On Locative Inversion in English

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On Locative Inversion in English*

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1. Introduction

This paper investigates the mechanism of AGREE and the derivation of two types of Locative Inversion (LI) in English within the framework of Chomsky (2013, 2015). There have been many studies on LI with unaccusative verbs as shown in (1).

(1) a. On the ground had fallen a few leaves. (Bresnan (1994: 78))
b. Down the hill rolled the baby carriage. (Coopmans (1989: 729))

On the other hand, a few studies have shown that LI is not restricted to unaccusative verbs but occurs with unergative verbs (Levin and Rappaport Hovav (1995), Culicover and Levine (2001), Diercks (2017), among others). Culicover and Levine (2001) show that in the LI construction with unergative verbs, the postposed (semantic) subject must be heavy in the sense of Heavy NP Shift (HNPS) as in (2).

(2) In the room slept fitfully the students in the class who had heard about the social psych experiment that we were about to perpetrate.
(Culicover and Levine (2001: 293))

Following Culicover and Levine (2001), there are two types of LI: one construction, which we call light locative inversion (LLI), is restricted to unaccusative verbs, while the other, which we call heavy locative inversion (HLI), is not[1]. This paper aims to clarify the mechanism of AGREE and the derivation of the two types of LI in English within the framework of Chomsky (2013, 2015).

The organization of the paper is as follows. Section 2 reveals the properties of LI where (i) the verb agrees not with the preposed PP but with the postposed DP and (ii) the locative PP has both subject-like status and topic-like status. This section also

observes differences between LLI and HLI. Section 3 reviews previous studies on the syntactic structure of LI. In section 4, we lay out the theoretical backgrounds of the paper on the labeling algorithm and AGREE. Section 5 proposes the mechanism of AGREE, which accounts for the derivation of the two types of LI. Section 6 offers concluding remarks.

2. The Properties of LI

2.1. The Agreement Property in English LI

The English verb in LI agrees not with the preposed locative PP but with the postposed DP as illustrated in (3).

(3) a. In the swamp was/*were found a child.
b. In the swamp were/*was found two children.

(Bresnan (1994: 95))

2.2. The Properties of the Preposed Locative PP

Previous studies have shown that the preposed locative PP has dual status as a subject and as a topic (Bresnan (1994), Nishihara (1999), among others).

(4) a. Two cats seemed to lie on the bed.
b. On the bed seemed to lie two cats.

(Tanigawa (2009: 300))

(5) a. The bunch of gorillas, Terry claims (*that) *t* walked into the room.
b. Into the room Terry claims (*that) *t* walked a bunch of gorillas.

(Culicover and Levine (2001: 285))

(6) a. *I expect John, you not to like. (Bresnan (1994: 107))
b. *I expect on this wall to be hung a portrait of our founder.

(Bresnan (1994: 109))

(7) a. *John regrets that this book, he gave to Mary.
b. *John regrets that down the stairs fell the baby.

(Tanigawa (2009: 300))

(4b) shows that the locative PP, like the subject DP in (4a), undergoes subject-raising

and (5b) shows that the locative PP, like the subject DP in (5a), induces *that*-trace effects. These similarities between the subject and the locative PP reveal that the locative PP has a subject-like status. On the other hand, LI shares some syntactic properties with Topicalization. As shown in (6) and (7), Topicalization and LI cannot occur in the Exceptional Case Marking (ECM) and the factive complement. These syntactic properties suggest that the locative PP also has a topic-like status.

2.3. The Differences between LLI and HLI

In this subsection, we will offer three pieces of evidence to reveal the differences between LLI and HLI. We assume that LI which has a light semantic subject is LLI, while LI which has a heavy one is HLI. First, the semantic subject in LLI can be light while that in HLI cannot be light as illustrated in (8) and (9)[2].

(8) a. Into the room walked Robin carefully.
b. *Into the room walked carefully Robin.
(Culicover and Levine (2001: 292))

(9) a. *In the room slept Robin fitfully.
b. In the room slept fitfully the students in the class who had heard about the social psych experiment that we were about to perpetrate.
(Cuclicover and Levine (2001: 293))

(8) shows that a light semantic subject cannot occur at all after the VP adverb in LLI, whereas (9) illustrates that a light semantic subject which occurs before the VP adverb is not permitted in HLI but a heavy one is permitted.

