

# Auxiliaries and head movement

## 1 Tense and the main verb

Two types of tense morphology: *bound* or *free*.

English present and past tense morphology are bound, and shows up on the verb. The verb can show  $\phi$ -agreement.

- (1) a. John studies the clarinet.  
b. I study the clarinet.
- (2) a. John studi-ed the clarinet.  
b. We studi-ed the clarinet.

The English future is a free morpheme, *will*. When *will* is used, the verb no longer shows subject agreement; it must be a *nonfinite* form, like *be*.

- (3) John will be/\*is a student.

In French, present and future morphology appears on the verb, which shows subject  $\phi$ -agreement, but the past tense uses a free morpheme 'have' which shows agreement and a special PAST form of the verb.

- (4) a. Jean manger-a des pommes.  
Jean eat-FUT.3sg some apples  
b. Je manger-ai des pommes.  
I eat-FUT.1sg some apples
- (5) a. Tu as mangé des pommes.  
you have.2sg eat-PAST some apples  
b. Nous avons mangé des pommes.  
we have.1pl eat-PAST some apples

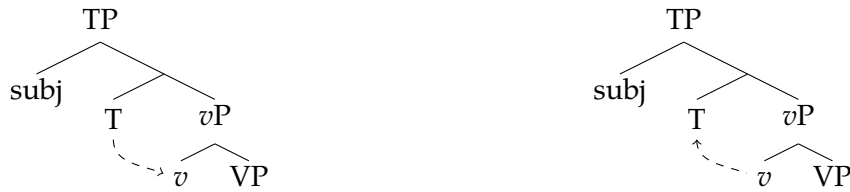
Consider the position of adverbs in tenses which use auxiliaries:

- (6) John will often eat apples.
- (7) Jean a souvent mangé des pommes.  
Jean have.3sg often eat-PAST some apples

Let's assume such adverbs are adjoined to *vP*. If the auxiliary is pronounced at T and the verb in *vP*, this word order is explained in both languages.

**Q:** How does the tense and the main verb get pronounced together as one word, for example in the English past or present or French future or present? Two options:

(Somehow) pronounce tense low on  $v/V$ :      (Somehow) pronounce the verb high with T:



The answer in English and French seem to be different!

- (8) John (often) ate/eats (\*often) apples.
- (9) Jean (\*souvent) manger-a/mange (souvent) des pommes.  
       Jean often eat-FUT.3sg/eat-PRESENT.3sg often some apples

We say that French has *V-to-T* movement, but English main verbs do not.

In all of these cases, the verb needs information about tense — or more generally, *inflection* — which we encode as [uInfl: \_\_\_]. The two options above correspond to different operations:

- (10) **Agree**( $\alpha, \beta; F$ ) (read: ' $\alpha$  and  $\beta$  agree in  $F$ '; see Adger p. 168)  
       For any syntactic objects  $\alpha$  and  $\beta$  with matching feature  $F$ , where  $\alpha$  c-commands  $\beta$ :
  - a. let the value of  $F$  on  $\alpha$  and the value of  $F$  on  $\beta$  be equal;
  - b. if  $F$  is uninterpretable on  $\alpha$  or  $\beta$ , check the feature (let  $uF = \text{u}F$ ).
- (11) **Move**<sub>head</sub>( $X, Y$ ) (read: ' $Y$  head-moves to  $X$ ')  
       If  $Y$  is a head with feature  $F$ ,  $X$  a head with a matching feature  $F$ , and  $X$  c-commands  $Y$ , and  $F$  is a strong inflectional feature on either  $Y$  or  $X$ , then
  - a. check the strong features  $F^*$  on  $X$  and/or  $Y$ :  $\text{F}^*$ ;
  - b. mark  $Y$  as as deleted ( $\text{-}Y$ ); and
  - c. replace  $X$  with  $\begin{matrix} X \\ \swarrow \searrow \\ Y \quad X \end{matrix}$ , which should be pronounced together as a word.

We might say that English T has a matching [Infl:...] feature which can value  $v$  via Agree, but French T has [Infl\*:...] which triggers head-movement. In general, however, we will not worry about explaining exactly where and when head-movement occurs in this class.

We now also have an operation for *V-to-v* movement in English: **Move**<sub>head</sub> motivated by [uV\*] on  $v$ .

## 2 More auxiliaries in English

- (12) **Some auxiliaries in English:**<sup>1</sup>
- a. Han *might* reconsider.
  - b. Darth *will* die.
  - c. Leia *has* written a message.
  - d. Somebody *is* shooting at us.
  - e. The Falcon *could have* escaped if the engine *had* worked.
  - f. Luke *has been* training in the Dagobah system.

Each auxiliary requires a certain kind of verb to follow:

- (13) modal + infinitive
- (14) perfect *have* + *-en*
- (15) progressive *be* + *-ing*

We can put these elements together, but only in a certain order:

- (16) Lando may have been making a deal.

Adger suggests putting this order in the Hierarchy of Projections:

- (17) **Hierarchy of Projections (modified, to be modified again):**  
T > (Perf) > (Prog) > *v* > V

We assume modals are in T, but why not add a separate head for this too? Because modals are systematically absent in *nonfinite clauses*:

- (18) John wants to {\*can/be able to} fly.
- (19) I expect Mary to {\*might/maybe} come tonight.

We analyze the morpheme *to* itself as a version of T, explaining the *complementary distribution* with modals and (past, present, future) tense.

Nonfinite clauses can, however, include perfects and progressives:

- (20) I expected Susan to *have* called by now.
- (21) I expected Kevin to *be* writing right now.

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<sup>1</sup>Some data here from a handout by Jason Merchant.

### 3 Negation

The negation *not* in English introduces a puzzle:

- (22) a. Han might *not* reconsider.  
b. Leia has *not* written a message.  
c. The Falcon is *not* working.  
d. Lando may *not* have been making a deal.

**Q:** What's the generalization for the position of negation?

**A:** There's always one auxiliary before the negation *not*.

- (23) **Hierarchy of Projections (modified):** (Adger, p. 195)  
T > (Neg) > (Perf) > (Prog) > *v* > V

Adger's solution: Neg is a head. Always make sure one auxiliary to move to T, if T is not a free morpheme.<sup>2</sup>

If we do not have an auxiliary, we have a problem:

- (24) \*John not eats/ate a sandwich.  
(25) John does not eats/ate a sandwich.

Main verbs in English are not able to move to T, even though auxiliaries are. When negation intervenes between T and a main verb, the Agree relation between T and *v* is broken.<sup>3</sup> We instead pronounce T by itself, using a version of the verb *do*. This is called *do-support*.

Compare this to English *never* which is simply an adverb and does not interact with auxiliaries and tenses:

- (26) John never eats/ate a sandwich.

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<sup>2</sup>In class, I will not worry about how exactly this works. See chapter 5 for details.

<sup>3</sup>See Adger section 5.5, and the Pronouncing Tense Rule.