

Split Lexical Insertion Hypothesis: A Case Study of Secondary Predicates*

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1. Introduction

One of the main questions in the current syntactic research is whether an XP can move to receive a θ -role. A lot of researchers, including Saito (2001), give positive responses to this question. The aim of this paper is to support the Split Lexical Insertion (hereafter, SLI) Hypothesis proposed by Agbayani and Ochi (2007) by investigating why unergative resultatives as in (1) require a fake reflexive object.

(1) John drank himself sick.

I will demonstrate that it is not movement but the SLI that concerns the derivation of the sentence when a DP in it is interpreted as having multiple θ -roles. Specifically, I will propose that VP is a phase in English so that the SLI across VP is ruled out and claim that the fake reflexive object is inserted as a last resort in unergative resultatives.

This paper is organized as follows. Section 2 provides a brief overview of Saito's (2001) movement approach to resultative constructions and points out a problem for his approach. Section 3 introduces the SLI Hypothesis and provides a solution discussed in the previous section. Section 4 presents analysis of depictives based on the SLI Hypothesis. Section 5 supports the proposal made in section 3 and discusses its consequences. Section 6 concludes the paper.

2. Movement Approach

The postverbal DP in transitive resultatives as in (2a) is considered to be assigned θ -roles both from the verb and the adjective while the one in unergative resultatives as in (2b) is considered to be assigned a θ -role only from the adjective since the absence of the adjective is not allowed only in the latter.

- (2) a. John hammered the metal (flat).
 b. John drank himself *(sick).

Assuming that DP can move to receive a θ -role, Saito (2001) analyzes this paradigm and argues that the postverbal DP in transitive resultatives first merges with the adjective, receiving a θ -role from it, and then moves to Spec VP to receive an internal θ -role from V, as shown in (3a), while this movement does not occur in unergative resultatives, as illustrated in (3b).

- (3) a. [_{v*P} John hammer+v* [_{VP} the metal t_V [_{AP} (the metal) flat]]]
 b. [_{v*P} John drink+v* [_{VP} t_V [_{AP} himself sick]]]

Saito notes that the example in (4a) appears to raise a problem for his analysis, because ungrammaticality of (4a) indicates that movement to Spec vP to receive an external θ -role is prohibited, while movement to Spec VP to receive an internal θ -role does occur as in (3a). Interestingly, unergative resultatives always require a fake reflexive object despite the fact that unergative verbs do not necessarily need an object, as shown in (4b).

- (4) a. *John drank sick. (as having a resultative meaning)
 b. John drank (sake).

If we assume that Case assigners do not necessarily assign Case (Bošković (2007)), ungrammaticality of (4a) is problematic because nothing seems to prevent the postverbal DP from moving to Spec vP to receive an external θ -role in (5).¹

- (5) [_{vP} John drink+v [_{VP} t_V [_{AP} (John) sick]]]

This view of Case requirement tacitly follows the Case Filter, which states that DPs must bear Case.

Chomsky (2000), on the other hand, adopts the Inverse Case Filter and argues that the derivation crashes if the φ -set of uninterpretable features ($u\varphi$, henceforth) of Case assigners remains unchecked. Let us then consider whether this framework solves the problem discussed above. In this framework, the fact that unergative verbs can have an object means that the v of unergative verbs is φ -complete so that it must assign accusative Case for convergence. Therefore, we need to consider how the $u\varphi$ of v^* deletes when unergative verbs apparently do not have an object.

Suppose that the V in the unergative VP has a null DP complement (Pesetsky and Torrego (2004: 512)) and that the $u\varphi$ of v^* is erased under agreement with it, as illustrated in (6):

- (6) [_{v*P} John drink+v* [~~$u\varphi$~~] [_{VP} t_V null DP]]

This seems to explain ungrammaticality of the sentence in (4a). The null DP complement blocks agreement between the $u\theta$ of v^* and *John* due to the Minimal Link Condition (MLC, hereafter), as illustrated in (7):²

(7) [_{v*P} drink+v*[uθ] [_{VP} null DP V [_{AP} John sick]]]

Accordingly, *John* in Spec AP cannot move to Spec v*P to receive an external. Unfortunately, the null DP complement blocks the agreement between the *uφ* of v* and *himself* in Spec AP at the same time, as shown in (8).

