**Root Transformations Reconsidered: On the Status of Matrix C and Cyclic-Transfer**

In Chomsky's (2000) phase-based approach, it is assumed that only the "domain" of a phase is transferred/spelled-out to the interfaces, not the entire phase. One unclear issue in this cyclic transfer system is how a matrix C and its edge position are finally transferred. In (1), "what" and "did" are never included in a domain of any phase. How are they transferred? With respect to this puzzle, I advance the following hypothesis: The highest phase head and its edge are transferred along with its domain: in (1) "what" and "did" are transferred at TRANSFER2. This hypothesis makes an interesting prediction about feature distribution at phase heads. Richards (2007) claims that valued uninterpretable features ([uF]) cannot exist at phase heads because when a phase head and its edge positions are transferred as part of the domain of the next higher phase, the distinction between interpretable features ([iF]) and valued [uF] has disappeared, which causes crash of the derivation. Therefore, [uF] on C/V have to be "inherited" by T/V (cf. Chomsky, 2005) (→(2)) and phase heads can only inherently bear edge features (EF). But, if our hypothesis is correct, [uF] should be allowed to occur on the edge, but only at the highest phase head (→(3)) because the matrix edge unlike all others is transferred along with its domain. This prediction nicely explains three kinds of A'-movement: English-type wh-movement (WH), leftward scrambling (LS) and rightward scrambling (RS) (cf. Saito 1985, Simon 1989), especially considered in terms of pronunciation positions. In WH, a moved wh-phrase has to be pronounced at a matrix edge-CP or embedded edge-CP selected by verbs such as "wonder" (→(4)). On the other hand, final landing sites of scrambling are not affected by selectional restrictions, unlike in WH. In LS, the moved element can be phonetically realized anywhere as in (→(6-7)), while in RS the moved element can be pronounced only at the matrix edge-CP, but not at the embedded one (→(8-9)). In this sense, RS is considered as one of the root transformations. These three types of movement can be distinguished in terms of potential pronunciation sites. Why do these differences exist? I propose that these differences can be explained by availability of Agree with attractors. First, LS is triggered purely by EF without Agree, so that elements moved by LS can be realized at any phase-edge positions regardless of selectional restrictions or features on attractors. Second, in WH, there are two ways of deciding pronunciation positions. One is that wh-movement is triggered purely by EF, and then s-selection by verbs taking CP finalizes the pronounced/interpreted position as in the contrast between (4b) and (4c). In this case, there is no Agree relation between embedded C and a wh-phrase because embedded C cannot bear [uF] for a convergent derivation, as mentioned in the last paragraph. Therefore, [Q] on wh-phrases can be interpreted by moving to an edge of CP, not by Agree, as discussed in Chomsky (2005). The other is that [uQ] on the matrix C agrees with a wh-phrase and [EF] attracts it. In this case, Q-agreement between C and a wh-phrase decides the pronounced position as its edge position. Notice that only the highest phase head can bear [uF] (i.e. [uQ] in this case) as mentioned. This is exemplified in the matrix questions (4a)/(4d). These two ways are also motivated by (un)availability of T-to-C movement (Subject Aux Inversion: SAI). Under the current view, we can say that SAI is triggered by [uQ] on the phase head which can appear only at the matrix C. In embedded clauses, C can only bear [EF] and the verb's selectional restrictions decide pronounced/interpreted sites, so that lack of [uQ] on C fails to trigger SAI. Third, in RS, the pronunciation site is determined only by Agree with [uF] on the matrix C. In fact, RS is more acceptable if it contains a discourse particle (sentence final particles) such as "yo" or "ne" (→(10)) (based on relative judgment). These particles appear basically only at the sentence final position, i.e. at the matrix C, and denote speaker-attitude (cf. Masuoka, 1991) But in LS, there is no this kind of difference in acceptability (→(11)). Based on the above hypothesis, we can say that there is Agree between "yo/ne (matrix C)" and moved elements: [uX] on "yo/ne" (C) agrees with [iX] on the moved element (→(12)). Selectional restrictions imposed by verbs have no effect on scrambling, so that if the moved element with [iX] is realized at the embedded CP as in (8), [iX] is not properly interpreted because of lack of [uX] as a licensor, as in the same way as English matrix questions. That is why RS can be pronounced only at the matrix CP. (13) summarizes the current analysis and shows how these three types of A'-movement interact with each other regarding the determination of pronunciation positions.

