

On Locative Inversion

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This paper aims to sketch the structure and derivation of Locative Inversion (LI), henceforth LI), a construction characterized by an ‘inverted’ locative PP and a post-verbal noun phrase.

(1) *In the garden* sat an old man unhappily. (Birner 1994)

The crux of the debate regarding this construction in the literature lies in the elusive status of the locative. It has been assumed that the locative is moved from within VP to the sentence initial position (Culicover and Levine 2001; Bresnan 1994); besides, previous analyses differ on whether the locative has A- or A'-properties, or even both (e.g. Postal 2004; Rizzi and Shlonsky 2006).

In this paper, contra previous analyses I argue for base-generation analysis of the locative in the subject position. New evidence from English and Mandarin LI is given in support of the analysis.

This paper is organized as follows: In section 1 & 2 I will introduce evidence for base-generating the locative in the subject position. Section 3 explains away certain arguments for the topic status of the PP in LI. Section 4 concludes the paper.

1. Empirical evidence for the locative in [Spec, TP]

In this section I will present evidence that in both English and Mandarin LI, the locative is in the canonical subject [Spec, TP] rather than a topic position.

The most definitive argument for the subject status of the locative comes from weak cross-over effect (WCO). Culicover & Levine (2001) (C&L) note that topicalization, but not locative inversion, can induce WCO. In (2), the quantified noun phrase *every dog* contained in the pre-verbal locative PP can co-refer with the pronoun *its* in LI (2)b, but not in topicalization (2)c.

- (2) a. An owner peered into every dog's cage.
b. Into every dog_k's cage peered its_k owner. (Locative Inversion)
c. *Into every dog_k's cage its_k owner peered. (Topicalization)

The fact that LI does not pattern with Topicalization regarding WCO, as illustrated by (2), indicates that LI does not involve topicalization.

Neither does the interpretation of LI support a topicalization analysis. Birner (1994) shows that in her corpus study of English inversion, the pre-verbal constituent is discourse-new in around 20% of all cases, which is unlikely to be a result of speech errors. Below is an example (3).

- (3) I gotta tell you something. Right now we have a very special treat for you. because *on the phone with me* is *one of the hottest young stars in town*.

The locative is neither previously invoked nor referred to in (3). To the extent that topics do not include discourse-new elements, (3) is evidence that there is no requirement for the locative PP to be a topic in LI.

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Lastly, the topicalization analysis does not offer a satisfactory account for what occupies the canonical subject position in [Spec, TP]. Previous topicalization analysis hypothesizes that the subject position is occupied by either a short-topicalized locative (Rizzi and Shlonsky 2006) or a null expletive *there* (Bruening, 2010). However, neither of the two options are convincing.

For one thing, short-distance topicalization from the subject position is disallowed in English. In the following example, the subject *Jane* cannot be topicalized from [Spec, TP] (see Lasnik and Saito 1992).

- (4) **Jane*_i, t_i likes Mary.

Lasnik and Saito (1992) give several arguments against this kind of topicalization. One of them concerns reflexive binding. Reflexives can be bound by their antecedents in the higher clause through topicalization (5)a–b. If short-distance subject topicalization were possible, the subject could move to the topic position. We would then expect that the reflexives in the subject position can also be bound after topicalization. However, this is not the case (5)c.

- (5) a. *John thinks that Mary likes himself.
 b. John thinks that himself, Mary likes.
 c. *John thinks that himself likes Mary.

As for the null-expletive approach, it hypothesizes that LI consists of a topicalized locative PP with a null-expletive *there*.

- (6) In the garden (*there*) sat an old man unhappily.

The problem with the analysis is that the null-expletive does not exist elsewhere in English. Furthermore, if this analysis is correct, we would predict that whether *there* is overt or not would not affect the grammaticality of LI. However, locative *wh*-questions show that the (c)overtness of *there* does make a difference (Bresnan 1994). As shown below, when *there* is absent, locative *wh*-questions pattern with subject *wh*-questions (7) in that they do not require do-support (8). In contrast, when an overt *there* occupies the subject position, locative *wh*-questions require do-support (9).

- (7) Who {came/*did come} to the town?
 (8) a. On which wall hung a portrait of the artist?
 b. *On which wall did hang a portrait of the artist?
 (9) a. *On which wall there hung a portrait of the artist?
 b. On which wall did there hang a portrait of the artist?

The contrast is problematic for the null-expletive analysis, where (8) and (9) are structurally the same.

Since none of the topicalization analyses offers a plausible account for what occupies the subject position, we take it as a further evidence that the topic analysis is untenable and the locative is in the subject position.

I now turn to Mandarin. LI also exists in Mandarin, observed by e.g. Paul et al. (2020). As in English, it is characterized by a fronted locative, followed by a verb and a post-verbal grammatical subject, as in (10).

- (10) [_{LOC} zhuozishang] fang-zhe yiben shu.
 table.on put IMPF one.CL book.
 ‘On the table is placed a book.’

