THE STRUCTURE OF LOCATIVE INVERSION

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This paper examines and reconsiders the structure of the construction often called Locative Inversion (LI) based on the phrase structure proposed by Culicover (1991). From the fact that LI shares a number of properties with Negative Inversion (NI), it is claimed that the sentence-initial elements of both constructions are preposed into the same position, the Spec of Polarity Phrase (PolP). LI can also be considered to be motivated by the feature [+Pos(itive)], the opposite of [+Neg(ative)] in NI. In this sense, LI can be regarded as "Positive Inversion." It is further assumed that Exceptional Verb Raising (V to I) occurs in LI, which makes the construction in question marked in English.*

1. Introduction

This paper is primarily concerned with the structure of Locative Inversion (LI), which has typically been viewed as involving the preposing of a PP.¹ An example of the construction in question is given in (1a), which has been assumed to derive from (1b):

- (1) a. Into the room walked John.
b. John walked into the room.

The status and position of the preposed PP in LI have been a matter of

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¹ In this paper, the abbreviation LI indicates both the operation of LI and the constructions involving LI. The same is true of NI (Negative Inversion) and TOP (Topicalization).

controversy in the literature because the preposed PPs of LI behave as subjects in some cases, but not in others. Among others, Bresnan (1994) and Hoekstra and Mulder (1990) maintain that the preposed PPs are in the Spec of IP (i.e. subject position), but by contrast, Coopmans (1989) and Rochemont and Culicover (1990) suggest that they are topicalized over the subject position into some other sentence-initial position. My approach will show the possibility of the latter. Specifically, based on the observation of Kuwabara (1994) that LI shares a number of similarities with Negative Inversion (NI), I will conclude (i) that the preposed PP of LI is in the Spec of PolP, a node introduced by Culicover (1991), and (ii) that LI is agreement-driven movement, just as *wh*-movement and NI are.

Also important is the problem concerning a set of verbs in LI. It has been widely acknowledged that LI is one of what is called "surface unaccusative diagnostics." That is, in LI, the D-Structure object of an unaccusative verb does not become an S-Structure subject; instead, it maintains the postverbal position (e.g. Coopmans (1989), Hoekstra and Mulder (1990), Bresnan (1994)). On this analysis, the D-Structure form of LI is most likely schematized as in (2), the PP moving later to become the subject at S-Structure:²

(2) *e* [_{VP} V NP PP]

I will point out that the analysis, though ingenious, encounters many problems; for example, as Levin and Rappaport (1995) point out, a variety of apparently unergative verbs can appear in LI, and moreover, not all unaccusative verbs are found in the construction. Following the suggestion proposed by Levin and Rappaport (1995) that aspects of the meaning of verbs are deemphasized when they are found in LI, I will further assume that this proposal can be reflected in the syntactic structure of LI as a form of Exceptional Verb Raising (V to I). In view of this approach, the status of the postverbal NP in LI is briefly dealt with in this paper.

² Coopmans (1989) suggests that preposed PPs in LI are located in COMP (=the Spec of CP), further assuming the existence in English of an empty subject, i.e. small *pro*. See his work for more detail.

2. PolP Analysis of LI

2.1. Comparison with Other Constructions

Observe the following sentences, all of which involve leftward movement of some constituent to the sentence-initial non-argument position:³

- (3) a. *Into the room* walked John *t*. (= (1b); LI)
 b. *Very rarely* can we find an ideal partner *t*. (NI)
 c. *To Mary*, John gave a book *t*. (TOP(icalization))

Each of the above three movement operations can be applied in an embedded clause, as shown in (4):

- (4) a. He said that into the room walked John. (LI)
 b. John said that very rarely can we find an ideal partner. (NI)
 c. I think that, to Mary, John gave a book. (TOP)

To clarify the structural position of the preposed elements in these constructions, interaction with *wh*-movement, a pure syntactic operation, may be helpful. Observe first that these movement operations cannot be applied in matrix *wh*-interrogative sentences (see (5)), but that, in embedded *wh*-clauses, LI and NI can be applied, while TOP cannot (see (6)); all emphases in the sentences below are mine:⁴

(5) **Main Clause:**

- a. ***Who into the room** walked *t*? (LI)
 b. ***What very rarely** can we find *t*? (NI)
 (Kuwabara (1994: 20))
 c. ***What, to Mary**, did John give *t*? (TOP)
 (cf. To Mary, what did John give?)

(6) **Embedded Clause:**

- a. We suddenly saw *how* **into the pond** jumped thousands of frogs *t.* (LI) (Hoekstra and Mulder (1990: 32))

³ As Kuwabara (1994: 2) indicates, both NI and TOP can be considered to be A'-movement operations because they pass the standard criteria for A'-dependency observed in wh-movement: it is unbounded and licenses parasitic gaps, as illustrated in (i). (Parasitic gaps are designated by *e*.)

(i) a. *This paper*_i, John filed *t*_i without reading *e*_i. (TOP(icalization))
 b. *Not a single book*_i, have I ever reviewed *t*_i without reading *e*_i. (NI)

⁴ Except where otherwise noted, all emphases and brackets given to examples in the following are mine.

- b. Lee wonders *why in no way* would Robin volunteer *t*.
(NI) (Culicover (1991: 12))
- c. *I wonder *how the car* John will fix *t*. (TOP)

Furthermore, LI and NI do not block extraction of wh-elements, but TOP does, as shown in (7):

- (7) a. *With whom* did Bill say that **down the aisle** paraded Harapo *t*? (LI) (Kuwabara (1994: 203))
- b. *Which books* did Lee say that **only with great difficulty** can she carry *t*? (NI) (Culicover (1991: 5))
- c. **Which books* did you say that, **to Robin**, she will give *t*? (TOP)

The above examples indicate that, so far as structural relation is concerned, LI shows similar properties to NI but different ones from TOP. To capture these differences, we can assume that Move- α can be considered to involve two different types of movement, namely, **Adjunction** and **Substitution** (cf. Kuwabara (1994)). Since TOP is generally analyzed as adjunction (see Lasnik and Saito (1992)), LI, together with NI, can then be regarded as the other kind of movement, that is, substitution:⁵

