

Ling 315 Lecture notes. Wed 5 Mar 2007.

**1. Transformations and Rule Ordering.** Transformations are obligatory unless stated otherwise. Thus, every rule applies if it can. Some transformations are crucially ordered; this ordering is reflected in the following list (we will establish in class exactly which orderings are crucial, since not ALL of these rules are crucially ordered with respect to one another)

*That-Deletion* (Optional).  
Elide the C *that* when it heads a verb's CP complement.

*V-to-T Movement*.  
When T dominates only a suffix, raise V to the closest T.  
Condition: Applies only to main verb *be*.

*T-to-C Movement*.  
Raise T to the closest C.

*VP Ellipsis* (Optional).  
Elide a VP if it is identical to a VP in preceding discourse.

*Tense Hopping*.  
When T dominates only a suffix, lower T to the closest V.  
Condition: T may not cross Neg.

*Do-Support*.  
When T dominates only a suffix, insert the dummy aux *do*.

*A-bar Movement (=Topicalization/Wh-Movement)*  
Move a phrase to the left of the closest C.  
Condition: No movement out of islands.

## 2. Where we're at

English: Head-initial  
V-to-T Raising only for main verb *be*  
Tense Hopping, *Do-Support*  
T-to-C Movement for *Yes/No*-Questions  
Topicalization optional in declaratives  
*Wh-Movement* for *wh*-questions

German: Head-final VPs & TPs, otherwise head-initial  
V-to-T Raising  
T-to-C Movement for *Yes/No*-Questions  
T-to-C Movement for declaratives (= "V2" word order)  
Topicalization obligatory in declaratives

French: Head-initial  
V-to-T Raising  
T-to-C Movement for *Yes/No*-Questions

Japanese: Head-final  
Tense Hopping, *Do-Support*  
C occupied by complementizer for *Yes/No*-Questions

**3. Wh-Questions.** Interrogative clauses can be divided into at least two types: *Yes/no*-questions and *wh*-questions. The two differ in that *yes/no*-questions are answered by 'yes' or 'no', while *wh*-questions are answered by a phrase that corresponds to the *wh*-phrase in the question. For example:

- (1) Q: Would you like that? A: Yes./No./\*Coffee. *Y/N-Q*  
(2) Q: What would you like? A: \*Yes./\*No./Coffee. *Wh-Q*

We have already analyzed *yes/no*-questions as instances of *T-to-C Movement*. Last class, we proposed that *wh*-questions are derived by the combined application of two rules: *T-to-C Movement*, and *Wh-Movement* (or *A-bar Movement*.) The derivation of (2), for example, is as follows. Note: From now on, we will mark the position from which a phrase has moved with a *trace* (*t*). This trace will bear an index that matches the index on the constituent that has moved, as in the following derivation.

- (3) D.S.: [<sub>CP</sub> [<sub>C</sub>] [<sub>TP</sub> [<sub>NP</sub> [<sub>Pron</sub> you]] [<sub>T</sub> would] [<sub>VP</sub> [<sub>V</sub> like] [<sub>NP</sub> [<sub>Pron</sub> what]]]] ]

*T-to-C Movement* →

[<sub>CP</sub> [<sub>C</sub> [<sub>T</sub> would]<sub>i</sub>] [<sub>C</sub>] ] [<sub>TP</sub> [<sub>NP</sub> [<sub>Pron</sub> you]] *t*<sub>i</sub> [<sub>VP</sub> [<sub>V</sub> like] [<sub>NP</sub> [<sub>Pron</sub> what]]]] ]

*Wh-Movement* →

S.S.: [<sub>CP</sub> [<sub>NP</sub> [<sub>Pron</sub> what]]<sub>j</sub>] [<sub>C</sub> [<sub>T</sub> would]<sub>i</sub>] [<sub>C</sub>] ] [<sub>TP</sub> [<sub>NP</sub> [<sub>Pron</sub> you]] *t*<sub>i</sub> [<sub>VP</sub> [<sub>V</sub> like] *t*<sub>j</sub>] ] ]

One reason for believing that *wh*-words are base-generated in an unmoved position is that they behave as if they check uninterpretable features of verbs. For example, the verb *meet* requires an object, as (4) shows, and thus bears an uninterpretable [uN] feature; in order for this feature to be checked, *meet* must occur as sister to an NP at some point in the derivation of this sentence, as in (5).

