Ling 120B: Syntax I

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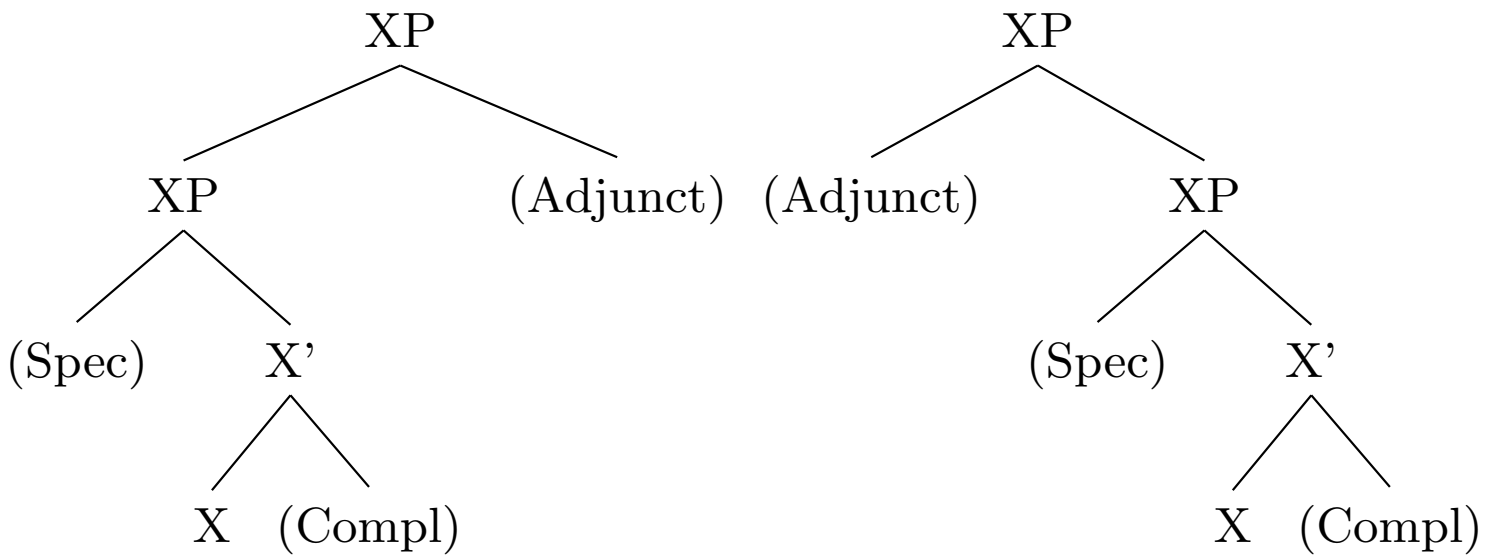
X-bar Theory I

Behind the range of diverse constructions that English and other languages allow, we find surprising uniformity and regularity.

- Last week we introduced the idea that the rule system that underlies our phrases is very simple.
- Every phrase looks the same!
- For English, syntax will be the iteration of:



This is called **X-bar Theory**.

How do we define complements, specifiers and adjuncts?

(i) **complement**: sister to X.

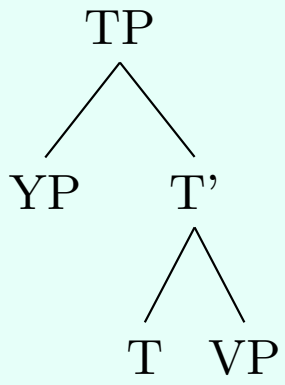
(ii) **specifier**: sister to X', daughter of XP.

(iii) **adjunct**: sister to XP, daughter of XP.

Tense Phrases (TPs)

TP:

- The head: T
- Complement: VP
- Specifier: The subject (DP or CP)



Here are the lexical entries:

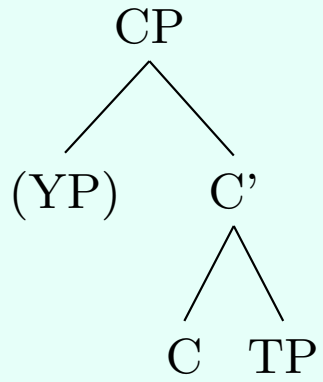
to	T	free	selects DP/CP	c-selects VP	
will	T	free	selects DP/CP	c-selects VP	meaning: future
[+**pres**]	T	bound	selects DP/CP	c-selects VP	meaning: present
[**-pres**]	T	bound	selects DP/CP	c-selects VP	meaning: past

Complementizer Phrases (CPs)

Here is the proposal:

- the complementizer *that* is the head of this constituent. It selects for a TP complement.
- The X' schema applies to CPs as well:

CP:
- The head: C
- Complement: TP
- Specifier: wh-phrases in wh-questions.