(8) [_{v*P} John drink+v*[uφ] [_{VP} null DP t_V [_{AP} himself sick]]]

Therefore, it is hard to explain how the fake reflexive object is assigned Case under this assumption.

In sum, movement approach to resultatives has difficulty in explaining grammaticality of unergative resultatives. Therefore, we need to seek the other approach to multiple *θ*-role assignment to explain why unergative resultatives require a fake reflexive object.

3. Split Lexical Insertion Hypothesis

Parasitic gap constructions as in (9) are the other instance which seems to involve multiple *θ*-role assignment.

(9) What did you file *e* without reading *e*?

In this example, *what* seems to be assigned *θ*-roles both from *read* and *file*. Agbayani and Ochi (2007) propose a new approach to this type of constructions, which is named the Split Lexical Insertion Hypothesis in (10).

(10) Split Lexical Insertion (SLI) Hypothesis

Separation of FF (formal features) and CAT (categorical feature) takes place in the course of lexical insertion/External Merge as well.

They further propose the parameter which determines the ability of features to be assigned a *θ*-role as follows:

(11) Theta Assignment Parameter

- a. Both FF and CAT → English
- b. FF only → Japanese
- c. CAT only → Moroccan Arabic

Following these proposals, both FF and CAT can be assigned a *θ*-role in English so that they can be inserted separately into two *θ*-positions. Specifically, FF and CAT of *what* in (9) are inserted separately as a complement of *file* and as the one of *read*, as shown below:

(12) Parallel derivation: [file CAT_{what}] [reading FF_{what}]

Each of CAT and FF is assigned a *θ*-role from *file* and *read* at this point. The parts constructed in parallel merge, as illustrated in (13a). Then, C attracts FF of *what*, driving movement of the latter to C, as shown in (13b). Finally, CAT of *what* moves to Spec CP to avoid the PF defectiveness, as depicted in (13c).³

- (13)a. you file CAT_{what} [without reading FF_{what}]
 b. FF_{what}+C you file CAT_{what} [without reading (FF_{what})]
 c. CAT_{what} FF_{what}+C you [_{v*P} (CAT_{what}) [_{v*P} (you) file (CAT_{what}) [without reading (FF_{what})]]]

Adopting this hypothesis, let us first consider how transitive resultatives like (14) are generated. In this sentence, *the metal* is assigned a θ -role from the adjective *flat* and an internal θ -role from V. Accordingly, FF and CAT of *the metal* must be inserted separately into Spec VP and Spec AP, as illustrated in (14a). Then, the FF moves to Spec VP and is assigned accusative Case from v^* in that position, as shown in (14b, c).

- (14)John hammered the metal flat.
 a. [_{VP} CAT_{the metal} hammer [_{AP} FF_{the metal} flat]]
 b. [_{VP} FF_{the metal} CAT_{the metal} hammer [_{AP} (FF_{the metal}) flat]]
 c. [_{v*P} John hammer+ v^* [_{VP} FF_{the metal} CAT_{the metal} t_V [_{AP} (FF_{the metal}) flat]]]

Let us then consider the derivation of unaccusative resultatives like (15). In this sentence, *the ice* is assigned a θ -role from *solid* and V. Therefore, its FF and CAT must be inserted into Spec AP and Spec VP respectively, as shown in (15a). In this case, it is not v but T that assigns Case to FF so that FF moves to T, as illustrated in (15b). Finally, CAT moves to Spec T to avoid the PF defectiveness, as shown in (15c).

- (15)The ice froze solid.
 a. [_{VP} CAT_{the ice} freeze [_{AP} FF_{the ice} solid]]
 b. FF_{the ice} T [_{vP} v +freeze [_{VP} CAT_{the ice} t_V [_{AP} (FF_{the ice}) solid]]]
 c. [_{TP} CAT_{the ice} FF_{the ice} T [_{vP} v +freeze [_{VP} (CAT_{the ice}) t_V [_{AP} (FF_{the ice}) solid]]]]]

Let us now consider the problematic case. The relevant examples are repeated below:

- (16)a. John drank himself sick.
 b. *John drank sick. (as having a resultative meaning)

To be interpreted as having a resultative meaning, FF and CAT of *John* in (16b) must be inserted in Spec AP and Spec vP respectively, as shown in (17).