There is a controversy regarding whether the fronted locative is a DP or a PP (Li 1990; Wu 2008; Paul, Lu, and Lee 2020). I argue that the fronted locative is a PP and that Mandarin LI is fully comparable

with its English counterpart. Suppose the locative were a DP. We may expect it to strand a quantifier as the DP does in (11)a¹. The fact that it cannot strand a quantifier (11)b indicates that it is not a DP.

- (11) a. [_{DP} xuesheng]_i meige _{t_i} dou qu-le xuexiao.
 student every.CL all go-PERF school
 ‘Every student has gone to school.’
- b. * [_{LOC} menkou]_i meige _{t_i} dou zhan-zhe yige laoshi.
 door.entrance every.CL all stand-IMPF 1.CL teacher
 In. ‘At every door entrance stands a teacher.’

I suggest (11)b is bad because the locative is structurally more complex than DP, consisting of a Postposition selecting a DP, as in [_{PP} [_{DP} men] kou]. (11)b is then ungrammatical because PPs do not license quantifier float.

Having clarified the structure of the locative, I now set out to show that in Mandarin, too, the locative has subject properties. In Mandarin, topicalization triggers WCO effects (12) (Example from Pan (2016)). Unlike topicalization, LI does not trigger WCO effects, as shown by (13).

- (12) *Nage xiaohai_j, ta_j mama bu xihuan t_j.
 that-CL kid his mother NEG like
 ‘As for that kid_j, his_j mother doesn’t like.’
- (13) [_{LOC} meirende_i zhuoshang] dou fang-zhe ziji_i shu.
everyone’s table.on all place-IMPF self’s book
 ‘On everyone’s table is placed their own book.’

Here the quantified noun phrase *meirende* ‘everyone’ inside the locative can bind into the lower reflexive *ziji* ‘self’ without triggering WCO effects. This means that the locative in Mandarin LI is not in a topic position because topics do induce WCO effects in Mandarin.

2. Base generating the locative

In this section I will discuss evidence supporting the base-generation account of the locative. The first argument comes from the scope of the locative PP. Kuno (1973) notes that, unlike a quantified canonical subject (14)a, in locative inversion the subject locative PP does not have an inverse scope interpretation (14)b.

- (14) a. Some actress stood on every stage. ($\exists > \forall, \forall > \exists$)
 b. On some stage stood every actress. ($\exists > \forall, * \forall > \exists$)

Assuming that the inverse scope arises through the trace of the subject (Hornstein 1995), the lack of a reconstruction effect for the locative PP indicates that there is no lower trace of LI, thus supporting the base-generation analysis.

The second argument comes from argument structure. As Salzmann (2013) notes, locatives do not have to participate in the argument structure of the verb. In fact, they can be clear adjuncts, as (15) shows.

- (15) a. Next door, to the east, decays Ablett Village.
 b. Beside it sparkles the community pool.

To the extent that we accept that only arguments of the verb originated within the VP, the fact that adjuncts, too, appear in LI indicates that locatives can be base-generated outside of the VP. Pertinent to this point is Bresnan’s (1994) observation that the locative can modify the agent:

¹ Whether there is a D layer or not in Mandarin noun phrases is immaterial to the discussion here. The label DP is used for convenience’s sake.

- (16) Through the window on the second story was shooting a sniper. (The sniper, but not his goal, is on the second story.)

Assuming the scope of modification corresponds to the height of the locative, that locative can modify an agent can be taken to imply that the locative is not necessarily generated in a low position within VP.

The last argument comes from superiority effects. C&L (2001) observed that, while object *wh*-questions trigger a superiority effect (17), locative *wh*-questions pattern with subject *wh*-questions in (18) and do not show superiority effect. (18)c shows that the superiority effect resurfaces if the sentence is not an LI.

- (17) a. *What did who do?
 b. Who did what?
 (18) a. Who did you claim came out of which room?
 b. Out of which room did you claim came who?
 c. *Out of which room did you claim who came?

The violation in (17) is caused by moving a lower object *wh*-element across a higher subject *wh*-element. The contrast in (18)b–c shows that while moving the locative *wh*-element is acceptable in LI, it is not acceptable in a sentence with canonical word order. I suggest that the acceptability of (18)b thus indicates that the locative is higher than the grammatical subject in LI, further supporting a base-generation analysis.

The base-generation analysis applies to Mandarin too. Evidence comes from idiom interpretation (19). *Diu zai nao hou* consists of the verb *diu* ‘throw’ and the preposition *zai naohou* ‘at/to the back of the head’. It is a phrasal idiom meaning to forget something completely, and it literally means ‘to throw something to the back of someone’s head’. (19)b shows that only the literal, and not the idiomatic meaning is preserved when the idiom appears in LI. (19)c shows that even when the verb and the preposition are separated by another constituent, the idiomatic meaning remains.