- (4) \*Val will meet.                      (5) Val will meet Jan.

We can explain why examples like (6) are grammatical, even though no NP constituent appears to the right of *meet*, by hypothesizing that *who* is base generated as a sister to *meet*, thereby checking its [uN] feature, as in (7).

- (6) Who will Val meet?  
 (7) D.S.: [<sub>CP</sub> [<sub>C</sub>] [<sub>TP</sub> [<sub>NP</sub> [<sub>N</sub> Val]] [<sub>T</sub> will] [<sub>VP</sub> [<sub>V</sub> meet] [<sub>NP</sub> [<sub>Pron</sub> who]]]]]

**3.1 Indirect questions.** *Wh*-Movement is also possible in embedded CPs, as in (9).

- (8) She wondered whether she would find them.  
 (9) She wondered what<sub>i</sub> she would find *t<sub>i</sub>*.  
 (10) I asked if they wanted anything.  
 (11) I asked what<sub>i</sub> they wanted *t<sub>i</sub>*.

Note that *T-to-C Movement* is marked, for unknown reasons, in indirect questions:

- (12) ??She wondered what<sub>i</sub> would she find *t<sub>i</sub>*.  
 (13) ??I asked what<sub>i</sub> did they want *t<sub>i</sub>*.

Note also that a complementizer may not be lexically filled if *wh*-movement applies, again for unknown reasons:

- (14) a. \*She wondered what<sub>i</sub> whether she would find *t<sub>i</sub>*.  
 b. \*I asked what<sub>i</sub> if they wanted *t<sub>i</sub>*.

This is sometimes referred to as the *Doubly Filled Comp Filter*:

- (15) *Doubly Filled Comp Filter*  
 A *wh*-phrase may not be sister to a C occupied by an overt complementizer.

Interestingly, this constraint did not hold of earlier stages of English: Middle English (1150-1500) permitted an overt *that* in indirect *wh*-questions:

- (16) he wiste wel himself [<sub>CP</sub> what<sub>i</sub> that he wolde answer<sub>e</sub> *t<sub>i</sub>*]  
 he knew well himself what that he would answer  
 ‘‘He himself knew well what he would answer.’’

Similarly, in Belfast English, overt *that* is permitted in indirect questions:

- (17) I wonder [<sub>CP</sub> what<sub>i</sub> that they picked *t<sub>i</sub>* ].

Again, it is unclear why this constraint holds in Standard English.

**3.2 Unbounded movement.** How far can a *wh*-word move from its base position? As we saw last time, examples like the following suggest that *wh*-words can in principle move indefinitely far from where they originate:

- (18) Who<sub>i</sub> did she talk to *t<sub>i</sub>*?  
 Who<sub>i</sub> did you say that she talked to *t<sub>i</sub>*?  
 Who<sub>i</sub> does he think that you said that she talked to *t<sub>i</sub>*?

For this reason, *wh*-movement is said to be **unbounded**, or **long-distance** movement. Examples like those in (18), where a *wh*-word has moved past at least one embedded CP, raise the question of whether the moved phrase moves directly to the left of the highest C, as in (19), or moves consecutively to the left of each C dominating it, as in (20).

- (19) Who<sub>i</sub> did they hear that he thinks that you said that she talked to *t<sub>i</sub>*?  
 (20) Who<sub>i</sub> did they hear *t<sub>i</sub>* that he thinks *t<sub>i</sub>* that you said *t<sub>i</sub>* that she talked to *t<sub>i</sub>*?

What evidence might bear on this question? (From the book, pp. 362-363). In Scottish Gaelic, the normal embedding complementizer is *gu(n)*:

- (21) Bha mi ag radh **gun** do bhuail i e  
 was I ASP saying that part struck she him  
 ‘I was saying that she hit him.’  
 (22) Tha mi a’ smaoinichadh **gu** bheil Iain air a mhisg  
 Am I ASP thinking that is Iain on his drink  
 ‘I think that Iain is drunk.’

