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1 What is Phrasal Movement?

What do we mean when we make a claim like X moves from position β to position α? What is the reason to model things as having moved?

(1)   **Phrasal Movement** (Pesetsky 2013:124 ex 1)
       A phrase X has undergone movement if ...

   a.   **The Multidominance Property**
        X occupies (at least) two syntactic positions α and β, such that ...
   b.   **The C-Command Property**
        Position α c-commands β.

2 Movement as Internal Merge

(2)   **Merge**
       Merge is an operation on two syntactic objects X and Y which results in a new syntactic object Z, a set $\{X, Y\}$

   a. $\text{MERGE}(X, Y) = Z = \{X, Y\}$

   b. $\text{MERGE}(X, Y) = $
$$
\begin{array}{c}
Z \\
\diagup \diagdown \\
X \quad Y
\end{array}
$$

If MERGE is the only operation, how do we get labels (how do we know what to 'call' our sets of nodes)? The answer is that labelling of a node must be derived from its parts. In that way, for any nodes X and Y, their MERGE $Z = \{X, Y\}$ will always be the same.

(3)   MERGE $\left(\begin{array}{c} A \\ \diagup \diagdown \\ B \quad C \end{array} , \begin{array}{c} Z \\ \diagup \diagdown \\ X \quad Y \end{array} \right) = $
$$
\begin{array}{c}
D \\
\diagup \diagdown \\
A \qquad\quad Z \\
\diagup \diagdown \quad \diagup \diagdown \\
B \quad C \quad X \quad Y
\end{array}
$$

For a given node, we can find out certain attributes of it by looking at its structure: what node dominates — is formed from a merge operation on — B? What node is sister to — has a merge operation performed with — Z?

(4)

Node:	A	B	C	D	X	Y	Z
Dominating Node:	D	A	A	∅	Z	Z	D

(5)   MERGE $\left(\begin{array}{c} A \\ \wedge \\ B \quad C \end{array}, B \right) = \begin{array}{c} D \\ \wedge \\ A \quad B \\ \wedge \\ B \quad C \end{array}$

What node dominates B? What node is sister to B? Is this still a coherent question?

(6)

Node:	A	B	C	D
Dominating Node:	D	A, D	A	∅

(7)   **Internal Merge**
When merge applies to two syntactic objects X and Y such that X is a syntactic object within Y.

MERGE $\left(\begin{array}{c} Z \\ \wedge \\ A \quad X \quad W \\ \wedge \quad\quad \wedge \\ B \quad C \quad A \quad Y \\ \quad\quad\quad \wedge \\ \quad\quad\quad B \quad C \end{array} \right)$ = (tree with D dominating A and Z) = (tree with D and Z)

Why the c-commanding requirement, then?
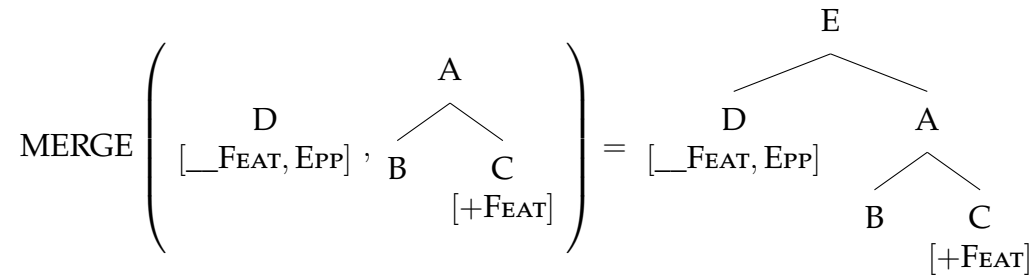
3   Featural Selection of Internal Merge

