Three kinds of locative preposing*

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Culicover and Levine (2001) distinguish two kinds of locative inversion in English based on their divergent behaviour in a number of syntactic tests: *heavy inversion* and *light inversion*. I bring a third kind of locative preposing — *locative topicalization* — into the paradigm and observe that locative topicalization patterns with heavy inversion. I give a movement analysis of these three kinds of preposing that captures this parallel by proposing that locative topicalization and heavy inversion both involve an A'-movement 'topicalization' step.

1   Introduction

Locative preposing describes any sentence where a locative PP is pronounced in the left periphery, out of its canonical post-verbal position. Locative preposing is divided into two kinds, which differ in their word order: locative topicalization [LocT], in which the locative is fronted and no other word order changes occur; and locative inversion [LocI], in which subject-verb inversion accompanies locative fronting. (1a) and (1b) are examples. Note that locative topicalization must be accompanied by a pause after the fronted PP, but locative inversion does not necessarily require such a pause (but this generalization will be revised once we consider a further distinction).[1]

(1)   a. *Locative topicalization: PP,–S–V*
           Into the room, Robin walked.
       b. *Locative inversion: PP–V–S*
           Into the room walked Robin.

Culicover and Levine (2001) [hereafter, CL] further divide locative inversion into two kinds: *heavy inversion* [HI] and *light inversion*: LI is characterized by a light subject, and HI is characterized by a heavy subject, along with distinctive pausing and a distinctive intonational contour. (1b) is in fact an example of LI, (2) is an example of HI.

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[1] Locative inversion often sounds natural in English when the PP is given (e.g. by a question) and contrasted with another PP in a coordinate structure:

(i)   Who walked into the room? Was it Batman or Robin?
       — Well, into the *room* walked Robin, but into the *garage* walked Batman.

Locative topicalization also requires the PP to be given, and sounds especially good in these particular coordinate constructions:

(ii)   Robin did not want to walk into the room but into the room, Robin walked.

(2)   Into the room, walked (carefully), a very large caterpillar.

CL note that HI examples like (2) must be pronounced with pauses where commas are placed along with the intonation contour in (3).

(3)   H* L–   H* !H–   H* L–   [CL: 293]
       Into the room   walked carefully   a very large caterpillar.

CL give evidence that HI and LI diverge in the following syntactic environments: raising, control, weak crossover, availability with unergatives, quantifier stranding, extraction from tensed complements, and preposing within non-finite complements. In section 3, I show that locative topicalization patterns with HI in many of these environments, and I also give some new syntactic tests which show this same distinction. But first, in section 2 I give my theoretical proposal for the three constructions and go on to show in section 3 how this proposal accounts for each of the data points presented there.

2   Theory

The core claim is that heavy inversion [HI] is actually more similar to locative topicalization [LocT] than light inversion [LI]. HI and LocT involve the same syntactic operation and are differentiated from LI.
    I propose that the distinction between HI/LocT and LI is primarily an A–A' distinction: LocT is A'-movement of the locative PP to spec-CP, as shown in (4a);[2] while LI consists of two steps: (i) an A-movement step to spec-IP, followed by (ii) a short A'-movement step to spec-CP, shown in (4b).[3,4]

(4)   a. *Locative topicalization [LocT]:*
          [$_{CP}$ PP$_{loc}$ [C [$_{IP}$ DP$_{subj}$ [Infl [$_{VP}$ V t_{subj} t_{loc}]]]]]
       b. *Light inversion [LI]:*
          [$_{CP}$ PP$_{loc}$ [C [$_{IP}$ t_{loc} [Infl [$_{VP}$ V DP t_{loc}]]]]]

The analysis I give for LI is similar to the one given in Culicover and Levine (2001), who also say that LI consists of an A-movement step to spec-IP, but for them, the locative PP does not move further to spec-CP. It is clear that locative preposing in general must involve movement into spec-CP at some point, due to co-occurrence restrictions with other items thought to be in spec-CP. Example (5) shows that locative preposing is incompatible with *wh*-fronting, and (6) shows its incompatibility with focus-fronting.[5]

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[2] Following previous accounts of topicalization, e.g., Takano's (1995) analysis of VP-topicalization, in which VP moves directly to spec-CP.

