MSc Introduction to Syntax

Lecture 8: Wh-movement

In lectures 6 and 7 we discussed some examples of movement in which the moved constituent became the subject of the sentence. In this lecture we will discuss a different type of movement, which targets a different position in the sentence than the subject position and (hence) does not affect the grammatical function of the moving element.

1. *Wh-movement*
Consider what happens in English if some constituent of a sentence is questioned. First of all, the constituent appears in a special guise, involving a question word that often starts with *wh-* (*who, what, why, which, where*). Such words are therefore usually referred to as a *wh-words*, a term that includes those question words that actually do not start in *wh*, such as *how*. The phrases introduced by a wh-word are called *wh-phrases*. More interestingly, the constituent containing the wh-word (i.e. the wh-phrase) cannot remain in the position normally reserved for the type of constituent in question. Instead, it must occur in the first position of the clause:

(1) a. Susan has read *War and peace*
b. *Susan has read which book
c. Which book has Susan read?

(2) a. I know [Jane read a book]
b. *I wonder [Jane read what]
c. I wonder [what Jane read]

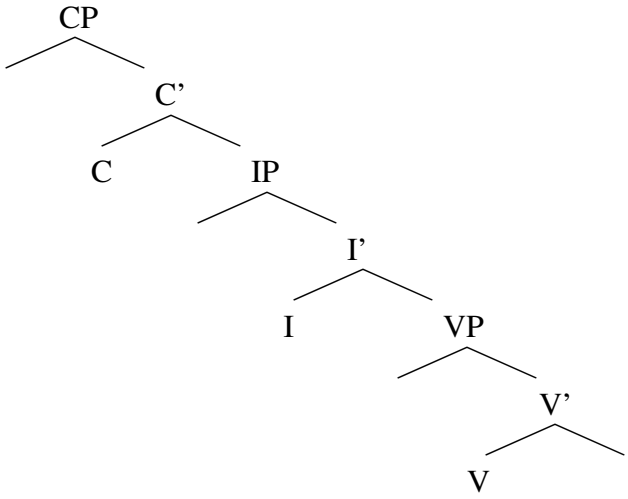
(3) a. I know [Harry gave those tickets for the concert to his brother]
b. *I wonder [Harry gave those tickets for the concert to whom]
c. I wonder [to whom Harry gave those tickets for the concert]

This indicates that we are dealing with another instance of movement. In English, a wh-phrase is moved to the first position in the clause: it undergoes so-called *wh-movement*. Note that this is a language-specific property. Although there are many other languages that show wh-movement, there are also numerous languages in which a questioned phrase is not moved. An example of such a *wh-in-situ* language is Chinese, as illustrated by (4).

(4) Wo xiang-zhidao Lisi mai-le sheme
I wonder Lisi bought what
'I wonder what Lisi bought'

Let us try to determine what exactly the 'first position in the clause' is that wh-movement targets. Recall from lecture 4 that a full clause is structured as in (5), where C is the position in which a complementizer in an embedded clause is positioned.

(5)



Now consider the following (colloquial) Dutch example:

(6) Ik vraag me af [$_{CP}$ wie$_i$ [$_C$ of [$_{IP}$ t_i [$_{VP}$ dat boek geschreven heeft]]]]
I wonder who if that book written has
'I wonder who has written that book'

The example shows that wh-movement targets a position that is in front of the position the complementizer occupies. There is one position available that can host phrases and is in front of the C position: the specifier position of the CP. We may conclude, then, that wh-movement has spec-CP as its landing site.

The English equivalent of (6) is ungrammatical:

(7) *I wonder who if has written that book

It is not likely that this is because wh-movement targets a different position than spec-CP in English, since there are no indications that wh-movement in English is in any way different from wh-movement in Dutch. Rather, it seems that in English there is a language-specific ban on filling both the C-position and the spec-CP position in one and the same clause. This is known as the *doubly-filled COMP filter*. As a consequence, a sentence that contains a wh-phrase cannot also contain a complementizer, so the *if* in (7) must be left out.

2. *Locality*
At first sight, it seems that wh-movement is possible across arbitrarily long distances. A wh-phrase can move out of an embedded clause to the spec-CP position of the main clause:

(8) Who$_i$ do you think [that Mary thought [this opera portrays t_i]]

But in many cases wh-movement is in fact restricted. For example, if an embedded sentence itself starts with a wh-phrase, it is impossible to move another wh-phrase out of that sentence, as (9) shows.