(8)   **Phrasal movement as a response to featural needs of a head H—yielding the c-command property** (Pesetsky 2013:127 ex 4)
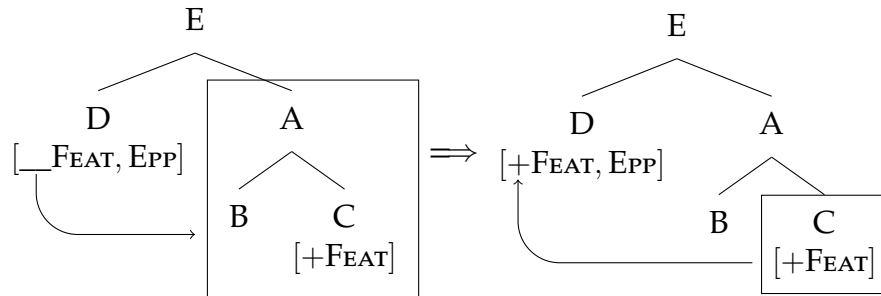Internal Merge of X with a projection of H occurs only when H has featural needs that are satisfied by:

a.   Agree between unvalued features of H and corresponding features of X (where c-command is a precondition for Agree); and

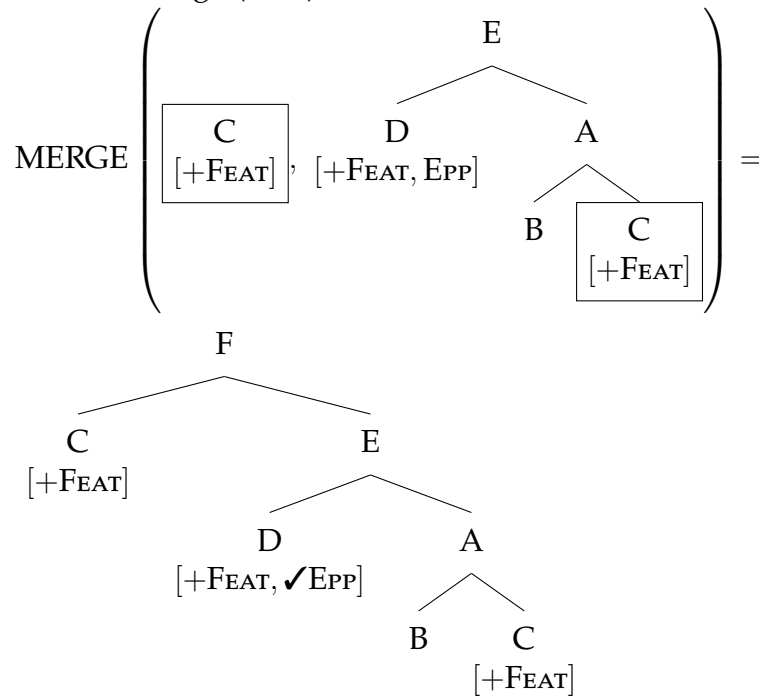b.   Merge of X as specifier of H (satisfying an EPP of H).

(9) a. Merge

$$
\text{MERGE}\left(\begin{array}{cc} \underset{[\_\text{FEAT},\,\text{EPP}]}{D} & , \quad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A} \end{array}\right) = \quad \underset{\underset{[\_\text{FEAT},\,\text{EPP}]}{D} \qquad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A}}{E}
$$

b. Probe

$$
\underset{\underset{[\_\text{FEAT},\,\text{EPP}]}{D} \qquad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A}}{E} \implies \underset{\underset{[+\text{FEAT},\,\text{EPP}]}{D} \qquad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A}}{E}
$$

c. Internal Merge (EPP)

$$
\text{MERGE}\left(\begin{array}{cc} \underset{[+\text{FEAT}]}{C} & , \quad \underset{\underset{[+\text{FEAT},\,\text{EPP}]}{D} \qquad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A}}{E} \end{array}\right) =
$$

$$
\underset{\underset{[+\text{FEAT}]}{C} \qquad\qquad \underset{\underset{[+\text{FEAT},\,\checkmark\text{EPP}]}{D} \qquad \underset{\underset{B \quad \underset{[+\text{FEAT}]}{C}}{\diagup\diagdown}}{A}}{E}}{F}
$$

4   Properties of Moved Phrases

For a Phrase X which is located in positions α (higher) and β (lower). We expect X to behave (1) like a syntactic object in β, (2) like a syntactic object in α, (3) with properties which could have emerged by the interaction between α and β like positions, and/or (4) with properties which may have emerged in the process of internal merge.