[3] Following the analysis of locative inversion independently proposed by Rezac (2006) and Stowell (1981). Samko (2014) also gives a similar account for participal inversion.

[4] Note that in (4) the subject DP is base-generated in a post-verbal position. CL also make this choice and it is necessary for the right word order to be generated in the light inversion case (see (4b) cf. (1b)). We do not make any concrete claims about how this order is generated. However, Bissell-Doggett's (2004) study of locative inversion investigates the internal structure of the VP/vP and she makes the same assumption, i.e., that the subject starts out in a post-verbal position. For example, she says that a sentence like "Down the hill rolled Mary" starts out with a vP that has the structure in (i).

(i)   [$_{vP}$ roll$_i$-v [$_{VP}$ Mary [t_i [$_{PP}$ down the hill]]]]

[5] I am assuming that left-peripheral material like *wh*-fronted and focus-fronted constituents lie in spec-CP, and that the left periphery just consists of C and its specifier, as opposed to a more fine-grained left periphery like in Rizzi (1997). It would be more difficult to accounts for these co-occurrence restrictions using Rizzi's theory, since there are more possibilities for the landing site of locative preposing.

(5)   *Incompatibility with* wh-*fronting*
      a. * Who into the room walked?
      b. * Into the room who walked?

(6)   *Incompatibility with focus-fronting*
      Was it Batman that walked into the room?
      — * No, ROBIN into the room walked!

I propose that HI is actually just locative topicalization along with heavy NP-shift of the notional subject, which stops in spec-IP along the way. This is shown in (7).[6]

(7)   *Heavy inversion [HI]:*
      $[_{CP}$ PP$_{loc}$ $[C$ $[_{IP}$ $[_{IP}$ t_{subj} $[Infl$ $[_{VP}$ $[V$ t_{subj} $t_{loc}]]]$ DP$_{subj}]]]$

Notice that, in the structure that (7) assigns to HI, constituency corresponds to the prosodic structure shown in (3): a pause corresponds with the IP edges, illustrated in (8).

(8)   a. Into the room, walked carefully, a very large caterpillar.
      b. [Into the room] $[_{IP}$ $[_{IP}$ [walked carefully]]$_{IP}$ [a very large caterpillar]]$_{IP}$

In summary, I make two novel proposals: (i) the distinction between inversion and topicalization is an A-A' distinction; (ii) heavy inversion is not really a third kind of preposing, but is an epiphenomenon of topicalization and heavy-NP shift. Light inversion is the only example of true inversion.

These proposals predict that HI should generally pattern with LocT: HI should be (un-)grammatical in the same environments where LocT is. The next section shows that this prediction is borne out.

3   Evidence

Here we give the six syntactic environments that distinguish between LocT/HI and LI and show how the proposal accounts for each. Three of these — weak crossover (§3.1), quantifier stranding (§3.2), and extraction from tensed complements (§3.4) — were used by CL to distinguish HI from LI, and I bring LocT into their paradigm. The remaining three — adverb placement (§3.3), extraction from non-finite complements (§3.5), and the argument-adjunct distinction (§3.6) — are given here for the first time.

3.1   Weak crossover

Weak crossover [WCO] is taken to distinguish between A- and A'-movement: A'-movement is subject to WCO, but A-movement is not (Postal, 1971; Koopman and Sportiche, 1983). Examples (9-10) show that LocT is subject to WCO, while LI is not.

(9)   a. In no dog$_i$'s cage hung its$_i$ collar.   [LI, CL: 289]
      b. * In no dog$_i$'s cage, its$_i$ collar was missing.   [LocT]

(10) a. Into every dog$_i$'s cage peered its$_i$ owner.   [LI, CL: 289]
      b. * Into every dog$_i$'s cage, its$_i$ owner peered.   [LocT, CL: 289]

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[6] Culicover and Levine (2001) also say that HI involves heavy NP-shift, but their structure places the locative PP left-adjoined to IP. Again, their structure does not account for the incompatibility of all kinds of locative preposing with other left-peripheral material. CL's proposal also does not capture any parallels between LocT and HI, discussed here in section 3.

