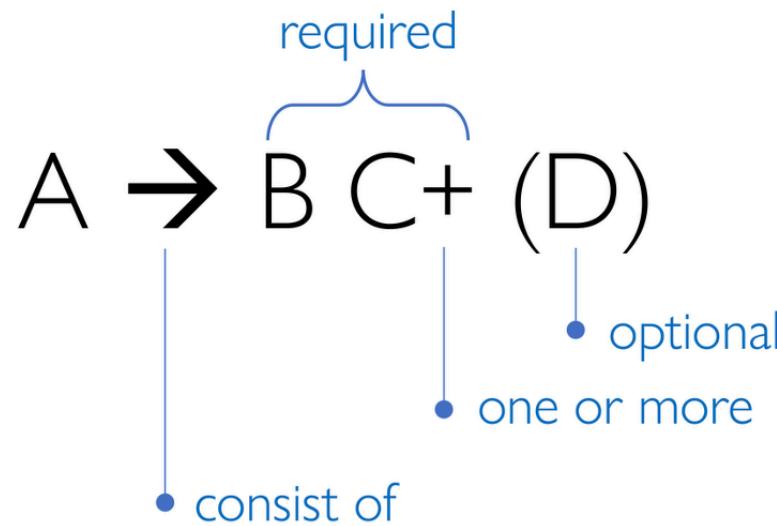
We derive these rules by observing what are the possible structures that exist in natural language

NP → (D) (AdjP+) N (PP)

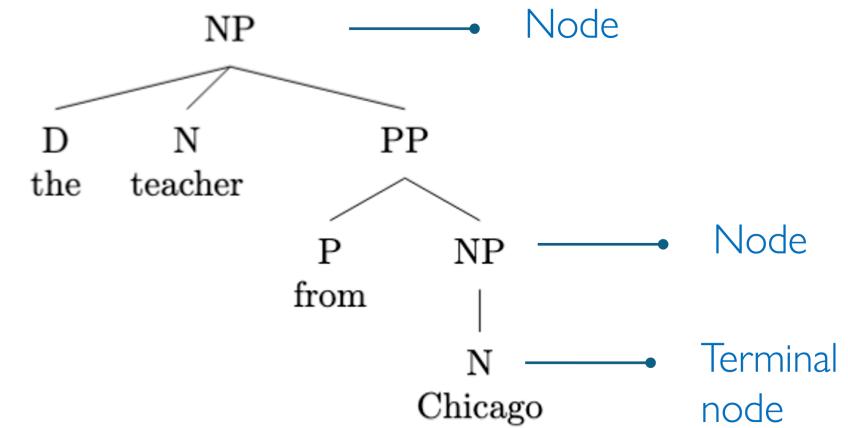


Notational Notes

Phrase structure rules indicate the **order** and **position** of the sub-parts.



$NP \rightarrow (D) (AdjP+) N (PP)$



Phrase Structure Rules for English

- $\text{NP} \rightarrow (\text{D}) (\text{AdjP}+) \text{ N } (\text{PP}+)$
- $\text{PP} \rightarrow \text{P } \text{NP}$
- $\text{AdjP} \rightarrow (\text{AdvP}) \text{ Adj}$
- $\text{AdvP} \rightarrow (\text{AdvP}) \text{ Adv}$
- $\text{VP} \rightarrow (\text{AdvP}+) \text{ V } (\text{NP}) (\text{NP}) (\text{AdvP}+) (\text{PP}+) (\text{AdvP}+)$
- $\text{TP} \rightarrow \text{NP } (\text{T}) \text{ VP}$
- $\text{CP} \rightarrow \text{C } \text{TP}$

Practice

NP, PP, AdjP, AdvP

Draw a syntax tree for the underlined phrases.

a. I ate an apple.

b. Don't stare at the bright sun.

c. John went into the building.

d. They're like peas in a pod.

e. The bakery sells wonderfully fresh bread.

f. I like to drive really slowly.

g. Mary helped the man in the car with the flat tire.

h. I threw a ball to the dog with a collar in the park.

NP → (D) (AdjP+) **N** (PP+)

PP → **P** NP

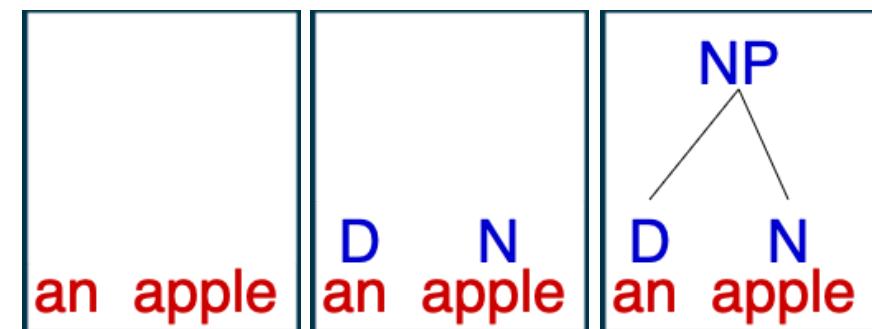
AdjP → (AdvP) **Adj**

AdvP → (AdvP) **Adv**

TP → NP (**T**) VP

CP → **C** TP

VP → (AdvP+) **V** (NP) (NP) (AdvP+) (PP+) (AdvP+)



In g does *with the flat tire* modify 'the man' or 'the car'? What about *in the park* in h?

Practice

NP, PP, AdjP, AdvP

b. the bright sun

NP → (D) (AdjP+) N (PP+)

PP → P NP

AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

TP → NP (T) VP

CP → C TP

VP → (AdvP+) V (NP) (NP) (AdvP+) (PP+) (AdvP+)

Practice

NP, PP, AdjP, AdvP

b. the bright sun

NP → (D) (AdjP+) N (PP+)

PP → P NP

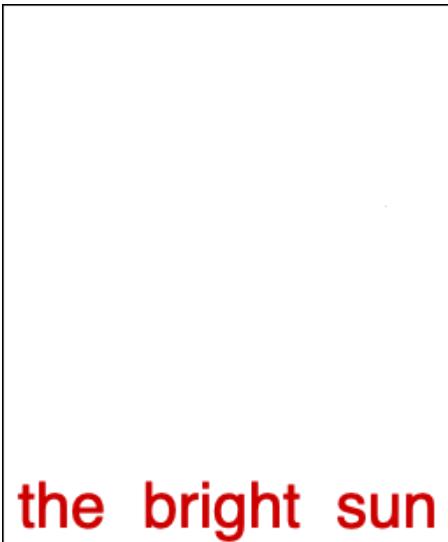
AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