Here are the lexical entries for the four complementizers above

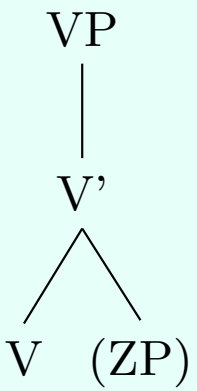
that/∅	C	free	selects finite +tense TP complement
if	C	free	selects finite +tense TP complement
for	C	free	selects non-finite -tense TP complement
whether	C	free	selects TP complement

c-selects X ≡ selects for X complement

Verb Phrases (VPs) I

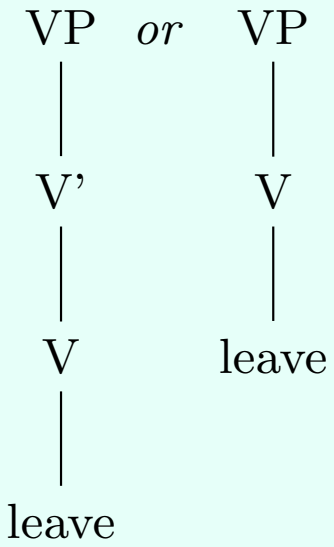
VP:

- The head: V
- Complement(s): DPs, CPs, PPs, (TPs).
- Specifier: none (for now)