The proposed hypothesis accounts for this difference. LocT is generated with a single A'-movement step, in which the locative PP crosses a co-indexed DP, as in (11).

(11)   [[PP In no dog$_i$'s cage] [C [[DP its$_i$ collar] Infl [hung t_{DP} t_{PP}]]]]

By assumption that A'-movement of one constituent over another co-indexed constituent results in a WCO violation, we correctly predict that (9b) and (10b) are ungrammatical.

On the other hand, LI is generated with an A-movement step followed by an A'-movement step. Crucially, the movement which crosses the co-indexed subject DP is an A-movement step, shown in (12), which does not result in a WCO violation.

(12)   [[PP In no dog$_i$'s cage] [Infl [hung its$_i$ collar] t_{PP}]]]

HI appears to pattern like LocT: HI also results in WCO violations. Culicover and Levine, for example, judge (13a) as ungrammatical. I find the HI examples with purported WCO violations difficult to judge; for example, I find (13b) marginal under the co-indexed reading, and speakers I have informally consulted differ on their judgements.

(13)   a. * In no dog$_i$'s cage, was hanging on a hook, its$_i$ most attractive and expensive collar.   [CL:(iib)]
        b. ?? Into every dog$_i$'s cage, peered (silently), its$_i$ caring and attentive owner.

Unacceptability of (13a-b) follows straightforwardly from the hypothesis put forward here: HI involves the same A'-movement step as LocT, so we expect WCO violations to occur. Those speakers who find (13a-b) marginally acceptable or difficult to judge will hopefully be convinced by the data in the following 5 sections, in which HI clearly patterns with LocT.

3.2   Quantifier stranding

Example (14) shows that LocT and HI can strand quantifiers, but LI cannot.

(14)   a. * Into the cafeteria have both gone the students.   [LI, CL: 301]
        b. Into the cafeteria, have BOTH gone, the students that I was telling you about.   [HI, CL: 301]
        c. Into the cafeteria, the students have both gone.   [LocT]

We can account for the LocT data (14c) by adopting the movement approach to Q-stranding (Sportiche, 1988) and assuming that there is an intermediate landing site for movement between the auxiliary (*have*) and the lexical verb (*gone*).[7] We propose the structure in (15).

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[7] An intermediate landing site may actually be necessary if we assume that lexical verbs are dominated by *v*P as well as the phase-theoretic assumptions (Chomsky, 2001; et seq.) that *v* is a phase and any movement crossing a phase-edge must first move to the specifier of the phase head. The intermediate site in (15) may then be spec-*v*P, as in (i).

(i)   [have [$_{vP}$ [$_{QP}$ both [the students]] [v [$_{VP}$ gone t_{QP} [$_{PP}$ into the cafeteria]]]]]]

So phase theory gives us an explanation for why an intermediate landing site exists. There is one lingering question: why is it the QP that moves to the intermediate spec-*v*P, rather than the DP contained with it being the one that moves? This would strand the quantifier in sentence final position, which is not possible.

(ii)   * Into the cafeteria, the students have gone both.

(15) [$_{CP}$ [$_{PP}$ Into the cafeteria] [C [[$_{DP}$ the students] [have [[$_{QP}$ both t_{DP}] gone t_{QP} t_{PP}]]]]]

The analysis carries over to HI, since we apply heavy NP-shift to the structure in (15) to generate the HI order.

For LI, Q-stranding is impossible because the subject never moves. The subject position (spec-IP) is occupied by a copy of the locative PP, and the subject stays in its base position.

(16) [$_{IP}$ [$_{PP}$ Into the cafeteria] [have$_I$ [$_{VP}$ gone [both [the students]] t_{PP}]]]

3.3   Adverb placement

This section shows data regarding the permitted positions of post-verbal adverbs. Restricting our attention to VP-adverbs, we find that HI and LocT only allow them immediately after the verb, and LI only allows them at the very end of the sentence.