(9) * [Which opera]$_i$ do you wonder [$_{CP}$ why Verdi composed t_i]

What (9) seems to indicate is that it is impossible to move a wh-phrase in one step from the position it originates in to a position in a higher clause. But if that is so, how is it possible that (8) is grammatical?

The difference between (8) and (9) is that in (8) all spec-CP positions in between the base position of the wh-phrase and the position it moves to in the highest clause are unoccupied, whereas in (9) the spec-CP position of the embedded clause is already occupied by another wh-phrase, namely *why*. Suppose that it is impossible for a wh-phrase to move to a position outside the clause that it is in *unless it moves from the spec-CP position of that clause* – as if the spec-CP position functions as an 'escape hatch' for wh-movement. In that case, (8) can be derived if the wh-phrase first moves to the spec-CP position of its own clause, then moves on to the spec-CP position of the intermediate clause, and from that position moves on to the spec-CP position of the main clause. Such step-by-step movement is known as *successive cyclic movement*. This implies that the representation given in (8) is actually incomplete. There must be *intermediate traces*, left by wh-movement in the spec-CP positions of the lower clauses:

(10) Who$_i$ do you think [$_{CP}$ t_i that Mary thought [$_{CP}$ t_i this opera portrays t_i]]]

In some languages there is empirical evidence for the presence of these intermediate traces (and hence for successive cyclic movement). In Irish, for example, you can have both a wh-phrase in spec-CP and a complementizer in C, within the same CP (i.e. the doubly-filled COMP filter is not active here). However, the complementizer does receive a special form if there is a wh-phrase in its specifier position (namely the form a^L, where the 'L' superscript indicates that this complementizer triggers so called 'lenition' of the initial consonant of the following word). As it turns out, in cases of long-distance wh-movement, all intermediate complementizers must show up in the special form that indicates that their specifier position is filled by a wh-element, see (11). This shows that there is a wh-trace present in the intermediate spec-CP positions.

(11) Cé a dúradh léithi a cheannódh é?
who a^L *was-said with-her* a^L *would-buy it*
'Who was she told would buy it?'

Returning now to the contrast between (8) and (9), in (9) *which opera* cannot pass through the spec-CP position of the lower clause because that position is already filled by *why*. Therefore, successive cyclic movement is blocked, and the example is ruled out by whatever rules out long wh-movement (see section 4 below).

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At first sight, it may seem that there is an alternative derivation for (9) that circumvents this problem and complies with successive cyclic movement. This involves *first* moving *which opera* in step-by-step fashion, and only then moving *why* to the lower spec-CP position. This latter step is said to be 'countercyclic'. This means it is a movement which affects only a lower clause at a point in the derivation in which we have already applied a similar movement process to the higher clause.

Such countercyclic movement must be ruled out. In the case of (9), it is plausible that this is because *why* can actually not move to the spec-CP of the lower clause anymore when that position is already filled by a trace of the step-by-step movement of *which opera*.
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3. *Islands*
As it turns out, a sentence like (9) is not the only case that shows there are limits to the distances that wh-movement can cross. There are other types of constituents as well out of which wh-movement is impossible. Such constituents are called *islands* (a term coined by the syntactician John Ross, who initiated research on this topic). The case illustrated by (9), which shows that a wh-phrase cannot move out of a clause introduced by another wh-phrase, is known as a *wh-island*. Other constituents out of which you cannot move a wh-phrase include the following.

*Complex NP*s
A constituent cannot wh-move out of the complement clause to an NP to a position outside that NP, nor can a constituent wh-move out of a relative clause to an NP to a position outside the NP. Together, these restrictions are known as the *Complex NP Constraint*. They are illustrated by (12) and (13), respectively.

(12) a. They rejected the idea that a composer should write only symphonies
b. *[What]$_i$ did they reject [$_{NP}$ the idea [$_{CP}$ that a composer should write t_i]]

(13) a. She saw the composer who wrote *Jenufa*
b. *[Which opera]$_i$ did she see [$_{NP}$ the composer [$_{CP}$ who wrote t_i]]

Subjects and adjuncts
Whereas wh-movement out of an object is generally fine, subjects and adjuncts are usually islands. This contrast is illustrated in (14).