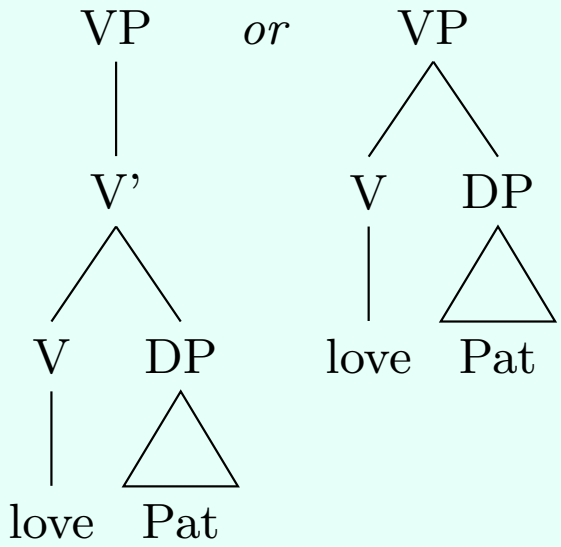


Verb Phrases (VPs) II

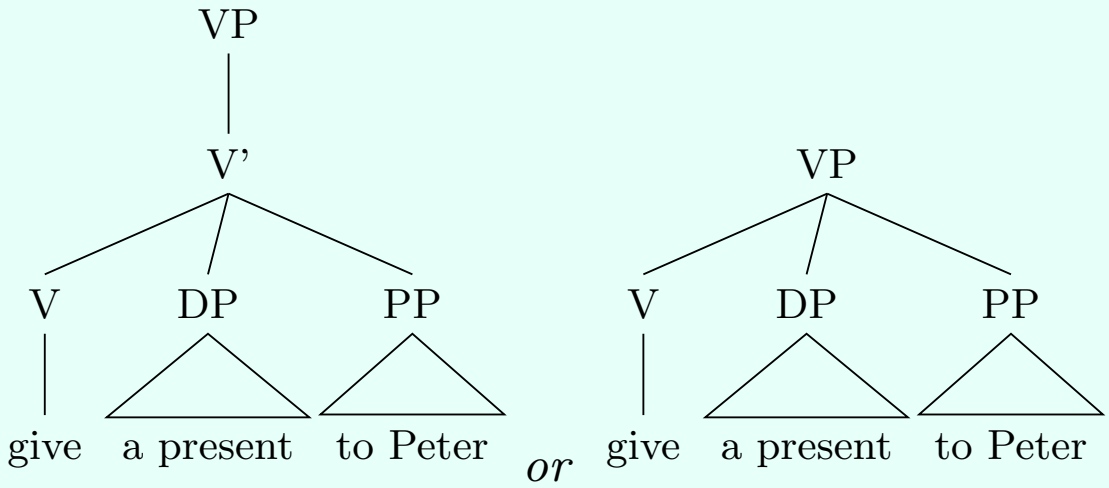
Intransitive verbs



Transitive verbs



Ditransitive verbs



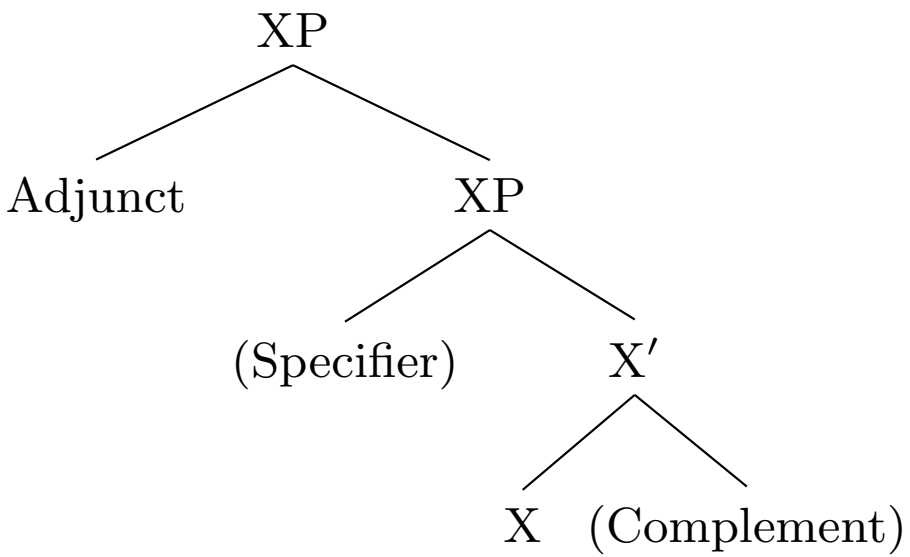
Verb Phrases (VPs) III

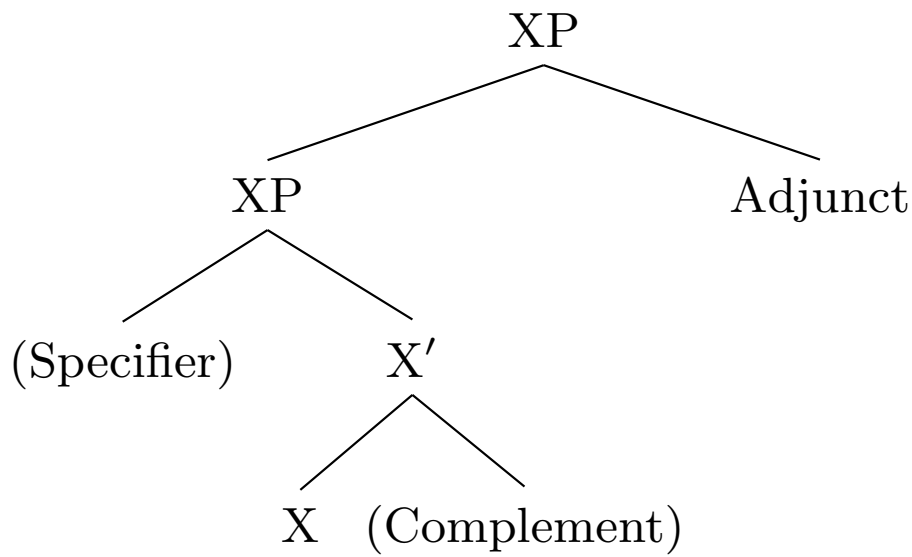
V complement adjunct order

The three rules we have so far:

(i) Complement rule (ii) Specifier rule (ii) Adjunct rule

are able to generate the following phrases:





This makes the prediction that when the adjunct is on the right side, it must follow the complement:

Head >> Complement >> Adjunct

Verb Phrases (VPs) IV

(1) a. The professor will [$_{V}$ write] [$_{COMPL}$ a poem] [$_{ADJ}$ with the fountain pen]
b.*The professor will [$_{V}$ write] [$_{ADJ}$ with the fountain pen] [$_{COMPL}$ a poem]

Summary: VP structure

- the head of the VP is the verb;
- *transitive* and *ditransitive* verbs select for complement(s): they are sisters of V (we merge them applying the **complement rule**);
- No specifier in the VP (not yet!)
- Adjuncts attach to the maximal projection (the VP)
- *do so* replaces VP (complements must be included).
  If a phrase needs not be included as part of the sequence being replaced by do so, then it is an adjunct. If it must be included, then it is a complement.

Verb Phrases (VPs) V

Here are the lexical entries:

leave	V	free		example 'John left'
kiss	V	free	c-selects DP	example 'Mary kissed John'
eat	V	free	(c-selects DP)	examples 'John ate (a cookie)'
give	V	free	c-selcts DP, PP	example 'John gave a present to Mary'

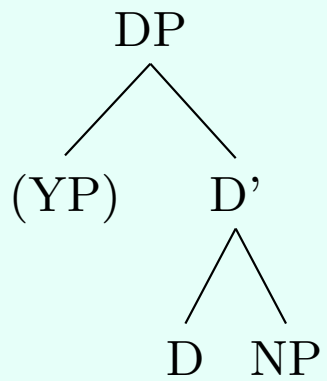
Determiner Phrases (DPs) I

We detect DPs using:

replacement using a pronoun;
topicalization;
clefting
pseudo-clefting
coordination
...

