

**Ling 315 Lecture notes.** 12 Feb 2007.<sup>1</sup>

So far, we have examined a range of syntactic structures that are derived by the PS Rules in conjunction with a number of principles. We now go on to look at structures whose derivation involves not only the PS Rules and a set of principles, but also two *movement* operations, namely, *Tense Hopping* and *Head Movement*. These operations in the past have been called *transformations*, since they transform one tree structure into another.

**1. Where we're at: T as the head of S.**

Over the past few classes, we have been considering the hypothesis that S, like other phrases, is headed, and that the head of S is T:

- (1) S → NP T VP

We've identified T as having a number of properties. First, T is the position in which auxiliaries occur:

- (2) Ezgi will speak.
- (3) Ezgi has spoken.
- (4) Ezgi is speaking.

Second, T is associated with both *tense* (Past/Present) and *subject agreement* (ϕ) features. We came to this conclusion based on the fact that auxiliaries inflect for tense and subject agreement, that is, tense and agreement features are realized on auxiliaries in the form of suffixes, e.g., *-s* for [u3<sup>rd</sup>, uSg, Pres].

Thus, (5) would be assigned the structure in (6).

- (5) Ezgi is speaking.
- (6)

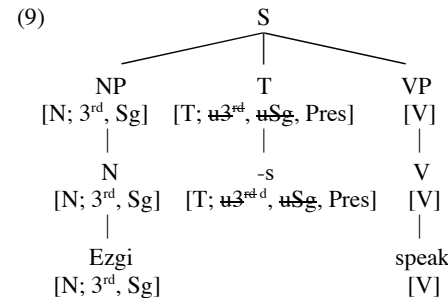
Since not all sentences contain auxiliaries, the question arises as to what structure we assign to a clause that lacks an auxiliary. In such a case, T will still carry the relevant tense/agreement features, but will be empty of any auxiliary. At the same time, we know that the main verb carries the *-s* inflection that characterizes a third person singular present tense V:

- (7) Ezgi speaks.

How can features associated with T end up on V? A common solution is to adopt a rule of *Tense Hopping* (a.k.a. *Affix Hopping*), which lowers the T node to V:

- (8) *Tense Hopping* (1<sup>st</sup> try).  
Lower T to the closest V.

One way of understanding this rule is to see T as actually housing an *affix* that expresses tense and agreement features, e.g.:



Since affixes are *bound morphemes*, they thus must combine with a stem to be well formed. This can be captured with the following principle:

- (10) *The Stray Affix Filter*.  
A bound morpheme must combine with a stem under a common head node before the pronunciation rules apply.

Given this, we can see *Tense Hopping* as a way of combining the tense/agreement suffix with a verb stem.

<sup>1</sup> These notes are adapted in part from *Minimalist Syntax* (Radford 2004) and *Transformational Grammar* (Radford 1998).

Thus our analysis so far is as follows: tense/agreement features are always generated under the T node in the form of a suffix, and lower down to V when no auxiliary is present, by a process of *Tense Hopping*.

Some evidence that this analysis is on the right track comes from examples that show that there are certain conditions under which *Tense Hopping* may not apply, and in just these cases, we find the dummy auxiliary verb *do* bearing T features in the T position. The appearance of *do* in these examples is referred to as *Do-Support*. Examples of *Do-Support* are given in the following.

One property of the T node is that it precedes negation:

- (11) Ezgi will not speak.
- (12) Ezgi has not spoken.
- (13) Ezgi is not speaking.

We can account for this by adding the following rules to our grammar:

- (14)  $VP \rightarrow \text{NegP VP}$      $\text{NegP} \rightarrow \text{Neg}$      $\text{Neg} \rightarrow \textit{not}$

When a sentence with no auxiliary is negated, we find that negation precedes the main verb, and that the auxiliary *do* is inserted:

- (15) Ezgi did not speak.
- (16) \*Ezgi not speak.
- (17) \*Ezgi speak not.

This suggests that *Tense Hopping* may not lower T past negation:

- (18) *Tense Hopping*:  
Lower T to the closest V. Condition: T may not cross Neg.

