Linguistics 401, section 3
Syntax: dependency & displacement

October 16, 2007

1 Subcategorization

Verbs

Verbs are the clearest case of a syntactic category depending on the presence of some other syntactic categories to ensure acceptability.

(1) a. ∗ Bush thinks [$_{\text{NP}}$ a missile defense system]
b. ∗ Bush thinks [$_{\text{AP}}$ safe from atomic weapons]
c. ∗ Bush thinks [$_{\text{VP}}$ protects the nation]
d. Bush thinks [$_{\text{CP}}$ that a missile defense system protects the nation]

(2) a. Bush visualizes [$_{\text{NP}}$ a missile defense system]
b. ∗ Bush visualizes [$_{\text{CP}}$ that a missile defense system protects the nation]

Not all verbs (category V) can co-exist with the same syntactic complements. The verb *thinks* work well enough with CP, but *visualize* is unacceptable with a CP. Examples like 1 and 2 attest the fact that an appropriate **category** — CP versus NP, say — is required for acceptability. What's more, examples like 3 suggests that an appropriate **number** of complements is required, too.

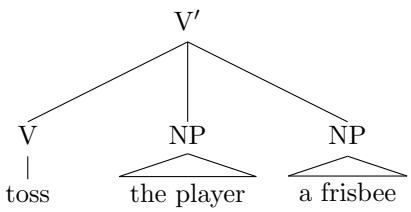
(3) a. The teacher handed the student a book.
b. ∗ The teacher handed the student.
c. ∗ The teacher handed the book.
d. ∗ The teacher handed.

The idiosyncratic character of verbal complementation motivates a fine-grained system of **subcategories**. Two verbs are in the same subcategory if they take the same ordered list of complements.

subcategory	traditional name	example
∅	intransitive	*sleep*
NP	transitive	*assassinate*
NP NP	ditransitive	*toss*

The same verb might be ambiguous between several subcategories. For instance *gave* is ambiguous between NP PP and NP NP. Whereas *donate* can similarly take an NP and a PP but it is unacceptable with two NPs.

Lets provisionally analyze ditransitive verbs with a V′ that has 3 daughter nodes. We will see how to reconcile ditransitives and X′ theory shortly.



Non-verbal complementation

The term 'subcategorization' is frequently applied to verbs, but the concept applies to virtually all syntactic categories.

(4) Adjective

a. The children are happy (with the ice cream).

b. The children are fond of ice cream.

c. ∗ The are children fond.

d. The children are happy (that they have ice cream).

e. ∗ The children are fond that they have ice cream.

(5) Nouns

a. A magazine (about crime) appeared on the newsstands.

b. ∗ Newsweek about crime appeared on the newsstands.

c. Newsweek appeared on the newsstands.

d. The report (that crime was declining) surprised many people.

e. ∗ The book that crime was declining surprised many people.

f. The book surprised many people.

(6) Prepositions

a. The storm arrived after the picnic.

b. The storm arrived after we ate lunch.

c. The storm arrived during the picnic.

d. ∗ The storm arrived during we at lunch.

e. ∗ The storm arrived while the picnic.

f. The storm arrived while we ate lunch.

2 Yes/No Question Formation

Consider the intuitive class of questions that demanding either an affirmation or a denial in response. The other class is called 'information question' (see section 3). The examples in 7 suggest a systematic relationship between declarative statements and their corresponding yes/no questioned variants.

(7)

declarative	Y/N question
John is teaching.	Is John teaching?
They have left	Have they left?
I can sing	Can I sing?

Syntactic category of the fronted element

Lets categorize the words that get fronted in Y/N questions as "inflectional" elements of syntactic category I. This category includes

(8)

modals	can, could, will, would, shall, should, may, might, must,...
forms of *be*	is, am, are, was, were
forms of *have*	have, has, had
forms of *do*	do, does, did

The inflectional words in I have two other characteristic properties that distinguish them from main verbs in V.

	I	V
negative form can have *n't* attached	Yes: John isn't running They haven't left. I can't sing.	No: ∗ You known't those women ∗ Mary leftn't early ∗ They wentn't to Ann Arbor
can occur in tag sentence	Yes: Al Gore isn't running, is he? They haven't left, have they? I can't sing, can I?	No: ∗ You know those women, know you? ∗ Mary left early, left she? ∗ They went to Ann Arbor, went they?