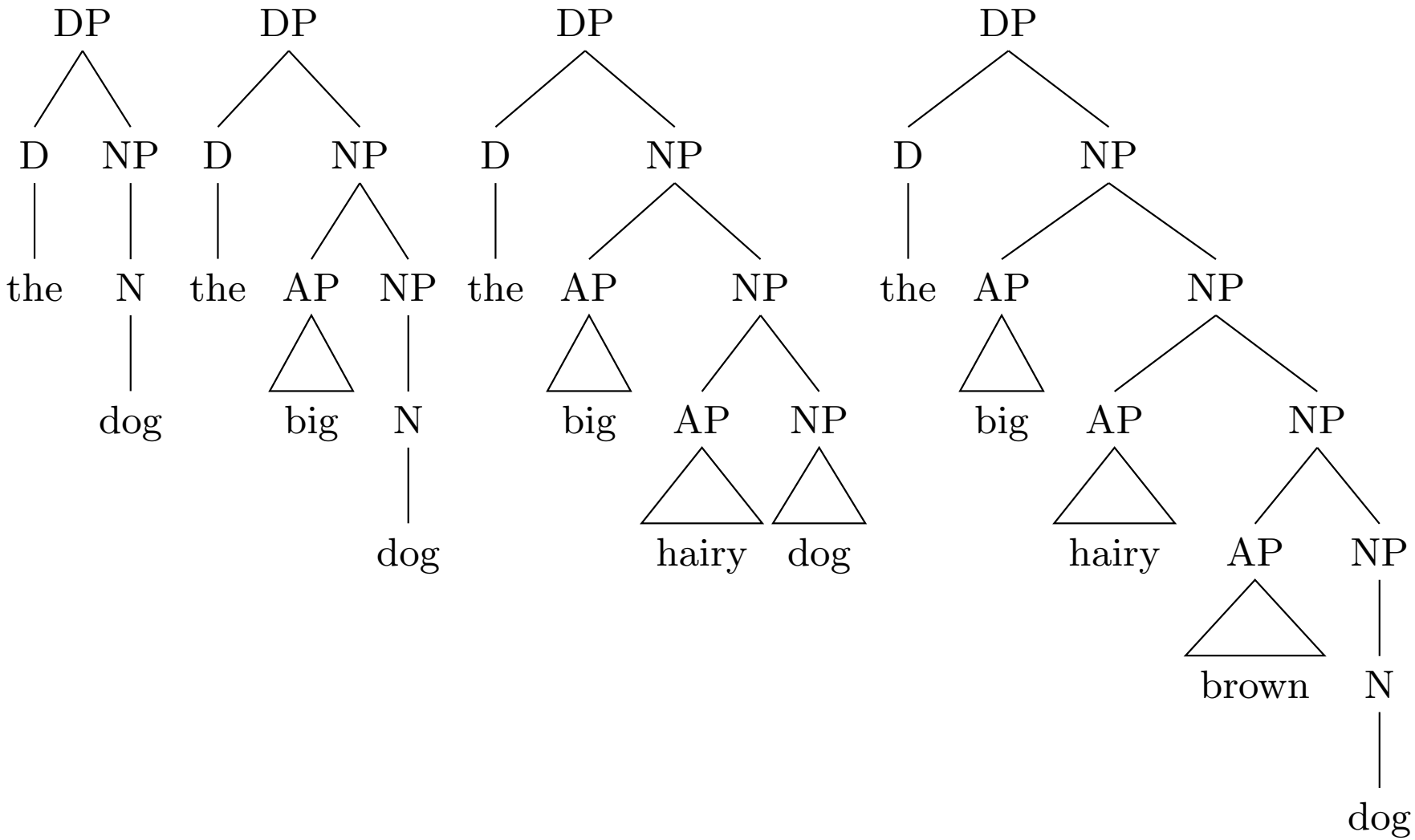
DPs:

- The head: D
- Complement(s): NPs
- Specifier: DPs



Determiner Phrases (DPs) II

Examples

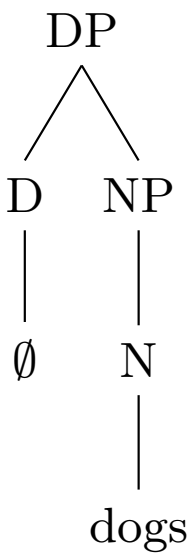


Determiner Phrases (DPs) III

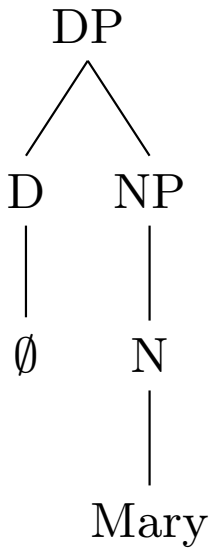
D can be empty:

Bare plurals:

(2) Dogs bite.



Proper Names in English:

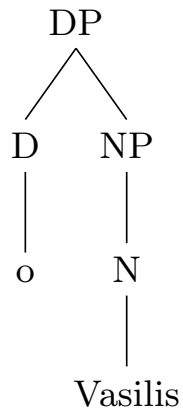


Determiner Phrases (DPs) IV

Is an empty D needed in the structure of proper names?

- In other languages proper names do require overt determiners.

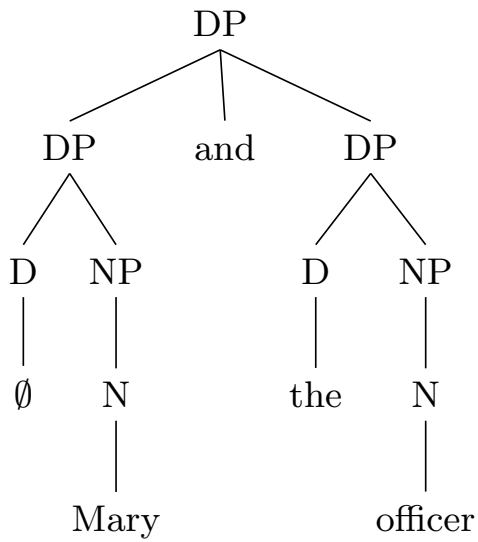
(3) Aftos ine o Vasilis
This is the Basil
'This is Basil' (Greek)