TP → NP (T) VP

CP → C TP

VP → (AdvP+) V (NP) (NP) (AdvP+) (PP+) (AdvP+)



Practice

NP, PP, AdjP, AdvP

b. the bright sun

NP → (D) (AdjP+) N (PP+)

PP → P NP

AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

TP → NP (T) VP

CP → C TP

VP → (AdvP+) V (NP) (NP) (AdvP+) (PP+) (AdvP+)

the bright sun

D Adj N
the bright sun

Practice

NP, PP, AdjP, AdvP

b. the bright sun

NP → (D) (AdjP+) N (PP+)

PP → P NP

AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

TP → NP (T) VP

CP → C TP

VP → (AdvP+) V (NP) (NP) (AdvP+) (PP+) (AdvP+)

the bright sun

D Adj N
the bright sun

AdjP
|
D Adj N
the bright sun

Practice

NP, PP, AdjP, AdvP

b. the bright sun

NP → (D) (AdjP+) N (PP+)

PP → P NP

AdjP → (AdvP) Adj

AdvP → (AdvP) Adv

TP → NP (T) VP

CP → C TP

VP → (AdvP+) V (NP) (NP) (AdvP+) (PP+) (AdvP+)

the bright sun

D Adj N
the bright sun

AdjP
D Adj N
the bright sun

NP
AdjP
D Adj N
the bright sun

Practice

NP, PP, AdjP, AdvP

NP → (D) (AdjP+) **N** (PP+)

PP → **P** NP

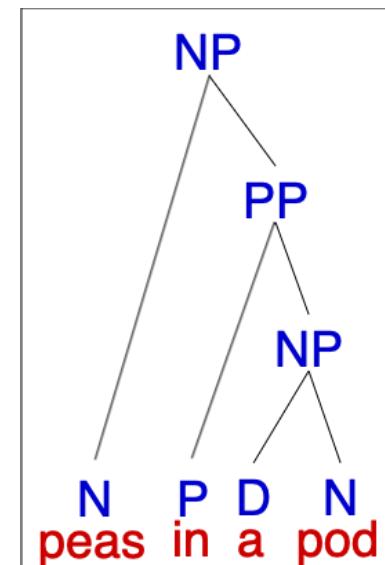
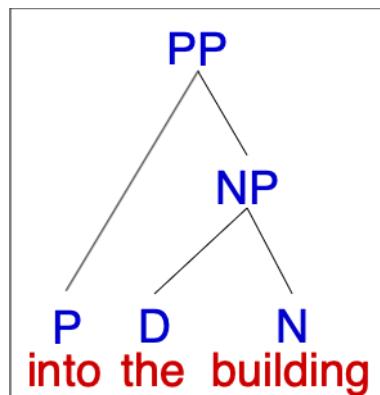
AdjP → (AdvP) **Adj**

AdvP → (AdvP) **Adv**

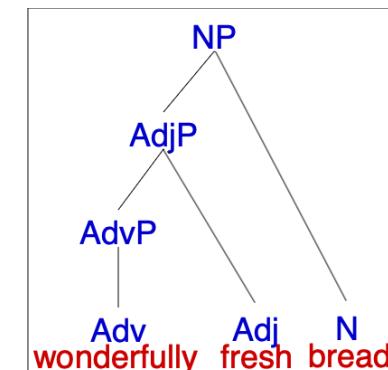
TP → NP (**T**) VP

CP → **C** TP

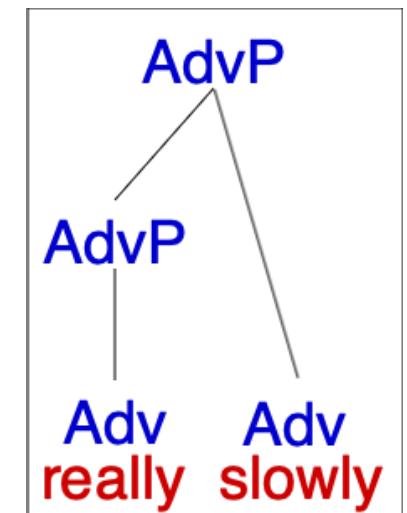
VP → (AdvP+) **V** (NP) (NP) (AdvP+) (PP+) (AdvP+)



c. 'into the building'



e. 'wonderfully fresh bread'

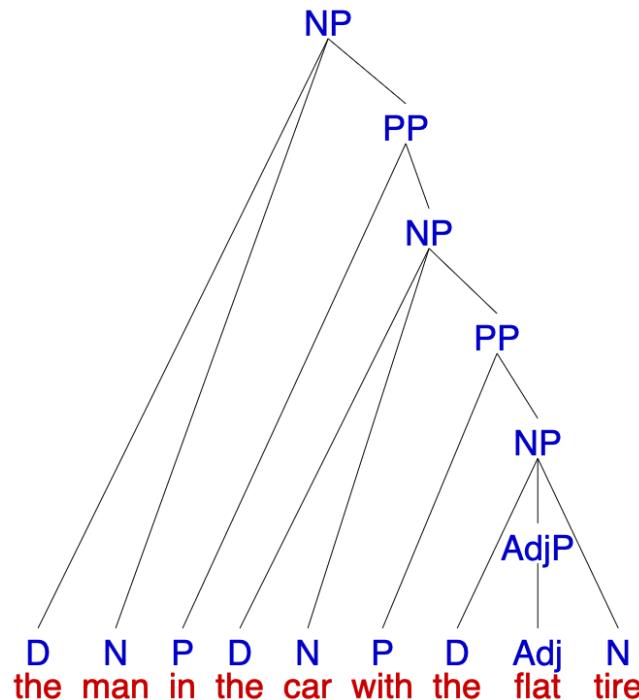


f. 'really slowly'

Practice

NP, PP, AdjP, AdvP

g. the man in the car with the flat tire



NP → (D) (AdjP+) **N** (PP+)