Second, there is a difference between LLI and HLI in relation to floating quantifiers as shown in (10) and (11).

(10) a. Into the mists of history are quickly disappearing both my heroes.
b. *Into the mists of history are both quickly disappearing my heroes.
(Culicover and Levine (2001: 301))

(11) From this pulpit have both preached Cotton Mather's two closest and most trusted associates. (*ibid*.)

The sentences in (10) and (11) illustrate that floating quantifiers are banned in the Aux

in LLI whereas these can occur in HLI.

Third, consider (12) and (13), which illustrate that a postposed DP in LLI cannot be the controller of PRO but one in HLI can.

(12) a. Into the room Robin expected PRO to walk.
b. *Into the room *t* expected PRO to walk Robin.
(Culicover and Levine (2001: 298))

(13) a. We had set up the protocols perfectly to "trick" the students, so that into the room *t* fully expected PRO to walk a group of the students in the class who had heard about the social psych experiment that we were about to perpetrate.
b. Preaching from this pulpit is a great achievement and people come from near and far hoping to do it. In fact, from this pulpit *t* expected PRO to preach a number of close associates of the great Cotton Mather himself.
(Culicover and Levine (2001: 299))

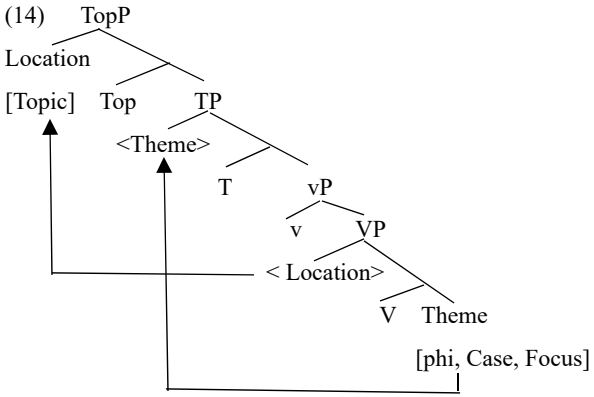
These syntactic properties serve as evidence that a light semantic subject in LLI remains in VP but a heavy semantic subject in HLI moves out of VP.

3. Previous Literature

3.1. Mikami (2010)

Mikami (2010) suggests the syntactic structure of LI as shown below by adopting the theory of AGREE proposed by Chomsky (2000, 2001) and the copy theory of movement proposed by Chomsky (1995).

(14)



(Mikami (2010: 313))

The subject DP is merged in the complement of V and the locative PP is merged in SPEC-VP. As soon as T is merged, T searches down the tree for a goal, and enters into an AGREE relation with the subject DP, which undergoes A-movement to SPEC-TP to satisfy the EPP feature on T. When Top is merged, the locative PP, which has a Top feature, moves to SPEC-TopP. When the structure is transferred to the two interfaces, the higher copy of the DP is deleted at Phonetic Form (PF) and its lower copy is pronounced overtly and interpreted as a focus element at Logical Form (LF)[3]. Though his analysis can capture the topichood of the locative PP because the locative PP occupies SPEC-TopP, it faces a theoretical problem. His assumption that the lower copy can be pronounced and interpreted as a focus item predicts that the sentence in (15a) should be grammatical contrary to the fact. As shown in (15), HNPS cannot apply to the semantic subject of unaccusative verbs unless the expletive *there* is inserted[4].

(15) a. *Walked into the room a man with long blond hair.
b. There walked into the room a man with long blond hair.

(Rochemont and Culicover (1990: 116-117))

(16) [$_{TP}$ ~~a man with long blond hair~~ [$_{T}$ [$_{vP}$ walked [$_{VP}$ into the room [$_{V}$ ~~walked~~ [$_{DP}$ a man with long blond hair$_{[Foc]}$]]]]]]

(16) illustrates the derivation of (15a). Mikami (2010) predicts that in (16), the subject

DP moves to SPEC-TP to satisfy the EPP feature on T and the lower copy of DP is pronounced overtly and interpreted as a focus element when it is transferred to two interfaces, so that this sentence should be grammatical against the fact. To capture the contrast between (15a) and (15b), his analysis needs an additional stipulation that the EPP on T cannot be satisfied by elements which have no phonetic form, and thus his analysis is problematic theoretically.

