

December 19, 2002

CLASS 8: Auxiliary Inversion

The Complementizer-position

We saw in previous classes that **complementizer head their own projection**, CP. Thus, a complementizer like **that** or **if** sits in C, taking an IP complement:

- (1) a. I hope $[_{CP} \emptyset [c \text{ that }] [_{IP} \text{ all students understand everything we've done so far}]]$.
- b. The students wonder $[_{CP} \emptyset [c \text{ if }] [_{IP} \text{ they will continue with syntax}]]$.

In **yes-no questions**, we start with the **auxiliary**. If there is no auxiliary, we **insert a dummy do**:

- (2) a. **Do** the students understand everything we've done so far?
- b. **Will** they continue with syntax?

Complementizer and auxiliary in these **inverted structures** are in **complementary distribution**:

- (3) a. * **Do that / That do** the students understand everything we've done so far?!
- b. * **Will if / If will** they continue with syntax?!

Assuming a complementizer to be base-generated in or directly merged into C and an auxiliary in I, the easiest way to account for this state of affairs is to assume **movement of the auxiliary**: auxiliary inversion is the result of the auxiliary inverting with the subject — or moving over it:

- (4) $[_{CP} \emptyset [c \text{ C }] [_{IP} \text{ they }] [_{I} \text{ will }] \text{ continue with syntax}]]?$

In the case of **dummy do**, we could say this element is **directly merged into C**. But **do** takes a **VP complement** and should hence be also **inserted into I**, then **move to C** in *do*-insertion. We can capture this under the umbrella condition of an **Economy Principle** in terms of **Last Resort**.

- (5) a. $[_{IP} \text{ The students }] [_{VP} \text{ understand everything we've done so far}]]$.
- b. $[_{CP} \emptyset [c \text{ C }] [_{IP} \text{ the students }] [_{I} \text{ do }] \text{ understand everything we've done so far}]]?$

Why would we ever postulate something like “movement”?

- *strong vs. weak nodes* (heads/features etc.)
 English I is weak and doesn't require being filled, and so is matrix C unless interrogative. Interrogative C is strong and needs to realize a Q-morpheme, and embedded C may be too.
- *clause-typing* (e.g., interrogative: Q)
 An abstract Q-morpheme types the clause interrogative and it may need phonetic support.

CLASS 9: Verb Movement

Head movement

We can generalize the instance of **inversion**: it is movement of a head, viz. **head movement**.

What are some **properties** of head movement?

Traces. Head movement leaves behind a trace to mark the **chain** created by moving from one position to another — the chain identifies the **surface position** and the **position of origin**.

- (6) a. $[_{CP} \emptyset [c \text{ Do }] [_{IP} \text{ the students }] [_{I} \text{ t }] \text{ understand everything we've done so far}]]?$
- b. $[_{CP} \emptyset [c \text{ Will }] [_{IP} \text{ they }] [_{I} \text{ t }] \text{ continue with syntax}]]?$

As we've done for **binding** and **control** relations, we **co-index** the **links** of the created chain. The **head of the chain** is the **antecedent** for the **foot**, and the foot needs to be licensed — again, in terms of **binding**: Binding a trace is also done by **c-command**. (See more on **locality** below.)

A **complete derivation** involving movement would look as follows:

- (7) a. *Merge items as usual and create IP*
 $[_{IP} \text{ they }] [_{I} \text{ will } \text{ continue with syntax}]]$
- b. *Merge empty C with IP to create C'*
 $[c \text{ C } \emptyset] [_{IP} \text{ they }] [_{I} \text{ will } \text{ continue with syntax}]]$
- c. *Move will to C and leave behind a trace*
 $[c \text{ C } \text{ will}] [_{IP} \text{ they }] [_{I} \text{ t }] \text{ continue with syntax}]]$
- d. *Project C' to a full CP with an empty Spec*
 $[_{CP} \emptyset [c \text{ C } \text{ will}] [_{IP} \text{ they }] [_{I} \text{ t }] \text{ continue with syntax}]]]]$

Another reason for postulating empty traces relates to **headedness**: IP must be headed by an I...

But again, we also have **empirical evidence** for assuming a trace left behind by head movement:

- (8) a. **We have** learned about traces. \Rightarrow **We've** learned about traces.
- b. **Will we have** mastered them? \Rightarrow ***Will we've** mastered them?

Contraction of *have* (or *have-cliticization*) is subject to **adjacency**: only adjacent nodes may be contracted (or *have* may cliticize only to an adjacent, higher head).

Different stages of English

But there are **other instances of head movement** than auxiliary inversion (**I-to-C movement**), such as **verb movement (V-movement)**, which moves V to a higher position, namely I (**V-to-I**):

- (9) a. **He heard** *not* that. (Julia, *Two Gentlemen of Verona*, IVii; Radford 1997: 116)
- b. **I know** *not* where to hid my head. (Trinculo, *The Tempest*, Iiii; Radford 1997: 116)
- c. **She lov'd** *not* the flavour of tar. (Stephano, *The Tempest*, Iiii; Radford 1997: 116)
- d. Demetrius loves her and he **loves** *not* you. (Prospero, *The Tempest*, Vi; Radford 1997: 116)

This movement is defunct in **Modern Standard English** (MSE); it has been **lost**. But earlier stages of English made use of it from **Old English** all the way to **Early Modern English** (EME). In these cases, V moves to I and leaves behind a co-indexed trace *t* in V:

- (10) [p he [r [heard]_i] [_{VP} [_{V'} [_V *t*]_i] that]_i]]]

The above-mentioned **locality** of head movement is characterized by the **HMC**:

- (11) *Head Movement Constraint (HMC)*

Head movement targets the next highest head.

