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Movement and Derivation: Eliminating the PBC

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Ken Hiraiwa

1 Introduction

Movement is a distinctive property of human language. Various proposals have attempted to constrain movement. One of the most important conditions on movement is the c-command on movement landing site, namely, the PROPER BINDING CONDITION (PBC) in (1).

(1) PROPER BINDING CONDITION (PBC)
    Traces must be bound.

The strict interpretation of the PBC prohibits:

(2) a. Downward and sideward movement
    b. Head movement
    c. Remnant movement

Downward movement and sideward movement necessarily leave a trace that is not c-commanded by the head of the chain and hence violate the PBC. Under a strict interpretation of the PBC, head movement is also banned because the head of the chain in head movement cannot c-command its trace. Likewise, remnant movement would be never permissible, because it leaves an unbound trace within a remnant category (cf. Müller 1996).

Importantly, there has been no uncontroversial case of downward and sideward movement attested in human language. It is much less controversial, however, that human language apparently does allow remnant movement in some restricted context, as well as head movement. Thus the PBC in the form of (1) needs to be reconsidered.

The aim of this paper is to show that there is some redundancy between the scope of the PBC and the derivational theorizing in the minimalism, and that the PBC should be eliminated and can be reduced to a derivational property of the computational system, CYCLIC SPELL-OUT, on both empirical and conceptual grounds.

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Conceptually, there are several reasons for eliminating the PBC; it is a highly representational condition, which is incompatible with the recent derivational theorizing. Furthermore, under minimalism, such a condition on movement itself must be called into question.

As Epstein et. al (1998) argue, a strictly derivational system, in which all operations take place cyclically and derivationally, naturally excludes lowering and sideward movement. The more significant question that they do not ask concerns remnant movement. Remnant movement is not excluded in principle in a strictly derivational system, since it is perfectly upward and cyclic. It has been observed in the literature, however, that remnant movement is heavily constrained.

This paper proposes a simplest condition on movement (3), which is derived from the cyclic/derivational nature of the structure-building (cf. Chomsky 2000, 2001a, b, Collins 2001).

(3) Movement is triggered only by the probe/locus in the derivation.

The immediate difference between the PBC (1) and (3) is that whereas the PBC is a condition on syntactic chain formation (i.e. representation), (3) is a condition on movement trigger. That is, (3) requires all movement to be triggered cyclically by the probe/locus in the derivation. (3) naturally follows from the derivationalism (cf. Extension Condition, Earliness Principle, Cyclicity etc.). Under (3), remnant movement becomes licit rather than illicit. Then, the important question is how to constraint remnant movement.

The structure of this paper is as follows. Section 2 first quickly reviews the previous theories of the PBC and points out a new set of data that resists explanation under any of the existing theories. Section 3 proposes an Edge-based theory of Cyclic Spell-Out as an alternative to the PBC and shows that it is conceptually and empirically superior to the previous theories of the PBC. Section 4 discusses some consequences of the proposed theory of the PBC.

2 A PBC Riddle

2.1 A Very Brief Overview of the History of the PBC

The PBC is alleged to correctly explain the ungrammaticality of long-distance scrambling followed by remnant movement in Japanese. There have been many proposals about how to derive/reduce the PBC (cf. Saito 1985, 2002, Lasnik and Saito 1992, Collins 1994, Takano 1995, Müller 1996, Ki-
For example, (4c) is derived from the PP-scrambling (4a) followed by the remnant CP-scrambling (4b) and is ungrammatical. The schematic derivation (4d) is out because the trace \( t_i \) violates the PBC (1).

\[(4)\ a. \ [\text{TP} \ \text{Taro-ga} \ \text{gakusei-to} \ i_1 \ \text{Hanako-ga} \ \text{at-ta} \ \text{to}] \ \text{meet-PST} \ C \ \text{think-PRES} \ C \ \text{say-PST} \]

'Taro said that Hanako thought that Jiro met with students.'

b. \[[\text{CP} \ \text{Jiro-ga} \ \text{gakusei-to} \ i_1 \ \text{at-ta} \ \text{to}]\]

\[[\text{TP} \ \text{Taro-ga} \ \text{Hanako-ga} \ \text{to}] \ \text{omotte-iru} \ \text{to}] \ \text{it-ta}].\]

Taro-NOM Hanako-NOM think-PRES C say-PST

\(\text{Jiro-NOM student-with meet-PST} \ C\)