PP → **P** NP

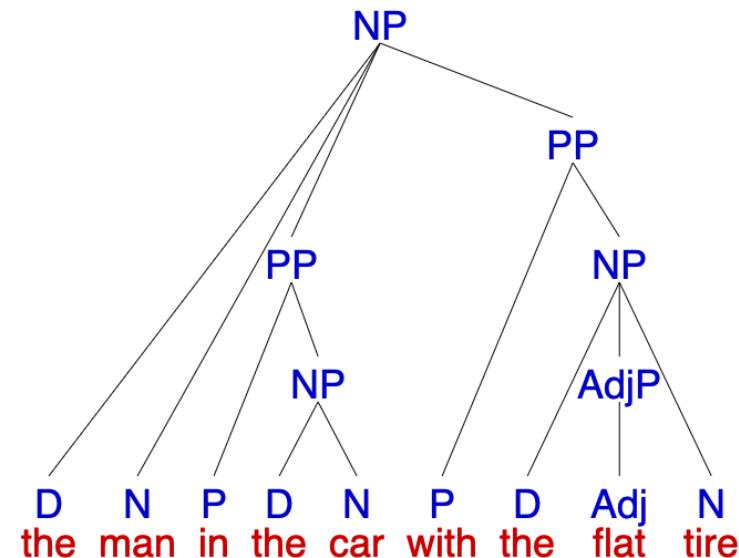
AdjP → (AdvP) **Adj**

AdvP → (AdvP) **Adv**

TP → NP (**T**) VP

CP → **C** TP

VP → (AdvP+) **V** (NP) (NP) (AdvP+) (PP+) (AdvP+)

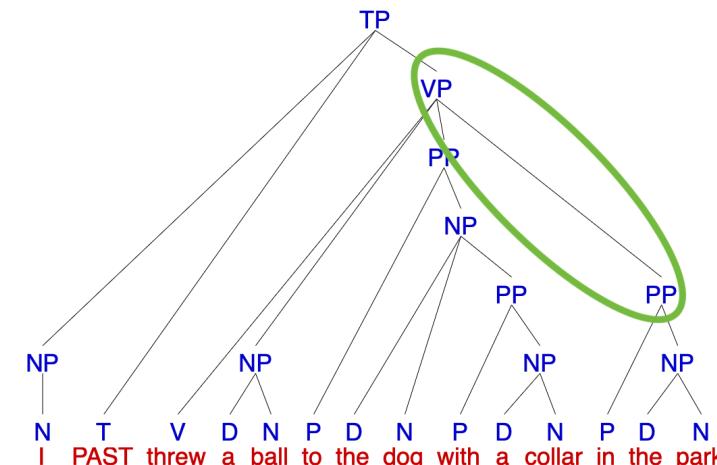
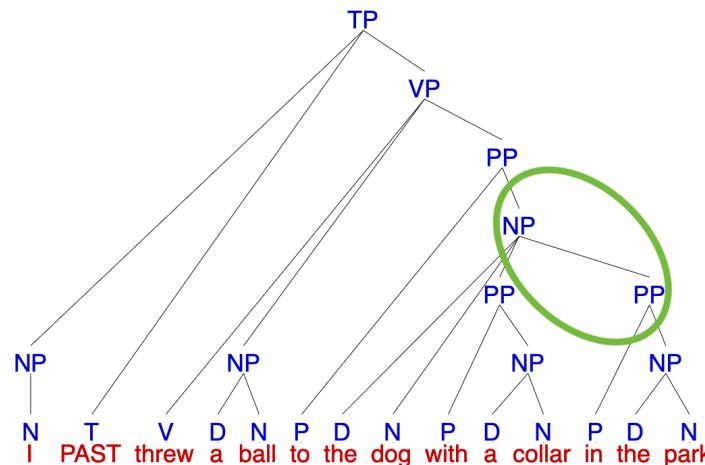


Quick Notes

h. I throw a ball to the dog with a collar in the park.

1. draw an AdjP for **each** adjective, an AdvP for **each** adverb

2. if X modifies Y, X must be a child of the same parent as Y



- So here on the **LEFT**, PP is under a NP, which means this PP modifies the **head N** (dog) in the NP (dog is in the park); and on the **RIGHT**, PP is under a VP, which means this PP modifies the **head V** (threw) in the VP (thowing happens in the park). This is where sometimes there is **AMBIGUITY!** It is because of PP can be under either an NP or a VP according to our **phrase structure rules**.

Tense Phrases (TP)

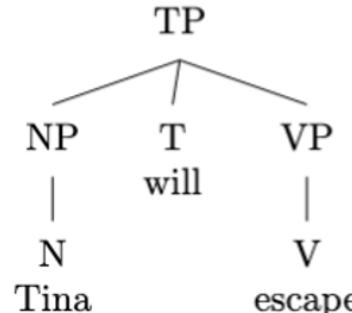
Sentences are labeled as tense phrases. In many cases, we can split a sentence into a **NP** and a **VP**

- **TP** → **NP (T) VP**

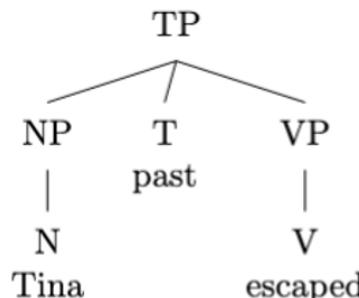
The **head** of a TP is the **T(ense)** node

It can be occupied by:

- overt **auxiliaries** (is, was, are, will, have...)
- **modals** (can, could...), or
- infinitive marker **to**
- abstract **present/past tense**



'Tina will escape.'



'Tina escaped.'

Practice

VP, TP

Draw a syntax tree for the following sentences.

- The robin caught a worm.
- The mockingbird was singing.
- The sparrow on the windowsill chirped loudly.
- The osprey brought its hungry chicks a fish.
- The large owl lives in a nest in the barn.
- The duck quickly led her ducklings across the street.

NP → (D) (AdjP+) **N** (PP+)

PP → **P** NP

AdjP → (AdvP) **Adj**

AdvP → (AdvP) **Adv**

TP → NP (**T**) VP

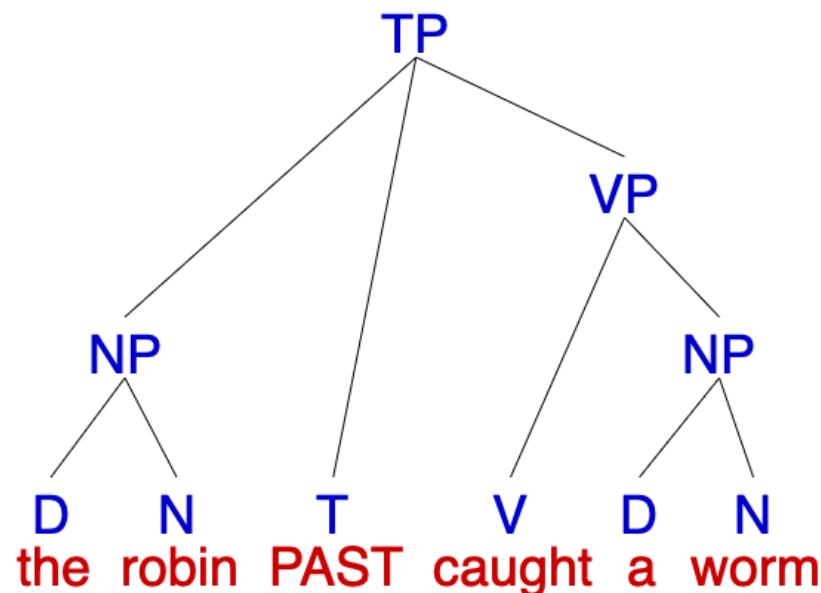
CP → **C** TP

VP → (AdvP+) **V** (NP) (NP) (AdvP+) (PP+) (AdvP+)

