Movement in Minimalism, Class 4: The problem of intermediate movement
July 18, LSA Summer Institute 2017

This class:
▷ We examine successive cyclicity and the way intermediate movement is derived in minimalism, phase theory
▷ We look at the problem of how intermediate movement is triggered, and discuss a number of solutions

1 Long-distance movement

1.1 Successive cyclicity

The null hypothesis about long-distance movement is that it occurs in one “one fell swoop”:

(1) a. Which books does Jess think [CP Kim likes ]?
   b. Which books does Jess think [CP Sam said [CP Kim likes ]]? 

Since Chomsky (1977), it has become clear that long-distance movement are in fact successive-cyclic, and involve multiple, local dependencies:

(2) a. Which books does Jess think [CP that Kim likes ]?
   b. Which books does Jess think [CP Sam said [CP Kim likes ]]? 

1.2 An argument for successive cyclicity

Chomsky’s (1977) main argument for successive cyclicity is that long-distance movement is blocked if the intermediate CP is already occupied by a wh-phrase:

(3) a. *Which books does Jess wonder [CP who bought ]?
   b. *These are the people[CP who Jess wonders [CP who likes ]].
   c. *These books, Jess wonders [CP who bought ].

Chomsky (1977):
All movement is subject to the Tensed-S Condition:

(4) Tensed S Condition (TSC):
No rule can involve X, Y in the structure:
   \[ \ldots X \ldots [\alpha Z \ldots Y \ldots] \]
   where \( \alpha \) is a tensed sentence, and \( Z \) is not null.

The statement of (4) builds in an escape hatch, the edge of the finite CP.

Why are (3a–c) not a knockdown argument for successive cyclicity?

1.3 A better argument for successive cyclicity

Irish famously has multiple complementizers, sensitive to \( \bar{A} \)-dependencies. In an ordinary embedded clause, you use the complementizer go:

(5) Creidim \([CP gu-\text{r} inis \text{ s{\`e} br{\`e}ag}\].
   believe.1sg \( go \text{-past} \) tell he lie
   ‘I believe that he told a lie.’
   (McCloskey 2002:185)

When \( \bar{A} \)-movement targets the edge of the clause, the complementizer \( aL \) is used instead:

(6) Complementizer \( aL \) occurs with movement:
   a. C{\`e}acu \( a \) dh{\`o}l tú ___?
      which one \( aL \) sold you
      ‘Which one did you sell?’
   b. an fh{\`i}lioicht \([CP a \text{ chum si } ___] \)
      the poetry \( aL \) composed she
      ‘the poetry that she composed’
   (McCloskey 2002:186,189)

To distinguish these, we can think of \( aL \) as the spell-out of the variant of \( C \) that carries a feature driving movement:

(7) \[ \text{CP} \]
   \[ \text{C} \quad \text{TP} \]
   \[ go \]
   \[ \ldots \]

(8) \[ \text{CP} \]
   \[ \text{DP} \]
   \[ \text{[iOP]} \]
   \[ céacu cann \]
   \[ \text{which one} \]
   \[ \text{C} \]
   \[ \text{[iOP]} \]
   \[ aL \]
   \[ \text{TP} \]
   \[ \ldots \]
Cross-clausal movement and *aL
The distinction between these complementizers lets us probe for intermediate movement. (9a–b) show that every intervening complementizer must be *aL:

(9) Every complementizer on the path of movement is *aL:
    a. an t-ainm [CP a hinnseadh dúinn [CP 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’
    b. *an t-ainm [CP a hinnseadh dúinn [CP go raibh _ ar an áit]]
       the name *aL was-told to-us go was on the place
       ‘the name that we were told was on the place’
(McCloskey 2002:185)

⇒ Cross-clausal movement is successive-cyclic.
⇒ Successive-cyclic movement is feature-driven.

1.4 Early minimalist view of successive cyclicity
Chomsky (2001 et seq.): Derivations proceed in phases, so that earlier stages are periodically “forgotten”. This reduces “operative complexity”.
⇒ Long-distance movement cannot proceed in one fell swoop, because Transfer operations would have rendered the lower copy inaccessible (10).

(10) Phase Impenetrability Condition:
In phase α with head H, the domain of H is not accessible to operations outside α, but only H and its edge.

What is the feature involved in intermediate movement?
The traditional view of movement in minimalism is that it motivated by feature checking/valuation:

(12) HP
    XP
    H’
    [uF]

This is sometimes known as the Last Resort view:

(13) Last Resort view of movement:
All movement is feature-driven.

⇒ There must be a (semantically contentless) featural trigger on an intermediate C.

At least two possible views of this trigger:
1. There are dedicated movement-triggering features that have no semantic content (14), such as an EPP feature or an edge feature.
2. The trigger is an uninterpretable version of the trigger for the final movement step (e.g. a [uOP] feature) (15).