(14) a. [What kind of books]$_i$ do [$_{IP}$ you [$_{VP}$ like [$_{NP}$ reading t_i]]]
b. *[What kind of books]$_i$ does [$_{IP}$ [$_{NP}$ reading t_i] [$_{VP}$ irritate you]]
b. *[What kind of books]$_i$ do [$_{IP}$ you [$_{VP}$ laugh [$_{PP}$ while reading t_i]]]

Coordinations
It is impossible to move something out of one conjunct of a coordination if there is no simultaneous movement out of the other conjunct, something known as the *Coordinate Structure Constraint*. (15) provides an illustration of its effect.

(15) * [What]$_i$ did [[$_{IP}$ Onegin give t_i to Tatjana] and [$_{IP}$ Lensky a bouquet to Olga]

Curiously enough, movement is possible 'across-the-board', meaning there can be simultaneous movement out of both conjuncts of the coordination:

(16) [What]$_i$ did [[$_{IP}$ Onegin give t_i to Tatjana] and [$_{IP}$ Lensky t_i to Olga]

The curious thing here is that one moved wh-phrase seems to originate in two distinct positions.

Left branches
While it is possible to move the complement of an NP out of the NP, it is impossible to extract the specifier in the same way. This is the known as the Left Branch constraint (since specifiers are on a left branch in the tree structure, while complements are on a right branch in English):

(17) a. I approve of John's drinking fruit juice
b. [What]$_i$ do you approve of [$_{NP}$ John's drinking t_i]
c. *[Whose]$_i$ do you approve of [$_{NP}$ t_i drinking fruit juice]

The complementizer-trace effect
Finally, a curious case in which wh-movement is blocked in English occurs when the trace of the movement is immediately adjacent to a complementizer, such as *that*. Consider (18)-(19).

(18) a. [What]$_i$ do you think [Harry has given t_i to Barry]
b. [What]$_i$ do you think [that Harry has given t_i to Barry]

(19) a. [Who]$_i$ do you think [t_i has given those tickets to Barry]
b. *[Who]$_i$ do you think [that t_i has given those tickets to Barry]

An object wh-phrase does not care whether the clause it is extracted out of is introduced by the complementizer *that* or not. But subject extraction, i.e. extraction from a position right-adjacent to the C(omplementizer)-position (namely spec-IP, see (5)) is bad when the complementizer *that* is present. This *that-trace filter* does not hold for all languages.

4. *Subjacency*
Note that the island constraints are purely descriptive: they do not say anything about *why* wh-movement is blocked in these cases. A generalization that covers some (but not all) of these cases is the following, which is known as Subjacency:

(20) Subjacency
In movement, a constituent may not cross more than one IP and/or NP node

Subjacency is violated in (9) (the wh-island) because *which opera* moves in one step across both the IP node of the embedded clause and the IP node in the main clause on its way to the spec-CP position in the main clause. But (8) is possible, if we move the wh-phrase (*who*) step-by-step, from spec-CP in a lower clause to spec-CP in the higher clause. Each movement step then crosses only one IP node. In (9) we cannot do this because the spec-CP position of the lower clause is already filled by another wh-phrase (*why*).

In (12b) and (13b) (which illustrate the Complex NP constraint), Subjacency is violated because NPs do not contain a spec-CP position via which the wh-phrase can move higher up. Consequently, the wh-phrase in these examples has crossed both an NP node and an IP node on its way to the spec-CP position, in violation of (20).

In general, (20) appears to predict that you can never have wh-movement out of an NP (because the wh-phrase moves to spec-CP, and hence will cross both an NP and an IP node if it moves out of an NP). We have seen that for a number of cases this is correct: you cannot move out of subject NPs (14b) and you cannot move the specifier of an NP out of the NP (17c). However, the prediction appears to be incorrect for some other cases. In particular, it seems possible to extract the complement of an object NP, as in (14a) and (17b). Also, (20) does not account for the *that*-trace effect in (19b). There is clearly much more to be said about such locality effects, but we will leave it at this.

Exercises

SK exercise 11.1A, 11.3, 11.6 A (only the nonfinite indirect questions in (2)) and B.