Determiner Phrases (DPs) V

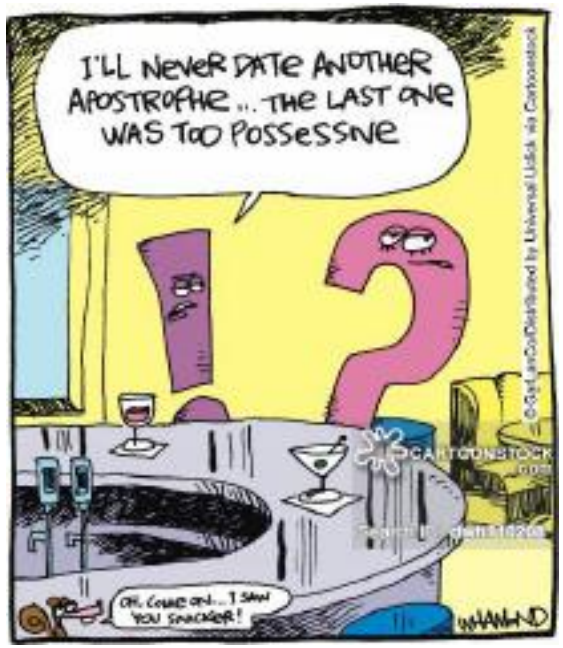
- Proper names and phrases headed by determiners have the same syntactic distribution.
  - they can be replaced by pronouns;
  - proper names and phrases headed by determiners can be coordinated:

  (4) [Mary and the officer] are arguing.



Determiner Phrases (DPs) VI

The specifier position of DP can be filled:
the Saxon genitive case.



(5) Mary's brother

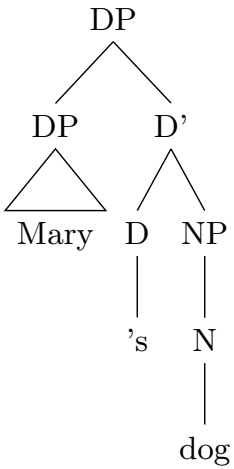
- [Mary's brother] is a DP because it has the distribution of a DP:

  (6) Mary's brother will come to the party.
  a. He will come to the party **Replacement by pronoun**
  b. [Bill] and [Mary's brother] will come to the party **Coordination Test**

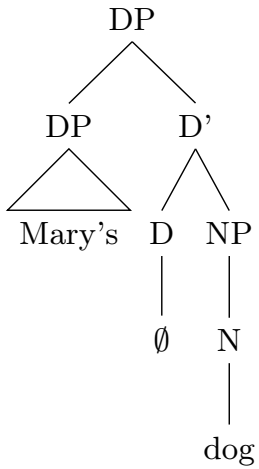
Determiner Phrases (DPs) VII

- [Mary] is also a DP, therefore it is a phrase. The only other position available for a phrase in the DP is the *specifier* position. We have two options:

Option1



Option2



- We prefer **Option 1** because genitive phrases like *Mary's* are in complementary distribution with other determiners:

(7) a.*Mary's the brother
b.*Mary's that brother
c.*Mary's a brother

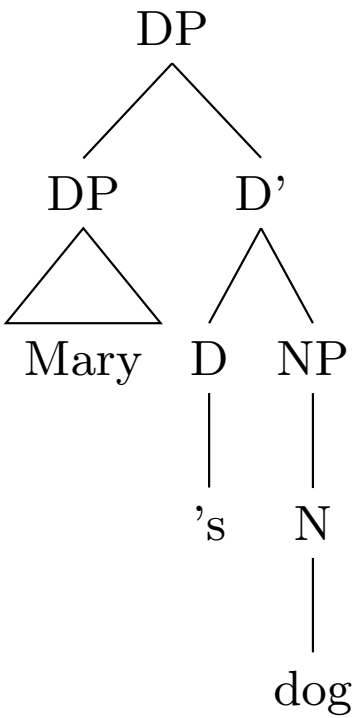
Determiner Phrases (DPs) VIII

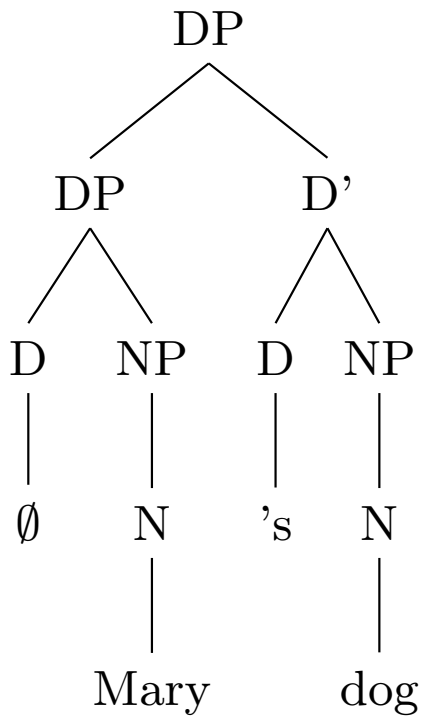
This brings to the following structure:

(i) The DP-possessor is in specifier position;

(ii) *'s* is the determiner (this account for the complementary distribution with determiners)

(iii) The NP-possessee is in complement position





Determiner Phrases (DPs) IX

Summary: DP structure

- the head of the DP is a determiner, which can be null.
- the complement is a NP;
- DPs can have subjects (the phrase occurring in specifier position), as in the case of the Saxon genitive construction.
- We did not see any examples of DP adjuncts (and we won't see any!)