- (8) $\text{Move-}\alpha \begin{cases} \text{Adjunction: TOP [not agreement-driven]} \\ \text{Substitution: LI, NI, (WH) [agreement-driven]} \end{cases}$

This assumption can be borne out by the fact that LI and NI induce 'inversion,' but TOP does not, as was shown in (3) and (4). As in the case of wh-movement, inversion is generally considered to be typical of substitution operation that requires agreement under the Spec-head relation. Therefore, it is obvious that inversion, be it Subj(ect)-Aux(iliary) or Subj.-Verb, can occur in NI and LI, which involve substitution, but not in TOP, which is an adjunction operation. In addition, TOP, unlike LI and NI, does not have a specific landing site, as in (9):

- (9) a. To Mary, [_{IP} John gave a beautiful necklace]. (IP)
- b. To John, [_{CP} what did you say you would dedicate]? (CP) (Kuwabara (1994: 17))

⁵ I leave open the question as to how adjunction can be dealt with in the Minimalist approach proposed by Chomsky (1995), which requires that syntactic movement be "last resort," that is, movement must be driven by some feature.

Since it is crucial evidence for substitution that there is a specific landing site, the above examples indicate further that TOP is not substitution, but adjunction. Hence the validity of the assumption of (8).

Following the assumption that adjunction structure creates an island for further extraction of material dominated by the original node (see Rochemont and Culicover (1990), Lasnik and Saito (1992)), we can explain the fact that TOP always blocks extraction of wh-elements, as shown in (5)-(7). Example (7c) is repeated below for ease of explanation:

- (7c) *Which books did you say that, to Robin, she will give t?
(TOP)

In (7c), TOP takes place first in the embedded clause, yielding the adjunction structure of IP, and then the wh-element *Which books* moves from the most deeply embedded trace position to the Spec of CP in the matrix clause, which is blocked by the IP-adjunction structure. The same explanation can be applied to the ungrammatical (c) sentences of (5)-(6).⁶

The above assumption that adjunction creates an island can also account for the following contrasts:

- (10) a. *To whom **this book** did you give?
(Chomsky (1977: 94))
b. **To John**, what did you say you would dedicate? (WH)
(11) a. *Only with great difficulty, **these books** can she carry.
b. **These books**, only with great difficulty can she carry.
(NI) (Kuwabara (1994: 21))

In the (a) examples of (10)-(11), TOP applies first, and then wh-movement and NI take place, respectively. In these cases, an adjunction structure is constructed as a result of TOP, and any further extraction is barred as is correctly predicted. On the other hand, in the (b) examples, TOP occurs after wh-movement or NI. In these cases, no extraction takes place over adjunction structure, hence the grammaticality of the sentences. Notice that NI, as well as wh-

⁶ Within the Minimalist framework, one possibility is that, if we can analyze TOP as multiple-Spec constructions, the outer Spec of multiple-Spec, into which a topic word moves, becomes an island. In any case, I assume that there should be different kinds of movement. Concerning the multiple-Spec analysis, see Chomsky (1995).

movement, is assumed to be a substitution operation.⁷ Since LI can be regarded not as adjunction but as substitution (see (8)), we can predict that it also cooccurs with TOP, just as *wh*-movement and NI can. It is actually the case as in (12), in which TOP occurs after LI has applied:

- (12) John said that **in the park**, *under the tree* stood a man who had an appointment with Mary.

(Culicover (1991: 33, fn. 47))

These results lead to the conclusion that LI, along with NI, is an instance of substitution and that there should be a second complementizer-type position between CP and IP, into which the preposed elements of both constructions move. We adopt here the phrase structure (13) below, which has been proposed in Culicover (1991) to explain sentences involving NI, and extend it to those involving LI. Thus the structure of both constructions in matrix and embedded clauses can be represented as below (cf. Kuwabara (1994)):

- (13) a. **Matrix Clause:**

[_{PolP} PP(LI)/NegP(NI) [_{Pol'} Pol [_{IP} NP [_{I'} ...]]] ...

- b. **Embedded Clause:**

[_{CP} WH [_{C'} C [_{PolP} PP(LI)/NegP(NI) [_{Pol'} Pol [_{IP} NP [_{I'} ...]]]] ...

What structure (13) intends to show is (i) that the preposed constituents of both LI and NI move into the Spec of PolP in both matrix and embedded clauses and (ii) that PolP is projected between CP and IP in embedded clauses. Notice that CP always exists in embedded clauses. This can be naturally explained if we assume that main verbs select CP whenever they select a (tensed) complement clause. That is why CP is always on top of embedded clauses.⁸ By contrast, there is no such selectional restriction in matrix clauses and therefore CP and PolP cannot coexist.⁹

⁷ Other explanation of the (un)grammaticality of (10)-(11) is also possible: the (a) examples of (10)-(11) can be ruled out for the lack of the head movement of the auxiliaries to C, or the intervention of the topic words for the auxiliaries to associate with the elements in the Spec of CP (or PolP) as Spec-head agreement.

⁸ Note that, in the ECM constructions, main verbs are assumed to select IP exceptionally.

⁹ Note also that Culicover (1991) considers the matrix CP to be replaced with PolP, *wh*-words being raised to the Spec of PolP in matrix questions. This,

By postulating the structure (13), we can account for the fact that neither LI nor NI interacts with *wh*-movement in matrix clauses (see (5)). Those examples can be represented in simple diagrams under the phrase structure adopted in (13) as follows:

- (14) a. **Who* [_{PolP} into the room walked *t*]? (LI)
 b. **What* [_{PolP} very rarely can you find *t*]? (NI)

In matrix clauses, there is no Spec position available for *wh*-movement because the preposed elements of both constructions have already filled the (topmost) Spec of PolP, as is shown in (14) (or (13a)). In embedded clauses, on the other hand, both LI and NI can cooccur with *wh*-elements (see (6)), which can also be accounted for by the structure (13):

- (15) a. We suddenly saw [_{CP} how [_{PolP} into the pond [jumped thousands of frogs]]]. (LI)
 b. Lee wonders [_{CP} why [_{PolP} in no way would [_{IP} Robin volunteer]]]. (NI)

In embedded clauses, if *wh*-elements have occupied the Spec of CP, and moreover, even if subjects have filled the Spec of IP, there is still a place for the preposed elements of both constructions, that is, the Spec of PolP, as shown in (15b) (or (13b)). Viewed in this light, LI and NI can be analyzed uniformly by postulating the structure (13).¹⁰

2.2. LI as Positive Inversion

In the preceding section, we have seen that the preposed PP of LI is in the Spec of PolP. The second problem is why the PP preposes in LI. This section deals with this problem.