When long-distance *wh*-movement occurs, every complementizer -- including those embedded -- needs to appear as *a*:

- (23) Co bha thu ag radh a bhuaile i  
 Who were you asp saying that-Q struck she  
 'Who were you saying that she hit?'
- (24) Co tha thu a' smaoineachadh a tha air a mhisg  
 Who are you ASP thinking that-Q is on his drink  
 'Who do you think is drunk?'

This could be evidence that *wh*-phrases move successively through the closest CP.

**3.3 Island constraints.** Interestingly, although *wh*-movement is unbounded, it is subject to so-called *island constraints* (Ross 1967). Islands are constituents that *wh*-phrases may **not** move out of. For instance, we saw last time that the CP complement to an N is an island for *wh*-movement:

- (25) a. They proved that he murdered his boss.  
 b. Who<sub>i</sub> did they [<sub>VP</sub> [<sub>V</sub> prove] [<sub>CP</sub> that he murdered *t<sub>i</sub>* ] ]?
- (26) a. They discovered proof that he murdered his boss.  
 b. \*Who<sub>i</sub> did they discover [<sub>NP</sub> [<sub>N</sub> proof] [<sub>CP</sub> that he murdered *t<sub>i</sub>* ] ]?

We can add this to our grammar in the form of the following constraint:

- (27) *The Complex NP Island Constraint*  
 A CP complement to an N is an island for movement.

Topicalization appears to be subject to the same constraint:

- (28) a. HIS BOSS, they proved that he murdered.  
 b. \*HIS BOSS, they discovered proof that he murdered.

Sentential subjects are a second type of island:

- (29) a. [<sub>CP</sub> That she knew about the murder] could surprise him.  
 b.
- (30) *The Sentential Subject Island Constraint*  
 A CP subject is an island for movement.

Is Topicalization subject to this constraint? Construct the relevant test examples.

A third type of island is the Coordinate Structure Island:

- (31) a. You like dogs and cats. b. \*What<sub>j</sub> do you like dogs and *t<sub>i</sub>*?
- (32) *The Coordinate Structure Island Constraint*  
 A single conjunct of a coordinate structure is an island for movement.

Is Topicalization subject to this constraint?

Interestingly, this constraint can be overridden if there is movement out of *both* conjuncts, referred to as *Across-the-board (ATB)* movement:

- (33) a. Meg visits Copenhagen, and Frank lives there.  
 b. Where<sub>i</sub> does Meg visit and Frank live *t<sub>i</sub>*?
- (34) *Across-the-board (ATB) Movement*  
 Movement out of both conjuncts of a coordinate structure can be legal.

*Wh*-clauses are a fourth type of island. These include clauses introduced by an interrogative complementizer such as *whether* or *if*:

- (35) a. They asked whether you hid it under the bed.  
 b. \*Where<sub>i</sub> did they ask whether you hid it *t<sub>i</sub>*?

**3.5 Target of *wh*-movement.** Many different types of constituents can be questioned using *wh*-questions:

- (36) Who do you know? What did you do? Where did you put it?  
 How quickly will they find out? Which person do you care about?

*Pied-piping*: Who will you go to for help? To whom will you go for help?  
 Which bed were you hiding under? Under which bed were you hiding?

**3.6 Additional constraints on movement.** Other constraints:

- (37) a. Who<sub>i</sub> did they say that they saw *t<sub>i</sub>*? b. Who<sub>i</sub> did they say they saw *t<sub>i</sub>*?  
 (38) a. \*Who<sub>i</sub> did they say that *t<sub>i</sub>* saw them? b. Who<sub>i</sub> did they say *t<sub>i</sub>* saw them?  
 (39) a. \*Whose<sub>i</sub> did you read *t<sub>i</sub>* diary? b. \*How<sub>i</sub> did you say she looked *t<sub>i</sub>* sad?