Syntax Seminar
X-bar structure

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Readings
For this class: BESE Ch. 3

1 Revision

✱ Exercises:

Task 1. In a combination P + N, what is the head? Is this a PP or an NP? E.g. *[about John]*, *[in cities]*.

Task 2. How can we formally capture the following observations: a P requires a DP sister, a D requires an NP sister, a modal auxiliary requires a VP sister?

Task 3. What category (or categories) to adverbs belong to?

2 X-bar model. Complements and specifiers

Merge – a structure-building operation that combines two syntactic objects into a new syntactic unit (which can be thought of as a set).

Consider the following examples. In each of them the head is first merged with a sister-phrase on its right and then the result combination is merged with a sister-phrase on its left.

(1) a. [$_{\text{VP}}$ [the ball] [fell [on the floor]]]
b. [$_{\text{NP}}$ [very few] [friends [of Mary]]]
c. [$_{\text{AP}}$ [very] [proud [of my father]]]
d. [$_{\text{PP}}$ [directly] [to [the professor]]]

? Why do we position some phrases on the right and some phrases on the left?

! Syntactic structures are ***linearized*** at PF – we want syntax to give rise to the surface word order as precisely as possible.

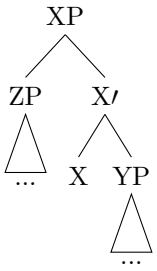
Linearization a process in which a bi-dimensional structure is conflated in a mono-dimensional one (a linear sequence).

Headedness parameter: in ***head-initial*** languages the head precedes its sister, in ***head-final*** languages the head follows its sister.[1]

Back to the examples in (1). They share the core structure:

[1] There are languages with a "disharmonic" order. Across the world, only initial-over-final, but not final-over-initial languages are attested. This observation gave rise to **the Final-Over-Final Constraint (FOFC)**: For all heads α, β, ... on a single projection line, if α is a head-initial phrase and β is a phrase immediately dominating α, then β must be head-initial. If α is a head-final phrase, and β is a phrase immediately dominating α, then β can be head-initial or head-final.

(2) **X-bar schema**



Note: we will mark the intermediate level X-bar (X′). However, it is very difficult to prove the existence of X′ as a constituent – it is not a complete phrase and does not pass the tests. Many linguists have abandoned the notion of X′ and use X instead. Importantly, this X is **not** the head, but a combination "the head + its sister-phrase".

(3) **Phrase-structure rules**:
   a. **Complement** rule: X′ → X (YP)
   b. **Specifier** rule: XP → (ZP) X′

Note that formulated as such, these rules are very restrictive: (1) the positions of specifiers and complements are fixed, (2) there can only be one specifier and one complement in a phrase, (3) specifiers and complements are optional.

? Can you support these restrictions with some (un)grammatical examples?

Projections – all the elements within a phrase **projected** by its head.

Principle of Modification: If a YP modifies some head X, then YP must be dominated by a projection of X (i.e., X′ or XP).

Fundamental properties of the structure:

- Binarity,
- Hierarchical organization (c-command, asymmetry),
- Recursivity.

✱ Exercise: consider the following examples. Build a single syntactic structure for them.

(4) a. The boy will bake some nice cakes.
   b. The elephant can build a sand castle.

Hint: recall that, although *can* and *will* have some verbal properties, they do not pattern with lexical verbs and belong to a separate functional category Infl.

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3 Adjuncts

? Some dependents in a phrase has more flexible word order and can be doubled. How can we accommodate them?

! ***Adjuncts*** – optional modifiers within a phrase.

(5) **Phrase-structure rules**:

a. Complement rule: X′ → X (YP)
b. Specifier rule: XP → (ZP) X′
c. **Adjunct** rules:
   (i) X′ → (WP), X′
   (ii) XP → (WP), XP
   Note: the comma here indicates the flexible order – WP XP or XP WP

✱ Build the structures for the following examples:

(6) a. Tomorrow the boy will quickly bake some nice cakes.
b. red dresses with the pink stripes

Hint: consider (6-b) an NP at this point.