Coopmans (1989) argues that only subcategorized PPs (i.e. argument PPs) can occur in LI. Therefore, PPs expressing manner, reason, and

however, does not affect our argument here. Again, what is important is that, from what has been observed, we can assume only one maximal projection to be projected over IP in matrix clauses.

¹⁰ There is further interesting but complex evidence to show the similarity between NI and LI; neither constructions can occur in embedded clauses in the absence of the complementizer *that*, as Nakajima (1995: 11) shows:

- (i) a. Lee believes *(that) into the room walked John. (LI)
 (ii) b. Lee believes *(that) at no time at all would Robin volunteer. (NI)

The fact that this property is characteristic of them is apparent when compared with normal sentences:

- (iii) Lee believes (that) John walked into the room.

instrument, etc., which are not subcategorized by verbs, are excluded:

- (16) a. **With great care* walked John into the room.
 b. **Despite the cold* ran Mary into town.

(Coopmans (1989: 735))

Close examination on LI, however, reveals that various kinds of elements can be preposed (e.g. Green (1980), Levine (1989), Birner (1994) and Levin and Rappaport (1995)). Observe the following:

- (17) a. *From that speaker* booms the voice of Fox's ad sales head Chicago. (**Source Adjunct PP**)
 (Levin and Rappaport (1995: 238))
 b. ... *from that time* grew up in her a love of vengeance ...
 (**Time Adjunct PP**) (ibid.: 237)
 c. *Then* broke the war ... (**Time Adverb**) (ibid.: 234)
 d. *Inside* swam fish from an iridescent spectrum of colors ...
 (**Locative Adverb**) (ibid.: 221)
 e. *Back* come the Kahoks with the ball. (**Directional Adverb**)
 (Green (1980: 584))
 f. ... *off* will go Clay, ... (**Particle**)
 (Levin and Rappaport (1995: 221))
 g. *Crawling into the room* came the messenger from Sparta. (**VP**)
 h. *Stacked in the corner* were/stood bundles of magazines from the 1960's. (**VP**) (Levine (1989: 1037))

Non-subcategorized Source / Time adjunct PPs, as well as subcategorized (i.e. argument) PPs, are preposed in (17a, b). In the examples in (17c-e), not PPs but adverbs are preposed: the Time adverb in (17c), the Locative adverb in (17d), and the Directional adverb in (17e). Furthermore, not only Particle (see (17f)), but also VPs (see (17g-h)) can be preposed.¹¹ These facts indicate that there is a possibility that not only PPs but also various kinds of elements could be raised into the Spec of PolP in LI; however, as was indicated in (16), not all elements can be preposed. One of the possible reasons for this fact is that,

¹¹ More noteworthy is that complex elements can also appear as preposed elements, as is shown in (i):

- (i) a. *Into the room nude* walked John. (PP+Secondary Predicate)
 (Rochemont and Culicover (1990: 71))
 b. *Now way out front with the ball* is Brenner.
 (Adverb+Adverb+PP) (Green (1980: 584))

although various kinds of elements are expected to be raised into the Spec of PolP, other factors restrict the type of preposed elements which can appear in LI. We shall return to this point later (see esp. section 4). Thus it is concluded, from what has been said above, that there exists some feature in LI, which can induce various kinds of elements into the Spec of PolP. I assume that the head Pol in LI can have the feature that corresponds to the [+Neg] feature in NI, defining it as the [+Pos(itive)] feature. Note here that the feature [+Pos] can induce into the Spec of PolP various kinds of elements other than negative ones like *hardly*, *scarcely*, etc., or the words involving negative items like *never*, *only* and so forth. This can be illustrated as in (18):

(18) **LI as Positive Inversion:**

As is indicated above, the feature [+Pos] can be taken as the opposite of [+Neg], which induces NI. Since, given the above assumption, NI and Positive Inversion (= LI) are in the relation of complementary distribution, we can capture naturally the fact that LI does not include negation as Kuwabara (1994) points out:

- (19) a. *On top of the hill **didn't** stand an old mansion.

(ibid.: 190)

- b. *Into the room **never/rarely** walked John.

Since the sentence type of LI is set up as "positive" due to the feature [+Pos] of PolP, it is clear that negation cannot appear in LI.

To sum up so far, it is concluded, following Kuwabara (1994), that the preposed constituents of both LI and NI are in the same position, namely, the Spec of PolP. I further proceed to assume that, like NI, LI is induced by an agreement-inducing feature, the feature [+Pos].

3. The 'Non-Subjecthood' of Preposed PPs in LI

This section deals in detail with a question whether a preposed element in LI is the subject of the sentence or not. I will argue for the possibility that not the preposed element, but the postverbal NP is a subject in LI, by showing several pieces of evidence for the non-subjecthood of the preposed constituents of LI. Furthermore, I will look into the phenomena which have been taken as evidence for the subjecthood of preposed elements in LI, concluding that they are not

sufficient to show the subject status.

3.1. Crucial Differences

There are two pieces of crucial evidence that the preposed PP of LI is not in the Spec of IP that is considered to be the landing site of a subject: it lacks Subj.-Verb Agreement (see (20)), and is incompatible with Subj.-Aux Inversion (see (21)):

(20) **Subject-Verb Agreement:**

- a. In the swamp was/*were found a child.
- b. In the swamp were/*was found two children.

(Bresnan (1994: 95))

(21) **Subject-Auxiliary Inversion:**

- a. *Did into the room walk John? (LI)

(Kuwabara (1994: 186))

cf. b. Did John enter the room?

It is especially noteworthy in the above examples that the postposed NPs display significant subject properties; since the nominative Case assignment and agreement with the verb are assumed to be confined to the Spec of IP in English, the postverbal NPs should move there in LI (and then, move to some other position higher than IP as a result of focus movement). Keeping these points in mind, Let us compare LI with what is called the subject-PP construction (Subj.-PP) in the next section.

3.2. Comparison with the subject-PP construction

Observe, first, the following pair of sentences:

- (22) a. Under the bed is a good place to hide.