\([\text{TP} \ \text{Taro-ga} \ \text{Hanako-ga} \ \text{t}_i \ \text{omotte-iru} \ \text{to}] \ \text{it-ta}].\]

\(\text{Jiro-NOM student-with meet-PST} \ C\)

\(\text{Hanako-NOM think-PRES} \ C\) say-PST

\(\text{It should be noted that the PBC cannot be literally right since otherwise (5) is wrongly ruled out (cf. Lasnik and Saito 1992, Takano 1995).}\)

\[(5)\ a. \ [\text{TP} \ \text{Taro-ga}; \ i_1 \ \text{Hanako-wo} \ \text{tataki]} \ \text{hit]-even} \ \text{do-PST} \]

'Taro even hit Hanako.'

b. \([\text{TP} \ \text{Taro-ga}; \ i_1 \ \text{Hanako-wo} \ \text{tataki]} \ \text{hit]-even} \ \text{do-PST} \]

'(Even) Hit Hanako, Taro did.'

Kitahara (1997), building on Müller’s (1996) generalization (6), proposes that the PBC reduces to the MLC.

(6) MÜLLER’S GENERALIZATION (MG)

Remnant XPs cannot undergo a certain type of movement if the antecedent of the unbound trace has undergone the same type of movement.

In Müller-Kitahara theories, (4) is illicit because both operations are scrambling and hence violates MG /MLC, whereas (5) is licit because the first op-
eration is A-movement and the second operation is scrambling, each of which has a different trigger and hence there is no MG/MLC violation.

These approaches, however, suffer empirical problems. As (7) shows, even if one of the two operations is replaced with topicalization and hence MG/MLC violation is obviated, the sentence is still ungrammatical, contrary to expectation.

(7) *[CP3 [CP1 Jiro-ga t̺ at-ta to](-wa) Taro-ga
Jiro-NOM meet-PST C-TOP Taro-NOM
[CP2 gakusei-to](-wa) [CP2 Hanako-ga t̺ omotte-iru to]
students-with-TOP Hanako-NOM think-PRES C
it-ta]]
say-PST
‘John said that Hanako thought that Jiro met with students.’

Furthermore, Saito (2002) shows that the PBC cannot be reduced to the MLC. Consider the object control examples in (8).

(8) a. Taro-ga Hanako-ni [CP PRO Boston-e iku koto]-wo meiji-ta.
Taro-NOM Hanako-DAT Boston-to go C-ACC order-PST
‘Taro ordered Hanako to go to Boston’

b. Taro-ga [vP Boston-e] Hanako-ni [CP PRO t̺ iku
Taro-NOM Boston-to Hanako-DAT go
koto]-wo meiji-ta].
C-ACC order-PST

c. [CP PRO Boston-e iku koto]-ga Taro-ni yotte
Boston-to go C-NOM Taro-by
Hanako-ni t̺ meiji-rare-ta
Hanako-DAT order-PASS-PST
‘That (she) should go to Boston was ordered to Hanako by Taro.’

d. *[TP [CP PRO t̺ iku koto]-ga] [vP Boston-e](-wa)
Hanako-ni Taro-ni-yotte t̺ meiji-rare-ta].
Hanako-DAT Taro-by order-PASS-PST
‘(Lit.) To go to Boston was ordered to Hanako by Taro.’

(8a) is the base sentence. The ungrammatical sentence (8d) is derived by applying scrambling of the PP (8b) and then A-movement of the CP (8c), respectively. Under the MG/MLC account, however, (8d) is wrongly pre-
dicted to be well-formed just as (5) is good. This is because the triggers of the two operations are different and do not cause any MG/MLC violation. Saito (2002) proposes a new theory of the PBC (9).

(9) CONSTRAINT ON MERGE (Saito 2002)

Merge applies to only complete constituents.

a. α is subject to Merge only if α is a complete constituent.

b. α is a complete constituent = def. if β is a term of α and β is a member of a chain γ, then every member of γ is a term of α.

(9) prohibits movement of a constituent which contains a trace/copy but not the head of the chain. This rules out (4c) because the remnant movement of the CP contains a trace of the PP but not its head. Saito crucially assumes with Lasnik (1999) that A-movement does not leave a trace/copy, whereas scrambling does. Therefore, (5) does not show any PBC effects because the moved remnant constituent v*P does not contain a trace/copy of the subject DP A-chain. On the other hand, (9) correctly rules out (8d), because the remnant CP contains a trace of the scrambled PP but not its head of the chain, and therefore cannot undergo Merge/Move.