(17) a. Into the room walked (*carefully) Robin (carefully).   [LI]
      b. Into the room, walked (carefully), a very large caterpillar (?? carefully).   [HI]
      c. Into the room, Robin walked (carefully).   [LocT]
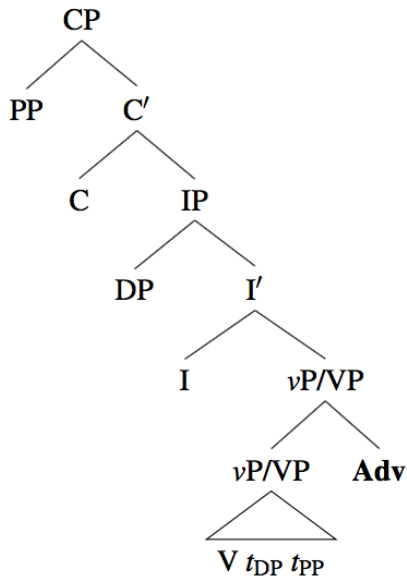
The data in (17) are accounted for by the constituent structure proposed here, with the assumption that post-verbal manner adverbs like *carefully* are right adjoined to the verbal projection (*v*P or VP). Then we get the constituent structures (18a) for LI, (18b) for LocT, and (18c) for HI.

(18) a. *LI:* Right-adjoined adverbs show up sentence-finally.
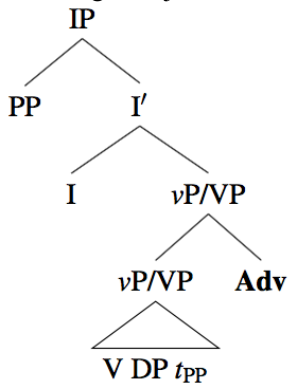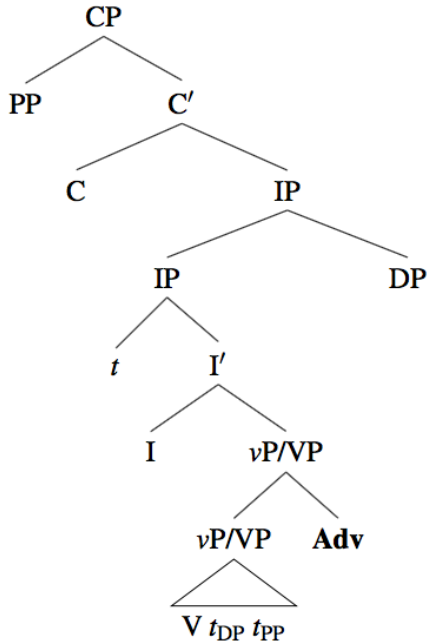

I do not have an explanation for this. For now, we must stipulate that only the whole QP [$_{QP}$ both the students] is able to move to spec-*v*P, but the DP contained within may leave the QP when moving to spec-TP. Perhaps further research in to Q-stranding may shed light on these movement restrictions.

b. *LocT:* Right-adjoined adverbs show up sentence-finally.

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            CP
          /    \
        PP      C′
              /    \
            C       IP
                  /    \
                DP      I′
                      /    \
                    I       vP/VP
                          /      \
                       vP/VP      Adv
                        /\
                       /  \
                  V tDP tPP
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c. *HI:* Right-adjoined adverbs show up just after the verb.