The analysis is also empirically inadequate in that it cannot capture the subjecthood of the locative PP and the differences between LLI and HLI. Let us consider the subject-like status of the locative PP as shown in (4b), repeated here as (17).

(17) a. On the bed seemed to lie two cats. (=(4b))

b. [$_{TopP}$ on the bed [$_{TP}$ [$_{T}$ T$_{[EPP]}$ [$_{vP}$ seemed [$_{TP}$ to lie two cats]]]]]

As shown above, since elements which have no phonetic form cannot satisfy the EPP feature on T, the EPP feature on T cannot be checked and the derivation of the sentence in (17) crashes contrary to the fact.

Next, we consider the distinction between LLI and HLI as shown in (10b) and (11), repeated here as (18) and (19), respectively:

(18) *Into the mists of history are both quickly disappearing my heroes. (=(10b))

(19) From the pulpit have both preached Cotton Mather's two closest and most trusted associates. (=(11))

Since the subject DP occurs in the complement of V and moves to SPEC-TP directly, his analysis cannot predict that the quantifier *both* floats in the AUX in (19) against the fact.

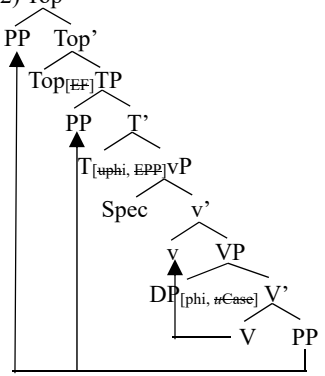
3.2. Koike (2013)

Koike (2013) proposes that (22) illustrates the syntactic structure of (20) with an unaccusative verb by applying the idea of "independent probing" which Chomsky (2008) proposes, while (23) illustrates the syntactic structures of (21) with an unergative verb.

(20) To the platform came a train. (Koike (2013: 571))

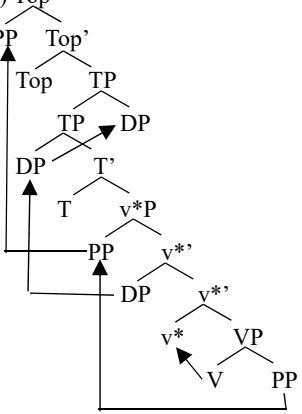
(21) On the stage dances the girl who plays Joan of Arc in the school festival.
(Koike (2013: 577))

(22) Top



(Koike (2013: 571))

(23) Top



(Koike (2013: 577))

In (22), the subject DP is merged in SPEC-VP and the locative PP in the complement of V. According to the idea of the parallel merge, the operation by T and Top applies in parallel and independently of each other. The unvalued phi feature of T probes and enters into an AGREE relation with the DP in SPEC-VP, deleting the unvalued phi feature on T and the Case feature on DP which are both uninterpretable. In addition, the EPP feature on T probes and attracts the locative PP from the complement of V to SPEC-TP. In parallel with this A-movement triggered by T, the edge feature on Top probes and attracts the locative PP from the complement of V. Since all the uninterpretable features have been deleted, this derivation converges. Then, only the highest copy of the PP overtly spelled out and V-to-v raising takes place, yielding the surface form of (20). In contrast, in (23), the DP is merged in SPEC-v*P and the locative PP is merged in the complement of V. The unvalued phi feature and the EPP feature on T are marked for agreement with the DP by the spec-head relation and then, HNPS applies to the DP in SPEC-TP to adjoin it to the right of TP. In addition to these operations by T, the edge feature on Top probes and attracts the locative PP.

His analysis can capture the subjecthood and topichood of the locative PP in that the locative PP occupies SPEC-TP and SPEC-TopP in the derivation of LLI. Moreover, his proposal can capture the differences between LLI and HLI. However, his analysis faces an empirical problem. The derivation of HLI in (23) cannot explain HNPS of the subject properly. (24) illustrates that HNPS cannot apply to the subject.