(Bresnan (1994: 110))

- b. Into the room walked John.

In (22a), the sentence-initial PP *Under the bed* seems to be the subject of the sentence, the remainder working as its predicate (VP). This type of sentence is an instance of Subj.-PP. This construction looks quite similar to the construction involving LI as in (22b), in that a PP appears in sentence-initial position; however, there is crucial evidence that the preposed PPs of Subj.-PP, unlike those of LI, are subjects. These are Subj.-Verb Agreement (see (23)), Subj.-Aux Inversion (see (24)), and Compatibility with Negation (see (25)), all of which are properties that subjects demonstrate in general.

- (23) a. Under the bed is the best place to hide.

- b. *Under the bed *are* not the best places to leave your toys. (cf. (20)) (Levine (1989: 1015))
- (24) *Is under the bed* a good place to hide? (cf. (21))
(Bresnan (1994: 110))
- (25) Under the bed *isn't* the best place to leave your toys. (cf. (19))
(Levine (1989: 1041))

The important point to observe is that, whereas verbs in Subj.-PP agree with the sentence-initial PPs (see (23)), verbs in LI show agreement with the postverbal NPs. This can be further supported by the following contrasts:

- (26) a. [Under the bed and in the fireplace] are not the best (combination of) places to leave your toys. (Subj.-PP)
- b. [Down through the hills and into the forest] flows/*flow the little brook. (LI) (Levine (1989: 1015))

As shown in (26b), the post verbal NP *the little brook* agrees with the verb in LI and, therefore, the singular verb form *flows* is used in spite of the fact that two PPs are conjoined in the sentence-initial position. On the other hand, in Subj.-PP (see (26a)), two PPs conjoined in the subject position show agreement with the verb and hence the plural verb form *are* is used. It is concluded from the examples above that the PP of Subj.-PP is a subject, but that of LI is not.

There is one further phenomenon that we cannot ignore; the PP of Subj.-PP can occur in "raising-to-object" VPs, but that of LI cannot:

- (27) a. I wouldn't expect *under the bed* to be the best place to leave your toys. (Subj.-PP)
- b. *I wouldn't expect *behind the trees* to (appear to) stand a large building of some kind. (LI)
(Levine (1989: 1037))

If the preposed PP of LI were to be a subject, it could undergo raising-to-object, as in (28):

- (28) I believe *him* to *t* be innocent. (cf. *He* is innocent)

We can explain the ungrammaticality of (27b) by assuming that PolP can be projected in finite clauses, but not in infinitival clauses. This is supported by the following examples:¹²

¹² At this stage, I cannot say for certain why PolP is not projected in non-tensed clauses.

- (29) a. I expect that on this wall will be hung a picture of Leonard Pabbs.
 b. *I expect for on this wall to be hung a picture of Leonard Pabbs.
 c. *I expect on this wall to be hung a picture of Leonard Pabbs.
 d. *I expect on this wall being a picture.

(Bresnan (1994: 108))

As shown above, PolP can appear in a finite clause (see (29a)), whereas it cannot in any infinitival clauses (see (29b-d)). This assumption can also predict correctly that, if LI occurs in an infinitival clause, the preposed element has to move up to the (nearest) finite main clause, which has PolP to host it. This is shown in (30), whose derivation will be explained in the next section:

- (30) On this wall ____ is likely to be hung a portrait of our founder. (ibid.)

The above data cannot be accounted for by the analysis which dispenses with a second complementizer-type projection like PolP and regards the preposed constituents of LI as subjects in the Spec of IP. In contrast, the preposed PP of Subj.-PP can be considered to be a subject.¹³ There is, however, some evidence for the subjecthood of preposed elements in LI. Before concluding section 3, I shall deal with such evidence and show that it is not, in effect, actual evidence for the subjecthood.

3.3. Against Counter-Examples

In this section, I will go through, among others, “*that*-trace effects,” “tag questions,” and “subject-raising,” which are considered to be

¹³ The application of Contrastive Focus further provides a curious fact: it seems to be difficult to make the preposed elements in LI a focus of contrast (see (i)), though, in non-inverted counterparts, either the locative PP or the subject can be a focus of contrast (see (ii)):

- (i) a. On the wall hung **Canvasses**, but **not paintings**.
 b. ??On the wall hung canvasses, but **not on the easels**. (LI)
 (ii) a. **Canvasses** hung on the wall, but **not paintings**.
 b. Canvasses hung **on the wall**, but **not on the easels**.

(Bresnan (1994: 86))

As in (iia), subjects can be a focus of contrast. If the preposed PP in (i) were a subject, it could also be a focus of contrast. But this is not the case, as in (ib).

evidence for the subjecthood of the preposed elements in LI. First, the *that*-trace effect is generally considered to be evidence for subject status because only subjects show the effect (see Lasnik and Saito (1984)):

- (31) a. *Who* do you think (*that) *t* came? (subject)
 b. *What* do you think (that) John likes *t*? (Object)
 c. *Why* do you think (that) he left early *t*? (Adjunct)
 (ibid.: 255)

Since LI, as is often pointed out, shows the effect, the preposed element has been taken as a subject (e.g. Hoekstra and Mulder (1990), Bresnan (1994)):

- (32) *Into which room* did you say (*that) *t* walked the children?
 (Hoekstra and Mulder (1990: 33))

However, NI, where a non-subject apparently occupies the pre-auxiliary position, also exhibits the *that*-trace effect:

- (33) *Very rarely* have you said (*that) *t* can you find an ideal partner.
 (Kuwabara (1994: 195))

The above example suggests that the *that*-trace effect is not sufficient evidence for the subject status of a constituent. The examples in (32) and (33), therefore, do not constitute counterexamples to the PolP analysis. The relevant part of the examples can be diagrammed as in (34):

Thus we can see that the *that*-trace effect can be captured without restricting it to the property of subjects.

Another piece of evidence against the PolP analysis of LI is based on “tag questions.” In tag questions, an assertion is followed by a tag consisting of an auxiliary verb and a pronoun, which must match the features (Person, Number and Gender) of the (surface syntactic) subject of the assertion:

- (35) a. Mary fooled John, didn't she/*he?
 b. John was fooled by Mary, wasn't he/*she?