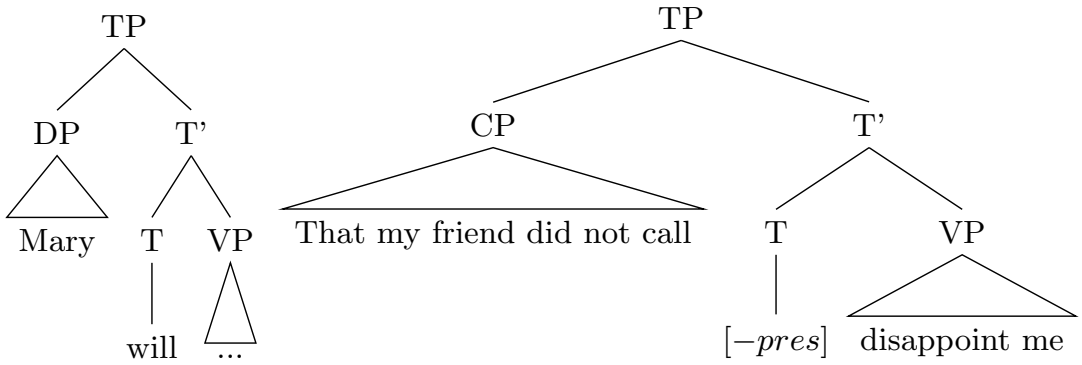
Here are the lexical entries for Ds:

the	D	free		c-selects NP	example 'the book'
this	D	free		c-selects NP	example 'this book'
's	D	bound	selects DP	c-selects NP	example 'John's book'

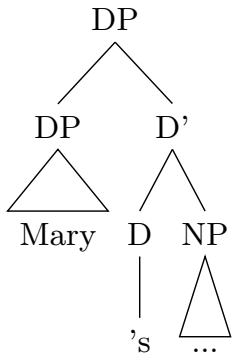
Summary: specifiers

We saw two types of specifiers, so far:

→ Specifier (or subject) of T or TP (the subject of the sentence). It can be a DP or a CP.



→ Specifier (or subject) of D or DP (the "possessor")



Practice: Tree drawing

Draw trees for the following phrases:

(8) Sue and Peter's car

(9) Peter's sister's boyfriend

(10) the old elephant's new tusks

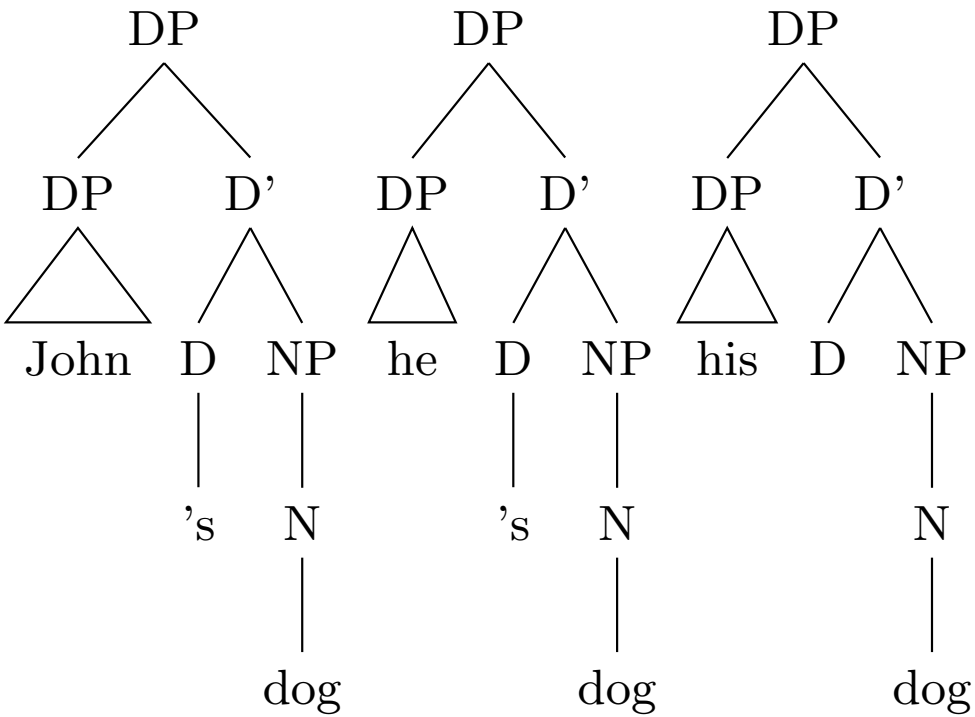
(11) Carol's former boyfriend runs in the morning.