- (17)*[_{vP} FF_{John} drink+ v [_{VP} t_V [_{AP} CAT_{John} sick]]]

Accordingly, ungrammaticality of the sentence indicates that the SLI into these two positions is not allowed for some reason.

Agbayani and Ochi states that the separation of features is constrained by the Derivational Lexical Integrity (henceforth, DLI) in (18).

- (18)Derivational Lexical Integrity

FF and CAT of a single lexical item must be inserted simultaneously (though not necessarily in the same position), without any operations applying between the

insertion of FF and the insertion of CAT.

Specifically, the SLI can apply only if FF and CAT of a single lexical item are inserted within the same phase or into the phrases constructed in parallel. Following Carrier and Randall's (1992) argument that the resultative predicate is an argument of the verb, the positions where the SLI applies in resultatives must be generated within the same phase.⁴ Accordingly, the fact that the SLI in Spec VP and Spec AP is applicable, as shown in (14) and (15), indicates that these positions are included within the same phase. The fact that the SLI into Spec vP and Spec AP, as illustrated in (17), suggests that there is a phase boundary between Spec vP and Spec AP.

The well-known fact that the sentence like "John hit." cannot have the meaning like "John hit himself." illustrates the same point. To interpret this sentence as intended, FF and CAT of *John* must be inserted into the complement position of V and Spec vP, as shown in (19).

(19)*[_{vP} FF_{John} hit+_V [_{VP} *t_V* CAT_{John}]]

This fact, therefore, indicates that there is a phase boundary between Spec vP and Spec VP.

We have seen that the SLI within VP is allowed whereas the SLI across VP is prohibited. Based on this observation, I propose that VP is a phase at least in English.⁵ We will look at supporting evidence for this proposal and discuss its consequences in section 5.

We also need to consider what happens when the SLI is blocked. Following the Theta Assignment Parameter in (11), the SLI into two θ -positions is not allowed in Moroccan Arabic since CAT cannot receive a θ -role. In this type of languages, a resumptive pronoun is inserted in parasitic gap constructions, as illustrated in (20).

(20) Moroccan Arabic

Shmen maqal ntaqd qblma yqra h?

which article he-criticized before reading it

'Which article did he criticize before reading?' (Ouhalla (2001: 148))

Suppose that a resumptive pronoun must be inserted as a last resort when the SLI is blocked. Then, we can explain why a fake reflexive object is required in unergative resultatives. A fake reflexive object must be inserted as a last resort in unergative resultatives since the SLI is blocked because of the VP phase boundary.⁶

4. Depictives

We have seen so far that the sentence below cannot be interpreted as having a resultative meaning. It is well known, however, that this sentence is grammatical when it is interpreted as having a depictive meaning.

(21) John drank sick. (as having a depictive meaning)

Therefore, we still need to consider why a fake reflexive object is not required in this case.

Depictives are divided into two classes: subject-oriented depictives as in (22a) and the object-oriented as in (22b).

- (22)a. John left angry. [subject-oriented]
 b. Bill ate the meat raw. [object-oriented]

In (22a), *John* receives an external θ -role from v and a θ -role from the adjective. In (22b), *the meat* receives an internal θ -role from V as well as a θ -role from the adjective. Following Carrier and Randall's (1992) argument that the depictive predicate is an adjunct, the phrase including it is generated in parallel with the phrase to which it adjoins.⁷

In (23), for instance, FF and CAT of *John* must be inserted into Spec vP and the adjunct phrase to obtain the intended meaning. Accordingly, the fact that the SLI into these positions is allowed indicates that the adjunct phrase and vP are generated in parallel, as shown in (23a). Later, FF moves to be assigned Case from T and CAT moves to avoid the PF defectiveness, as illustrated in (23b, c).

- (23) John left angry.
 a. [vP CAT_{John} leave+ v [vP t_V]] [Adjunct FF_{John} angry] (parallel derivation)
 b. [vP [vP CAT_{John} leave+ v [vP t_V]] [Adjunct FF_{John} angry]]
 c. [TP CAT_{John} FF_{John} T [vP [vP (CAT_{John}) leave+ v [vP t_V]] [AP (FF_{John}) angry]]]

In contrast, in (24), FF and CAT of *the meat* must be inserted into Spec VP and the adjunct phrase. Therefore, these phrases must be generated in parallel, as illustrated in (24a). FF and CAT moves to the edge of the VP phase and is assigned Case in that position, as shown in (24b, c).