(Bresnan (1994: 97))

With regard to LI, Bowers (1976) cites examples of tag questions such as (36) to argue that the proposed PP can be the subject:

- (36) a. In the ocean are whales, aren't there?
b. In the garden is a beautiful statue, isn't there?

(ibid.: 237)

However, as Levine (1989) states, it is not clear whether these examples are actually good, and even if they are, the example below is at least as good:¹⁴

- (37) Under the bridge were the two vagrants you are tracking,
weren't *they*! (ibid.: 1025)

Notice, as Levine further points out, how bad substitution of *there* is:

- (38) ??Under the bridge were the two vagrants you were tracking,
weren't *there*! (ibid.)¹⁵

Moreover, Iwakura (1978) provides the examples below:

- (39) a. In the room are *Mary and her husband*, aren't *they*?
b. Under the tree was *John*, wasn't *he*? (ibid.: 331)¹⁶

We can conclude from these examples that tag questions provide no sufficient evidence for the subjecthood of the proposed elements in LI.¹⁷

The last problem is concerning "subject raising." English has a class of raising predicates, which do not allow non-subject constituents to be raised, as shown below:

- (40) a. It seems that *you* dislike John. (Subject)
b. *You* seem to dislike John.

¹⁴ Bresnan (1994: 97) notes that "in general, it is difficult to combine tags with [LI]."

¹⁵ As anonymous reviewers have pointed out, the unacceptability of (38) may be attributable to the Definiteness Effect, which bans the appearance of a definite postverbal NP in the *there*-construction. However, it has been observed by many researchers that the wide range of definite postverbal NPs can appear in *there*-sentences (see esp. Ward and Birner (1995)). Some examples are given below:

- (i) a. There is the village idiot at the front door. (ibid.: 726)
b. There was the usual crowd at the beach. (ibid.: 729)

Therefore, the unacceptability of (38) may not be necessarily related to the violation of the Definiteness Effect, though further study is undoubtedly necessary.

¹⁶ He admits, however, that they are awkward.

¹⁷ It should also be added that, unlike LI, Subj.-PP permits tag-formation with a coreferent personal pronoun, as shown in (i):

- (i) *Under the bed* is a good place to hide, isn't *it*? (Bresnan (1994: 110))

- (41) a. It seems that *John*, you dislike. (Non-Subject)
 b. **John* seems you to dislike. (Bresnan (1994: 96))

As Bresnan shows, the preposed elements of LI also appears to undergo subject raising, as in (42):

- (42) a. On the hill appears ____ to be located a cathedral.
 b. In these villages are likely ____ to be found the best examples of this cuisine. (ibid.)

This evidence seems to show that it is the preposed PP that is linked to the subject function in LI. We should notice, however, that the verbs in the matrix clauses agree with the rightmost NPs, not with the preposed PPs in (42). This can be explained by assuming, as was indicated in section 3.1, that the postverbal NPs once move to the Spec of IP where they receive or check nominative Case, and then, move up to an IP-adjoined position. Let us look into the derivation of “raising” in (42a), which can be schematized as follows:

- (43) (i) [_{PolP} On the hill_j [_{IP} a cathedral_i [_{I'} appears to be located <sub>t_i t_j]]] ...
 (ii) [_{PolP} On the hill_j [_{IP} t'_i [_{I'} appears to be located _{t_i t_j]] a cathedral_i].}</sub>

At the first stage, both the PP *On the hill* and the NP *a cathedral* move from their embedded trace positions to the proper landing sites in the matrix clause, the Spec of PolP and IP, respectively. At the second stage, the NP undergoes focus movement, that is, adjunction to IP. This is why the rightmost NP, but not the preposed PP, agrees with the main verb in the subject raising constructions.

This approach can exclude “super-raising” in LI as in the general cases:

- (44) a. **John* seems that **it** is likely to win.
 b. **On the hill* seems that **it** is likely to be located a cathedral. (LI)

Since the postposed NP of LI moves to the Spec of IP once in the derivation, (44b) has an identical representation with that of (44a) at some level (see (43)). Thus, *John* in (44a) and *a cathedral* in (44b) pass over the nearest Case assigning position, that is, the position which *it* occupies, and hence the ungrammaticality of the sentences.¹⁸

¹⁸ The ungrammaticality of the sentences in (44) is reduced to a violation of the Relativized Minimality (RM) proposed by Rizzi (1990). The definition is:

In short, while the preposed PP in LI seems to undergo subject raising on the surface, the rightmost NP, in effect, undergoes it in the same manner as usual. We can, therefore, conclude that subject raising is not a counterexample to this approach.

The most important point that I have wanted to show in this section is that the essential parts of syntax, such as the system of Case assignment (or checking) and agreement, should not be easily changed. This could be further supported by a viewpoint of language acquisition: children need not make extra efforts to learn another way of Case system in order only to master sentences involving postverbal NPs. My approach can capture the derivation of LI, or phenomena concerning LI, such as subject raising and super-raising, with the system of Case and agreement in the manner usually adopted in the syntactic literature.

4. Exceptional Verb Raising

4.1. The Character of Verbs in LI

LI has been generally analyzed in the literature under the assumption that only unaccusative verbs can appear in LI (see Coopmans (1989), Hoekstra and Mulder (1990), Bresnan (1994), Collins (1997)). Recently, however, Levin and Rappaport (1995: 260) observe that LI involves "a bewildering variety of verbs." For example, a variety of apparently unergative verbs can appear in LI, as shown in (45a-c):

- (45) a. On the third floor *worked* two young women called Maryanne Thomson and Ava Brent ...

- (i) A governs B iff there is no node Z such that
 (1) Z is a potential governor for B;
 and (2) Z c-commands B;
 and (3) Z does not c-command A. (ibid.: 7)

This principle prohibits an element from passing over its nearest potential governor (see his work for fuller discussion).

Note further that we can consider movement of wh-elements over PolP legitimate, as in (ii):

- (ii) We suddenly saw [_{CP} *how* [_{PolP} **into the pond** [_i jumped thousands of frogs *t*]]. (= (6a))

Since PolP is projected as a result of the splitting of CP, CP and PolP can be considered to be basically syncretic; the Spec positions of both maximal projections can be equidistant from anything they dominate. Hence the grammaticality of movement cross the Spec of PolP to that of CP.