If this analysis is correct, the idea, "the matrix phase head and its edge are transferred along with its domain" is empirically motivated. Moreover, it explains why many of the root transformations in Emonds (1970) involve a matrix C: SAI, negative inversions (→(14)), German V2 phenomena and so on by appeal to the special property of a matrix C which I argue is deducible from the independently motivated phase-based analysis, once it is corrected to allow matrix edges to reach the interfaces (as they must).
(1) **What did you buy?**

\[
\begin{array}{c}
\text{CP what did (C)} \\
\text{VP buy <what> [vP you <what> [vP you]<what>]]}
\end{array}
\]

(2) \(C_{[\ldots]} \rightarrow T_{[\text{af}]}\)

(3) \(C_{[\text{af}]} \rightarrow T_{[\text{af}]} \) or \(C_{[\text{af}]} \rightarrow T_{[\ldots]}\) (cf. Ouali, to appear)

(4) a. What does Mary think John bought?
   b. *Mary thinks what John bought t.
   c. Mary wonders what John bought t.
   d. What did John buy?

(5) Taro-ga [Hanako-ga kino ano ringo-o tabe-ta to] it-ta
    Taro-Nom [Hanako-Nom yesterday that apple-Acc ate C] said
    "Taro said that Hanako ate the apple yesterday."

(6) Leftward scrambling1 of (5)

Taro-ga [ano ringo-o, [Hanako-ga kino t1 tabe-ta to]] it-ta
Taro-Nom [that apple-Acc [Hanako-Nom yesterday ate C]] said

(7) Leftward scrambling2 of (5)

ano ringo-o, Taro-ga [Hanako-ga kino t1 tabe-ta to] it-ta
that apple-Acc Taro-Nom [Hanako-Nom yesterday ate C] said

(8) Rightward scrambling1 of (5)

*Taro-ga [[Hanako-ga kino t1 tabe-ta to] ano ringo-o,] it-ta yo.
Taro-Nom [[Hanako-Nom yesterday ate C] that apple-Acc] said Part

(9) Rightward-scrambling2 of (5)

Taro-ga [Hanako-ga kino t1 tabe-ta to] it-ta yo ano ringo-o, Taro-Nom [Hanako-Nom yesterday ate C] said Part

(10) a. ?Hanako-ga kino t1 tabe-ta ano ringo-o, Hanako-Nom yesterday ate that apple-Acc
    "John ate that apple yesterday."
   b. Hanako-ga kino t1 tabe-ta yo ano ringo-o, Hanako-Nom yesterday ate Part

ano ringo-o, Hanako-ga kino t1 tabe-ta (yo/ne).
that apple-Acc Hanako-Nom yesterday ate Part
"John ate that apple yesterday."

(12) \(\text{XP C}_{[\text{x}][\text{EF}]} \downarrow \text{YP}_{[\text{x}]}\)

(13) 3 ways of deciding pronunciation sites

<table>
<thead>
<tr>
<th></th>
<th>EF without Agree</th>
<th>EF and Agree with C</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS (anywhere)</td>
<td>✓</td>
<td>--</td>
</tr>
<tr>
<td>WH (matrix or embedded CP)</td>
<td>✓ (selectional restriction)</td>
<td>✓</td>
</tr>
<tr>
<td>RS (matrix CP)</td>
<td>--</td>
<td>✓</td>
</tr>
</tbody>
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(14) a. In not many years will Christmas fall on Sunday.
   b. *The employees are happy that in not many years will Christmas fall on Sunday.
   (Emonds, 1970)