Possessive Pronouns

The structure of possessive pronouns is very similar to the genitive construction we discussed above:

(12) John's dog

(13) His dog (you can think of this as he's dog)



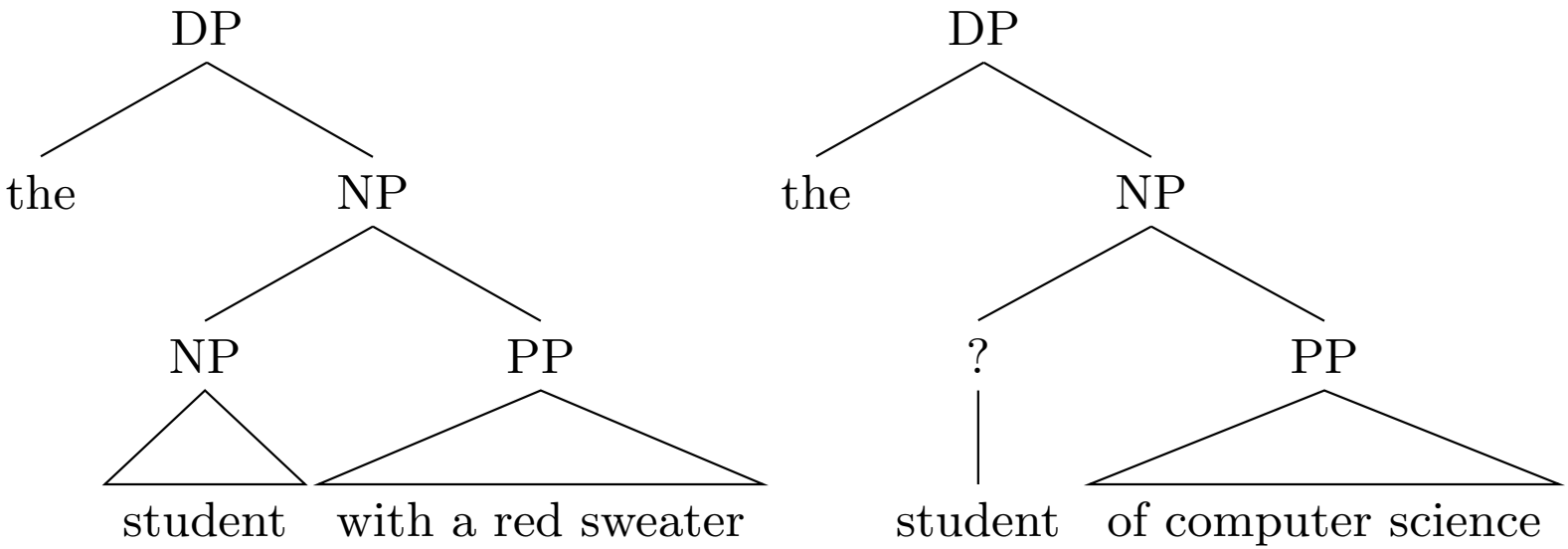
Noun Phrases (NPs) I

Recall our puzzle: (14) and (15) look very similar, but they are structurally different, as the replacement tests show:

(14) Fred met that student with a red sweater.
→Fred met that one with a red sweater.

(15) Fred met that student of computer science.
→*Fred met that one of computer science.

[student] form a NP in (15) (therefore it can be replaced by 'one') but not in (14).



Noun Phrases (NPs) II

This asymmetry is very similar to the one we discussed previously between *intransitive verbs* like 'leave' and *transitive verbs* like 'return' w.r.t. *do so* replacement:

(16) Fred left on Monday.
→Fred did so on Monday.

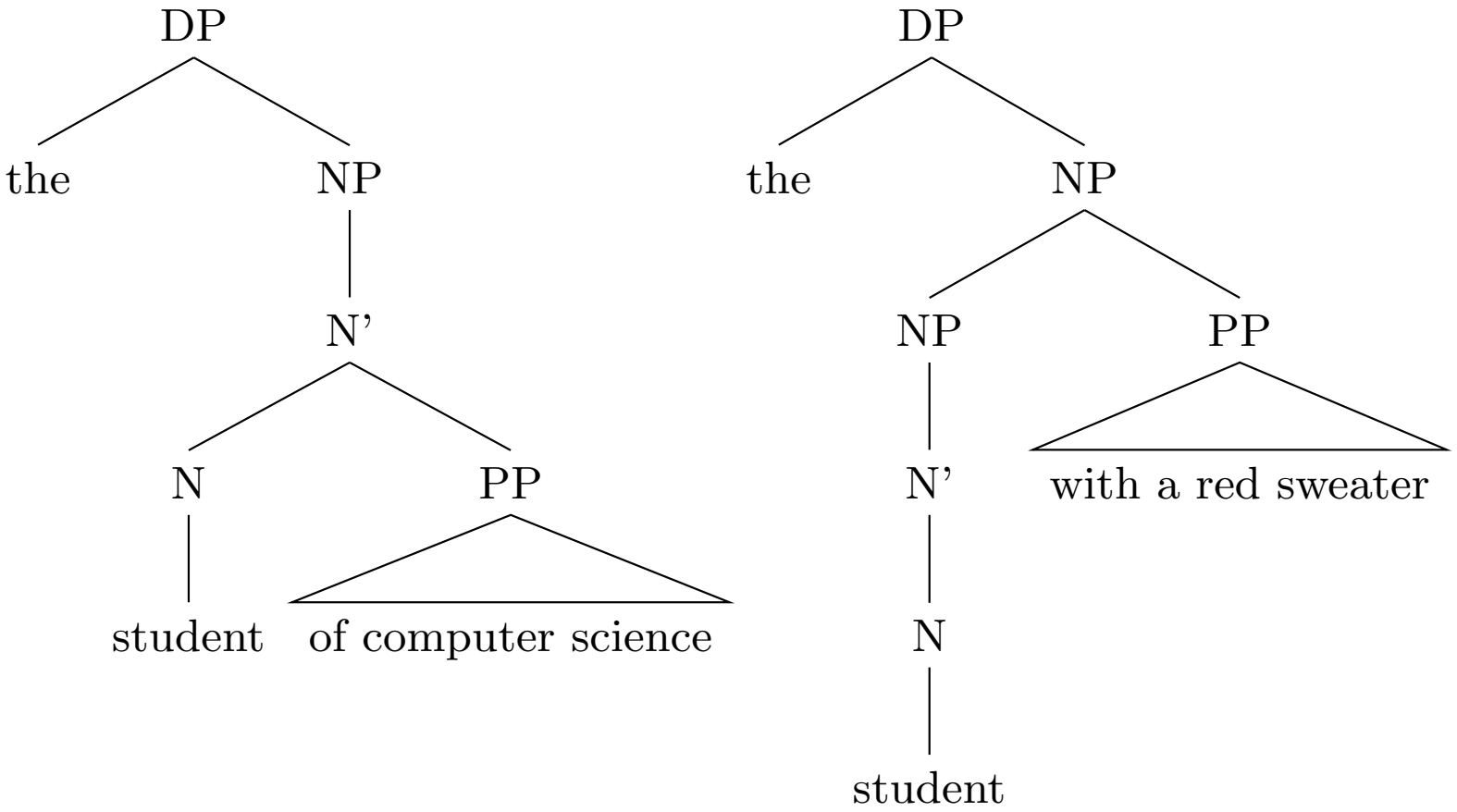
(17) Fred returned the assignments on Monday.
→*Fred did so the assignments on Monday.