- b. Above them *pranced* the horses on the Parthenon frieze
...
- c. And in their wake *rumbled* trucks to haul off the
remains. (Levin and Rappaport (1995: 224-225))

Note that the verbs *work*, *prance* and *rumble* are hardly considered to be unaccusative verbs. They also point out that not all unaccusative verbs are found in LI. In particular, unaccusative verbs denoting change of state are typically not attested in the construction. Observe the following unacceptable sentences:

- (46) a. *On the top floor of the skyscraper *broke* many
windows.
- b. *On the streets of Chicago *melted* a lot of snow. (ibid.)

It is worth mentioning that only some passive verbs are expected to be found in LI, even though, on an unaccusative analysis, all (verbal) passives would meet its syntactic constraints:

- (47) a. *To the tourists *were sold* the most garish souvenirs.
- b. *At that movie *were frightened* a lot of little children.
(ibid.: 250)

It is clear from the above examples that the unaccusative approach is not enough to analyze LI. As an alternative account, the following assumption by Levin and Rappaport (1995: 258) can be considered to be appropriate:

- (48) [A]spects of the meaning of these verbs are deemphasized
when they are found in these constructions [including LI].

This assumption is more concretely defined by Nakajima (1996: 19), which states that “verbs in LI are basically equal to *be* verbs.” In brief, verbs are deemphasized in their meaning when they appear in LI, representing only existence or appearance as *be* verbs do. This viewpoint correctly captures the following contrasts:

- (49) a. In our garden **grew** a very hardy and pest-resistant
variety of corn. (‘live rootedly’ = an existence inter-
pretation)
- b. *In Massachusetts **grows** corn very slowly.
(‘increase in size or maturity’ = a change-of-state inter-
pretation) (Levin and Rappaport (1995: 236))

As shown above, even the same verb *grow* can appear in LI only when it has an existence sense (see (49a)), but not a change-of-state sense, the main aspect of the meaning of *grow* (see (49b)). This contrast can be explained only by the above assumption.

4.2. Null Bound Morpheme in LI

Observe the following sentence, an example of LI in Mandarin Chinese:

- (50) Zhuoshang fang -zhe yi ben shu.
table-top put zhe one CL book

‘On the table was put a book.’ (Pan (1996: 430))

As Pan (1996: 418) observes, Mandarin Chinese has the morpheme *zhe* that “prohibits the appearance of [an] agent.” This morpheme can often be seen in LI in this language.¹⁹ With this fact in mind, let us now attempt to extend the assumption by Levin and Rappaport (1995) and Nakajima (1996) in the previous section (see (48)) into the structure of LI in English:

- (51) (In English) the head I^0 in LI has a null bound morpheme BE (null BE), to which verbs are attracted. The amalgamation of [V + BE] results in the loss of the agentive aspect of verbs.

Since null BE (the label is irrelevant here) is a bound morpheme, verbs must move exceptionally to I^0 to bind the morpheme.²⁰ Note that null BE, the counterpart of *zhe* in Mandarin Chinese, is assumed to happen to be a null element in English, which could be further analyzed as a kind of parameter.²¹

The assumption in (51) can account for some phenomena concerning LI. First, unlike NI, *do*-insertion cannot occur in LI:

- (52) a. Not a bite did he eat. (NI)
b. *Into the room did walk John. (LI)

Since I^0 always has null BE in LI, it is possible that null BE prevents *do* from being inserted to I^0 by some syntactic operation.

¹⁹ Notes that “the *zhe* operation is not an instance of passive” (see *ibid.*: 430).

²⁰ As is often assumed, verbs in English cannot be raised to the head I^0 (see (i)) or a head above I^0 (see (ii)).

(i) a. I often eat an apple.
b. *I eat [_{VP} often *t* an apple].

(ii) a. Did John love Mary?
b. *Loved [_{IP} John *t* Mary].

²¹ It might be thought that the existence of null BE is not well-motivated. However, there is much justice in this view because the assumption of null BE is based on both the observations by Levin and Rappaport (1995) and Nakajima (1996) on the one hand, and the data reported by Pan (1996) on the other. Therefore, I assume it as a working hypothesis here to guarantee Exceptional Verb Raising in LI.

Second, LI is incompatible with Subj.-Aux Inversion (cf. section 3.1).²²

(53) *Down the stairs will the baby fall.

As a result of Exceptional Verb Raising, I^0 in (53) is complicated as the amalgam of [will fall BE]. The relevant parts of the derivation are shown below:

- (54) a. [_{PolP} PP [_{Pol'} [_{IP} John [_{I'} will fall_i -BE] [_{VP} t_i] ...
 b. *[[_{PolP} PP [_{Pol'} will_j [_{IP} John [_{I'} t_j fall_i -BE] [_{VP} t_i] ...

Since no auxiliary can be extracted when I^0 consists of complex elements (cf. Nakajima (1996: 22)), the auxiliary *will* in (53) alone cannot be raised from within the amalgam of I^0 (see (54b)). That is why Subj.-Aux Inversion is not applied in LI.

Third, transitive verbs cannot appear in LI, as shown below:

- (55) a. *Down the street walked the old nanny her dog.
 b. *Into the room rolled John the ball.

(Coopmans (1989: 730))

The ungrammaticality of (55) can be explained as follows: verbs in LI are raised to I^0 , owing to the null bound-morpheme (i.e. null BE), as assumed above. In that case, the object NP would fail to receive Accusative Case from the verb within a (minimal) maximal projection, that is, within VP, which yields a Case Filter violation.²³ This can be diagrammed as in (56):

²² Modal auxiliaries can appear in LI, though people seem to diverge in their acceptability judgements. Compare (i) with (ii):

- (i) a. ... off **will** go Clay ... (= (17f))
 b. ... the elm from which **could been seen** an endless avenue ...
 (Levin and Rappaport (1995: 221-222))
 (ii) a. *Down the hill **may roll** the baby carriage.
 b. *Into the room *may have been walking* John. (Coopmans (1989: 729))

There is room for further investigation on this matter.

²³ The Case Filter is defined as follows (Chomsky 1981: 49):

- (i) Case Filter: *NP if NP has phonetic content and has no Case.

Since Exceptional Verb Raising always causes a situation like (56), transitive verbs cannot appear in LI.