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             CP
           /    \
         PP      C′
               /    \
             C       IP
                   /    \
                 IP      DP
               /    \
             t       I′
                   /    \
                 I       vP/VP
                       /     \
                    vP/VP     Adv
                     /\
                    /  \
                V tDP tPP
```

In (18a-b), we see that right-adjunction to *v*P/VP always corresponds to sentence-final position when there is nothing else extraposed to the right. This accounts for the placement of post-verbal adverbs in LI and LocT. (18c) shows that a right-adjoined element shows up between the verb and the extraposed DP, which accounts for the HI data.

3.4   Extraction from tensed complements

We find that LocT and, marginally, HI, allow extraction out of tensed complements.

(19)   a. ? From this pulpit, I claim will preach incoherently, a series of ravenous Tolstoy scholars.

[HI, CL: 302]

   b. From this pulpit, I claim Robin will preach.   [LocT]

Grammaticality for the LocT example (19b) is straightforwardly predicted, since A'-movement can proceed cyclically outside of embedded CPs.

(20)   [$_{CP}$ [$_{PP}$ From this pulpit] [C [$_{IP}$ [$_{DP}$ I] [Infl [claim [$_{CP}$ t_{PP} [C [Robin will preach t_{PP}]]]]]]]]

This naturally extends to predict grammaticality for the HI example since the same A'-movement occurs there.

The situation for locative inversion is more complicated. We see in (21a, b) that locative preposing accompanied by inversion in the matrix clause is unacceptable, but preposing with inversion in the embedded clause is acceptable (21c)[8].

(21)   a. * Into the room think I (that) John went.
   b. * Into the room think I (that) went John.
   c. Into the room, I think went John.

(21c) is predicted to be grammatical by the theory laid out thus far: we obtain the licit structure (22) for (21c).

(22)   [$_{CP}$ [Into the room] [C [$_{IP}$ [$_{DP}$ I] [Infl [think [$_{CP}$ t_{PP} [C [$_{IP}$ t_{PP} [Infl [went John t_{PP}]]]]]]]]]]

In (22), we have the PP moving to the embedded spec-IP, leaving the embedded subject in its in-situ position, in order to derive inversion in the embedded clause. Then the PP A'-moves to the embedded spec-CP — the same movement required in matrix clauses — and finally, the PP A'-moves again to the matrix spec-CP. This last movement step is in fact a topicalization step, so the structure in (22) reveals that (21c)

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[8] Culicover and Levine (2001: 301) claim that sentences like (21c) are ungrammatical. They offer the sentences in (i) (their (38)), given with their judgements.

(i)   a. * Into the room I claim/believe walked Robin.
   b. * Into the room I claim/believe/expect will walk Robin.
   c. * Into the room I claim/believe/expect will preach Robin.

Note that the sentences in (i) are written without a comma (i.e. without a pause) after the preposed PP. The pause is, I find, crucial for the acceptability of (21c), and reading (ia) with a pause as in (ii) significantly improves it.

(ii)   Into the room, I claim/?believe walked Robin.

Even with a pause, the (b-c) examples sound odd. That is, I perceive the contrast in (iii).

(iii)   a. Into the room, I claim walked Robin.
   b. *? Into the room, I claim will walk Robin.
   c. *? Into the room, I claim will preach Robin.

From (iii) we can observe that verbs with the future tense marker *will* are degraded. We speculate that LI is only permitted around simplex verbs (in English, the simple present and simple past). Indeed, all the other acceptable examples contained here are in the simple past tense, except for one in fn. 14 in the simple present. If this speculation is true, then LI is similar to pseudoclefts, which are also only permitted in simplex verbs (among other restrictions on verb tense) (den Dikken et al., 2000:65; Higgins 1979), which was noticed by den Dikken et al. (2000: 65, fn. 18).

is a mixed structure: LI in the embedded clause but LocT in the higher clause. That we indeed have topicalization in the higher clause is corroborated by the fact that (21c) is most naturally produced with a pause after the PP.

Example (21a) also has a mixed structure, with LocT in the embedded clause and LI in the matrix clause, as revealed by the structure (23).[9]

(23) * [CP [Into the room] [C [IP t_{PP} [Infl [think I [CP t_{PP} [C [IP John [Infl [went t_{DP} t_{PP}]]]]]]]]]]]