(24) **t* are happy [all of the men who recovered from mono-nucleosis].

(Nishikawa (1990: 17))

In order to capture the contrast between (21) and (24), his analysis, with assumption of the HNPS of a subject in HLI, needs an ad hoc stipulation where a subject can move by HNPS only in HLI.

To encapsulate the argument in this section, we have reviewed Mikami (2010) and Koike (2013) and presented a variety of facts which are difficult to account for under their analyses. In the following section, we lay out our theoretical assumptions before we discuss the derivation of LI concretely.

4. Theoretical Assumptions

4.1. Labeling Algorithm

Chomsky (2013, 2015) argues that the minimal operation, Merge, is essential in human language and applies to two objects α and β, forming a new object γ={α, β}. A newly formed object must have a label to be interpreted at the conceptual-intentional and sensorimotor interfaces. He proposes the labeling algorithm (LA), where Minimal Search (MS) applies to the set to find the nearest head in a top-down fashion and the head found by MS is determined as the label. First, consider the simplest case where a head merges with a phrase as shown in (25).

(25) $[_{\alpha}$ H, XP] (α=H)

Since MS immediately finds the head, the head serves as the label. The next example is an XP-YP situation in (26).

(26) a. [[X,WP], [Y, ZP]]=[XP, YP]

b. [XP, $[_{\alpha}$ ~~XP~~, YP]] (α=Y)

c. $[_{\alpha}$ $[X_{[F]}$, WP], $[Y_{[uF]}$, ZP]] (α=<F, F>)

Because both heads are found simultaneously by MS, MS cannot identify the label uniquely. Chomsky (2013) argues that there are two possible solutions. One is Internal Merge (IM). In (26b), the head Y of YP serves as the label since the copy of XP is invisible to MS. The second one is that the agreement feature provides the label <F, F>. In (26c), X bears a valued feature [F] and Y has an unvalued feature [*u*F]. When MS applies to this set, the shared non-distinct feature determines the label uniquely and the label becomes <F, F>.

In this subsection, we have overviewed the labeling algorithm. In the following subsection, we consider how AGREE applies within the framework of LA.

4.2. AGREE

Chomsky (2000, 2001) proposes the operation of AGREE, where a valued element assigns a value to an unvalued feature. AGREE applies when an element with an unvalued feature (*u*F) c-commands another with a valued interpretable feature (F) in the local domain which is defined as a transfer domain in the phase impenetrability condition (PIC) in (27). CP and v*P each count as a phase.

(27) In phase α with Head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

(Chomsky (2000: 108))

Agreement is captured by the probe-goal relation where *u*F is a probe and F is a goal respectively. Under this analysis, DP need not move to satisfy agreement, so that movement is triggered by other factors.

In this section, we have laid out the theoretical assumptions of the labeling algorithm and AGREE. We will consider the derivation of LI in the framework of LA in the following section.

5. Proposal

In this paper, we propose that agreement is captured by the probe-goal relation and movement is captured by the interpretation of the label, showing that these proposals can properly explain the derivations of the two kinds of LI.

5.1. The Way of Strengthening T

Chomsky (2015) argues that T in English must be strengthened by the label <φ, φ> because it is too weak to serve as a label as in (28).

(28) […] T is too weak to serve as a label. With overt subject, the SPEC-TP construction is labeled <φ, φ> by the agreeing features. Therefore, English satisfies EPP[.] (Chomsky (2015: 9))

Expanding Chomsky's analysis, I suggest that T and SPEC-TP must have sharing features as shown in (29).

(29) T in English must be strengthened by the label <F, F>.

We will consider how it works below.

5.2. The Timing of AGREE

Since Chomsky (2008), it has been argued that the feature of the phase head is passed down from the phase head to its complement (Chomsky (2008, 2013, 2015, 2019)). Chomsky (2019) suggests that rules apply cyclically and AGREE is employed as follows.

