Chapter 5

Nominal Structure

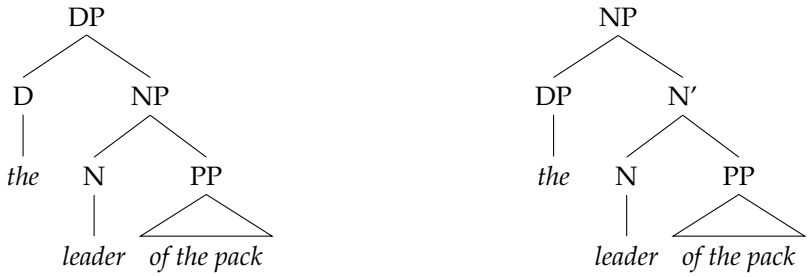
5.1 Introduction

- Assignment 2 asked you to look at 'nominal phrases'.

(5.1)
a. Fred
b. our dependence on foreign oil
c. the leader of the pack
d. these interesting times

- And compare the following two hypotheses. The NP proposal has been assumed so far in this class.

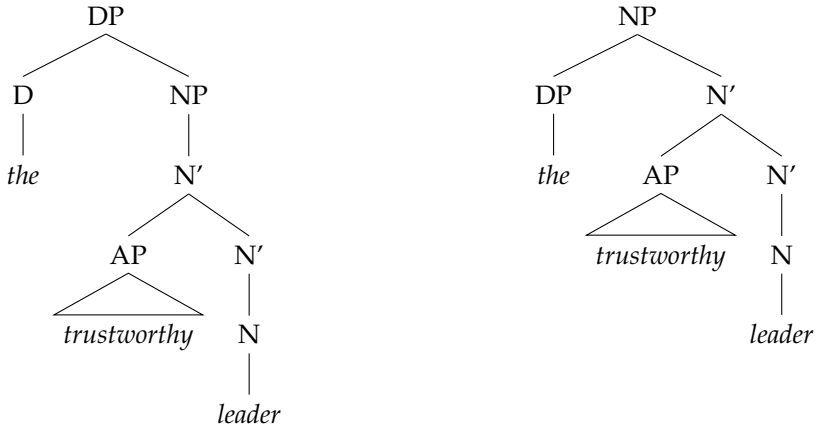
(5.2)



The DP proposal The NP proposal

- Under the NP hypothesis, we assumed adjectives are left-branching adjuncts to N′.
- Luckily, the same analysis for adjectives gets the same results under the DP hypothesis.

(5.3)



The DP proposal The NP proposal

- Observation: this analysis of adjuncts leads to a bunch of counter-intuitive extra nodes.
- One goal of today's revisions of the analysis of nominal phrases: reduce clutter!

5.2 The DP hypothesis

5.2.1 Optionality

- What do the following data show about when nouns can be marked by determiners?

(5.4)
a. This book is very expensive.
b. This is very expensive.
c. That house is very beautiful.
d. That is very beautiful.
e. These snacks are very bad for you.
f. These are very bad for you.

(5.5)
a. *Table is very dirty.
b. *Floor is very clean.
c. *New record is great.
d. *House is for sale.
e. Rice is nice.
f. Laptops are expensive.

- Starting with noun types, we can use subcategorizing features: [±SG], [±COUNT].
- The DP hypothesis: can capture these facts while maintaining the assumption that selection is between a head and complement.

- The NP hypothesis: the selection relationship must go the other way, between the N head and the D specifier. (NB: we may end up assuming this anyway).
- The next issue is the case of *This is very expensive*.
  - The DP hypothesis: Ds can have optional complements. (NB: the null determiner's complement is obligatory).
  - The NP hypothesis: heads aren't optional. We would have to posit a null noun.
- The hypothetical null noun would have to select which determiners (in its specifier) it allows, e.g., *the*, *a*, *every* are all not allowed, but *this*, *that*, *each* are allowed.
- Simply recording which Ds have optional complements or not seems like a simpler solution, and fits better with prior assumptions.

5.2.2 Pronouns

- So far, we've been assuming that pronouns are NPs. We want to ensure the following are not grammatical.

(5.6)
a. *The he is in the bedroom.
b. *Sally's he is a Biology major.
c. *A they went to the movies.
d. *Those you are working hard.

- Under the DP hypothesis:

- Under the NP hypothesis:

- How do both analyses get the following?

(5.7)
a. He is in the bedroom.
b. He is a Biology major.
c. They went to the movies.
d. You are working hard.