2.2 A PBC Riddle

Saito’s theory suffers conceptual and empirical problems. First, the newly proposed condition (9) inherits the same conceptual problems as the original PBC; Saito’s Constraint on Merge (9) is essentially representational in the sense that it refers to a presence/absence of a trace in certain domain/category. More importantly, (9) begs a fundamental question why it exists and how it is derived. Since the aim of this paper is to eliminate an independent condition and reduce it to a more general property of human language, we do not adopt his theory.

More significantly, however, there is a set of data that cannot be explained under Saito’s theory and any of the proposed theories of the PBC that we have seen above. Consider the examples of Raising-to-Subject (10) and Raising-to-Object (11).

(10) a. [TP Taro-ga,T minna-ni [CP t, baka-da to]
Taro-NOM everyone-DAT foolish-PRES C
omow-arete-iru].
think-PASS-PRES.
‘Taro is considered to be stupid by everyone.’
b. \([\text{CP} \, t_i \, \text{baka-da} \, \text{to}\{\text{-wa}\} \, [\text{TP} \, \text{Taro-ga}_i \, \text{minna-ni} ]\, \text{Taro-NOM everyone-DAT} \]

\[ t_j \, \text{omow-arete-iru} \].

think-PASS-PRES

(11) a. \([\text{TP} \, \text{Taro-ga} \, [\nu\, \text{Hanako-wo}_i] \, \text{kokorokara} \, [\text{CP} \, t_i] \, \text{Taro-NOM Hanako-ACC} \, \text{sincerely} \]

\[ \text{baka-da} \, \text{to}\{j \, \text{omot}-ta]\].

foolish-PRES C think-PST

'Taro sincerely considered Hanako to be a fool.'

b. \(*[\text{CP} \, t_i \, \overline{\text{Baka-da}} \, \text{to}\{\text{-wa}\} \, [\text{TP} \, \text{Taro-ga} \, [\nu\, \text{Hanako-wo}_i] \, \text{Taro-NOM Hanako-ACC} \]

\[ \text{(kokorokara)} \, t_j \, \text{omot}-ta]. \]

sincerely think-PST


What is significant here is the sharp grammatical contrast between the remnant CP movements in (10b) and (11b). In both derivations, the first operation is A-movement/raising into \([\text{Spec, TP}]\) and \([\text{Spec,} \nu\, \text{P}]\), respectively. Thus, Saito’s theory wrongly predicts (11b) to be as grammatical as (10b) and (5). Likewise, the MG/MLC expects (11b) to be as grammatical.

Thus we are left with a paradox under any of the previous theories of the PBC. (12) summarizes the results.

(12) Syntactic Operations

<table>
<thead>
<tr>
<th>Scrambling followed by remnant Scrambling</th>
<th>PBC Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrambling followed by remnant Topicalization</td>
<td>*</td>
</tr>
<tr>
<td>Scrambling followed by remnant A-movement</td>
<td>*</td>
</tr>
<tr>
<td>A-movement followed by remnant Scrambling</td>
<td>*_OBJ/_SUBJ</td>
</tr>
<tr>
<td>A-movement followed by remnant Topicalization</td>
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</tr>
<tr>
<td>A-movement followed by remnant A-movement</td>
<td>*_OBJ/_SUBJ</td>
</tr>
</tbody>
</table>

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1 Cf. Kuno (1976), Hiraiwa (2002) for extensive arguments for ‘(optional) raising’ in RTO in Japanese. Notice that RTO in Japanese cannot be control; (8c) shows that true control is free from the PBC effects. See the latter for evidence that the raising in (11a) is not a scrambling.

2 A-movement followed by A-movement is also ungrammatical, although it is not illustrated in this paper for reasons of space. It is, however, excluded by locality/defective intervention (cf. Hiraiwa 2001) independently of the PBC effects and hence is not relevant to the present purpose of this paper.
Topicalization followed by remnant Scrambling *
Topicalization followed by remnant Topicalization *
Topicalization followed by remnant A-movement *

Close scrutiny, thus, reveals that remnant movement is heavily constrained in Japanese. The generalization is that only A-movement of the subject DP obviates PBC effects. Thus we reach the generalization (13).

(13) Movement of β to the periphery of CP/vP blocks subsequent movement of the remnant α containing the trace/copy of β, but A-movement of α to the periphery of TP does not.