(30) EM introduces the phase head (C, v*). AGREE then applies between the phase head and EA, by minimal search, as usual. The features of the phase head are then inherited (by T, R, respectively). The structure EP-α is now labelable by shared and agreeing φ-features, with the EA in its criterial position. (Chomsky (2019: 166))

(30) shows that AGREE applies before the feature is inherited by the phase complement, so that it applies between the phase head and an external argument. Following Chomsky (2019), we assume that AGREE occurs as shown in (31).

(31) AGREE applies the moment an unvalued feature is introduced in the derivation.

(31) illustrates that all agreements are captured by the probe-goal relations and long-distance agreement is possible.

5.3. The Derivation of LLI

We adopt the derivation of LLI from Tanigawa (2019) in (32).

(32) a. Into the room came John.

b. [ε C[Top] [~~uphi~~] [δ into the room [Top] [γ T [β <R-v*> [α John [phi] [~~uCase~~], ~~into the room~~]]]]]

c. [ε C [δ into the room [Top] [γ T [Top] [~~uphi~~] [β <R-v*> [α John [phi] [~~uCase~~], ~~into the room~~]]]]] (α=D, β=<R-v*>, γ=T, δ=<Top, Top>, ε=C)

(32b, c) show the bottom-up derivation of (32a). In (32a), we adopt the assumption by Hoekstra and Mulder (1990) where the DP *John* is externally merged with the locative PP and they constitute a Small Clause which is an XP-YP configuration. Moreover, this paper assumes, with Epstein, Kitahara, and Seely (2016), that R and v* are taken directly from the lexicon and externally pair-Merged as <R-v*> when a verb is unaccusative, resulting in phase-cancellation. In (32b), <R-v*> merges externally to α and then, T externally merges to β. The locative PP internally merges to γ prior to the External Merge of C which has an unvalued phi feature and a Top feature (see Tanigawa (2009, 2018)). In (32), the DP has a phi feature and an unvalued Case feature, while the locative PP has a Top feature. According to (31), AGREE applies between C and the DP before the unvalued phi feature is passed down from C to T. After that, the phi feature and a Top feature are inherited by T in (32c). According to (29), T is strengthened by the label <Top, Top> and all the labels are identified by MS as shown in (32c). Since all the labels and features are interpretable at the interfaces, this derivation converges. Since the locative PP occupies SPEC-TP and bears a Top feature, this derivation can properly explain the subject-like and topic-like status of the locative PP.

5.4. The Derivation of HLI

In this subsection, we propose the derivation of HLI as illustrated in (33).

(33) a. On the stage dances the girl who plays Joan of Arc in the school festival. (=(21))

b. [ζ C [Top] [~~uphi~~] [ε PP [Top] [δ T [γ DP [phi] [~~uCase~~] [β [α dances] ~~PP~~]]]]]

c. [η [ζ C [ε PP [Top] [δ T [Top] [~~uphi~~] [γ ~~DP~~ [β [α dances] ~~PP~~]]]]] DP]

(α=β=γ=<R-v*>, δ=T, ε=<Top, Top>, ζ=η=C)

(33b, c) illustrate the derivation of (33a). Following Hale and Keyser (1993), this paper assumes that unergative verbs are considered as transitive verbs[5] (see also Chomsky (1995)). In (33), C with a Top and an unvalued phi feature is introduced as the phase head. According to (31), the unvalued phi feature on C probes the valued phi feature on DP and the AGREE relation is established prior to feature inheritance in (33b). Though I assume that DP internally pair-merges to CP in (33c), the agreement between C and DP is properly explained since the agree relation is built as soon as an unvalued feature enters the derivation. Moreover, T can serve as a label because the locative PP shares a Top feature with T and T is strengthened by the label <Top, Top>. Since all the features are valued and the labels are determined as shown in (33c), this derivation converges.

In subsections 5.3 and 5.4, we have proposed the derivation of the two types of LI in terms of LA. The derivation of LLI is different from that of HLI in that the subject DP in LLI occurs and remains in the complement of V, while that in HLI occurs in SPEC-v*P and undergoes HNPS. As we will see in the next subsection, the derivation which we have proposed can solve the problems in previous studies as shown in section 3.