In fact, nouns can also take complements (especially if they are nominalized version of some verbs).

- We are able to account for the data above, using the X-bar model.
- The complement of N is N's sister, whereas the adjunct attaches to the maximal projection (NP).

Noun Phrases (NPs) III

The PP [of computer science] is the complement of N, whereas the PP [with a read sweater] is an adjunct:



One can only replace NPs, not Ns or N's!

Noun Phrases (NPs) IV

This makes the following predictions:

- We expect the noun 'student' (which is the nominalized form of the verb 'study') to select only one complement, whereas multiple adjuncts are possible.

(18) a.*A [$_{N}$ student] [$_{COMPL}$ of computer science] [$_{COMPL}$ of physics] *(under the intended meaning!)*
b. A [$_{N}$ student] [$_{ADJ}$ from France] [$_{ADJ}$ with a red sweater] ✓

- We expect to find the very same strict order we find in VPs:

Head >> Complement >> Adjunct

(19) a. A [$_{V}$ student] [$_{COMPL}$ of computer science] [$_{ADJ}$ with a red sweater] ✓
b.*A [$_{V}$ student] [$_{ADJ}$ with a red sweater] [$_{COMPL}$ of computer science]

Noun Phrases (NPs) V

Recall! The same predictions are made for VPs.

- We expect the verb 'write' to select only one complement, whereas multiple adjuncts are possible.

(20) a.*The professor will [$_{V}$ write] [$_{COMPL}$ a poem] [$_{COMPL}$ an article]
b. The professor will [$_{V}$ write] [$_{COMPL}$ a poem] [$_{ADJ}$ with the fountain pen] [$_{ADJ}$ over the weekend] ✓

- We expect to find a strict order:

Head >> Complement >> Adjunct

(21) a. The professor will [$_{V}$ write] [$_{COMPL}$ a poem] [$_{ADJ}$ with the fountain pen] ✓
b.*The professor will [$_{V}$ write] [$_{ADJ}$ with the fountain pen] [$_{COMPL}$ a poem]

Noun Phrases (NPs) VI

Summary: NP structure

- the head of the NP is a noun.
- (some) nouns can take PP or CP complements;
  - book [$_{PP}$ of poems]
  - claim [$_{CP}$ that TP], rumor [$_{CP}$ that TP]
  - student [$_{PP}$ of physics]
- No specifiers so far.
- NP adjuncts are very common: they can be PP or AP.
  - PP adjuncts are normally on the right.
  - AP adjuncts are normally on the left.

Here are the lexical entries for Ns:

cat	N	free		example 'cat'
student	N	free	(c-selects *of*-PP)	example 'student (of linguistics)'
claim	N	free	(c-selects *that*-CP)	example 'claim (that Mary is pregnant)'

Practice: NP structure

Consider the sentences below:

(22) a.*I read the book with a red cover of poems.
b.*I read the book of poems of fiction with a red cover.
c. I read [a book of poems with a red cover from Blackwell by Robert Burns]

- Which constituents can be replaced with the word 'one' in (22-c)?
- Draw the tree structure for the DP in (22-c).
- How does our theory predict the data in (22-a)-(22-c)?

Draw a tree for the following sentence:

(23) Mary heard the rumor that Nico's wife is having an affair.

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