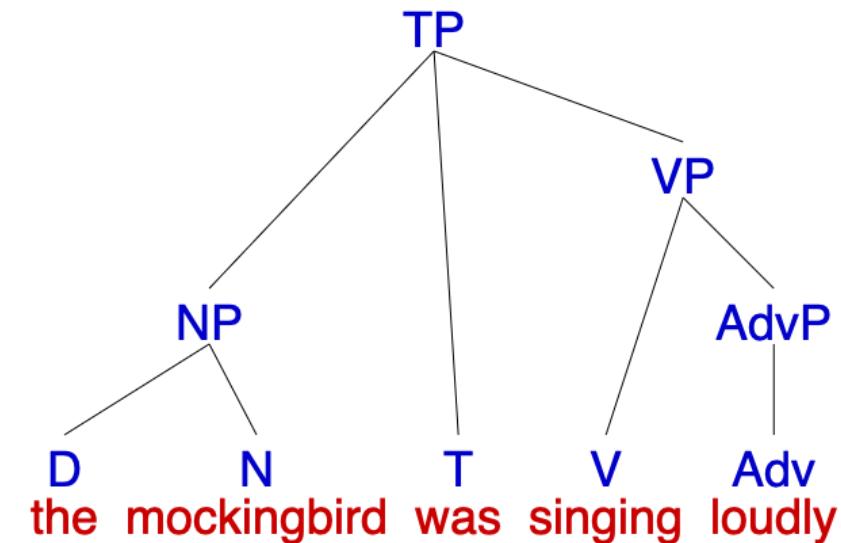
challenge: The irritable bluejay noisily warned the other small birds about the very large circling hawk in the clear sky.

Practice

VP, TP



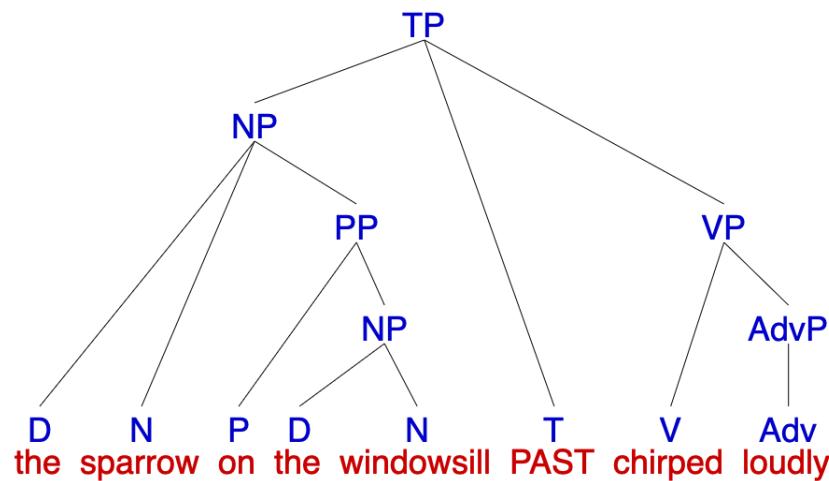
a. '*The robin caught a worm.*'



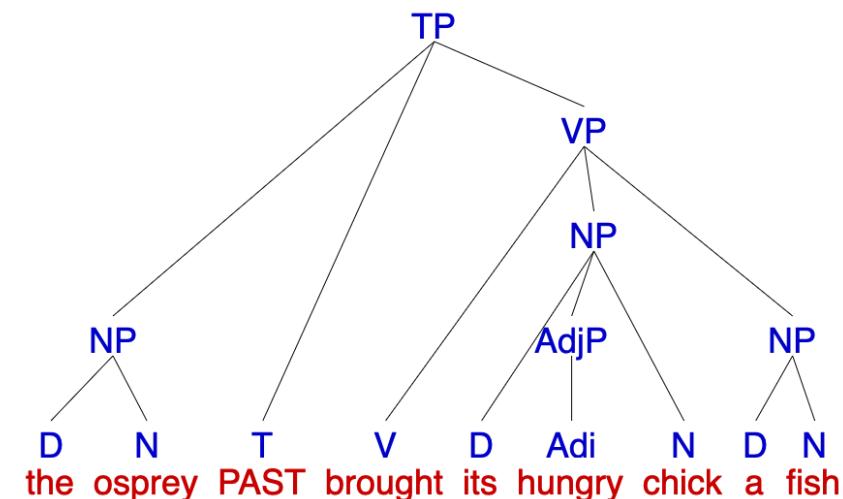
b. '*The mockingbird was singing loudly.*'

Practice

VP, TP



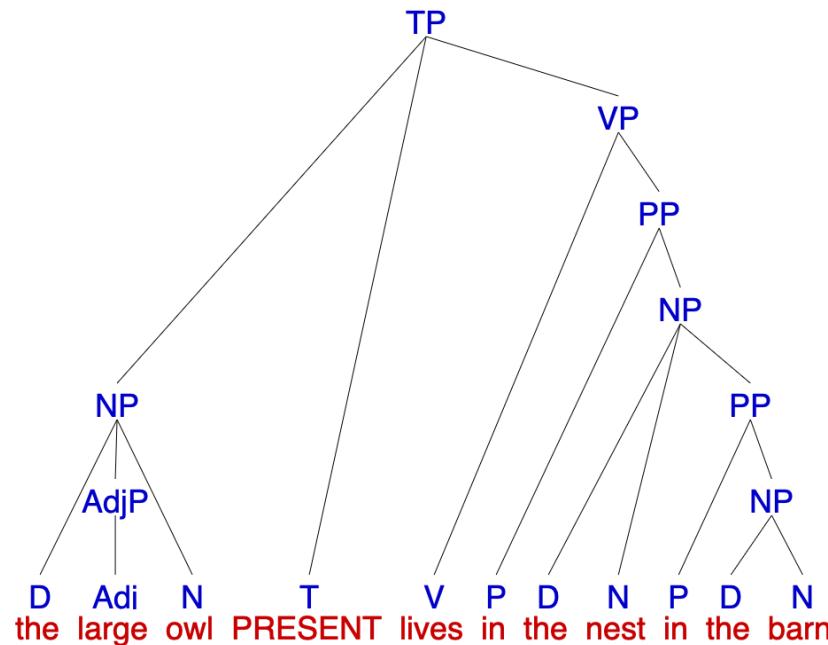
c. 'The sparrow on the windowsill chirped loudly.'