3 Eliminating the PBC and Multiple Spell-Out

The generalization (13) immediately reminds us of a phase theory of Multiple Spell-Out proposed in Chomsky (2000, 2001a, b), in which phrase markers are sent to the LF/PF interfaces by Transfer/Spell-Out phase-by-phase, where, phases are CP and vP, but crucially not TP. Consequently, Cyclic Spell-Out creates a generalized derivational island, reducing computational complexity. This effect is dubbed PHASE IMPENETRABILITY CONDITION (PIC) (cf. Chomsky 2000, 2001a, b).

(14) PHASE IMPENETRABILITY CONDITION (PIC)
In phase P with head H_p, the domain of H is not accessible to operations outside P, only H and its edge are accessible to such operations.

The leading idea that I pursue here is (15).

(15) PBC reduces to Cyclic Spell-Out.

The question is at which derivational point the operation Transfer/Spell-Out applies. Chomsky (2000) and Nissenbaum (2000) propose that Transfer/Spell-Out applies at the completion of the strong phases (CP/vP), whereas Chomsky (2001a, b) weakens the Cyclic Spell-Out and assumes that Transfer/Spell-Out applies at the next strong phase level. Thus, I propose a stricter derivational interpretation of Cyclic Spell-Out (16).

(16) Transfer/Spell-Out applies to a phase P_h as soon as its edge is extended.

Building on (16), I define the EDGE-EXTENSION OPERATION (EEO) and propose the Edge-Based Theory of Cyclic Spell-Out (18).
(17) **EDGE-EXTENSION OPERATION (EEO)**

An **EDGE-EXTENSION OPERATION (EEO)** is a syntactic operation that Merges $\beta$ with a constituent consisting of a phase head $H_p$ and its complement $\alpha$.

$$\{\beta \{H_p \alpha\}\}$$

(18) a. EEO triggers TRANSFER/SPELL-OUT immediately.$^3$

$$\{\beta \{H_p \alpha\}\}$$

b. 

```
    β
   / \
  /   \ H_p
 /     \
\     α
\     /\
  \   / \
    \ t_α
```

=> Transfer/Spell-Out

**Edge-Extension Operation**

It follows from (18a) that at a phase head $H_p$, Transfer/Spell-Out applies to the complement domain of $H_p$ cyclically, immediately after its edge (i.e. a specifier of $H_p$ or a new head $\gamma$) is created via (Internal/External) Merge (cf. (18b)).$^4$ In other words, the complement domain of $H_p$ ($=\alpha$) becomes inaccessible by the PIC as soon as Merge extends the $H_p$.

Let us illustrate how the EEO-based Cyclic Spell-Out eliminates the PBC and reduces its effects to derivationalism. First, Long-distance Scrambling (LDS) has been known to be a movement to the edge of the clause (cf. Saito 1985, Sakai 1994, Miyagawa 1997). Likewise, topicalization is also movement to the edge of CP. Thus if the first movement of $\beta$ is LDS or topicalization, it counts as an EEO and the complement of C2($=\text{TP}$) is immediately Transferred/Spelled-Out. Hence the remnant CP1($=\alpha$) is inaccessible

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$^3$ Cf. Fukui and Speas' (1986) notion that a specifier 'closes off' the projection, which derives the effect that a given projection has one and only one specifier. (18) derives a derivational edge uniqueness for phase heads. One prima facie problem is how to deals with $v^*P$ with an external argument and a shifted object. One possible way out is to shift the object first and Transfer/Spell-Out the VP first and then apply External Merge of the subject to $v^*P$ (possibly with tucking-in).

$^4$ Note that under label-free theorizing (Collins 2001), the notion of 'edge-extension' is not restricted to the creation of a specifier for $H_p$; External Merge of a new head also counts as edge-extension.
by the PIC. Note that the proposed analysis exactly explains the PBC effects without postulating the PBC as an independent condition.

(19) \[
\begin{array}{c}
\text{LDS/Topicalization} \\
\text{[CP}_2 \beta [C_2 \quad \text{LDS/Topicalization}]}
\end{array}
\]

Turning to Saito’s example (8d), the PBC effects reduce to the same derivational mechanism; LDS of \(\beta\) to [Spec, \(v^*P\)] counts as an EEO for the strong phase \(v\). Thus VP is immediately Transferred/Spelled-Out and hence the remnant CP(=\(\alpha\)) becomes frozen in-situ.