Movement

We can analyze Yes/No questions by saying

(9)
1. The same X′ theory that we have been using all along derives the declarative
2. An additional "movement" rule derives the questioned form

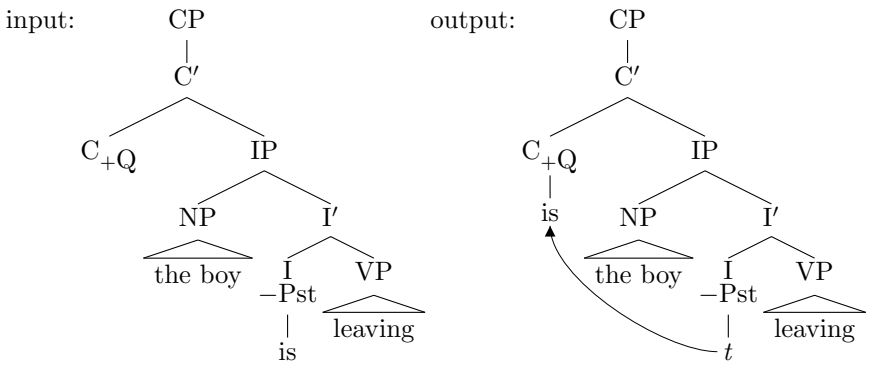


Figure 9: I to C movement

The intuitive idea given in 9 can be formalized by tree rewriting, aka transformations. Assume for the sake of argument[1] that all sentences are really complementizer phrases, e.g. [$_{\text{CP}}$(that) the boy will leave] In English, German and other languages the optional complementizer *that* happens to be absent in non-embedded clauses.

[1]Some languages, like Tamil, Thai, Japanese, Korean and Chinese have an overt question morphemes residing in C. Go to the Companion Website, select Syntax and click on Variation to see examples of these morphemes.

Inadequacy of a simpler account

Which inflection should be fronted? A simpler account of question formation based on the linearly-first inflectional element turns out to be false.

(11) a. The people who $\overset{1^{st}}{are}$ standing in the room $\overset{2^{nd}}{will}$ leave soon.

b. $*$ Are the people who $\overset{1^{st}}{t}$ standing in the room $\overset{2^{nd}}{will}$ leave soon?

(12) a. Anyone that $\overset{1^{st}}{can}$ lift 500 pounds $\overset{2^{nd}}{is}$ eligible for our club.

b. $*$ Can anyone that $\overset{1^{st}}{t}$ lift 500 pounds $\overset{2^{nd}}{is}$ eligible for our club?

A more accurate generalization is that the inflectional element whose **specifier** is the **subject NP** is the one to move. This characterization makes essential reference to constituency.

(13) a. $[_{\text{NP}}$ The people who were saying that Pat has told Mary to make Terry quit trying to persuade David that geeky computer enthusiasts are viewed with contempt $]$ $\overset{4^{th}}{will}$ leave soon.

b. Will $[_{\text{NP}}$ the people who were saying that Pat has told Mary to make Terry quit trying to persuade David that geeky computer enthusiasts are viewed with contempt $]$ $\overset{4^{th}}{t}$ leave soon?

Do-insertion

The surface word order order in Yes/No questions can be derived by I-to-C movement. This interacts correctly with the optionality of main clause *do* as in 14.

(14) a. You want a pony.

b. You do want a pony.

We have been assuming, in the interest of a simpler and more uniform theory, that examples like 14a have an empty inflection node. Applying I-to-C movement would yield the same word order, rendering questions and declaratives ambiguous for the hearer (who only has the sequence of overt words to go on). This ambiguity is avoided if *do* is in fact inserted at this initially-empty node. Thus examples like 15 can be derived by a sequence of operations as in 16.

(15) Do you t want a pony?

(16) 1. X′ theory licenses a tree with empty inflection node

2. *do*-insertion applies

3. I-to-C movement applies

3 Information Question Formation

A similar movement rule derives information questions as in 17 from an **underlying form**.

(17) [$_{\text{NP}}$ Which letter] did you send t to John?

