Introduction to Transformational Grammar, LINGUIST 601
September 26, 2006

Clause Structure and Complement Selection

1 S in X′-theory

1.1 VP in X′-theory

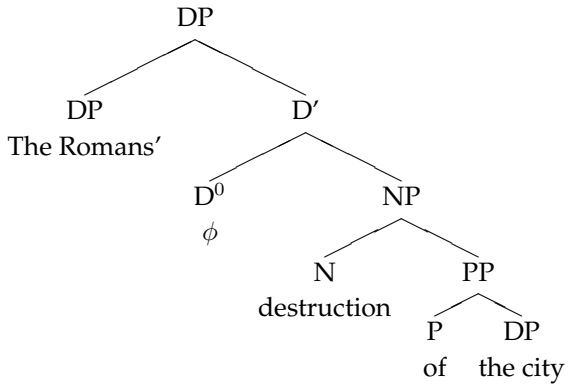
In (1), the DP *the city* is the complement of the verb *destroy*.

(1) The Romans [$_{VP}$ destroyed [$_{DP}$ the city]].

Does VP have a specifier?
Is *The Romans* in the [Spec,VP]?

Let us consider the case of nominalizations:

(2) The Romans' destruction of the city



In (2) too, *The Romans* does not appear in the [Spec,NP]. Instead it appears higher in the [Spec,DP] though this is not visible on the surface in English. To see this, we need to look at languages where the 'possessor' DP can appear with overt determiners such as Greek and in such languages, we see that the 'possessor' DP precedes the determiner.

In English only a few determiners can appear with a 'possessor' DP and these determiners follow the 'possessor' DP.

(3) They met his every demand.

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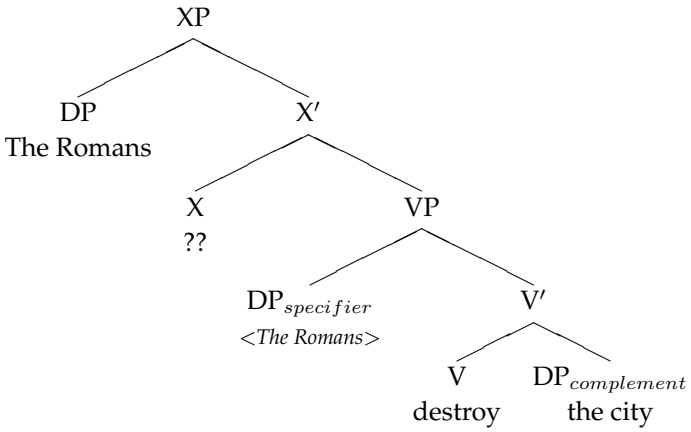
So we have two cases where the *arguments* of a head appear on the surface out of the maximal projection of that head. One idea that resonates throughout the generative literature is that theta-role assignment should be local. There are many ways of implementing such locality. The one that we will consider here is that all the arguments of a *head* should occur within its own phrase (maximal projection). This is very close to the proposal that θ-role assignment can only take place under sisterhood.

This gives us the tree in (5) for (4). A similar tree can be constructed for the nominalization.

(4) The Romans destroyed the city.

(5)



In this tree, there is no *The Romans* inside the VP because it has moved to the [Spec, XP].

Questions:
1. What is XP?
2. Why does the DP move from [Spec, VP] to [Spec, XP]?

We will answer Question 1 in this section and Question 2 in a later section.

What about *vP*?

Several authors have argued that what we have treated above as a VP:

(6) [$_{VP}$ [The Romans] [$_{V'}$ destroy [the city]]]

has additional structure, and involves another head called v (pronounced 'little v'):

(7) [$_{vP}$ [The Romans] [$_{v'}$ v^0 [$_{VP}$ destroy [the city]]]]

The v^0 head is taken to introduce the 'external argument' - the argument that comes in at the end, and tends to be interpreted as an agent (see Kratzer (1996) for arguments in support of this position).