- Under the NP hypothesis:
- Under the DP hypothesis:
  - A [+PRO] NP can appear without a determiner.
  - This means the S rule (or VP/PP etc.) must select for either DP or [+PRO] NP.
  - How do we resolve this under the DP hypothesis? Draw a lexical entry.

5.2.3 Possessives

- How are possessors (like those below) analyzed in the two proposals?

(5.8)
a. the dog's tail
b. Sally's friend
c. the crazy scientist's ideas
d. the guy from Arizona's truck

- Possessors are phrasal, meaning that nominal phrases are *recursive*: *My father's dog's dogsitter's lawyer's boss.*
- Possessors replace determiners (e.g., preceding adjectives), which has to be accounted for.
- Under the NP hypothesis:

- Under the DP hypothesis:

- How does each analysis rule out the following?
  - If *'s* is analyzed as a D head:
  - Other ideas?

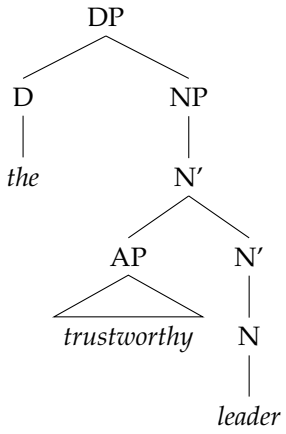
(5.9)
a. *the dog's the tail
b. *Sally's the friend
c. *the crazy scientist's those ideas
d. *the guy from Arizona's a truck

- What about proper names, how do we ensure that (i) they are not phrasal, (ii) they don't have determiners.
  - The NP hypothesis:
  - The DP hypothesis:
- Summary point: there's no hard evidence for either the NP or DP hypothesis. Either can be made to work.
- From now on, we'll assume the DP hypothesis: there's less of a need for null determiners/nominal heads.

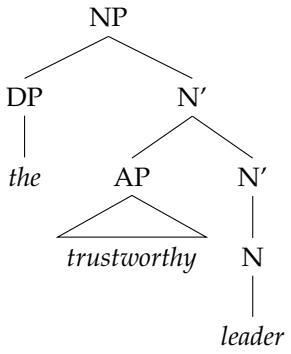
5.3 Revisiting adjunction

- Adopting the DP hypothesis causes us to re-think our notions of adjunct and specifier.

(5.10)



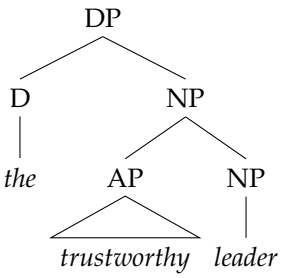
The DP proposal



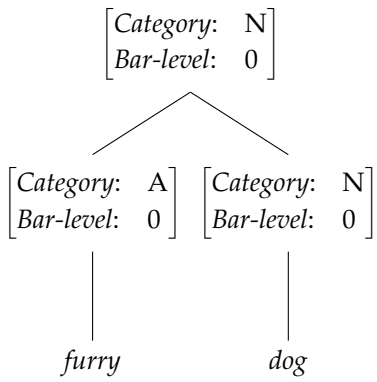
The NP proposal

- APs are analyzed as N′-level adjuncts (sibling of N′, child of N′). This means that in the structure on the left, we need five non-terminal nodes to host two words.
- This assumption was forced by the NP hypothesis, as English adjectives follow determiners (thus left-branching adjuncts follow left-branching specifiers).
- But if determiners are *outside* the NP, there's no reason to make this assumption.
- A new proposal:
  - Adjuncts have an XP sibling, and an XP parent.

(5.11)

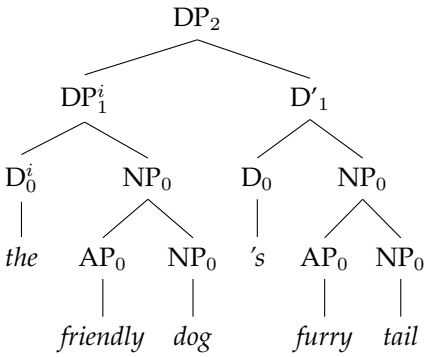


- This doesn't make sense under our notion of *Bar-level* features. We defined the XP level as the node with the highest *Bar-level* feature. Thus, this needs to be revisited as well.
- A new idea: A node's *Bar-Level* number does not increase from child to parent when the sibling is an adjunct. An unabbreviated tree:



- Here's a more complicated tree with subscript bar-levels. The ^{i} is just to differentiate the DPs.