In the case that *Tense Hopping* may not apply, a ‘last-resort’ strategy kicks in, inserting the dummy auxiliary *do* into the position of T, so that the *Stray Affix Filter* is not violated:

- (19) *Do-Support*.  
When there is no other option for realizing a suffix in T, insert the dummy auxiliary *do*.

This rule would be crucially ordered after *Tense Hopping*.

Summarizing so far:

- (i) T is the head of S, and is thus obligatory;
- (ii) T houses tense and agreement features;
- (iii) T features are realized as a suffix, which occupies T;
- (iv) The *Stray Affix Filter* requires that this suffix combine with a stem;
- (v) If an auxiliary occurs in T, then it combines with the suffix;
- (vi) If there is no auxiliary, T lowers to V; when this is not possible,
- (v) *Do-support* inserts *do* in T.

Other conditions under which *Tense Hopping* may not apply include VP-Ellipsis, and *Yes/No-Questions*. We will come back *Yes/No-Questions* later.

*VP Ellipsis* is a rule that elides a VP when its content can be recovered from an identical VP in preceding discourse, for example:

- (20) A: Who may speak?                      B: Ezgi may ~~speak~~.
- (21) A: Who has spoken?                      B: Ezgi has ~~spoken~~.
- (22) A: Who is speaking?                      B: Ezgi is ~~speaking~~.
- (23) *VP Ellipsis (optional)*. Elides a VP when its content can be recovered from an identical VP in preceding discourse.

This rule is ordered before *Tense Hopping*, and triggers *Do-Support*:

- (24) A: Who speaks French?                      B: Ezgi does ~~speak French~~.

## 2. Crosslinguistic Variation

Interestingly, languages vary with respect to how tense/agreement features end up on the main verb when there is no auxiliary.

For example, it is interesting to compare present day English with an earlier stage of English, Elizabethan English (EE) (i.e., the English used during the reign of Queen Elizabeth I, when Shakespeare was writing).

As in Modern English (ME), in EE, negation follows an auxiliary:

- (25) a. She shall not see me.            b. I will not think it.  
       c. Thou hast not left the value of a cord.

Unlike ME, EE main verbs also precede negation:

- (26) a. I care not for her.            b. He heard not that.  
       c. My master seeks not me.      d. I know not where to hide my head.

Thus, in EE, main verbs move to T:

- (27) *V-to-T Movement*. Raise V to T.

A language may thus use either *Tense Hopping* or *V-to-T Movement* to ensure that tense/agreement morphology is realized in the case that there is no overt auxiliary.

Interestingly, there appears to be a correlation between the richness of morphological agreement in a language, and employing V-to-T Movement.

While 3<sup>rd</sup>-Sg *-s* is the only regular agreement inflection found on verbs in ME, in EE, there are four present-tense inflections, viz. second-person singular *-st* third person singular *-th* or *-s* and third-person plural *-n*:

- (28) Thou *sayst* true.  
       The sight of love *feedeth* those in love.  
       It *looks* ill, it eats drily.  
       And then the whole quire hold their lips and laugh, and *waxen* in their mirth.

This makes some sense of the fact that main verb *be* in English -- the verb with the richest agreement in English -- is the only verb that moves from V to T:

- (29) She is OK.                    (30) She is not OK.  
       (31) She is ~~OK~~.            (32) Is she OK?

Why would agreement correlate with V-to-T Movement? The answer is unclear.

One way of talking about it:

A tense affix is said to be *strong* in languages in which finite auxiliaries and verbs carry rich inflections (i.e. in which they carry a wide range of different inflectional affixes) and *weak* in languages in which finite auxiliaries and verbs carry poor inflections.

If the T affix is strong in rich agreement languages and weak in poor agreement languages, we can correlate the strength of T in EE with the relative richness of its inflectional morphology; and conversely, we can correlate the weakness of T in ME with the impoverished nature of its inflectional morphology.