? What prediction does our model make regarding the surface order of specifiers, complements, and adjuncts? What are the (im)possible combinations?

! (Usually) the complement and the head must be adjacent.[2] The head and the adjunct do not have to be adjacent.

? Can we model adjunction in terms of c-selection? Why yes/no?

! Adjuncts are **not** selected!

4 External vs internal Merge

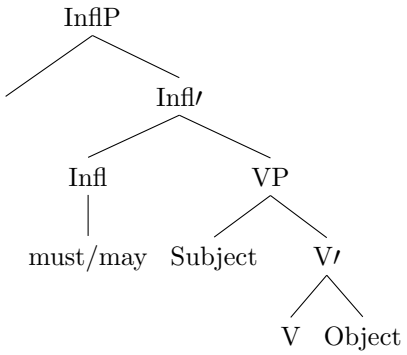
Let's go back to sentences with modals. Consider the scope interactions between the modal and the subject in the following examples:

(7) a. An elephant must have built this sand castle.
b. John may finish his home assignment by 5 pm.

? In the examples above the modal scopes above the subject. What kind of structure can capture that observation?

! The data in (7) suggest that the modal is generated above the subject.

(8)

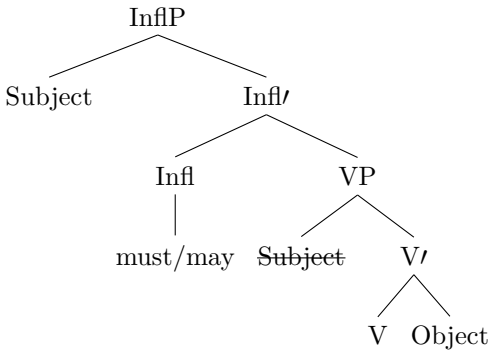


Problem: the structure in (8) does not yield the correct word order.

! ***Movement*** (= internal Merge) – an operation that combines a syntactic structure with its subpart.

[2]For an exception see **heavy NP shift** and **clausal extraposition**.

(9)

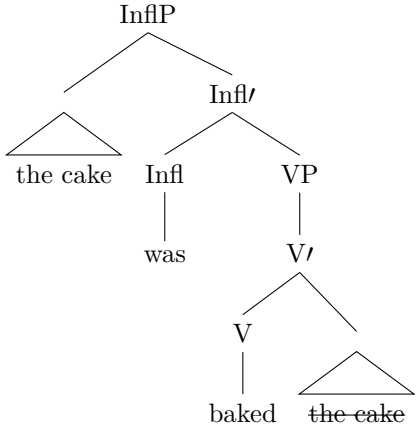


A phrase can be moved to a phrase position, a specifier position or an adjunct position.

(10) Movement to a specifier position:

a. The cake was baked.

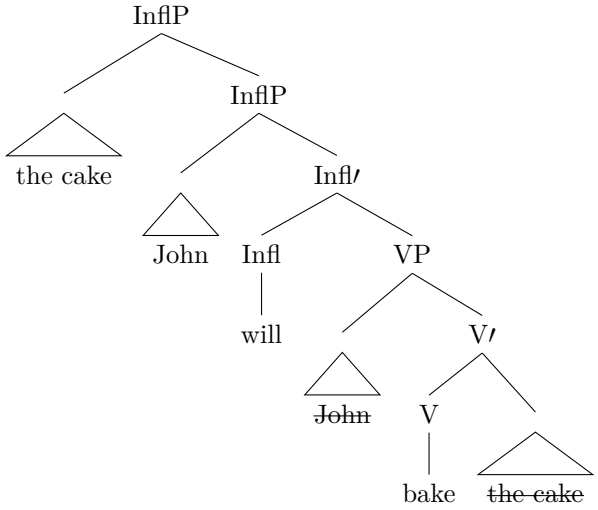
b.



(11) Movement to an adjunct position:

a. The cake, John will bake.

b.



Some instances of movement can be described as feature-driven. E.g. in English every sentence must have a subject – i.e. there must be a nominal phrase in spec,InflP. We can model this by assuming that Infl has a special feature that must be checked under a Spec-Head relation.