(10)   **Diagnostic manual for movement of X from β to α** (Pesetsky 2013:127–128 ex 5)

    a.   Check X for β-properties
        For each property that we expect of an X-like element in β, does X show that property?

    b.   Check X for α-properties
        For each property that we expect of an X-like element in α, does X show that property?

    c.   Check X for $\alpha\beta$-properties
        For each negative answer to (10a) or (10b), can the negative answer be attributed to one of the following factors?
        Interactions between α-properties and β-properties, such as:

        (i)   resolution of a conflict between α-properties and β-properties that masks one or the other, or

        (ii)   non-resolvability of conflict between α-properties and β-properties, resulting in otherwise surprising judgements of unacceptability; or
        Specific properties of Internal Merge itself, such as:

        (iii)   the precondition to Internal Merge stated in (8).

5 α and β-Properties: Selection

Why is (11b) bad, while (11c), which has a similar form, is okay?

(11)   a.   Ayaka knows Sean gave Liam a gift.
       b.   *Ayaka knows Sean gave Liam.
       c.   Ayaka knows what Sean gave Liam.

'Give' selects three arguments, and so whatever argument 'a gift' fills in (11a) must be filled in (11c).

(12)   a.   (11c): 'what' fills the selectional need of 'give' (compare (11b))
       b.   (11c): 'what' is in a different position linearly than what typically fills the selectional need of 'give' (compare (11a)).
       c.   Hypothesis: There are two positions β and α, where β fills selectional needs of 'give', while α is where 'what' is pronounced in (11c).
       d.   Explanation: 'What' moves from β to α, thus having the properties of (12a) and (12b)

Any more properties of α? How about its relationship with C?

(13)   a.   Ayaka knows that Sean gave Liam a gift.
       b.   *Ayaka knows that Sean gave Liam.
       c.   *Ayaka knows that what Sean gave Liam.

What more can we diagnose as movement? How do we know that subjects move to SpecCP (14)?

(14)   a.   Ayaka knows who gave Liam a gift.
         b.   *Ayaka knows that who gave Liam a gift.

6 α and β-Properties: Phonological Requirements

Phonological processes may be fed or blocked by the presence of an item in β or α positions.

(15)   'Want to $\rightarrow$ wanna' blocked by β-position
         a.   Do you want [to go home]? $\rightarrow$ Do you wanna go home?
         b.   Who$_\alpha$ do you want [t_β to go home]? $\rightarrow$ *Who do you wanna go home?

(16)   Stress assigned to β-position retained in α-position
         a.   George has plans to LEAVE. 'George is planning to leave.'
         b.   George has PLANS$_\alpha$ to leave t_β. 'George (an architect, perhaps) has a set of
                plans that he wants to leave with someone.'

7 α and β-Properties: Binding

Principle C: R-expressions cannot be bound (c-command + coreference).

(17)   a.   *[He$_i$] will probably mention my proof that [John$_i$] deserved to share the
                prize.
         b.   [His$_i$ lawyer] will probably mention my proof that [John$_i$] deserved to share
                the prize.

Principle C cares about β position of R-expressions!

(18)   a.   *[Whose proof that [John$_i$] deserved to share the prize]$_\alpha$ do you think [he$_i$]
                will mention t_β?
         b.   [Whose proof that [John$_i$] deserved to share the prize]$_\alpha$ do you think [his$_i$
                lawyer] will mention t_β?

Principle A: Anaphors must be bound within their domain.