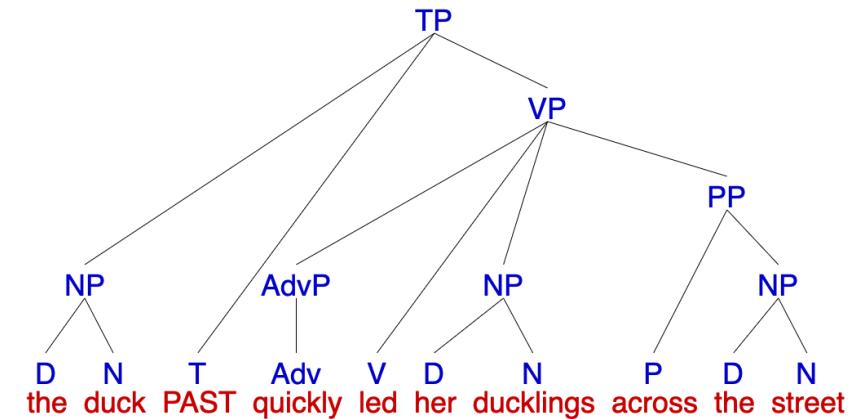
d. 'The osprey brought its hungry chicks a fish.'

Practice

VP, TP



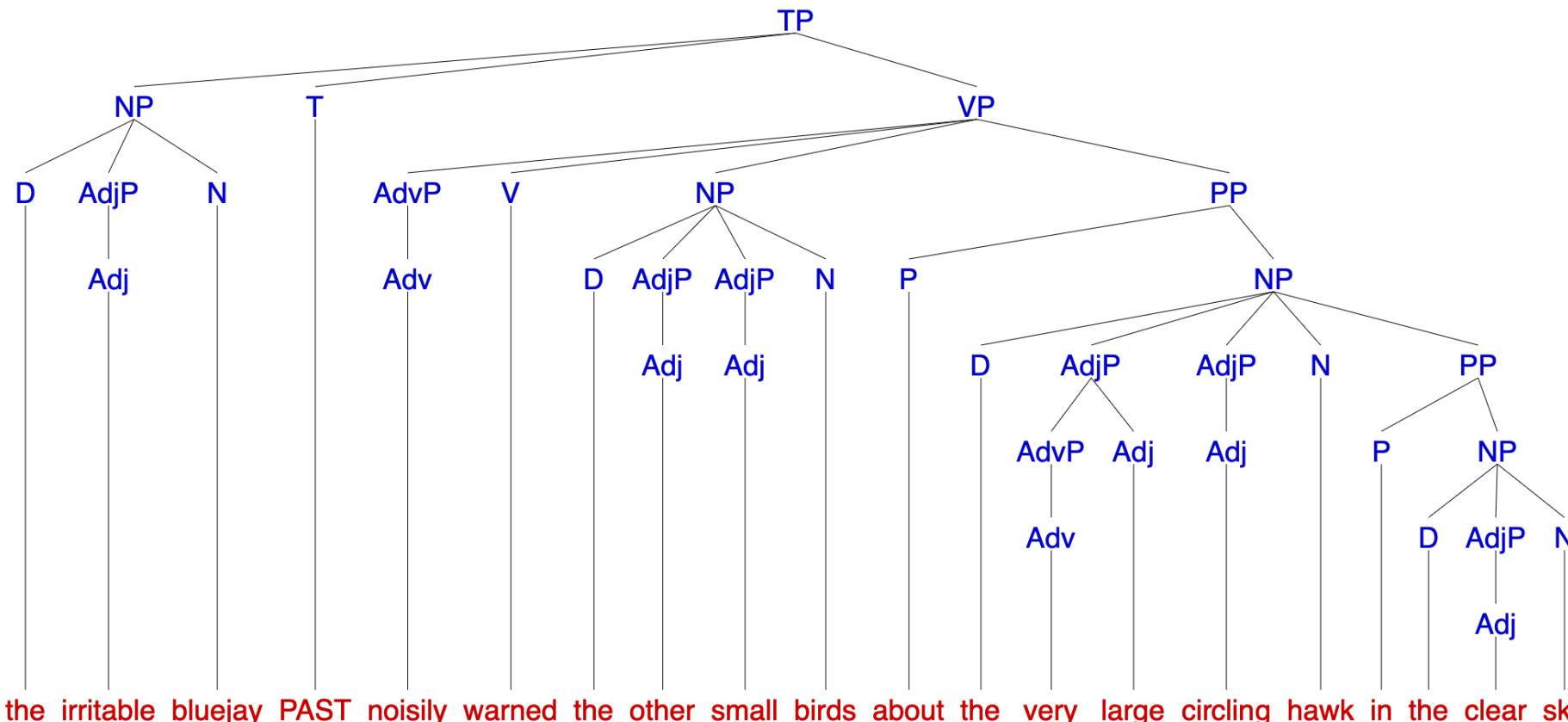
e. '*The large owl lives in a nest in the barn.*'



f. '*The duck quickly led her ducklings across the street.*'