(5.12)



- Revising our abbreviation rules:

(5.13) Assuming a node has *Category*: X (and is not S)...

a. If it does not have any higher projection with *Bar-Level*: $n+1$, write XP.
b. If it has *Bar-Level*: 0, and has a higher projection 1, write X.
c. If it has *Bar-Level*: $n > 0$, has a higher projection $n+1$, write X′.

- How many X, X′, and XP nodes does this allow for?:

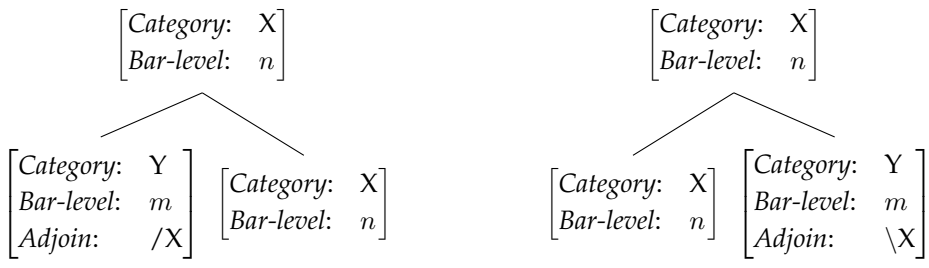
- Let's look at the lexical entry of an adjunct.

(5.14) $\begin{bmatrix} \textit{Category:} & \text{A} \\ \textit{Adjoin:} & \text{N} \end{bmatrix} \rightarrow \textit{furry}$

- This means the parent node (the complex phrase) will be the category of the host (here an NP), not the adjunct (an AP).

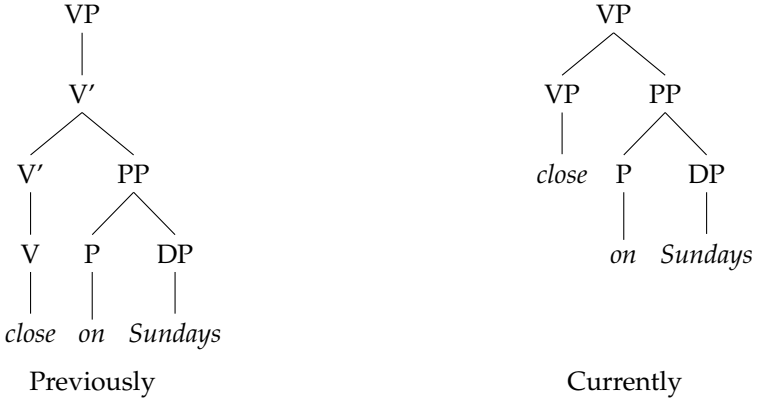
- Here's a generalized PS-rule ensuring this.
  - The / and \ in the *Adjoin* feature determine the branching direction.

(5.15)



- This analysis of adjuncts also allows us to simplify the VP (adverbs, negation, etc.)

(5.16)



- As a final step, we need a new definition of terms for structural positions.
- Below is our previous definition. What needs to be changed?

(5.17)
a. **Head**: a node with *Bar-Level*:0.
b. **Complement**: a node which is the sibling to a head.
c. **Adjunct**: a node which is the sibling to an X′, and the child of an X′.
d. **Specifier**: a node which is the sibling to an X′, and the child of an XP.

- What should our new definition be?

- This definition imposes no requirement on whether adjuncts and specifiers can be interleaved:
  - This is an open question: usually minimalists assume all adjuncts are structurally higher than all specifiers (though not all, see Breuning 2013).
  - Other analyses deny there's a difference between adjuncts and specifiers (e.g., Bare Phrase Structure in Chomsky 2005).
- We take a stand:
  - Adjuncts select their host.
  - Specifiers are selected by the head, for example:

(5.18) $\begin{bmatrix} \textit{Category:} & \text{D} \\ \textit{Comp:} & /\text{N} \\ \textit{Spec:} & \backslash\text{D} \end{bmatrix} \rightarrow$ *'s*

5.4 Spanish clause structure

- Now we know enough about nominal structure, sentential structure, selection, and constituency to put all these elements together and analyze a new language: Spanish!
- Spanish verbs have many morphological forms, here are the most relevant ones for us:

(5.19)

Gloss	INF	PST.PRT	PRS.PRT
be_1	ser	sido	siendo
be_2	estar	estado	estando
love	amar	amado	amando
run	correr	corrido	corriendo
have	tener	tenido	teniendo
require	requerir	requerido	requeriendo
talk	hablar	hablado	hablando
live	vivir	vivido	viviendo
drink	beber	bebido	bebiendo

5.4.1 Basic Spanish clause structure

- Some notes on Spanish:
  - Nouns, pronouns, and verb forms can reflect any of number (PL and SG), person (1, 2, and 3), and gender (M and F).
  - PL on nouns is marked with *-s*.