5.5. Problems of Previous Studies

We have shown that empirical and theoretical problems remain with the analyses of Mikami (2010) and Koike (2013). In this subsection, the proposed derivation can give these problems an appropriate solution. In subsection 3.1, we have shown that in the derivation of LI that Mikami (2010) suggests, the sentence in (15a), repeated here as (34), should be grammatical contrary to the fact without additional stipulation.

(34) a. *Walked into the room a man with long blond hair. (=(15a))

b. [ε [δ C [γ T [*u*phi] [β <R-v*> [α ~~DP~~, PP]]]] DP [phi]]

(α=P, β=<R-v*>, γ=?, δ=ε=C)

c. [ε C [δ DP [phi] [γ T [*u*phi] [β <R-v*> [α ~~DP~~, PP]]]]]

(α=P, β=<R-v*>, γ=T, δ=<phi, phi>, ε=C)

d. [ζ [ε C [δ ~~DP~~ [γ T [*u*phi] [β <R-v*> [α ~~DP~~, PP]]]]] DP [phi]]

(α=P, β=<R-v*>, γ=δ=?, ε=ζ=C)

(34b-d) where shading represents the transfer domain illustrate the derivation of (34a). Let us consider (34b), where DP pair-merges directly to CP. Since DP does not move to SPEC-TP and T is not strengthened by the label <F, F>, T is too weak to serve as the label. Therefore, (34b) is doomed to crash due to the labeling failure of γ. Next, we see (34c), where DP moves to SPEC-TP. Although there is no labeling problem, DP remains in the Transfer domain, and thus, further IM is prohibited by PIC. Therefore, (34c) cannot expect the word order where DP appears at the end of the sentence. Finally, we consider (34d), where DP escapes from the Transfer domain. However, there remains a labeling problem. Although T in English cannot be identified as the label unless the label <F, F> strengthens T, the labels of γ and δ are not provided because the copy of DP is invisible to MS. Thus, the derivation in (34d) crashes. As shown above, (34b-d) can capture the ungrammaticality of (34a).

In addition to the theoretical problem, we have pointed out the empirical problems in that Mikami's analysis cannot appropriately explain the subjecthood of the locative PP and the differences between LLI and HLI. (4b), repeated here as (35), shows that the locative PP undergoes subject-raising and (10b) and (11), repeated here as (36) and (37) respectively, show that LLI cannot permit floating quantifiers while HLI permits it.

(35) a. On the bed seemed to lie two cats. (=(4b))

b. [δ C [γ on the bed [Top] [β T [Top] [α seem to lie two cats]]]]

(α=<R-v*>, β=T, γ=<Top, Top>, δ=C)

(36) *Into the mists of history are both quickly disappearing my heroes.

(=(10b))

(37) From the pulpit have both preached Cotton Mather's two closest and most trusted associates. (=(11))

The proposed derivation of LI captures the grammaticality of (35a). Since the locative PP occupies SPEC-TP in this derivation, the locative PP undergoes subject-raising as

in (35b). Moreover, the proposed analysis correctly predicts the difference between (36) and (37). Since this paper proposes that the subject DP in LLI stays in the complement of V while the one in HLI occurs in SPEC-v*P and internally pair-merges to CP, it properly expects the contrast between LLI and HLI in that floating quantifiers cannot be permitted if we assume that they are derived with the movement of the associate, as argued by Sportiche (1988).

Now consider the analysis of Koike (2013). In subsection 3.2, we have shown that Koike (2013) has an empirical problem. We have revealed the contrast between (21) and (24), repeated here as (38) and (39), respectively.

(38) a. On the stage dances the girl who plays Joan of Arc in the school festival.
(=(21))

b. [$_{\eta}$ [$_{\zeta}$ C [$_{\varepsilon}$ PP $_{[Top]}$ [$_{\delta}$ T $_{[Top]}$ $_{[\sout{uphi}]}$ [$_{\gamma}$ ~~DP~~ [$_{\beta}$ [$_{\alpha}$ dances] ~~PP~~]]]]] DP]
(α=β=γ=<R-v*>, δ=T, ε=<Top, Top>, ζ=η=C)