- (24) John ate the meat raw.
 a. [vP eat CAT_{the meat}] [Adjunct FF_{the meat} raw] (parallel derivation)
 b. [vP [vP eat CAT_{the meat}] [Adjunct FF_{the meat} raw]]
 c. [v^*P John eat+ v^* [vP FF_{the meat} CAT_{the meat} [vP [vP t_V (CAT_{the meat})] [Adjunct (FF_{the meat}) raw]]]]]

In short, the SLI Hypothesis suggests that the adjunct phrase including the subject-oriented depictive adjoins to vP whereas the one including the object-oriented depictive adjoins to VP.

The analysis presented here correctly predicts that the vP fronting can apply to both types of depictives, as shown below:

- (25)a. Mary said that John would leave angry and [vP leave angry] he did *t*.
 b. Mary said that Bill would eat the meat raw and [v^*P eat the meat raw] he did *t*.

(McNulty (1988: 7-8))

It is also predicted that they show different grammaticality pertaining to the Heavy DP Shift

(HDPS), which is adjunction to VP (Larson (1988)). (26b) is ungrammatical since the subject-oriented depictive adjoins to the higher position than VP. (27b) is grammatical since the object-oriented depictive attaches to the lower position than the adjunction site for the HDPS

- (26)a. John left [the party for the ambassador from Ulan Bator] angry.
 b. *John left angry [the party for the ambassador from Ulan Bator].
 (27)a. Jude never eats [fish over two days old] raw.
 b. Jude never eats raw [fish over two days old]. (Larson (1988: 4-5))

To sum up, the SLI can apply in depictives since the depictive predicate is generated in parallel with the phrase to which it adjoins. A fake reflexive object cannot be inserted since the SLI can apply and thus, the last resort option is unavailable.

5. VP is a phase

In section 3, I have proposed that VP is a phase. This proposal predicts that A'-movement proceeds through Spec VP even in unaccusative/passive sentences. The following examples show that this prediction is borne out.

- (28)a. [At which of the parties that he₁ invited Mary₂ to] was every man₁ \surd introduced to her₂ *?
 b. [At which conference where he₁ mispronounced the invited speaker₂'s name] did every organizer₁'s embarrassment \surd escape her₂ *? (Legate (2003: 507-508))

To obtain the intended reading represented by coindexation, the *wh*-phrase should reconstruct to a position below *every student* and above *her*. This indicates that the *wh*-phrase leaves an intermediate copy adjoined to VP.

The fact that the following example allows the reading in which negation takes scope over a universal quantifier suggests that A- as well as A'-movement must proceed through VP.

- (29) Every child₁ doesn't seem to his₁ father to be smart. (Sauerland (2003 : 310))

If the raising subject moves directly from Spec non-finite T to Spec TP in the matrix clause, as illustrated in (30a), it is hard to explain why negation can take scope over the universal because there is no copy of the latter which is below the former and above the pronoun. If VP is a phase, as proposed in this paper, such a position is available because A-movement proceeds through VP, as shown in (30b).

- (30)a. Every child doesn't seem to his₁ father [TP (every child) to be smart]
 b. Every child doesn't seem+*v* [VP (every child) [VP [to his father] *t*_V [TP (every child) to be smart]]]

Our proposal also provides a solution to the issue for Chomsky's (1995) argument that

Merge is preferred over Move. Let us first consider the following example:

(31) There was a rumor [that a man₁ was *t*₁ in the room].

Contrary to the prediction of his argument that Merge of *there* is preferred over Move of *man* in the subject position of the embedded clause, the latter preempts the former. To solve this problem, Chomsky introduces the notion of the subnumeration. Specifically, the subnumeration defined by the embedded CP phase does not include *there* and therefore, the option of Merge of *there* is not available at this point.

Unfortunately, he still cannot explain grammaticality of the sentences in (32a, b). Following Lasnik's (1999) argument that an EPP-feature drives movement of *a book* in (32a), Merge of *there* must be preferred over Move of *a book*.