(14) HP
    XP
    H’
    [EPP]
    [uF]

(15) HP
    XP
    H’
    [uOP]

Which view does the McCloskey paper provide evidence for?
1.5 Problems with intermediate features

Featural triggers for intermediate movement introduce at least two issues:

1. **The lookahead problem.**
   If there are two complementizers in Irish and derivations proceed bottom-up, how do you know which one to Merge?
   
   **A possible solution:** One way out of this problem is to allow feature checking/valuation to fail (e.g. Abels 2003; Preminger 2011).
   
   In this view, complementizers like *go* and *aL* are realizations of the same head, and the choice between them reflects whether feature checking/valuation is successful:

   \[
   \begin{align*}
   C[uWH] & \rightarrow \textit{go} \\
   C[uWH] & \rightarrow \textit{aL}
   \end{align*}
   \]

2. **“Spurious” features.**
   Another issue is that we have posit semantically contentless features in the right places. But how do we know which heads to put these meaningless features on?
   
   This problem becomes especially pressing if we expand our inventory of phases to include *vP*, the necessity for which we see in *ké*-copying last week (17), as well as *PP*, *DP*, and maybe also *nP* and *aP*:

   \[
   \text{Bòl ã-cé } \textit{róor} [cè [vP kè láat]] \texttt{tiiu.} \quad \text{Bòl 3s-prf mën prf.3sg 3pl insult.nf see.nf 'Bol has seen the men he has insulted.'}
   \]

2 Deriving intermediate movement

2.1 Successive cyclicity and cyclic linearization

Fox and Pesetsky (2005) develop a proposal that derives the need for intermediate movement from linearization.

(18) *Cyclic Linearization:*
   1. Phases are the domains over which linearization statements are generated.
   2. Linearization statements generated in one phase must be obeyed in subsequent phases.

   **How does this approach derive successive cyclicity?**

2.2 Successive cyclicity and labeling

Chomsky (2013): The idea that Merge provides a label is a stipulation. Suppose labeling derives from **minimal search**.

In a configuration like (20), the label is always H, but structures like (21) are always problematic:

(19) Who did you say [\(<\text{who}\>\text{ that you saw } <\text{who}\>\]? 

First CP phase: 

\[\text{[who that you saw who]}\]

Ordering statements: who > that > you > saw

Second CP phase: 

\[\text{[who did you say [who that you saw who]}?\]

Ordering statements: who > did > you > say > that > you > saw

In this view, intermediate movement to the left edge is necessary to allow a moved phrase to be linearized in its final position. Otherwise, ordering contradictions arise.

**Are there predictions of this approach that differ from standard phase impenetrability?**

1It is assumed here that ordering statements are only calculated over the highest copy, an idea we discussed last week.
2.3 Features of the moving phrase drive movement

A variety of approaches have tried to argue that intermediate movement is 
driven by the moving phrase:

- Bošković (2007) and foot-driven movement
  Long-distance movement always puts the moving phrase in the specifier 
of a head carrying an interpretable feature.

As it is usually uninterpretable features that act as probes, Bošković ar-

gues that this Spec-Head relation should be treated as downward Agree 
initiated from the specifier:

(23)

\[
\text{CP} \\
\text{XP} \\
\text{[uWH]} \\
\text{C} \\
\text{[iWH]}
\]

Bošković: This configuration is only possible after movement, so perhaps 
it can serve as the motivation for movement.

(24) A phrase with an uninterpretable feature Y contained in XP moves 
to Spec-XP.

In this view, intermediate movement is the search for an appropriate 
Agree configuration.

\[ \Rightarrow \text{The path of a moving phrase is from Spec-to-Spec, and not necessarily} \]
\[ \text{from phase edge to phase edge.} \]

- Phase Balance (Heck and Müller 2003)
  Heck and Müller propose that every phase is evaluated for wellformedness. 
One of the constraints that is evaluated is Phase Balance:

(25) Phase Balance:
Every uninterpretable feature F in the derivation must have a 
potential checker.

A feature has a potential checker if it is in an accessible position for move-

2.4 Successive cyclicity without movement

Many approaches without movement, such as LFG and HPSG, model successive-
cyclicity as feature percolation (see also Neeleman and Van de Koot 2010):

(26) Who did you see?

\[
\text{CP} \\
\text{who} \quad \text{GAP[wh]} \\
\text{...} \quad \text{GAP[wh]} \\
\text{see} \quad \text{GAP[wh]}
\]

\[ \Rightarrow \text{Such an approach is also able to accommodate the Irish complementizer} \]
\[ \text{alternation.} \]

We can distinguish these theories through their predictions about the 
crosslinguistic distribution of reflexes of successive cyclicity.

References

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