(39) a. * *t* are happy [all of the men who recovered from mono-nucleosis].
(=(24))

b. [$_{\varepsilon}$ [$_{\delta}$ C [$_{\gamma}$ *t* [$_{\beta}$ are [$_{\alpha}$ happy]]] all of the men who recovered from mono-nucleosis]. (α=<R-v*>, β=γ=?, δ=ε=C)

Because the locative PP occupies SPEC-TP and shares a Top feature with T in (38), T is strengthened by the label <Top, Top> and all labels are determined appropriately. Since all labels are legible at the interfaces, this derivation converges. In contrast, in (39), the labels of β and γ are not identified by MS because SPEC-TP is vacant and T is not strengthened by the label <F, F>. Since the labels remain undetermined, this derivation crashes. Therefore, the analysis of this paper can capture the contrast between (38) and (39).

In this subsection, we have shown that the problems that Mikami (2010) and Koike (2013) face are accounted for straightforwardly under the proposal of this paper, thus providing its advantage over their analyses.

6. Conclusion

In this paper, we have investigated the derivation of LI. Under the two

assumptions that (i) T in English must be strengthened by the label <F, F>, and that (ii) AGREE applies the moment an unvalued feature is introduced into the derivation, we have proposed the syntactic structures of the two types of LI. In LLI, the locative PP occupies SPEC-TP, while the subject DP remains in VP. On the other hand, in HLI, the locative PP moves to SPEC-TP, while the subject DP occurs in SPEC-v*P and then, internally pair-merges to CP. We have argued that these syntactic structures account for the dual properties of the locative PP and the agreement property in English LI.

Notes

* This article is a revised version of the earlier research presented at the 73rd General Meeting of Kyushu Branch of the English Literary Society of Japan held on web conference on October 24-28th, 2020. I would like to express my deep gratitude to Nobuaki Nishioka for invaluable suggestions and comments. I am also grateful to Edmund Luna for his stylistic improvement. Needless to say, all remaining errors and inadequacies are my own.

[1] Although it is widely accepted that motion verbs are classified as unergative verbs, previous studies show that motion verbs behave like unaccusative verbs when unaccusative verbs cooccur with a locative PP which represents a direction (Coopmans (1989), Hoekstra and Mulder (1990)).

(i) Out of the barn ran a black horse. (Coopmans (1989: 732))

(ii) a. *Voluntarily/Deliberately out of the room walked John.
b. *Out of the room voluntarily/deliberately walked John.
c. *Out of the room walked voluntarily/deliberately John.
d. *Out of the room walked John voluntarily/deliberately.

(Kuwabara (1995: 97))

(i) shows that in LI with a motion verb, the subject need not be heavy NP, and (ii) shows that an adverb which modifies agents, is prohibited in LI of motion verbs. Considering the facts in (i) and (ii), we assume that LI of motion verbs is LLI. However, we leave further explanation of the distinction between LLI and HLI for future research.

[2] The semantic subject can be heavy in LI with an unaccusative verb as shown in (i).

(i) Into the room walked carefully the students in the class who had heard about the social

psych experiment that we were about to perpetrate.

(Culicover and Levine (2001: 292))

We assume that unlike LLI, LI with an unaccusative verb where the subject is a heavy NP belongs to HLI.

[3] Mikami shows that with Runner (1995), the higher copy of DP can be deleted when the expletive is used and concludes that no theoretical problem occurs by pronouncing the lower copy of DP in passive sentences. However, Runner shows that the deletion of the lower copy of DP is possible when there is an element in SPEC-AGRsP at PF but since the locative PP moves to SPEC-TopP in the derivation of LI in Mikami (2010), we cannot predict that there is an element in SPEC-AGRsP. Thus, Mikami's analysis does not follow Runner's suggestion. To solve it, we need the additional stipulation that the lower copy of DP is pronounced only when the expletive or PP is preposed. Thus, there remains a theoretical problem. See details in Mikami (2010: 313-314 fn.21).

[4] See footnote 1.

[5] Hale and Keyser (1993) propose that the lexical structure of an unergative verb involves incorporation of the nominal head N of its NP complement into an abstract V. The discussion of the concrete derivation of an unergative verb, however, goes beyond the scope of this paper, so that this question is left open for further research.

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