  - Number on verbs is more complicated but 3.PL is normally marked with *-n*
  - *al* is a contraction of *a el*, *del* is a contraction of *de el*.

- Let's devise a small grammar to generate the following examples.
- Tips:
  - Figure out the subcategorizations for the verbs *amar, correr, tener, dar, gritar, comer, requerir, hablar*.
  - Ignore morphological agreement between the subject/verb and the noun/adjective to start, but we'll come back to it.
  - Make life easier by considering how to edit the English grammar rather than starting from scratch.

(5.20)
1. *La vaca loca corre*
   The crazy cow runs
2. *Las vacas corren en el llano*
   The cows run in the plain
3. *La vaca corrio*
   The cow ran
4. *Las vacas locas corrieron como diablos*
   The crazy cows ran like devils
5. *El coronel grita*
   The colonel yells
6. *Muchos coroneles gritan*
   Many colonels yell
7. *El coronel loco grito en la cocina*
   The crazy colonel yelled in the kitchen
8. *Ambos coroneles gritaron a los soldados*
   Both colonels yelled at the soldiers
9. *El mono gordo comio la banana*
   The fat monkey ate the banana
10. *Los monos comieron las bananas gigantes*
    The monkeys ate the giant bananas
11. **El mono gordo la banana comio*
    The fat monkey the banana ate
12. **La banana el mono gordo comio*
    The banana the fat monkey ate
13. *La banana gigante comio al mono*
    The giant banana ate the monkey
14. *El mono requiere bananas*
    The monkey requires bananas
15. **El mono requiere*
    The monkey requires
16. **El mono requiere en la cocina*
    The monkey requires in the kitchen
17. *La muchacha tiene una cara bastante bella*
    The girl has a quite pretty face
18. *Las muchachas tienen rosas en las manos*
    The girls have roses in the hands
19. *El mono gordo dio el platano muy caro a la muchacha bella*
    The fat monkey gave the very expensive banana to the beautiful girl

20. *Los gallinazos horribles con alas amplias comieron el cuerpo del mono muerto*
    The horrible buzzards with wide wings ate the body of the dead monkey
21. *Ambos coroneles comieron en la cocina de la casa grande*
    Both colonels ate in the kitchen of the big house
22. *El mono rompio las ventanas*
    The monkey broke the windows
23. *La muchacha habla de la paz*
    The girl speaks of peace
24. *La muchacha habla al mono*
    The girl talks to the monkey
25. *La muchacha habla*
    The girl talks

- What are the PS-rules for the verbs *amar, correr, tener, dar, gritar, comer, requerir, hablar, romper*?

- Draw a tree for (17) in (5.20).

5.4.2 Agreement and concord

- You've probably observed that the form of the verb changes depending on the number (SG or PL) of the subject DP. This is person/number agreement. Let's propose a rule to accommodate it.[1]

[1] NB: if you're aware of a minimalist operation called Agree, forget it, because we don't have access to a notion of long distance operations in our toolkit yet.

  - Hint: We need to complicate the rule [S $\rightarrow$ DP VP] slightly so that it records person/number (abbrev: ϕ) information.
  - What would the S-level PS-rule look like for (17), if DP and VP bore ϕ features.

- How should we generalize it for any value for ϕ?

- We'll need corresponding rules for DP and VP too. Let's posit rules that apply for any PS rule with DP/VP on the left side (i.e., a metarule).

- We can use abbreviations $DP_{[3SG]}$, $V_{[1PL]}$ etc., so long as it's clear what's intended.
- Now the forms of the lexical item just slot in via PS-rules of the following sort.