(19)   a.   [Mary$_i$] liked these photos of [herself$_i$] best.
         b.   *[Mary$_i$'s brother] liked these photos of [herself$_i$] best.

Principle A cares about β position of anaphora!

(20)   a.   [Which photos of [herself$_i$]]$_\alpha$ did Bill hear that [Mary$_i$] liked t_β best?
         b.   *[Which photos of [herself$_i$]]$_\alpha$ did Bill hear that [Mary$_i$'s brother] liked t_β
                best?

But wait. Principle A can also be used to diagnose higher positions as well.

(21) **Locality component of Principle A diagnoses an a-position for wh-phrase** (Pesetsky 2013:135 ex 21-22)

 a. $John_i$ liked [$Mary_j$'s pictures of $herself_j$/*$himself_i$]

 b. $John_i$ wondered [which pictures of $himself_i$]$_\alpha$ Sue had heard that Mary liked t_β best.

Tricky note with diagnostics: a phenomena (such as binding) may have an exceptional result for different reasons. Make sure to check that a phenomenon is due to configuration and not due to independent factors.

(22) Grammaticality of (21b) is not because of some exception to Principle A: Priciple A still applies.

 a. $John_i$ heard that Sue_j had wondered [which pictures of $herself_j$/*$himself_i$]$_\alpha$ Mary liked t_β best.

 b. $John_i$ wondered [which $actress_j$'s pictures of $herself_j$ /*$himself_i$]$_\alpha$ Mary liked t_β best.

Similar problem in my own work on Uyghur:

(23) Is accusative subject in Uyghur non-shifty because of its configurational position?

 a. Tursun men   kim-ni   kor-d-üm dep oyla-y-du.
   Tursun 1SG.NOM who-ACC see-PST-1SG COMP think-NPST-3
   'Who does $Tursun_i$ think he_i saw?'

 b. Tursun méni   kim-ni   kor-d-i dep oyla-y-du.
   Tursun 1SG.ACC who-ACC see-PST-3 COMP think-NPST-3
   'Who does $Tursun_i$ think I_{*i} saw?'

 c. Tursun méni   méning dost-um-ni   kor-d-i dep oyla-y-du.
   Tursun 1SG.ACC 1SG.GEN friend-POSS1-ACC see-PST-3 COMP think-NPST-3
   '$Tursun_i$ thinks that $I_{s/*i}$ saw $my_{s/*i}$.'

8 A vs A′ Positions

Note a difference between the binding requirements in the following sentences.

(24) a. *[Whose proof that [$John_i$] deserved to share the prize]$_\alpha$ do you think [he_i] will mention t_β?

  b. [This aspect of $Mary_i$]$_\alpha$ seemed to her_i [t_β to be a virtue].

In (24a), the constituent moves into SpecCP (Wh-movement), and as a result, there is a condition C violation of 'he', which c-commands the β position of 'John'.

 In (24b), the constituent moves into SpecTP (raising), and as a result,there should be a condition C violation of 'her', which c-commands the β position of 'Mary'. However, this sentence is fine. Why?

(25) A and A′ Positions:

a. An A position is an argument position, or a position in which an argument is licensed, such as SpecTP, Spec$v$P, CompV, etc. Movement into an A position is called 'A-movement'.
b. An A′ (pronounced A-bar) position is a non-argument position, such as an adjunct position or the specifier of some operator, such as SpecCP. Movement into an A′ position is called 'A′-movement'.

The difference between (24a) and (24b) is that one involves A-movement and the other A′-movement.

(26)   a. A-Position cannot avoid Principle C violations
          *[Whose proof that John$_i$ deserved to share the prize]$_\alpha$ do you think he$_i$ will mention t_β
        b. A′-Position can avoid Principle C violations
          [Which proof that John$_i$ likes]$_\alpha$ do you think he$_i$ will mention t_β

(27)   a. Complements provide argument information to their head:
          [proof] [that John deserved to share the prize]
          Content of the proof (what it proves) → complement → A-position
        b. Adjuncts provide additional, non-argument information to their head:
          [proof] [that John likes]
          Attribute of the proof (John likes it) → adjunct → A′-position

9   Late Merge

How can A′-positions avoid these kinds of conditions? One argument is *Late Merge*. Late merge is an instance of merge in which adjuncts may be merged with material AFTER that material has already entered the derivation. It is defined in (28).