However, we want (23) to be an illicit structure. Notice that there is a movement step in (23) in which the PP is moved from the embedded spec-CP to the matrix spec-IP: this is movement from an A'-position to an A-position, an instance of improper movement (Chomsky, 1995:95). Following Chomsky, we assume that improper movement leads to ungrammaticality.

Example (21b) is not a mixed structure; we have LI in both clauses, as we see in its structure (24).

(24) * [CP [Into the room] [C [IP [t_{PP} [Infl [think I [CP t_{PP} [C [IP t_{PP} [Infl [went John t_{PP}]]]]]]]]]]]]]

(24) is ungrammatical for the same reason as (23): we have movement from the embedded spec-CP to the matrix spec-IP, which is improper movement.

3.5   Extraction from non-finite (ECM) complements

We find the same behaviour in extraction out of *non*-finite complements. Consider the data containing ECM complements in (25-26).

(25) a. * Into the room I imagined walking Robin. [LI]
      b. ? Into the room, I imagined WALKing, a group of the students in the class who had heard about the psych experiment. [HI[10]]
      c. ? Into the room, I imagined Robin walking. [LocT]

(26) a. * Into this room we saw run Robin. [LI]
      b. ? Into this room, we actually saw RUN, a ravenous horde of angry Tolstoy scholars. [HI]
      c. ? Into this room, we saw Robin run. [LocT]

Although the (b,c) examples of (25-26) are not perfect, they are certainly better than the (a) examples.

Again, grammaticality of the LocT examples follows straightforwardly: we can A'-move the locative PP directly to the matrix spec-CP creating the licit structure in (27).

(27) [CP [Into this room] [C [IP we [Infl [saw [Robin [Infl [run t_{DP} t_{PP}]]]]]]]]]

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[9] The mixed status of (21a) is only such because (23) shows an intermediate movement step to the embedded spec-CP, not visible on the surface (unlike in (22), where the intermediate movement step to spec-IP is evidenced on the surface by inversion in the embedded clause. This intermediate step is necessary due to theory internal reasons: assuming phase theory (Chomsky, 2001; *et seq.*), we need this intermediate movement to avoid violating the Phase Impenetrability Condition (i).

(i) *Phase Impenetrability Condition* (Chomsky, 2000:108)
      In phase α with head H, the domain of H is not accessible to operations outside α, but only H and its edge.

The same must be said for the structure we give for (21b) in (24).

[10] Adapted from (26c) in Culicover and Levine (2001: 297).

Grammaticality extends to the HI examples, since they involve the movement step in (27).

LI is predicted to be ungrammatical because the embedded locative PP is unable to move to the matrix spec-IP. The matrix spec-IP is occupied by the matrix subject, so it is already filled, and the locative cannot move there.

(28) [$_{IP}$ We [Infl [saw [Robin [$_{IP}$ [Infl [run t_{DP} [into this room]]]]]]]]]

3.6 An argument-adjunct distinction

Not all locative PPs can participate in inversion: this section makes the argument that only argumental PPs can be fronted in LI, and adjuncts cannot. Consider (29).

(29) a. i.   * In her house danced Mary.   [LI]
          ii.   Into her house danced Mary.
      b. i.   On the stage, danced gracefully, the most beautiful dancer he had ever seen.   [HI]
          ii.   Onto the stage, danced gracefully, the most beautiful dancer he had ever seen.
      c. i.   In the hall, Mary walked.   [LocT]
          ii.   Into the hall, Mary walked.

In the contrast between (29a i–ii), we see that LI is only compatible with the goal PP *into her house* but not the location PP *in her house*. But (29b–c) show that HI and LocT are unconstrained in this respect. Now consider (30)[11].

(30) a. On the porch were sitting three men.   [LI]
      b. * On the porch were reading three men.

Both examples in (30) contain a location PP (*on the porch*); the contrast here seems to come about from the lexical verb. Example (30a) shows that LI with *sit* is permitted but (30b) shows that LI with *read* is not.

We can make sense of this data by noticing that they exemplify an argument-adjunct distinction (see e.g., Baker, 1996): *into her house* is the goal argument of *dance* (where *dance* is taken with a directional meaning like *walk*) and *on the porch* is the location argument of *sit*. So the grammatical examples (29a ii) and (30a) involve LI of arguments. On the other hand, *in her house* is not an argument of *dance* (in any sense of *dance*) and *on the porch* is not an argument of *read* — they are adjuncts.[12] So the ungrammatical sentences (29a i) and (30b) involve LI of adjuncts. Then the correct generalization here is that arguments can participate in LI, but adjuncts cannot.