The discussion here suggests the possibility that there is a parametric variation across languages with respect to whether verbs carry rich or poor inflectional morphology, and that the relative richness of inflectional morphology correlates with whether the affix in T is strong or weak. In rich agreement languages, T contains a strong affix and the main verb raises to T if there is no auxiliary to host the affix in T; in poor agreement languages, T contains a weak affix which is lowered onto the main verb by Tense Hopping if there is no auxiliary in T.

Consider, for example, French, which has richer inflectional morphology than English (see future tense paradigm below).

As in English, auxiliaries in French appear before negation. Note that French expresses negation with two words, one (*ne*) appears on the verb. The second, *pas*, has a distribution more like that of English *not*.

- (33) Nous (n') avons pas lu le livre.  
       we n' have not read the book

- (34) Nous (ne) sommes pas invités.  
       we n' are not invited

Unlike English, main verbs in French also precede negation:

- (35) Jean (n') aime pas Marie.  
       John n'love not Mary  
       'John doesn't love Mary'.

French thus moves V to T, unlike English.

We find similar data from Middle English:

- (36) A lord in his household *ne* hath *nat* every vessel al of gold. (Chaucer)  
       'A lord in his household does not have all his vessels made entirely of gold'.

That main verbs may move to T in French is also responsible for another contrast between French and English, involving the placement of adverbs:

- (37) Jean embrasse souvent Marie.  
 (38) \*John kisses often Mary.

If adverbs are positioned to the left of V, but to the right of T, these facts are accounted for by V-to-T Movement.

That French has V-to-T Movement also makes sense of the form of the future tense: the future tense affixes are nearly identical to the present tense forms of the verb *avoir* 'to have'. This correspondence suggests that the future tense in French developed through a semantic shift from 'they have to V' to 'they will V'. In addition, the originally free forms of *avoir* were reanalyzed as suffixes. That fact that V to T Movement occurs in French is consistent with the shape of the future tense.

- |      |                          |                   |
|------|--------------------------|-------------------|
| (39) | je chanter- <b>ai</b>    | j' <b>ai</b>      |
|      | tu chanter- <b>as</b>    | tu <b>as</b>      |
|      | il chanter- <b>a</b>     | il <b>a</b>       |
|      | nous chanter- <b>ons</b> | nous <b>avons</b> |
|      | vous chanter- <b>ez</b>  | vous <b>avez</b>  |
|      | ils chanter- <b>ont</b>  | ils <b>ont</b>    |

This also supports the idea that T houses an affix, even in English, where we find *Tense Hopping*.

English inflectional morphology is less robust than French. This difference in agreement morphology again appears to control whether a verb can move into T.

*Italian*. Italian has a rich agreement system. Verbs also precede the negation that corresponds to English *not* and French *pas*. That is, in the following, *non* is like French *ne-*, while *piu* is like French *pas*:

- (40) Gianni non ha piu parlato.  
 Gianni non has anymore spoken  
 'Gianni does not speak anymore.'
- (41) Gianni non parla piu.  
 Gianni non speaks anymore  
 'Gianni speaks no more.'

*Yes/No-Questions*. Finally, we can see a correlation between whether or not a language has V-to-T Movement, and whether main verbs invert to form *Yes/No-Questions*:

Modern English

- (42) Have you slept?  
 (43) \*Slept you?

Elizabethan English

- (28) a. Saw you my master?  
 b. Speakest thou in sober meanings?  
 c. Know you not the cause?  
 d. Spake you not these words plain?

French

- (44) Avez-vous mangé des pommes?  
 Have-you eaten the apples
- (45) Mangez-vous des pommes?  
 Eat-you the apples

At this point we can ask: What is the landing site of T to form these sentences?  
 Consider:

- (46) He asked if I would marry him.  
 (47) He asked would I marry him.  
 (48) \*He asked if would I marry him.

An important question is why auxiliaries should move from T to C in questions. We can say that C is a strong head in questions in English and that strong head position has to be filled by an overt constituent of an appropriate kind. In main clauses, an interrogative C is filled by a null question particle Q, and Q attracts an auxiliary like will to move from T to C to attach to it, so filling the strong C position.