(28)   **Late Merge** (Pesetsky 2013:136)
        For a syntactic object X which has undergone internal merge with Y, X may subsequently undergo External Merge with a third element Z.

How does this work? If we imagine our syntactic as independent of a larger structure, this makes sense that one can arbitrarily perform operations.
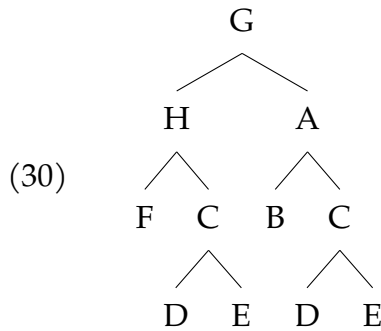
(29)   a. Internal Merge:
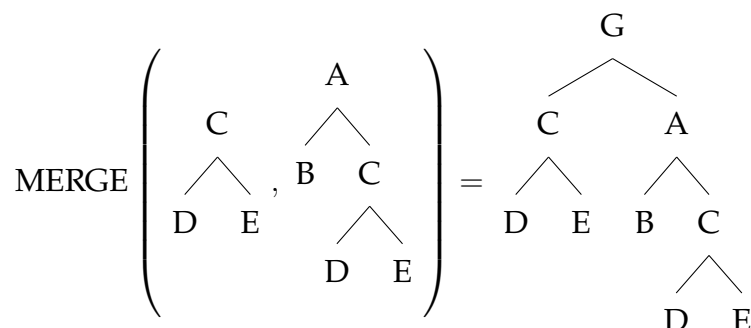
b.   External Merge:

$$\text{MERGE}\left(\text{F}\,, \begin{array}{c} \text{C} \\ \diagup\diagdown \\ \text{D}\quad\text{E} \end{array} \right) = \begin{array}{c} \text{H} \\ \diagup\diagdown \\ \text{F}\quad\text{C} \\ \diagup\diagdown \\ \text{D}\quad\text{E} \end{array}$$

But what is the result for this tree, once we step back? It seems like it has some structure like the following, where node F is our adjunct.

(30)

```
            G
          /   \
        H       A
       / \     / \
      F   C   B   C
         / \     / \
        D   E   D   E
```

This explains why A′ positions can avoid such Condition C (and other) violations: the adjunct is only present in the high position.

(31)   a.   A-Position cannot avoid Principle C violations
            *[Whose proof that John$_i$ deserved to share the prize]$_\alpha$ do you think he$_i$ will mention [whose proof that John$_i$ deserved to share the prize]$_\beta$
       b.   A′-Position can avoid Principle C violations
            [Which proof that John$_i$ likes]$_\alpha$ do you think he$_i$ will mention [which proof]$_\beta$

10 $\alpha\beta$-Properties: Interveners

Movement from β to α requires that movement from β across all positions between β and α be allowed. Thus an $\alpha\beta$-property may be the inability for the moved phrase to exist when some intervener prevents or hinders movement between β and α.
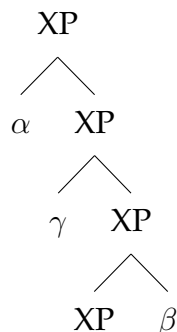
(32)   a.   Domination Interveners (Islands)
            A domination intervener γ blocks β-to-α movement when γ dominates β but not α

XP
α   XP
  XP   γ
    XP   β
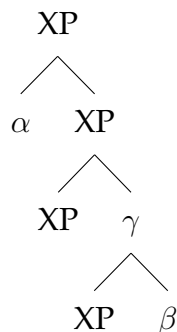
b. C-Command Interveners
    A c-command intervener γ blocks β-to-α movement when γ c-commands β but not α