For our current purposes, the difference between (6) and (7) will not be relevant. So in the rest of this handout, when I will say **VP**, it will actually correspond to what is often called **vP**. When we start talking about passivization and unaccusativity, the difference will become more substantive and the relevance of the decomposition of the VP will become clear.

1.2 What is XP?

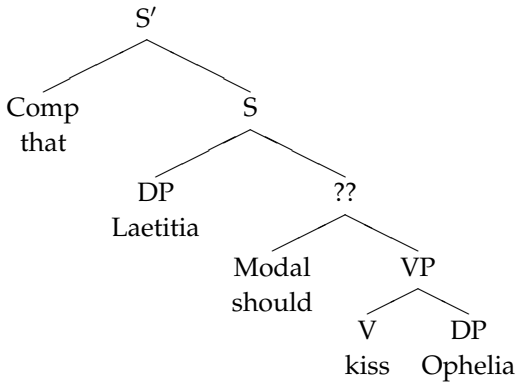
XP = S

However, if XP = S, what is X^0, the head of XP = S?

We know from our discussion of X′ theory that every XP has to have a head *of the same kind* i.e. XP cannot be headed by Y^0. This property is know as **endocentricity**.

Now let us consider how we have been analyzing cases like (8).

(8) Mark believes that Laetitia should kiss Ophelia.



Neither S nor S′ are endocentric. How can we reformulate S and S′ so that they are endocentric and fit within the X′-schema?

We know that VPs like *kiss Ophelia* do not have the same distribution as S's. So we should not identify VP as S and V^0 should not be the head of S.

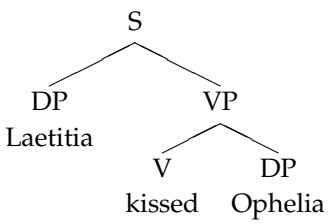
• **Approach 1**: The element which we have labeled 'Modal' could be head of S. This is the most natural approach because:
(i) heads are atmost lexical items (there may be heads that are smaller than words).
(ii) Out of the immediate constituents of S, 'Modal' is the only lexical item

What then about cases which don't have a modal such as (9a, b)?

(9) a. Mark believes that Laetitia is kissing Ophelia (right now).
b. Mark believes that Laetitia kissed Ophelia (yesterday).

(9a) is easier to take care of. We can just create a class of *Auxiliary* verbs which includes all modal verbs, *be* and one kind of *have*. But cases like (9b) pose a greater challenge. One option is to say what we have been saying up until now i.e. the following structure:

(10)



The immediate problem for this representation is that there is no candidate for the head of S. The immediate constituents of S are NP and VP and neither of them are heads. So we seem to be stuck.

At this point we should look to cases of VP-preposing (VP-topicalization) - some kinds of VPs can be preposed but others can't:

(11) a. [$_{VP}$ Kiss Ophelia], Laetitia did.

b. *[$_{VP}$ Kissed Ophelia], Laetitia.

c. *[$_{VP}$ Kissed Ophelia], Laetitia did.

What distinguishes the grammatical (11b) from the ungrammatical (11a)?

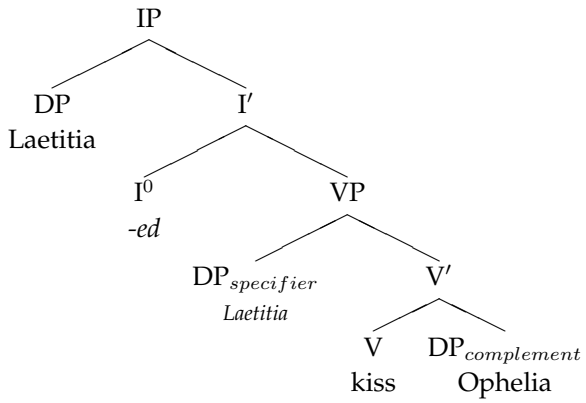
The grammatical case involve a VP without tense/person/number marking. The verb appears in its bare form. The VP in the ungrammatical case involves a verb marked for tense/person/number marking. In the case at hand, the verb *kissed* is marked for Past Tense.