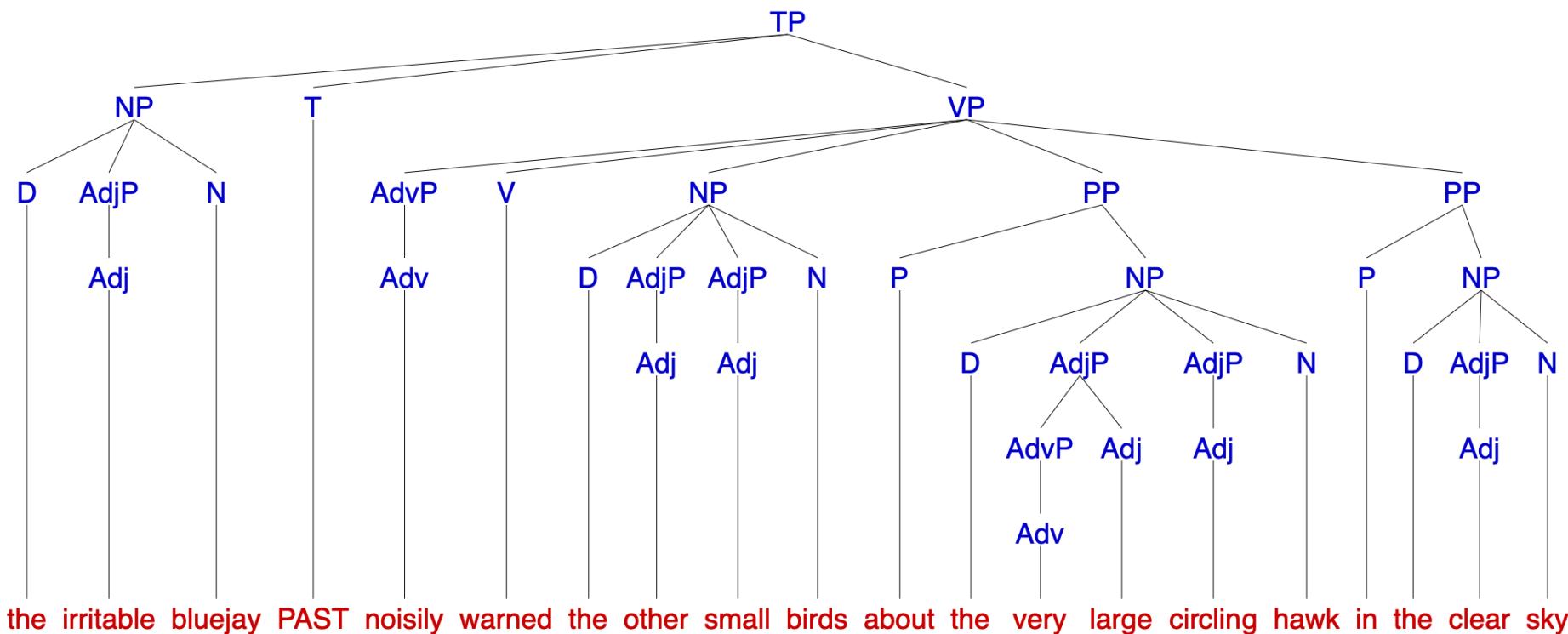
Practice

VP, TP



Practice

VP, TP



★ 'The irritable bluejay noisily warned the other small birds about the very large circling hawk in the clear sky.'

Complementiser Phrases (CP)

Consider the following sentence:

- Tina thinks that her brother has finished his homework.

Is the underlined string a constituent?

- That her brother has finished his homework is what Tina thinks.
- What does Tina think? That her brother has finished his homework.

CPs are sentences preceded by a complementiser:

- **CP** → **C TP**

Complementiser Phrases (CP)

Consider the following sentence:

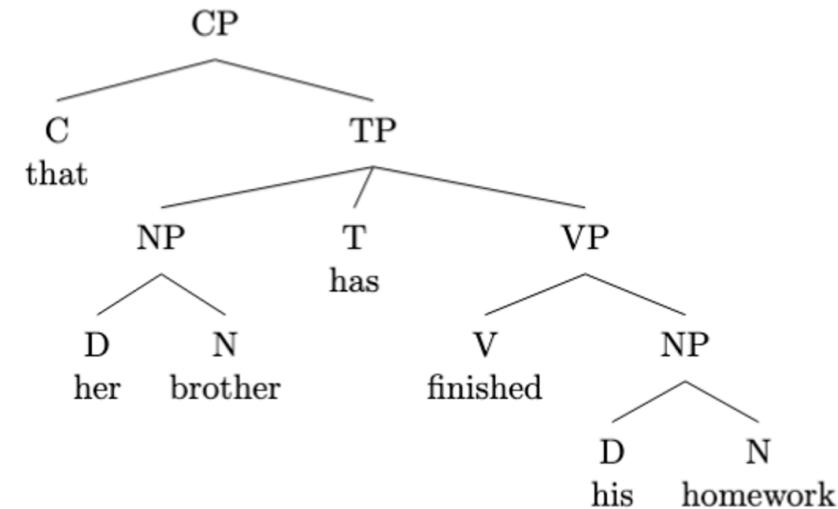
- Tina thinks that her brother has finished his homework.

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- What does Tina think? That her brother has finished his homework.

CPs are sentences preceded by a complementiser:

- CP → C TP**

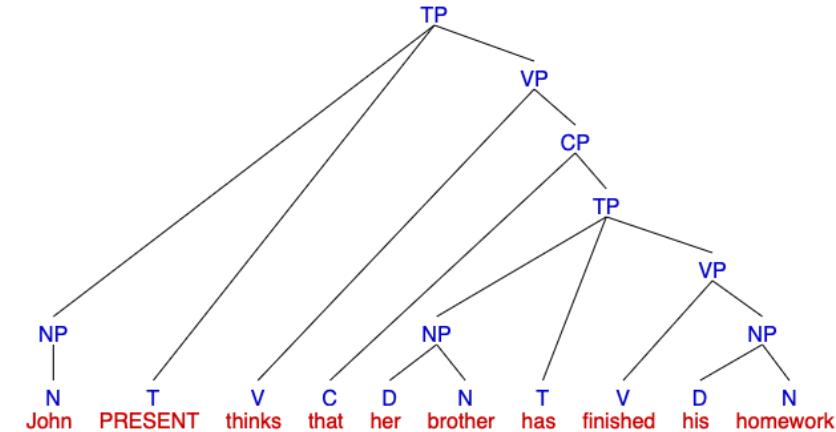


'*that her brother has finished his homework*'

Revised VP

VP → (AdvP+) **V** (NP)
(NP) (AdvP+) (PP+) (AdvP+)

VP → (AdvP+) **V** (NP)
{(NP, CP)} (AdvP+) (PP+)
(AdvP+)



Practice

complex sentences

Identify the **complementiser** (if any) in each of these sentences, and determine whether:

- the CP is **acting as** an NP, AdvP, or AdjP
- the CP it is **being inserted into** an NP or a VP.

- a. John said that he likes pizza.
- b. The dog I saw can run fast.
- c. I will take an umbrella if it rains.
- d. I am studying because I am taking a test tomorrow.
- e. I saw a deer that was grazing in the park.
- f. I want to go to California.