(20) \[
\begin{array}{c}
\text{LDS} \\
\text{[TP } [v^*P \beta [v^*P.V \quad \text{LDS}] [CP(\alpha) \quad \text{LDS}]}
\end{array}
\]

Next, consider how the proposed theory accounts for the PBC riddle (cf. (10) and (11)). As it is now expected, Raising-to-Object (RTO) to [Spec, \(v^*P\)] inevitably counts as an EEO and hence the remnant movement of CP is blocked, showing the “PBC effects”.

(21) \[
\begin{array}{c}
\text{RTO} \\
\text{[\(v^*P \beta [v^*P.V \quad \text{RTO}] [CP(\alpha) \quad \text{RTO}]}
\end{array}
\]

In contrast, it is very important to notice that Raising-to-Subject (RTS) to [Spec, TP] is not a movement to the edge of a phase head. Thus RTS does not count as an EEO and trigger Transfer/Spell-Out. Therefore, remnant movement of the \(v^P\) and CP is freely allowed (cf. (22a) and (22b)). Notice that remnant movement of \(v^P\) and CP is considered to be a pied-piping of the Transferred/Spelled-Out unit VP and TP. But it should be noted that pied-piping does not violate the PIC. Rather, what is frozen is the internal relations within the Transferred/Spelled-Out unit.\(^5\)

Thus the grammaticality of (5b)/(10b) and the ungrammaticality of (11b) are correctly explained away and the PBC riddle is resolved.

\(^5\) In other words, it follows that VP/TP movement is illicit since the whole VP/TP is already Spelled-Out with respect to the strong phase head \(v^C\). That is, VP/TP is movable only if it is pied-piped with the strong phase head \(v^C\). This derives the gross observation that only phase categories (CP/\(v^P/DP\)) can be moved (cf. Chomsky 2001b, Hiraiwa 2002a).
In summary, I have proposed to eliminate the PBC. Instead, I have adopted the simple and natural theory of movement (3) and demonstrated that the "PBC effects" reduce to the derivational mechanism of the computational system, namely, the EEO-based Cyclic Spell-Out. In other words, the "PBC effects" arise when a remnant category is extracted from the domain that has already been Transferred/Spelled-Out to the interfaces, which is simply impossible. It has been shown that my approach is both conceptually and empirically superior to the previous theories of the PBC.

4 Some Consequences and Implications

4.1 Another Riddle Resolved: The Generalized Islands Effects

The proposed theory resolves another riddle. Consider the contrast between (23a) and (23b).

   apple-ACC steal-PST C tell-PST
   ‘Taro told Hanako that Jiro stole some apples from the fridge.’

   b.*?Hanako-ni_j reezooko-kara;(-wa) Taro-ga t_j [CP Jiro-ga Hanako-DAT fridge-from(-TOP) Taro-NOM Jiro-NOM
t; ringo-wo nusun-da to] iituke-ta.
   apple-ACC steal-PST C tell-PST

Under the standard assumption that (long-distance) scrambling is a free operation, the contrast in (23) is a puzzle; in the grammatical (23a), the LDSed element is at the edge of the matrix CP, whereas in the ungrammatical (23b), the LDSed element is under the clause-internally scrambled element.
As I claimed in Section 3, if we assume that LDS targets the edge of the phase (CP/νP), then the riddle is partly resolved; (23b) may be ungrammatical because the LDS does not target the edge of CP there. This account, however, leads to a new question: then why can’t the LDSed element first target the edge of CP, followed by a clause-internal scrambling of the dative element to the front of the former?

Significantly, our theory gives a straightforward answer to this question. Crucially, the first LDS to the edge of CP counts as an EEO and hence the subsequent clause-internal scrambling of the dative element over the LDSed element is blocked. Thus the proposed theory provides a unified account for the PBC effects and the generalized island effects.

4.2 Derivational Simultaneity and Multiple Edges

An apparent problem with our theory is LDS of multiple elements. As (24) shows, such a derivation is grammatical.

(24) Reezooko-kara_i ringo-wo_j Hanako-ni_k Taro-ga t_k
fridge-from apple-ACC Hanako-DAT Taro-NOM
[CP Jiro-ga t_i t_j nusun-da to] iituke-ta.
Jiro-NOM steal-PST C tell-PST
‘Taro told Hanako that Jiro stole some apples from the fridge.’

Given the EEO-based Cyclic Spell-Out (18), apparently, the derivation of (24) is incompatible with the EEO-based Cyclic Spell-Out theory, since the matrix TP is Transferred/Spelled-Out as soon as one element undergoes LDS to extend the edge of C, prohibiting LDS of another element.