Before proceeding, we must draw attention to the selection of null BE. In my approach, null BE under the head I^0 is assumed to be selected optionally by the head Pol with a [+Pos] feature. If null BE is selected, LI occurs as Positive Inversion. If not, the constructions such as "So-inversion" and "Preposing around *be*" are chosen as another kind of Positive Inversion. In the latter case, *do*-insertion and Subj.-Aux Inversion can apply since null BE does not exist under the head I^0 . We will return to this point later in the next section.²⁴

²⁴ As an anonymous reviewer has pointed out, in the case of raising constructions, my approach predicts that PolP should be generated in matrix clauses, whereas IP in the embedded clauses. This asymmetry between PolP and IP seems to lead to the loss of ability of PolP to select null BE under the head I^0 . If so, we will face difficulty in explaining the ungrammaticality of the sentence below along the same line as shown in (56):

- (i) *_{[PolP Down the streer [IP seems [IP to have walked her dog]] the old nanny].}

However, as Nakajima (1996) suggests, there is a possibility that a raising predicate plus a *to*-infinitival (e.g. 'seem + to + V') is regarded as a complex verb, as shown below:

- (ii) John *seemsta* be outside. (ibid.: 22)

In (ii), the movement of *John* from the embedded to the matrix clause is not applied within a clause boundary because the application of contraction (i.e. *seemsta*) prevents *John* from moving to the Spec of IP in the embedded clause. This apparent violation of Subadjacency can be circumvented if we consider the form of [raising predicates + to + V] to be IP as a whole (cf. Nakajima (1996)). Based on this observation, we can replace the representation in (i) with the following one:

- (iii) *_{[PolP Down the streer [IP seems to have walked] [_{VP} [_V t her dog]]] the old nanny].}

This is further supported by the following contrast observed by Burzio (1986: 201-202):

- (iv) a. *Some* politician expected [_S John to address *every* rally].
 b. [_i *Some* politician] is likely [_S t_i to address *every* rally in John's district].

In general, the relative scope of quantifiers is predictable from the distribution of clause boundaries (see May (1977)). Thus (iva) allows only the reading in which *some* has scope over *every*. In contrast, (ivb) is ambiguous in spite of the fact that *some* and *every* are not in the same clause. This can also be explained by assuming that a raising predicate with a *to*-infinitival forms a complex element, which results in the loss of clause boundaries. Thus, it seems reasonable to assume that, in raising constructions, PolP in the matrix clause can directly select null BE under the head I^0 in the embedded clause.

Furthermore, several phenomena can be captured from the viewpoint of the incompatibility with null BE. As shown in section 2.2, PPs expressing manner, reason, etc. are excluded. Observe (16) again, repeated here:

- (16) a. **With great care* walked John into the room.
 b. **Despite the cold* ran Mary into town.

(Coopmans (1989: 735))

If we assume that verbs are strongly concerned with agency when combined with these kinds of PPs, they are considered to be incompatible with null BE, which suppresses agency. That is, though various kinds of positive elements, including the PPs in (16), are allowed to move into the Spec of PolP as Positive Inversion (= LI), the factor of the compatibility with null BE restricts the type of preposed elements which can appear in LI. This can also account for the fact below:

- (57) a. Voluntarily/Deliberately John walked out of the room.
 b. *Voluntarily/Deliberately out of the room walked John.
 (LI) (Kuwabara (1994: 192))

Since intentional adverbs like *voluntarily* and *deliberately* involve agency, they are incompatible with null BE, hence the ungrammaticality of (57).

We can further predict that even intransitive verbs cannot appear in LI when they strongly require the subject to be agent. This is actually the case:

- (58) a. *In the nursery *smiled* half a dozen newborn babies.
 (Levin and Rappaport (1995: 222))
 b. *Toward me *looked* a drunk. (Bresnan (1994: 78))

It is worth noting here that the subject of LI (i.e. the postverbal NP) is considered to be a Theme. Regarding this, Bresnan (1994: 80) states:

“Locative Inversion can occur just in case the subject can be interpreted as the argument of which the location, change of location, or direction expressed by the locative argument is predicated—a THEME ...”

Furthermore, as Coopmans (1989) suggests, the subjects of unergative verbs, like *walk*, *run*, etc. are changed (from an Agent) into a Theme when combined with the directional PP (see his work for more detail). On these grounds, we may reasonably conclude that the subjects of LI are interpreted as Themes (and not Agents) even if they occur with unergative verbs (see (45)), unless they occur with strongly Agent-

oriented unergative verbs, like those found in (58).²⁵

5. The Whole Structure of LI

5.1. The Position of Postverbal NPs

Before turning to the whole structure of LI, I shall briefly discuss the status of postverbal NPs in LI. As has been mentioned before, the postverbal NP of LI is assumed to undergo focus movement to the IP-adjoined position. There are several reasons for thinking the postverbal NPs to be adjoined to IP. First, if the postverbal NPs occupied the object position, as assumed in the unaccusative approach, then *wh*-extraction from within it should be possible because in general an object, being a complement to a verb, readily undergoes *wh*-extraction. Yet this is not the case, as shown in (59):

- (59) a. **?What kind of mushrooms* do you think on these trails
can be found [specimens of *t*]? (LI)
(Bresnan (1994: 87))
- b. **Who* did [a picture of *t*] surprise you? (Subject)
- c. *Who* did you see [a picture of *t*]? (Object)

As example (59a) shows, the postverbal NP of LI does not undergo *wh*-extraction and therefore cannot be considered to be in the postverbal object position. Moreover, the postverbal NP *specimens of ...* in (59a) must move to the Spec of IP because passive verbs have no ability to assign Case (see fn. 23); therefore, the NP is naturally considered to move into the Spec of IP (at least once in the derivation) to receive (or check) nominative Case, as in the usual passive constructions. Notice also that, in my approach, the NP further adjoins to IP, from which no extraction is allowed because adjunction creates an island for further extraction (see section 2.1).

The above observation is further supported by comparing LI with the *there* construction. As Milsark (1974) points out, the *there* construction can be divided into two types: the “there V NP (PP)” type, which is called “inside verbal” *there* construction (IV TC) and the “there V PP NP” type, which is called “outside verbal” *there* construc-

²⁵ It is debatable how we can define agent-oriented verbs; at this point, it is not strictly defined.