We want to distinguish between these two kinds of VPs and yet also retain a link between them.

• **Approach 2**: We postulate node **Inflection** where the tense/inflectional information associated with a verb could be stored. This node Inflection will head a phrase Inflection Phrase (IP) which will be equivalent to an S. IP is also often referred to as the Tense Phrase (TP).

(12) Laetitia kissed Ophelia.

(13)



• Clearly, there has to be a way for the *-ed* suffix under I^0 and the verb *kiss* to combine.
Inflection Proposal: An I^0 and a V^0 that heads the complement VP of the I^0 combine in the phonological output.
i.e. when you try to pronounce the above tree, the I^0 node and the V^0 node combine and are pronounced together.

Cases like (11b) are bad because they would involve topicalization of an I′ and only full phrases can be moved around. (11c) is bad because there are two sets of tense/agreement markings floating around while there is only one I^0 to supply the information.

1.3 X′ rules for IP

Since we have adopted X′-theory, the form of the rules will be quite familiar:

(14) a. $\text{I}'' \rightarrow \text{DP}_{Specifier}\ \text{I}'$

b. $\text{I}' \rightarrow \text{I}\ \text{VP}_{Complement}$

We can now give a new definition of the notion 'subject of a sentence':
The 'subject of a sentence' is the NP that occurs in the [Spec, IP].

In English (and many other languages), the subject of a sentence agrees with the verb. What it means for a subject to agree with its verb is illustrated in (15).

(15) a. John eats pizza.

b. *John eat pizza.

c. I eat pizza.

d. *I eats pizza.

This relationship between the verb and its subject can be stated extremely locally within our new system as the reflex if the Specifier-head relationship.

(16) **Agreement Rule**: Copy the person-number features of the NP in [Spec, IP] on the I^0.

The person-number features of an NP are also referred to as its ϕ-features (phi-features). The ϕ-features of some pronouns are shown below:

(17) a. I = [+1st person, +singular]

b. we = [+1st person, +plural]

c. you = [+2nd person]

d. s/he = [+3rd person, +singular]

e. they = [+3rd person, +plural]

In English, gender is not part of the verbal agreement system, so *she* and *he* can be taken to have the same ϕ-features but in languages where they are part of the agreement system, they would also need to be represented.

1.4 What can go under I^0?

In sentences without any auxiliary element, the inflection is all there is in I^0. However, other elements can also appear under I^0.

(18) a. I **must/should/could** [eat some waffles]. (Modals)

b. I **am** [eating some waffles]. (*be*)

c. I **have** [eaten some waffles today]. (auxiliary *have*)

d. I **did** [not eat the waffles]. (auxiliary *do*)

e. I want **to** [eat waffles].(infinitival *to*)

Earlier we saw that the process of VP Topicalization was sensitive to the presence of inflection. Another grammatical process that is sensitive to the presence of inflection is VP Ellipsis. VP Ellipsis in English involves a silent tenseless VP together with an overt realization of I^0.

(19) a. Jerry shouldn't leave town. Bill **should** [$_{VP}$ leave town].
b. Tyrone isn't eating waffles today, but Ken **is** [$_{VP}$ is eating apples].
c. Max hasn't finished his homework, but Jose **has** [$_{VP}$ finished his homework].
d. Ana doesn't want to leave, but Mona wants **to** [$_{VP}$ leave].
e. Chunghye doesn't like unicorns, but Maribel **does** [$_{VP}$ like unicorns].
(*Chunghye doesn't like unicorns, but Maribel [$_{VP}$ likes unicorns].)

Each of the elements in (18) has distinct properties. Let us consider them individually. To provide contrast, we will start by looking at one verbal element that cannot occur in I^0, namely a main verb.

1.4.1 Main Verbs

Main verbs have non-tensed forms: past participles, present participles, and infinitival forms.