This constraint makes **two predictions**:

- V may never move to C in one fell swoop, but must move through I
- If I is filled (e.g., by an auxiliary), V may not skip it to move to C

The **first prediction** we can only test **hypothetically**, but if the **second prediction** is **borne out** we would have **indirect evidence** in favour of the first (thus **supporting the HMC**). Let's see:

- (12) a. You have not heard that. (EME & MSE)
 b. Have you not heard that? (EME & MSE)
- (13) a. You heard_i not *t*_i that. (EME)
 b. Heard you_i not *t*_i that? (EME)
- (14) a. You did not hear that. (MSE)
 b. Did you_i not hear that? (MSE)
- (15) a. * Heard_i you **have** not *t*_i that? (EME)
 b. * Hear_i you **did** not *t*_i that? (MSE)

Given the ungrammaticality of (15), we know that **V cannot move to C directly**. This could rest in the HMC — but it could also mean that **only I may move to C**, i.e. that it's not a property inherent to V that makes it move to C, but in I.

This said, it becomes also clear that head movement may take place more than once, namely in auxiliary/less structures in EME, in which V ends up in C — via prior movement to I. Thus **movement of V to C** is a two-step process: **V-to-I movement, followed by I-to-C movement**:

- (16) [_{CP} ∅ [_C **Heard**]_i [_{IP} you [_{I'} [_I *t*]_i] [_{VP} not [_{VP} [_V *t*]_i] that]_i]]]]?

- (17) a. **Heard** you this, Gonzalo? (Alonso, *The Tempest*, Iii; Radford 1997: 117)
 b. **Know** you *not* the cause? (Tamio, *Taming of the Shrew*, IVii; Radford 1997: 117)

Why has V-to-I (and V-to-I-to-C) movement been lost from EME to MSE?

- *strong vs. weak agreement*
 finite verbs in EME carry strong agreement features, but weak ones in MSE
 three present tense inflections in EME vs. one present tense inflections in MSE:
 2SG: *seest*, *saysst* — 3SG: *feedeth*, *taketh* — 3SG: *tames*, *looks* (for expletives, *weather-it*)

If we assumed a change in feature-strength of I, there is another compounding factor in favour of this view. Unlike MSE, EME was/is a **null-subject language**, i.e. subjects may be left out:

- (18) a. Hast ∅ any more of this? (Trinculo, *The Tempest*, Iiii; Radford 1997: 119)
 b. ∅ Sufficeth, I am come to keep my word. (Petruccio, *Taming of the Shrew*, IIIiii; Radford 1997: 119)

- (19) a. Have you any more of this?

- b. **It** is enough / **It** suffices that I have come to keep my word.

Just as we've seen in **other cases of empty subjects** (viz. PRO as the controlled subject), there is good reason to assume an empty subject position filled by a pronominal-like element in instances of **null subjects**. As its properties are slightly different from (big) PRO, we call it (**small**) **pro**, and this **pro** bears **all relevant identificational information** (such as **agreement/phi-features**):

- (20) a. Hast **pro** any more of this?
 b. **pro** Sufficeth, I am come to keep my word.

Checking Theory

This leads us to an **explanation** of two related states of affairs:

- the difference between EME and MSE and
- the motivation for/against movement.

As we've implemented it so far, **Checking Theory** has something to say about **strong vs. weak features**: **A node endowed with strong features of a particular sort needs to be filled with an element bearing these features to check them. If its features are weak, it doesn't need it.**

We can say that **EME I has strong agreement features, MSE I has weak ones**. This allows us to relate the **strong/weak agreement forms of finite verbs** in the two languages: strong agreement forms in EME indicate that it may move to I to check I's **strong agreement features** (and vice versa). We take these agreement features to be **specifier-features for person/number**.

Weak agreement features are checked by **percolation** (or **attraction**) of the relevant features.

Why (or how) would the strong/weak dichotomy explain anything?

- *feature-movement*

Take words to be sets of phonetic, grammatical and semantic features. Assume that movement targets the entire set, attraction only the grammatical features. If the phonetic features are not required to move, there is no need for the word to move along.

Homework: Exercise 9

- A. **Review all material** we have discussed so far: chapters 1-5, *Handapparat*, hand-outs!
 B. Go especially over the entire **chapter 5** of Radford (1997) very carefully — again!
 C. Prepare next class by thoroughly reading pp. 130-137 of **chapter 6**!
 D. **Exercise VII** in Radford: p. 100 (recap of quite a lot of the stuff we've done so far).
 E. **Exercise IX** in Radford: p. 124f. (any 3 out of (2)-(8), 2 out of (9)-(13), 1 out of (14)-(16)).
 F. **Exercise X** in Radford: p. 127 (any 4 sentences).