(5.21)

$D_{[3.SG]} \rightarrow$ *la*, *el*	$V_{[1.SG]} \rightarrow$ *tengo*
$D_{[3.PL]} \rightarrow$ *las*, *los*	$V_{[2.SG]} \rightarrow$ *tienes*
	$V_{[3.SG]} \rightarrow$ *tiene*
	$V_{[1.PL]} \rightarrow$ *tenemos*
	$V_{[2.PL]} \rightarrow$ *tenéis*
	$V_{[3.PL]} \rightarrow$ *tienen*

- You'll notice that nouns, determiners, and adjectives agree in terms of number and gender. Verbs don't inflect for gender.
- We'll need PS rules for gender concord in NP and DP. It will look a lot like the person/number rules we posited.
  - Hint: you're updating the rules [DP $\rightarrow$ D NP] and [NP $\rightarrow$ NP AP]

- We now have a basic account of subject/verb agreement and nominal concord. The posited rules look quite similar, which is intuitive because the phenomena look quite similar.
- Terminology: this kind of system where features on parent nodes match features on child nodes is referred to as 'percolation', as the feature 'percolate' up the tree.

5.4.3 Negation and auxiliaries

- The next step is to incorporate negation and auxiliaries, which are similar to their analogs in English, but differ in interesting ways too. Tips:
  - Spanish modals, like *deber* 'must' and *poder* 'can', tend to have irregular tense and agreement morphology.
  - Like English, Spanish uses a 'have'-type verb as an auxiliary: *haber* (distinct from main verb *tener*). Spanish also has two verbs corresponding to English 'be': *ser* and *estar*. The forms of *ser* are highly irregular.
  - Assume that the ordering of verbs in the examples below is fixed. Likewise the position of negation relative to the verbs.

(5.22)
1. *Roberto puede comer las papas*
   Roberto can eat the potatoes
2. *Roberto no puede comer las papas*
   Roberto cannot eat the potatoes
3. *El coronel no grito a los soldados*
   The colonel did not yell at the soldiers
4. *El gato esta comiendo la trucha*
   The cat is eating the trout
5. *El gato no esta comiendo la trucha*
   The cat is not eating the trout
6. *La vaca (no) esta corriendo*
   The cow is (not) running
7. *El mono (no) ha comido el platano*
   The monkey has (not) eaten the banana
8. *El mono (no) ha estado comiendo los platanos*
   The monkey has (not) been eating the bananas
9. *El mono no debe estar comiendo los platanos*
   The monkey should not be eating the bananas
10. *El mono no puede estar comiendo los platanos*
    The monkey can't be eating the bananas
11. *El mono no puede haber estado comiendo los platanos*
    The monkey can't have been eating the bananas
12. **El mono (no) es[ser] comiendo la trucha*

- Write lexical entries for *no*, *deber*, *poder*, *haber*, *estar*.

- Draw a tree for (9)

5.5 Further readings

- Abney 1987 on the structure of nominals is a classic piece of syntactic writing and is the most influential work defending the DP hypothesis.
- Numerous pieces of work build on Abney's writing, including Barker 1995, Boneh and Sichel 2010 on possessives, Longobardi 1995, Matushansky 2008 on pronouns and proper names.
- There are lots of interesting analyses of languages with interesting nominal syntax. Some recommendations: Szabolcsi 1994 on Hungarian, Jenks 2013 on Moro, Toosarvandani and Toosarvandani and van Urk 2014 on Zazaki.
- See Norris 2017 for an overview of minimalist accounts of nominal concord (cf. Spanish gender/number marking above).

5.6 Possible paper topics

- This chapter hedged on the question of whether adjuncts are higher than specifiers, or whether they can be interleaved. Is there any evidence either way? What would a formal syntax which imposed the ordering restriction look like? What would it look like otherwise? Are there arguments, e.g., from semantic composition? (NB: categorial grammars, see for example Steedman 2000, 2017, assume something like the interleaving view, though with different terminology and formalization).
- There's a relatively understudied English nominal construction affectionately named the "Big Mess": *so heavy a rock that even he couldn't lift it* (see Kim and Sells 2011). Are there analogs in other languages? How can they be incorporated into the grammar?
- Cinque 2005 provides a strong claim about the universal structure of nominals across all languages, and provides an analysis of how only the attested structures can be derived. However, he doesn't provide much empirical detail about the languages he considers. Is the analysis supported or challenged by a deeper investigation of nominal structure in some (set of) language(s)? See also Dryer's (2018) response.
- What is the structure of proper names, e.g., when they exceptionally take a determiner *a frazzled Trump cancelled the meeting, that's not the Angela I know*. What about languages like Bavarian German or European Portuguese where proper names standardly take determiners? Do the analyses of proper names and pronouns come apart here?
- Concord and agreement in this handout are given rather similar analyses, corresponding to typological literature which tends to group them together (see Corbett 2006). However, usually in minimalist syntax they're given very different kinds of analyses (see e.g., Norris 2017). Is there motivation for giving them different analyses?

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