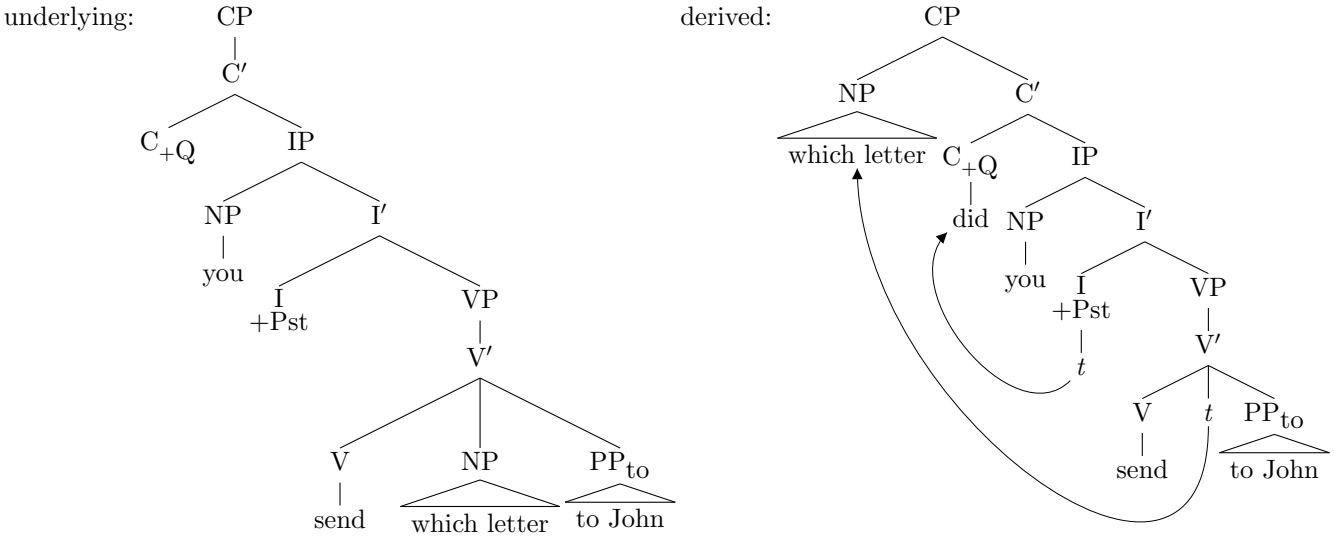
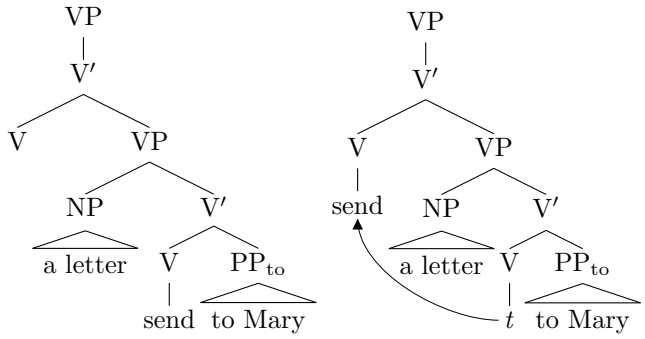


Figure 10: underlying and derived forms of 17

The subcategorization requirement of *send* is $\boxed{\text{NP PP}_{\text{to}}}$. At the stage depicted on the left of figure 10, *send*'s need for an NP complement (as well as a PP) is satisfied. By the stage depicted on the right, *do*-insertion and I-to-C movement have both already happened. But importantly for the analysis of information questions, [$_{\text{NP}}$which letter] has been moved to become CP's specifier.

An X′ structure for ditransitive verbs

Using another movement rule we can now express an analysis of ditransitive verbs that is consistent with an X′ theory that stipulates a two daughter maximum. Define an underlying form 11(a) in which there are two VP "shells", and the direct object of *send* is analyzed as a specifier. The PP gets to occupy the one and only second-daughter-of-V′ (i.e. complement) position.



(a) Underlying form (b) Derived form

Figure 11: Larson [1988] account of ditransitives

To derive the attested word order, the structure in 11(a) requires only that *send* move to the empty V position of the outermost shell as in 11(b). Adverbs that we used to analyze as specifiers of VP, such as *never*, could take a VP complement in their own phrase.

References

Richard K. Larson. On the double object construction. *Linguistic Inquiry*, 19(3):335–391, 1988.