1 Long-distance movement

1.1 Embedded clauses

Wh-movement

In English (and lots of languages), to ask a (canonical, information-seeking) \textit{wh}-question, you do something like the following:

- Start with the declarative, but replace the thing you’re asking about with a \textit{wh}-word.
- If the whole sentence is a question, move the auxiliary (\textit{have}, \textit{be}, \textit{can}, \ldots) to the left of the subject (or put \textit{do} there).
- Move the \textit{wh}-word to the front.

\begin{enumerate}
  \item Mary is drinking what
  \item is Mary _ drinking what
  \item what is Mary _ drinking _ ?
\end{enumerate}

Embedded clauses

A sentence can itself serve as the object of a verb, so you can \textit{say} or \textit{think} or \textit{know} another sentence, we can \textit{embed} one sentence into another.

\begin{enumerate}
  \item Mary is drinking \textit{Four Loko}.
  \item Peter said [(that) Mary is drinking \textit{Four Loko}].
  \item Paul remembered [(that) Peter said [(that) Mary is drinking \textit{Four Loko}]].
\end{enumerate}

And you can ask \textit{wh}-questions about things in embedded clauses as well.

\begin{enumerate}
  \item What did _ Paul remember that John said [(that) Mary is drinking _] ?
\end{enumerate}
Islands

We saw in a previous class that despite the fact that it seems like you can move a wh-word arbitrarily far, there are certain kinds of embedded sentences (for example, those that serve as modifiers—adverbial clauses like while, if, after clauses) that are “islands” from which a wh-word cannot move.

(8) a. Bill was saying [that Sue described Pat] .
    b. Who was Bill saying [that Sue described _] ?

(9) a. Bill was laughing [while Sue described Pat] .
    b. * Who was Bill laughing [while Sue described _] ?

Economy

The way that island effects have often been viewed, what makes them bad is that they’re in some sense “moving a wh-word too far”—except that this leaves us with kind of a paradox. Wh-words can move:

- . . . arbitrarily far.
- . . . not too far.

One of the reasons for thinking that what makes islands bad has to do with moving too far is that syntax generally seems to have a “least effort” flavor to it. If there are two things you could possibly do, but one involves less “work” in some sense, only the easy option is grammatical—the harder option isn’t just “harder,” it’s actually ungrammatical.

Economy: multiple questions

As an example of economy: if you ask a question with more than one wh-word, in a language like English, where you move the wh-word, you can only move the highest one (modulo certain complications having to do with special meanings). That is, you can only move the one that is closest, the one that results in the shortest movement.

(10) John persuaded Mary [to attend a meeting].
(11) a. John persuaded [who to attend what]
    b. who did John _ persuade _ [to attend what]?
    c. * what did John _ persuade who [to attend _]?
Economy: passive
Another similar example of economy comes from the passive of a double object verb. The passive involves removing the original logical subject and promoting the object to subject. When you have two objects to choose from, only the structurally highest one can be promoted.

(12) a. John gave Mary a referral.
    b. Mary was given _ a referral.
    c. * A referral was given Mary _?
(13) a. John gave a referral to Mary.
    b. A referral was given _ to Mary.
    c. * Mary was given a referral to _?

Relative clauses
Another thing that has come up briefly before, but often when discussing wh-movement, relative clauses are used as examples. The usual analysis of relative clauses is that they are modifying clauses formed essentially like wh-questions. And the same restrictions on regular interrogative wh-questions hold of relative clauses as well.

(14) a. John texted the man.
    b. Mary kissed the man.
(15) a. Who did Mary _ kiss _?
    b. John texted [the man [who Mary kissed _]].
(16) a. * Who did Mary cry [after Bill kissed _]?
    b. * John texted [the man who Mary cried [after Bill kissed _]].

1.2 Wh-morphology in Irish

Irish
Now, let’s talk about Irish a bit. In Irish, the three forms of complementizer are go, aL, and aN (McCloskey 2002).

(17) Creidim gu-r _inis sé bréag.
    I-believe go-PAST tell he lie
    ‘I believe that he told a lie.’
(18) an ghirseach a ghoid na síogaí
   the girl aL stole the fairies
   ‘the girl that the fairies stole away’

(19) an ghirseach a-r ghoid na síogaí í
   the girl aN-PAST stole the fairies her
   ‘the girl that the fairies stole away’

Irish aL

The aL form of the complementizer goes with wh-movement. In this case, it is in a relative clause (pretty much all of McCloskey’s examples are of this sort), but presume that the same holds for regular wh-movement.

(20) an ghirseach a ghoid na síogaí
   the girl aL stole the fairies
   ‘the girl that the fairies stole away’

(21) the girl [(who) aL the fairies stole _ away]

Irish aN

The aN form of the complementizer is used for something that seems to mean the same thing as an aL-type wh-movement, but instead of movement, there is a pronoun sitting in the position where the wh-word would have moved from. We won’t concentrate on these, but for completeness:

(22) an ghirseach a-r ghoid na síogaí í
   the girl aN-PAST stole the fairies her
   ‘the girl that the fairies stole away’

(23) the girl [(who?) aN the fairies stole her away]

Irish aL aL aL

If you embed clauses one inside the other, you get lots of aLs.