XP
α   XP
  γ   XP
    XP   β

(33) Domination Interveners (Pesetsky 2013:140 ex 30)
      γ blocks movement from β to α in English if γ dominates β but not α, and ...

a. γ is a clausal complement to N (Complex NP Constraint: Ross 1967)
    *What$_\alpha$ did she challenge the claim [$_\gamma$ that he put t_β under the bed]?
b. γ is an adjunct (Adjunct Island Condition: Cattell 1976; Huang 1982: 487; Longobardi 1985)
    *What$_\alpha$ did she yell at us [$_\gamma$ because he had put t_β under the bed]?
c. γ is a CP whose specifier is filled (the wh-island Condition)
    *What$_\alpha$ did she ask us [$_\gamma$ how come he had put t_β under the bed]?
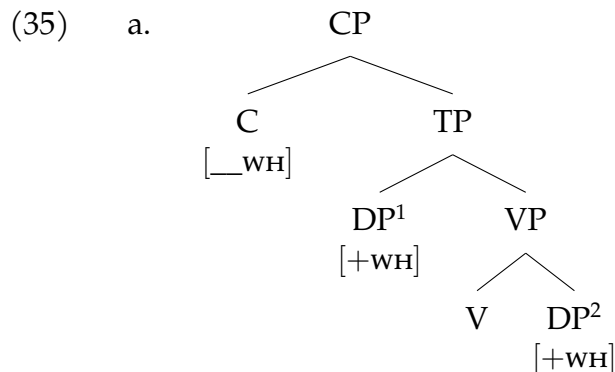
(34) C-command Interveners (Pesetsky 2013:141 ex 31)
      The Superiority Effect (Chomsky 1973)
      γ blocks movement from β to a wh-position (SpecCP) α in English if γ c-commands β but not α, and γ is a wh-item

a. He wondered [who$_\alpha$ t_β had read what].
b. *He wondered [what$_\alpha$ who$_\gamma$ had read t_β].

Why would an intervening wh-item block movement? Derivation from the agreement relation which triggers movement: probes will search first in hierarchically closer (syntactically higher) locations, and so if they are satisfied by only one target, then they will only choose the closer one.

(35) a.

```
            CP
          /    \
         C      TP
      [__WH]   /  \
            DP¹    VP
          [+WH]   /  \
                 V    DP²
                    [+WH]
```

$$
\begin{array}{c}
\text{CP} \\
\diagup\ \diagdown \\
\text{C} \qquad \text{TP} \\
[\_\_\textsc{wh}]
\end{array}
$$

b. C's probe searches TP for a valued [wH] feature. DP^1 is the first instance of such a feature it finds, and so it agrees with (and will internally merge with) DP^1, leaving DP^2 unprobed and unmoved.

11 $\alpha\beta$-Properties: Cyclic Linearization

(36) Cyclic Linearization (Fox and Pesetsky 2005)

a. The relative precedence of the lexical items of a syntactic structure is communicated to the phonology cyclically, as each Spell-out Domain is fully constructed by Merge.

b. Ordering contradictions are unacceptable.

(37) a. V-to-C movement, can Object Shift
vP internal order = kysste henne = vP external order

Jag kysste$_1$ henne$_2$ inte t_1 t_2
I   kissed her   not

'I did not kiss her.'

b. No V-to-C movement, cannot Object Shift
vP internal order = kysste henne $\neq$ vP external order!

*... at   jag henne$_1$ inte kysste t_1
      that I   her   not kissed

Intended '... that I did not kiss her.'

References

Pesetsky, David. 2013. Phrasal Movement and Its Discontents: Diseases and Diagnoses. In *Diagnosing syntax*, ed. Lisa Lai Shen Cheng and Norbert Corver, Oxford Studies in Theoretical Linguistics. Oxford: Oxford University Press.