NP → (D) (AdjP+) **N** (PP+)

PP → **P** NP

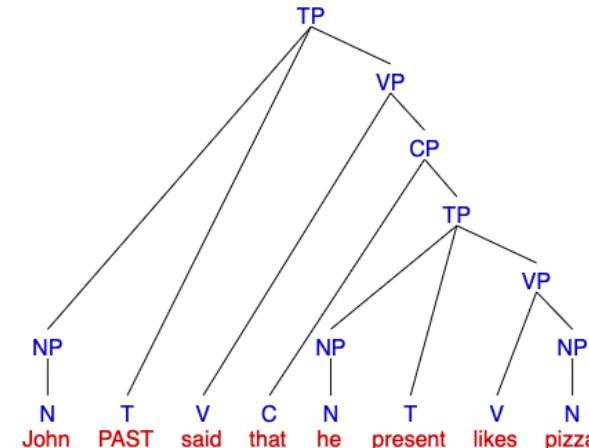
AdjP → (AdvP) **Adj**

AdvP → (AdvP) **Adv**

TP → NP (**T**) VP

CP → **C** TP

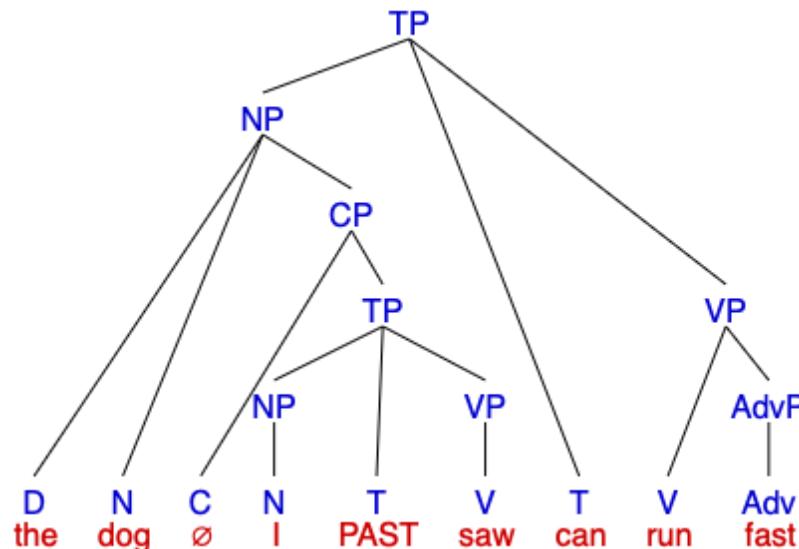
VP → (AdvP+) **V** (NP) (NP) (AdvP+) (PP+) (AdvP+)



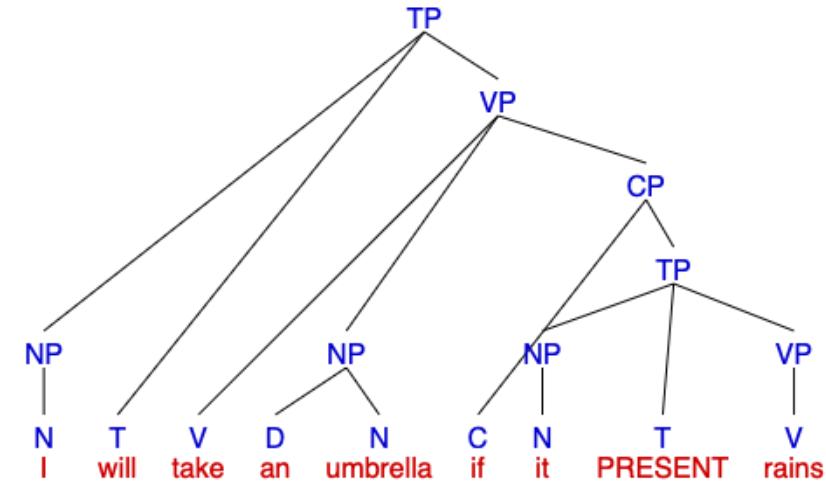
'John said that he likes pizza.'

Practice

complex sentences



'The dog I saw can run fast.'



'I will take an umbrella if it rains.'

Part 1, Homework 2

a. maen mixunaem	'I am reading.'
b. maen ketab nemixunaem	'I am not reading a book.'
c. shoma ketab mixunid	'You are reading a book.'
d. shoma ketab nexundid	'You did not read a book.'
e. maen ketab xundaem	'I read (past tense) a book.'
f. maen nexundaemesh	'I did not read it.'

-
- 1. 'read'
 - 2. 'book'
 - 3. negation ('not')
 - 4. 1st person ('I')
 - 5. 2nd person ('you')
 - 6. 'it'
 - 7. present progressive tense
 - 8. past tense

- i. 'I am reading a book.'
- ii. 'I am not reading.'
- iii. 'You read (past tense) a book.'
- iv. 'You are reading it.'

Part 1, Homework 2

- | | |
|---------------------------------------|-------------------------------|
| a. maen mixunaem | 'I am reading.' |
| b. maen keta ⁿ ne mixunaem | 'I am not reading a book.' |
| c. shoma keta ⁿ mixunid | 'You are reading a book.' |
| d. shoma keta ⁿ nexundid | 'You did not read a book.' |
| e. maen keta ⁿ xundaem | 'I read (past tense) a book.' |
| f. maen nexundaemesh | 'I did not read it.' |

step 1, compare:

- a. maen mixunaem
- b. maen ketaⁿ ne mixunaem

result: now we know, **ketaⁿ** and **ne** are *book* and *not*, but we don't know which one is which

step 2, compare:

- b. maen ketaⁿ ne mixunaem
- c. shoma ketaⁿ mixunid

result: now we know **ketaⁿ** is *book* and **ne** is *not*
why don't we compare b and d?