(24) an t-ainm a hinnseadh súinn a bhí _ ar an áit
   the name aL was-told to-us aL was on the place
   ‘the name that we were told was on the place’

(25) the name [(what) aL we were told [aL _ was on the place]]
(26) cuid den fhílochta chualaís ag do sheanmháthair árá a some of-the poetry al heard by your grandmother being-said al cheap an sagart úd _ composed the priest demon ‘some of the poetry that you heard your grandmother saying that the priest composed’

(27) the poetry [(what) al you heard [al your grandmother said [al the priest composed _]]]

Little movements?

Idea: This is “economy”—you can’t move a wh-word all the way out of an embedded clause to the front of a higher clause. Because you could have moved it just the edge of the embedded clause. Movement is in Irish is signaled by al.

(28) an rud [a shíl mé a dúirt tú a dhéanfá] the thing al thought i al said you al do.cond.2sg ‘the thing that I thought you said you would do’

(29) the thing [(what) al I thought [_ al you said [_ al you would do _]]]

This differentiates two types of economy: A “stupid” kind (local economy; at any point in the derivation, you must do the cheapest thing) vs. a “prescient” kind (global economy; minimizing the things you have to do). Stupid wins.

1.3 Irish English

West Ulster English and quantifier float

McCloskey (2000) looks at some facts in West Ulster English that point to the same conclusion. His evidence is based on the use what all in this dialect. The idea is that What all is a semantically meaningful unit that starts off as a single constituent, but in wh-questions, allows the wh-word to be moved away from all, leaving all behind (thus, marking the place from which the wh-word moved).

(30) a. What all did you get _ for Christmas?
   b. Who all did you meet _ when you were in Derry?

(31) a. What did you get _ all for Christmas?
   b. Who did you meet _ all when you were in Derry?
All in the middle

The striking fact here is that in West Ulster English, you can have all sitting in the middle.

(32) a. What all did you say [(that) he wanted]?
b. What did you say [(that) he wanted all]?
c. What did you say [all (that) he wanted]?

(33) a. What all did you say [(_ (that) he wanted _)]?
b. What did you say [(_ (that) he wanted _ all)]?
c. What did you say [(_ all (that) he wanted _)]?

1.4 Binding

Anaphors

So, evidence is accumulating (from Ireland) for this “many short moves” version of long movement. We can find some evidence closer to home, though. (See, e.g., Sabel 2002.)

The evidence comes from Binding Theory (“Principle A” specifically). The short version of the constraint here is that each other needs an antecedent (to define its reference), and that antecedent needs to be in the same clause. If it is further away, the result is ungrammatical. (Same holds for himself, themselves, etc.)

(34) They saw each other.

(35) * They said [John saw each other].

Reconstruction

Taking Binding Theory Principle A for granted, it has been observed that there is a slight mystery posed by these kinds of examples:

(36) John said [they should steal some pictures of each other].

(37) Which pictures of each other did John say [they should steal _]?

In the first sentence, each other is in the same clause as they, so everything is good. But in the second sentence, we moved the wh-phrase containing each other out to a higher clause—yet we can still interpret it as they… each other. The secret? _.
Intermediate reconstruction

With that much in place, consider these. They would seem to pose a problem—the first sentence is ungrammatical because *each other* is not in the same clause as *they*. When we form a question out of it, it becomes possible to interpret it as *they...each other* again.

(38)  * John thinks [they said [I should steal those pictures of each other]].
(39)  Which pictures of each other does John think [they said [I should steal]]?

Why? Well, successive-cyclic movement.

(40)  Which pictures of each other does John think [ _ they said [ _ I should steal _ ]]?

Memories of graduate school

Danny Fox came up with some arguments that the movements might be *even shorter* than this as well. Consider.

(41)  Which of the books that he₁ asked Ms. Brown₂ for did every student₁ [ _ get from her₂ _ ]?

Very complex. Assume that *every student* needs to c-command *he*, to get the right interpretation. But another principle of Binding Theory (Principle C) prevents *Ms. Brown* from being c-commanded by *her*. So the bottom trace is not a possible position for interpretation.

1.5  Medial wh-questions in acquisition

Thornton (1990)

Thornton (1990) discovered that children would sometimes produce long-distance *wh*-questions with a *wh*-word in the middle.

(42)  What do you think what Cookie Monster eats? (5;5)
(43)  Who do you think who’s in this box?
(44)  What do you think what’s in this one?
Is this German?

One hypothesis about what happens here is that they children think they’re speaking German, which also allows wh-words in the middle (“partial wh-movement”). So, more evidence for things in the middle.

(45) Mit wem glaubst du dass Maria gespochen hat?
    with whom believe you that Maria spoken has
    ‘Who do you think Maria has spoken to?’

(46) Was glaubst du mit wem Maria gespochen hat?
    what think you with whom Mary spoken has
    ‘Who do you think Maria has spoken to?’

2 UG and economy

17 moments of Fall

If there are 17 minutes left, maybe I’ll play the video of Noam talking about UG from an Authors at Google event. Or maybe I’ll just talk about economy and computation.

References