(60) a. There appeared a tall boy (in the room). (IV TC)
b. There walked through the garden many tourists. (OV TC)

(61) a. *How many men* are there *t* in the garden? (IV TC)
(Hoekstra and Mulder (1990: 45))

b. **How many men* did there walk into the room *t*? (OV TC)

(62) a. It's *Bill* who there exist [no picture of *t*]. (IV TC)

b. ?*It was *Bogart* that there stood on the piano [two photographs of *t*]. (OV TC) (Ross (1974: 576))

The last is so-called “deleted subject constructions” that require coreference with subject NPs of the main clause. Expressions of the form [without ... V-ing ...] are of this type (cf. Postal (1977: 149-150)):

(63) a. Joe amused Mary without exerting himself/*herself.

b. Mary was amused by Joe without exerting herself/
*himself.

The examples above indicate that only the element in the Spec of IP can control the subject PRO of the *without*-phrase. This can be

²⁶ The fuller study of the derivation of *there* constructions lies outside the scope of this paper. I shall, therefore, leave the details for further study.

²⁷ There may be vacillation among speakers on the acceptability of (60)–(61), but it seems clear to all speakers that examples of OV TC in the (b) examples are much worse than those of IV TC in the (a) examples.

²⁸ This can be further confirmed by Extraposition from NP, where an extraposed element is also considered to be (right-)adjoined to IP (see Rochemont and Culicover (1990)). Observe the following:

(i) ?*Who will a book come out this year [by *t*]? (Guéron (1980: 648))
(cf. A book will come out this year [by *Chomsky*].)

Since the extraposed PP in (i) is in an IP-adjoined position, namely, in an adjunction structure, extraction from within it is correctly banned.

further supported by the following examples:

- (64) a. A man_i will enter without PRO_i speaking.
 b. Will a man_i enter without PRO_i speaking? (ibid.)

In (64b), even if Subj.-Aux Inversion takes place, the NP *a man* still remains in the Spec of IP, which makes the sentence grammatical. Bearing this fact in mind, let us now observe the following sentence:

- (65) *Near the oasis lay two sheiks without talking. (ibid.)

As shown above, LI cannot occur in “deleted subject constructions.” The approach proposed above can account for the ungrammaticality of this example. Since, in this approach, the postverbal NP *two sheiks* is not in the Spec of IP, but in the adjoined position, there is no controller of the subject PRO of the *without*-phrase in (65). Hence the ungrammaticality of the sentence.²⁹ We may reasonably conclude from the above arguments that the postverbal NP of LI is ultimately adjoined to IP.

5.2. The Status of LI

Last of all, based on what has been observed above, I shall represent the status of LI in Syntax in a simple diagram as follows (PI is the abbreviation for Positive Inversion):

As shown in (66), PolP has the feature: either [+Neg] or [+Pos]. The feature [+Neg] induces NI, in which negative elements, like *hardly* and *rarely*, etc., or the words including negative items, like *never* and *only* etc., can move into the Spec of PolP. Furthermore, Aux (or *do*) undergoes head movement (I to Pol) in order to associate

²⁹ This can be further supported by the following example:

(i) Near the oasis two sheiks lay without talking. (Postal (1977: 149-150))
 Since (i) is an example of TOP, the NP *two sheiks*, unlike in (65), is in the Spec of IP. Since only the elements in the Spec of IP can be the controller of the *without*-phrase, the sentence in (i) is grammatical.

with the negative elements in the Spec of PolP⁰ (i.e. Spec-head agreement). This derivation is shown in the bracket at the right of [+Neg] in (66). In contrast, the feature [+Pos] can induce various kinds of elements into the Spec of PolP because any element are allowed to be raised if they are **positive** (i.e. other than **negative**). We can consider from this assumption that PI is divided into subgroups: one is what we call *So*-inversion indicated in (i) of PI in the above diagram. In this construction, the word *so* moves to the Spec of PolP by the feature [+Pos], and licensed by Aux (or *do*) participating in an agreement relationship with the Spec of PolP in the same manner as NI.

Next, we shall go through the inversion construction in (ii) in more detail because it represents LI. First, the feature [+Pos] induces spatial and temporal elements into the Spec of PolP, which results in the selection of LI as PI. At the same time, like *do*-insertion, null BE is inserted under I⁰, which further requires verbs to undergo exceptional head movement (V to I) in order to bind the null morpheme. By Exceptional Verb Raising, I⁰ in LI creates an amalgam, from which no element can be extracted. This is why, unlike the other inversions, LI lacks Subj.-Aux Inversion. Instead, I assume that null BE moves to the head Pol at LF to be in an agreement relation with the element in the Spec of PolP. From what has been said above, we can now schematize the whole structure of LI as follows; note that all the elements but null BE move overtly:

In contrast with LI, the constructions called “Preposing around *be*” (see (iii) in (66)) always undergo the overt head movement of *be* verbs to I⁰.

To sum up so far, we can say that, although there exist various types of inversion in English, all of them are induced by the feature of PolP (i.e. either [+Pos] or [+Neg]). That is, the inversion constructions

are systematically analyzed in terms of syntax.³⁰

6. Conclusion

The aim of this paper has been to consider the structure of LI by comparing it with other similar constructions. We have concluded, based upon the similarity to NI, that the preposed elements of both constructions move into the same place, namely, the Spec of PolP (see Kuwabara (1994)). We have seen further that the sentence-initial elements of both NI and LI are preposed due to the feature [+Neg] and [+Pos], respectively. Since LI can be considered to be induced by the feature [+Pos], we have taken it as a kind of Positive Inversion. Furthermore, Exceptional Verb Raising is assumed to occur in LI due to the null bound morpheme BE, which is inserted under the head I⁰. It can also be concluded that the postverbal NP of LI is in the IP-adjoined position functioning as a focus position, after once moving to the Spec of IP (the subject position). The theoretical advantage of this analysis is that the derivation of LI can be accounted for without changing the system of Case or Agreement: the subject NP in LI has its Nominative Case checked in the manner usually adopted in the syntactic literature.

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³⁰ I leave the question open as to whether we can analyze other types of inversion, like Quotative Inversion, etc., in the approach of this paper.

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