Part 1, Homework 2

- | | |
|--------------------------|-------------------------------|
| a. maen mixunaem | 'I am reading.' |
| b. maen ketab nemixunaem | 'I am not reading a book.' |
| c. shoma ketab mixunid | 'You are reading a book.' |
| d. shoma ketab nexundid | 'You did not read a book.' |
| e. maen ketab xundaem | 'I read (past tense) a book.' |
| f. maen nexundaemesh | 'I did not read it.' |
-

step 3, compare all sentences with **maen** and all sentences with **shoma**

result: now we know **maen** is *I* and **shoma** is *you*

step 4, compare:

- a. maen mixunaem
- c. shoma ketab mixunid

result: now we know **mixun** is *am/are reading*

Part 1, Homework 2

- | | |
|--------------------------|-------------------------------|
| a. maen mixunaem | 'I am reading.' |
| b. maen ketab nemixunaem | 'I am not reading a book.' |
| c. shoma ketab mixunid | 'You are reading a book.' |
| d. shoma ketab nexundid | 'You did not read a book.' |
| e. maen ketab xundaem | 'I read (past tense) a book.' |
| f. maen nexundaemesh | 'I did not read it.' |
-

step 5, compare:

- a. maen mixunaem
- e. maen ketab xundaem

result 1: now we know **mixun** is *am/are reading*

and **xund** is *read (past tense)*

result 2: we also know that **xun** is *read*, **mi** is
present progressive tense and **d** is *is past tense*

step 6, compare:

- b. maen ketab nemixunaem
- f. maen nexundaemesh

result: the only difference now tells us that **esh** is *it*

Part 1, Homework 2

- | | |
|----------------------------------|-------------------------------|
| a. maen mixun <u>aem</u> | 'I am reading.' |
| b. maen ketab nemixun <u>aem</u> | 'I am not reading a book.' |
| c. shoma ketab mixun <u>id</u> | 'You are reading a book.' |
| d. shoma ketab nexund <u>id</u> | 'You did not read a book.' |
| e. maen ketab xund <u>aem</u> | 'I read (past tense) a book.' |
| f. maen nexund <u>aem</u> esh | 'I did not read it.' |
-

step 7: check whether what we currently assume is working

- **yet do we finish everything?** nope, we still have aem and id to figure out
- it seems they are not **tense**-related, since in **a** and **e** (or **c** and **d**), aem (or id) can occur either in *present progressive tense* or in *past tense*

Part 1, Homework 2

- | | |
|--------------------------------------|-------------------------------|
| a. maen mixun <u>aem</u> | 'I am reading.' |
| b. maen ketab nemixun <u>aem</u> | 'I am not reading a book.' |
| c. shoma ketab mixun <u>id</u> | 'You are reading a book.' |
| d. shoma ketab nexund <u>id</u> | 'You did not read a book.' |
| e. maen ketab xund <u>aem</u> | 'I read (past tense) a book.' |
| f. maen nexund <u>aem</u> <u>esh</u> | 'I did not read it.' |
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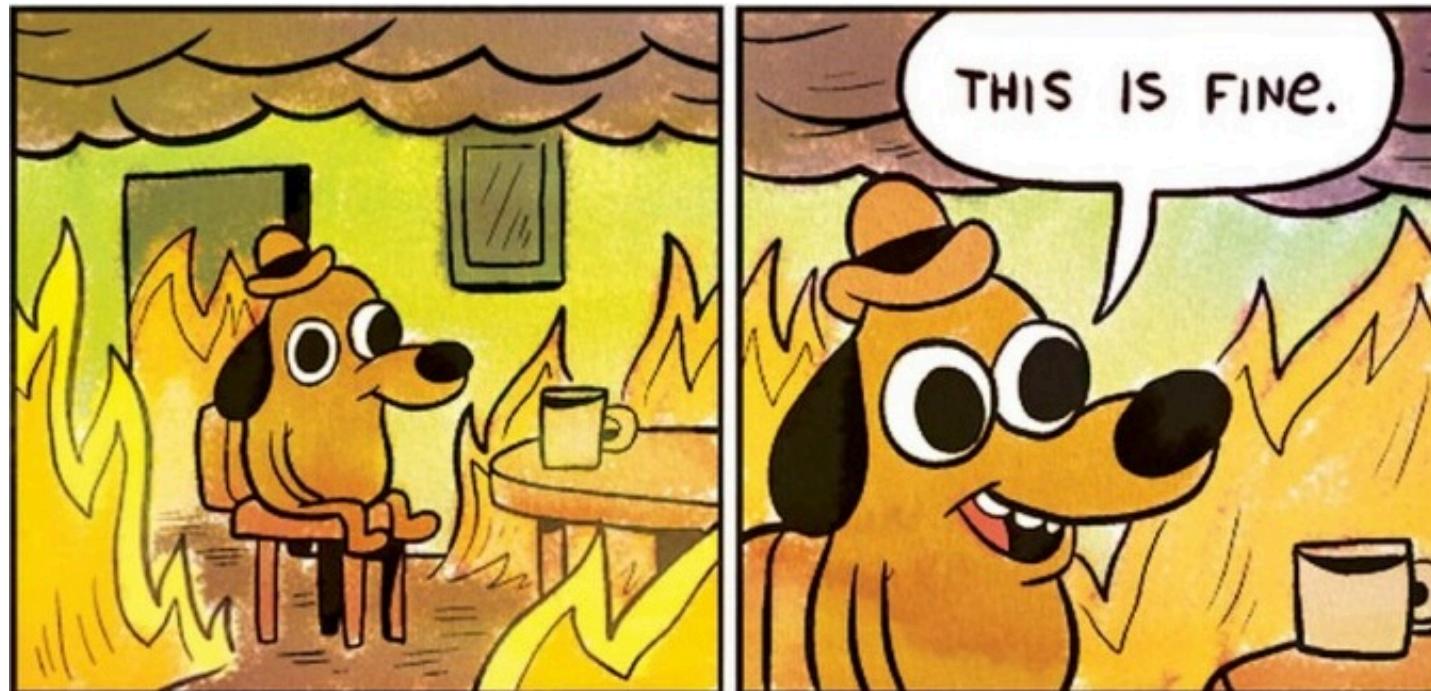
- | | |
|-----------------------|--------------------|
| 1. 'read' | xun |
| 2. 'book' | ketab |
| 3. negation ('not') | ne- |
| 4. 1st person ('I') | maen & <u>-aem</u> |
| 5. 2nd person ('you') | shoma & <u>-id</u> |
| 6. 'it' | <u>-esh</u> |
| 7. pres. progressive | mi- |
| 8. past | <u>-id</u> |

- | | |
|--------------------------------------|--------------------------------------|
| i. 'I am reading a book.' | maen ketab mi-xun- <u>aem</u> |
| ii. 'I am not reading.' | maen ne-mi-xun- <u>aem</u> |
| iii. 'You read (past tense) a book.' | shoma ketab xun-d- <u>id</u> |
| iv. 'You are reading it.' | shoma mi-xun- <u>id</u> - <u>esh</u> |

HOMEWORK III

is due this Sunday

Mid-term: next Friday 10:20 - 11:40 am, Oct 10, 2025 at **ED-025B** (clickable)



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