(32)a. There has been a book₁ put *t*₁ on the table.

b. *There₁ has been *t*₁ put a book on the table.

This problem does not arise under the assumption that VP is a phase. *There* is not included in the subnumeration defined by the VP phase and therefore, Move of *a book* is the only option, as shown below:

(33) N= {there, has, been, {put, a, book, on, the, table}}

a. [_{VP} put a book on the table]

b. [_{VP} a book [_{VP} put a book on the table]]

c. there has been [_{VP} a book [_{VP} put a book on the table]]

Chomsky also has difficulty in explaining grammaticality of the sentence in (34) because Move of *John* preempts Merge of *Mary* in Spec non-finite T:

(34) Mary believes [_{TP} John₁ to *t*₁ know French].

Our proposal easily overcomes this problem. The subnumeration defined by the VP phase does not include *Mary* so that Move of *John* is the only option at this point.⁸

6. Conclusion

This paper has examined why a fake reflexive object is required in unergative resultative and shown that multiple θ -role assignment is not a result of movement but the result of the Split Lexical Insertion. Specifically, VP is a phase in English so that the SLI across VP is prohibited. A fake reflexive object is an instance of a resumptive pronoun and is inserted as a last resort when the SLI is blocked. The SLI Hypothesis not only overcomes the problem in movement approach to multiple θ -role assignment but also provide an approach to depictives without recourse to sideward movement. Therefore, the analysis presented here strongly supports the SLI Hypothesis. It has also shown that the proposal that VP is a phase supports Chomsky's argument that Merge is preferred over Move. We have focused on the

examples whose grammaticality cannot be explained under the notion of the subnumeration defined by v^*P and CP phases. It has been proved that the competition between Merge and Move does not occur in those cases since the relevant element is not included within the subnumeration defined by the VP phase. The notion of the subnumeration is the basis for phase. Therefore, the analysis presented in this paper strongly supports the recent assumption that derivation proceeds by phase.

ENDNOTES

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¹ Notice that the postverbal DP is active until it is assigned Case from T. Even if we assume that VP is a phase, the problem discussed here cannot be solved since an EPP-feature of V allows the postverbal DP to move through the edge of the VP phase.

² The MLC is formalized as follows:

- (i) Let P be a probe. Then the goal G is the closest feature that can enter into an agreement relation with P. (Collins (2002: 57))

³ The reverse insertion is not allowed because Move of CAT must be cyclic whereas Attract of FF is insensitive to phase boundaries (Ochi (1999)).

⁴ This argument is supported by the fact that the long-distance extraction of a resultative predicate does not behave like an adjunct but like an argument, as illustrated below:

- (i) a. ?How flat do you wonder whether they hammered the metal?
b. ?How threadbare do you wonder whether they should run their sneakers?
(ii) a. ?Which boys do you wonder whether to punish?
b. *How do you wonder whether to punish? (Carrier and Randall (1992: 185))

⁵ This proposal does not imply that the object always undergoes the Object Shift to be assigned Case from v^* . Following Bošković's (2007) argument that V can optionally assign inherent Case to its complement, the object can be assigned Case in two ways. The one is to remain in situ, being assigned inherent Case, and the other is to move to the edge of VP, being assigned accusative Case from v^* . The derivation does not crash even if the verb does not assign accusative Case because the analysis presented here does not follow the Inverse Case Filter.

⁶ One might notice that the resumptive pronoun is realized as a reflexive in unergative resultatives whereas the one is pronounced as a pronoun in (20). I assume that a resumptive pronoun is inserted as the form of *pro* in syntax and its pronunciation is determined in PF.

⁷ Their argument is supported by the fact that the long-distance extraction of the depictive predicate is not allowed, as shown below:

- (i) a. *How raw do you wonder whether John ate the meat?
b. *How angry does Mary wonder whether John left? (Carrier and Randall (1992: 185))

See also the endnote 4 above.

⁸ Notice that the ECM subject must undergo movement to the edge of VP to be assigned Case from v^* . Otherwise, agreement between the ECM subject and v^* might be blocked due to the PIC. Therefore, the proposal made here supports the argument that the Object Shift of the ECM subject is obligatory in English (Agbayani and Ochi (2006), Bošković (2007)).

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