- (19) a. Canonical phrasal idiom *diu zai naohou* ‘throw at head-back’
 wo ba tade shiqing diu [LOC zai naohou].
 I let his matter throw at head.back
 ‘I forget all about his matter.’ (Literal meaning: I throw his matter to the back of my head.)
 b. Idiom in LI
 #_[LOC wode naohou] diu-zhe tade shiqing.
 my head.back throw-IMPF his matters
 ‘Thrown to the back of my head are his matters.’ (Literal, not idiomatic)
 c. Separating idiom *V–X–LOC*
 Shijieshang xuduo dongxi, ... jiu diu ta _[LOC zai naohou].
 World.on many things just throw it at head.back
 ‘There are many things in the world... I just stop caring about them.’

Note that the absence of an idiom interpretation in (19)b cannot be explained as being due to the separation of V and the locative, since (19)c shows that the separation does not affect interpretation. This idiom is different from the English *kick the bucket*, where no movement is allowed (#‘The bucket was kicked’). In light of this, I suggest that the fact that the idiomatic meaning is lost in (19)b provides evidence that the subject locative is not derived by movement and is base-generated—the relevant elements then never form a constituent, which prevents idiomatic interpretation.

3. Exceptional cases: information structural and phonological constraints

Having spelt out the derivation for LI, I will now revisit the problem of why sometimes the locative seems to pattern with topics. As Stowell (1981) observes, locatives, like topics, are ungrammatical in *wh*-extraction (20) and ECM (21). These facts are interpreted as arguments for the topic status of the locative.

- (20) *Wh*-extraction
- a. *Who_i does Bill say [that such books t_i only reads at home] (Topicalization)
- b. *What_i does John say [that near his house lies t_i]? (LI)
- (21) ECM
- a. *I expect *this book*, Bill to like. (Topicalization)
- b. *I expect *in the room* to be sitting my older brother. (LI)

However, I argue the analogy does not necessary mean that LI involves topicalization. Evidence comes from *there-V* construction, as in ‘There sat an old woman resting on a stone.’ As with LI, *wh*-extraction induces ungrammaticality (22), but different from LI, it is compatible with ECM (23) (Hartmann 2011).

- (22) *Wh*-extraction
- *Which rabbit did *there* appear?
- (23) ECM
- By next year, I expect *there* to hang on this wall a picture of Leonard Pabbs.

The grammaticality of *there-V* does not align in *wh*-extraction and ECM. This indicates that there can be two different mechanisms behind the ungrammaticality of (20) and (21), not necessarily just topicalization².

If the post-V NP in LI is in a focused position, (20)b can be explained by Rizzi’s (2006) criterial freezing: an element satisfying a criterion (here focus) is frozen in place and therefore unable to undergo further extraction. Bresnan (1994) among others observes that deictic pronouns are acceptable in LI, but not anaphoric ones (24). Note that English LI otherwise does not show a definiteness effect; definite noun phrases are allowed in LI.

- (24) a. Among the guests of honor was sitting HER [pointing].
- b. *Rose? Among the guests of honor was sitting she_i/her_i.

Deictic pronouns can carry stress, while anaphoric ones cannot. To the extent that focused elements usually carry stress, the contrast in (24) can be explained if post-verbal noun phrases are required to be focused in LI.

What is left then is the ECM (21). For the sake of brevity, I will explore in passing the possibility that the ungrammatical cases can be attributed to ECM-specific phonological constraints. Postal (1974), Bošković (1997) among others note that NP cannot appear in the subject position of the non-finite clause selected by verbs like *allege* and *wager*, as shown by (25). However, the construction becomes grammatical if the subject is an unstressed pronoun or an expletive *there*, as in (26). Moreover, heavy NP-shift or *wh*-extraction of the offending NP can ameliorate the ungrammaticality, see (27). The examples are from Bošković (1997).

- (25) a. *John wagered Peter to be crazy.
- b. John was wagered by Peter to be crazy.
- (26) a. He alleged there to be stolen documents in the drawer. (cf. *He alleged stolen documents to be in the drawer.)
- b. Mary alleged him to have kissed Jane. (cf. *Mary alleged that man to have kissed Jane.)
- (27) a. You alleged [t_i to be crazy] [the man you met last year in New Orleans]_i.
- b. Who_i did John wager [t_i to be crazy]?

From a phonological point of view, data above seem to suggest that only destressed or phonologically null constituents can occupy the subject position of the non-finite clause selected by *allege/wager*. This can be taken to indicate that ECM can be sensitive to the phonological properties of the subject position of the non-finite clause (but see Bošković 1997).

I will leave the exact execution unspecified here. The discussion above is relevant to the contrast between locative and *there* in ECM: it might be understood under the same mechanism of *allege/wager*.

² For a broader paradigm concerning extraction in both *there*-construction and LI, see Bošković (2023).

Importantly, the same kind of amelioration effect as in (27) occurs if the offending locative moves to the beginning of the sentence (Postal 2004):

- (28) a. *I believed on the wall to have been standing two large blackbirds.
 b. On the wall I believe ____ to have been standing two large blackbirds.

4. Conclusion

In this paper, supported by evidence from English and Mandarin, I propose that in LI the locative is base-generated in the subject position. I argue that the observed parallel between topics and locatives is not sufficient for a topic analysis and I explore possible phonological accounts.

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