(20) a. Talvin ate the pizza.
b. Talvin has eaten the pizza. (past participle)
c. Talvin is eating the pizza. (present participle)
d. Talvin wants to eat the pizza. (infinitival form)

When negated or questioned, a form of the verb *do* is needed. Otherwise, the sentence is ungrammatical.

(21) a. Talvin didn't eat the pizza.
b. *Talvin eatn't the pizza.
c. Did Talvin eat the pizza?
d. *Eat Talvin the pizza?
e. Why did Talvin eat the pizza?
f. *Why ate Talvin the pizza?

Cases such as these can be explained by noting that the presence of the negation disrupts the local relationship needed by the I^0 and the V^0 in order to combine together. [1] Crucially main verbs stay in V^0 and do not move to I^0.

The verb *do* comes in and saves the day by giving a realization to the suffix in I^0, which could not have been pronounced on its own. This process is called **do support**.

1.4.2 Modals

Modals are set apart by the fact that they can never occur in non-tensed environments.

(22) a. *Talvin wants to must/should/could win this game.
b. *[To must/should/could play baseball] is fun.

Modals *invert* in questions and precede negation.[2]

[1] The structure is something like [I^0 [Negation [VP]]]. Where do adverbs go?
[2] In fact, *do*-support is not a possibility here.

(23) a. Must/should/could Talvin win this game?
b. Why must/should/could Talvin win this game?
c. Talvin must/should/could not win this game.

The facts follow if we assume that Modal verbs are always generated in a [+Tensed] I^0. Since modal verbs are generated in I^0, they can realize whatever features I^0 has and the I^0 does not need to be 'close' to V^0.

1.4.3 Auxiliaries: *be* and $have_{Perfect}$

Unlike Modals, auxiliaries can occur in non-finite environments.

(24) a. Talvin wants to **be** popular.
b. Talvin wants to **have** been popular.

However, like modals, auxiliaries invert in questions and precede negation. [3]

(25) a. Is Talvin winning this game?
b. Has Talvin won this game?
c. Why is Talvin winning this game?
d. Why has Talvin won this game?
e. Talvin isn't winning this game.
f. Talvin hasn't won this game.

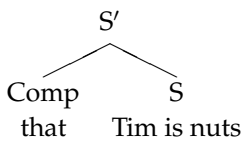
The above examples suggest that the auxiliaries *have/be* are generated in V^0 (like main verbs) but can move up to I^0 (unlike main verbs). [4]

• **to**: only occurs in [-tense] I^0.
• **do**: only occurs in [+tense] I^0 when the I^0 is unable to combine locally with V^0.[5]

1.5 S′ in X′ theory

S′ as it stands is an **exocentric** projection i.e. it is not headed by a head of its own category. Actually, things are even worse. It is quite unclear whether S′ has a head.

(26)

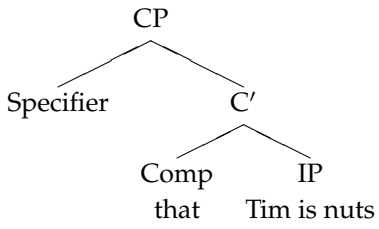


A neat solution, and one that is compatible with X′-theory is to take Comp as the head of S′. In fact this solution is forced upon us since the only potential head among the immediate constituents of S′ is Comp. We cannot look inside the S/IP for a head because the IP is a complete phrase by itself.

[3] *Do*-support is not a possibility here either. Consider what happens with *have to*, possessive *have*.
[4] What does the tree look like now?
[5] What about the other *do*?

Assuming the IP to be a complement of Comp, we have the following tree.

(27)



What goes into the [Spec, CP]? We will answer this question when we discuss *wh*-movement (questions, relative clauses etc.).

The question remains of why the DP in [Spec, VP] moves to [Spec, IP]. The answer lies in the domain of the EPP, Case Theory, and A-Movement.

2 C-selection, S-selection, and L-selection

2.1 Categorial Selection

(28) C-selection: categorial selection - certain heads impose particular demands on the category of the XP they combine with. These demands are referred to as **c-selection**.