I suggest, building on Hiraiwa (2001, 2002b), that the role of derivational simultaneity plays a significant role in narrow syntax. That is, Multiple LDS is not a series of single scrambling operations, but rather it is a derivationally simultaneous operation.6 In other words, in the derivation (24) Merge of the higher LDSed element and Merge of the lower LDSed element are derivationally simultaneous and hence Transfer/Spell-Out applies only after the simultaneous multiple LDS.

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6 See Hiraiwa (2001, 2002b) for detailed discussions on Multiple Agree. In particular see the latter for derivational simultaneity in syntax and its applications and consequences.
4.3 Boeckx-Sugisaki's Observation

An immediate prediction of the derivational simultaneity hypothesis is that there should be "PBC/generalized island effects" when derivationally simultaneous multiple LDS is prohibited. Significantly, this is correctly borne out by Boeckx-Sugisaki's (1999) observation.

(25) BOECKX-SUGISAKI OBSERVATION
In multiple LDS, elements undergoing LDS cannot be split by an element in the higher clause.

(26) a. Reezooko-kara_i ringo-wo_j Hanako-ni_k Taro-ga t_k 
fridge-from apple-ACC Hanako-DAT Taro-NOM
[cp Jiro-ga t_j nusun-da to] iituke-ta.
Jiro-NOM steal-PST C tell-PST
'Taro told Hanako that Jiro stole some apples from the fridge.'

b. *Reezooko-kara_i Hanako-ni_k ringo-wo_j Taro-ga t_k 
fridge-from Hanako-DAT apple-ACC Taro-NOM
[cp Jiro-ga t_j nusun-da to] iituke-ta.
Jiro-NOM steal-PST C tell-PST

The grammaticality of (26a) is expected under the derivational simultaneity approach to multiple LDS in Section 4.2. What is important is the ungrammaticality of (26b). This is because there is no way for the DP 'Hanako' to intervene between the two LDSed elements, without violating the PIC; in order for the multiple LDS to be licit, it must undergo movement derivationally simultaneously. Then, the DP 'Hanako', however, gets frozen in-situ due to the EEO-based Cyclic Spell-Out theory, since the multiple LDS extends the edge of the phase head C and TP is immediately Transferred/Spelled-Out.\(^7\)

4.4 Scope Freezing in Remnant Movement

Finally, the elimination of the PBC and the reduction of movement to the strict head-attraction (3) explain the scope-freezing in remnant v*P movement in English etc. (cf. Huang 1993, Takahashi 2002).

\(^7\) The proposed theory of the EEO-based Spell-Out may derive the same effect as Pesetsky's (1982) PATH CONTAINMENT CONDITION. The comparison with the PCC is, however, beyond the scope of this short paper.
MOVEMENT AND DERIVATION: ELIMINATING THE PBC

(27) a. Someone hit everyone. \( (\exists \forall, \forall \exists) \)
b. Hit everyone someone did. \( (\exists \forall, \forall \exists) \)

Suppose that the remnant \( v^*P \) is moved to a higher specifier of the TP. Then at this point of the derivation, T can no longer access the universal quantifier inside the fronted \( v^*P \). This is because the fronted \( v^*P \) is no longer in c-command domain of T and hence violates the condition (3). Thus no QR is possible and hence (27b) is unambiguous.\(^8\),\(^9\)

5 Conclusion

All in all, the condition (3) correctly accounts for the absence of lowering and sideward movement in syntax. Head movement ceases to be problematic on this view, since it perfectly satisfies (3) (contra Chomsky 2000). Every remnant movement also conforms to (3). I have shown that the elimination of the PBC in favor of (3) is empirically and conceptually superior to the PBC (1) and the other existing theories of it. I have demonstrated that the “PBC effects” reduce to the derivational nature of the computational system of human language and defended the EEO-based Cyclic Spell-Out model with many consequences.

The next important task is to examine how conceptually motivated and superior the notions of phase and Cyclic Spell-Out is in comparison with the PBC (1), which is far beyond the scope of this paper.

References


\(^8\) See Chomsky (2000, 2001a) for the elimination of the Spec-Head Agreement. Note the serious problem with the Spec-Head Agreement; if an element moved to the specifier of a head X were still accessible for X, then H would never be able to probe for another goal Y in its c-command domain, since the moved X would always count as the closest intervenor.

\(^9\) The clause-boundness of QR and A-movement also falls under the Cyclic Spell-Out, since the edge of TP cannot be an escape hatch for a higher \( H_p \) by the PIC.
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MOVEMENT AND DERIVATION: ELIMINATING THE PBC

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