EPP = Extended Projection Principle, the head must project a specifier.

✱ At home

1. *Optional*: Using the tests such as reordering, adjacency, multiplication, *one* replacement determine whether the PPs in the following NPs are complements or adjuncts. Give the examples that you used in constructing your tests. Some of the NPs have multiple PPs. Be sure to answer the question for every PP in the NP. Draw the structures (for NPs only or for the whole DPs).

(12)
a. A container [of flour]
b. A container [with a glass lid]
c. The collection [of figurines] [in the window]
d. The statue [of Napoleon] [on the corner]
e. Every window [in the building] [with a broken pane]

2. *Optional*: Consider the following example of a complex sentence that consists of two clauses. Which verb does "John" belong to, *seem* or *like*? What is the ultimate syntactic position of "John"? Draw a syntactic structure for this sentence.

(13) John seems to like linguistics.

Hint 1: *to* belongs to the category Infl (it is in complementary distribution with other members of this category – modals and tense markers).
Hint 2: don't forget about movement (internal merge).
Hint 3: read about ***subject raising*** after you have done the task.

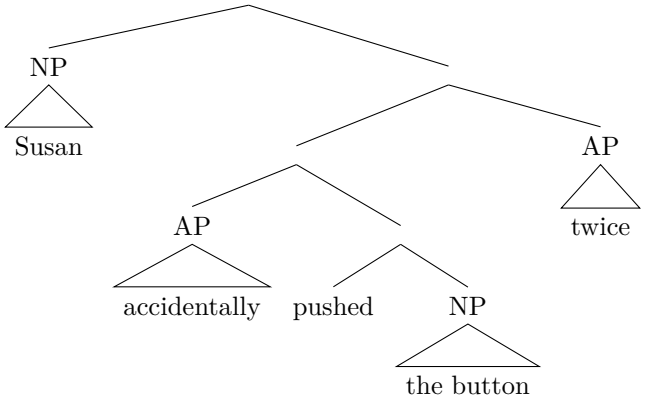
scroll down to see the answers to the optional exercise from HO2

1. Can you think of a construction that can be analyzed in terms of flat structure, more specifically, as a ternary branching structure? That is, [X Y Z] and not, for instance, [X [Y Z]].

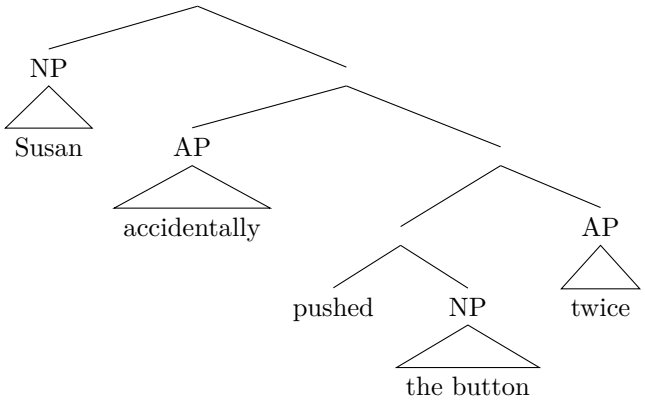
Hint: coordination structures, as in *John and Mary*

2. (14) is structurally ambiguous. Outline the two possible structures of the sentence as trees.

(14) Susan accidentally pushed the button twice. = (1) she pushed the button by accident and that happened two times.



(15) Susan accidentally pushed the button twice. = (2) she pushed the button two times and that happened by accident.



3. Think about lexical adverbs (consider data from English). Should they be treated as a separate category? Can they be combined with adjectives into a single category A? Why yes/no?

Arguments for having a single category A for both adjectives and adverbs:

- Similar syntactic distributions: both are used as modifiers, both can be modified by *very, most*, both forms comparatives and superlatives in a similar way.
- In many languages adjectives and adverbs are morphologically indistinguishable; cf. even in English *friendly*, etc.
- Similar interpretations: cf. *loud talking – talking loudly*, etc.
- Complementary distribution: they often look like two forms of the same item, e.g. *loud – loudly*, a modifier for nouns – a modifier for verbs.