Some things we could code using c-selection:

(29) *know* can take NPs, indicatives S's, and interrogative S's.

a. John knows [$_{NP}$the time].

b. John knows [$_{S}$ that the world is full of noises].

c. John knows [$_{S}$ what the time is].

(30) *ask* can take NPs and interrogative S's, but not indicative S's.

a. John asked me [$_{NP}$the time].

b. *John asked me [$_{S}$ that the world was full of noises].

c. John asked me [$_{S}$ what the time was].

(31) *wonder* can only take interrogative S's, not NPs or indicative S's.

a. *Paul wonders [$_{NP}$the time].

b. *Paul wonders [$_{S}$ that the world is full of noises].

c. Paul wonders [$_{S}$ what the time is].

(32) a. A: adjectives require PP complements.
PP: *fond of the tall student*, DP: **fond the tall student*, NP: **fond tall student*, AP: **fond tall*

b. N: nouns require PP complements.
PP: *queen of the blue isle*, DP: **queen the blue isle*, NP: **queen blue isle*, AP: **queen blue*

c. P: prepositions typically require DP complements.
DP: *on the brown table*, NP: **on brown table*, AP: **on brown*, PP: **on below the brown table*

We can build c-selection into our system by adding **uninterpretable** categorial features on heads. A head which c-selects (= subcategorizes) for an XP will have an uninterpretable X categorial feature, indicated as **[uX]**. For a syntactic derivation to succeed (i.e. **converge**), all the uninterpretable features must be deleted by a matching categorial feature on its complement.

2.2 Semantic Selection

Semantic selection is the idea that predicates impose selectional constraints on their complements by imposing constraints on the semantics of the complement. For example, for the verbs in (31), we could have something like the following:

(33) a. *know*: complement must be a question or a proposition
b. *ask, wonder*: complement must be a question

S-selection seems particularly helpful in cases where an argument of a particular sort is needed, but its category is not fixed.

(34) *put* selects for a location:
a. Bill put the book on the table.
b. Bill put the book under the table.
c. Bill put the book there.
d. Bill put the book away.
e. *Bill put the book.

One can imagine theories that only have c-selection, theories that only have s-selection, and also theories that have both c-selection and s-selection (cf. Grimshaw (1979)).

Certain authors have argued that s-selection is the most basic form of selection and that certain aspects of c-selection can be derived from the semantic properties of the relevant head. Theories that attempt to eliminate c-selection in favor of s-selection need (and have) explanations for contrasts between *ask* and *wonder* which have similar s-selectional needs:

(35) a. John asked me the time.
b. *John wondered the time.

2.3 Lexical Selection

Sometimes particular heads will select for particular lexical items, not just particular categories. This is called **L(exical)-selection** by Pesetsky (1991).

(36) a. verbs:
i. *depend, rely - on*
ii. *hope - for*
iii. *toy - with*
b. nouns:
i. *love - for, of*

ii. *desire - for, *of*

c. adjectives:

i. *proud, ashamed - of*

ii. *similar - to*

iii. *different - from*

iv. *consistent - with*

L-selection displays considerable idiosyncrasy. Lexical items that are semantically close can l-select different prepositions. There is also unpredictable crosslinguistic variation in this domain.

L-selection is also found with clausal complements.

(37) a. i. She liked the concerto.

ii. She liked hearing the concerto.

iii. She liked to hear the concerto.

b. i. She enjoyed the concerto.

ii. She enjoyed hearing the concerto.

iii. *She enjoyed to hear the concerto.

(38) a. i. He succeeded in convincing her.

ii. *He succeeded to convince her.

b. i. *He managed in convincing her.

ii. He managed to convince her.

The consensus in the literature seems to be that we need s-selection augmented with l-selection. What would traditionally be put under c-selection can be derived from s-selection, certain principles that govern how certain meanings are canonically realized syntactically, and other independent properties of the lexical item (See Pesetsky (1991) for details).

References

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Pesetsky, D. (1991) "Zero Syntax: Vol.2 - Infinitives," unpublished manuscript, MIT, available from web-site.