In the current proposal, this means we need a ban on A-movement of adjuncts, but that A'-movement of both adjuncts and arguments must be permitted. I propose that this ban is a special case of improper movement (Chomsky, 1995: 86): movement from an A'-position to an A-position. This follows if we assume the classic definition of A'-position in (31).

(31) X is an A'-position iff X is not an A-position.

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[11] This contrast was pointed out to me by Elizabeth Cowper.

[12] It is not especially important for our purposes here how this argument-adjunct distinction is implemented in the grammar (e.g., arguments being theta-marked in the syntactic component, arguments and adjuncts having different positions in the constituent structure, etc.). What is important is that some formal distinction is made between PPs that are in some sense a necessary portion of the verb's argument structure (=arguments) and PPs that add extra information (=adjuncts).

Since adjunct PPs are not arguments, they are not in an A-position, so by (31), adjunct PPs are in an A'-position. Their inability to participate in LI follows since LI involves movement from an adjunct position to an A-position, a case of improper movement.

4   Problematic data

This section brings forward some data that Culicover and Levine used that are, for various reasons, problematic. Section 4.1 gives their data on raising, which they used to motivate a distinction between HI and LI; and section 4.2 presents their claims on unergative verbs.

4.1   Raising

LocT and HI allow extraction out of the scope of a raising verb, but LI does not. Although the LocT (and possibly the HI) examples in (31) are not perfect, Culicover & Levine claim that they contrast with the LI examples.

(32) a. * Into the room appeared to be walking Robin.   [LI, CL: 288]
      b. ? Into the room, appeared to be walking slowly, a very large caterpillar.   [HI, CL: 288]
      c. ? Into the room, Robin appeared to be walking.   [LocT]

Some speakers dispute these acceptability judgements, reporting that there is no contrast between (a) and (b,c). For now, let us take CL's acceptability judgements at face value. In doing so, this data shows the same pattern that we have seen before: HI and LocT pattern alike (are grammatical), while LI is different (is ungrammatical). The current theory does not afford an easy account of the purported contrast. If we attempt to combine the theory proposed here with a standard case-checking account of raising (e.g., in Chomsky, 2001), we predict that extraction out of raising verbs should always be grammatical. The standard account of raising states that raising is motivated by some uninterpretable feature on Infl, either an EPP or a case feature, which moves the embedded non-finite subject to its specifier. To work with the proposed account of LI, we must assume that it is the EPP feature that attracts the subject to spec-IP, and that case is able to be checked long distance. This is so because we assume that LI is generated by movement of a PP to subject position, leaving the notional DP subject in its base position, repeated in (33).

(33) $[PP \ [I_{[\text{EPP, NOM}]} \ [V \ [DP_{[u\text{NOM}]} \ t]]]]$

For case-checking to work properly in (33), we must allow the interpretable [NOM] feature on Infl to establish the AGREE relation between it and the DP in order to check the DP's uninterpretable [uNOM] feature, viz., long-distance case-checking must be allowed. There is indirect evidence of such long-distance agreement in English, since LI shows subject-verb agreement, which would require long-distance checking of [phi] features under the standard account.[13]

(34) a. Into the room walks Robin.
      b. Into the room walk Batman and Robin.

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[13] We cannot directly test case-checking in English. The only terms that show overt case in English are the personal pronouns, and for reasons that are mysterious to me, pronouns are not permitted in LI.

(i)   * Into the room walked he.

Movement of the PP to spec-IP must be motivated by some other feature, which we call the EPP feature. But by allowing long-distance case-checking, we then allow for LI in raising contexts. (32a) would get the licit structure in (35).

(35)   [$_{IP}$ [Into the room] [Infl$_{[EPP, NOM]}$ [appeared [$_{IP}$ to-be [walking Robin$_{[uNOM]}$ t]]]]]

In (35), the PP *into the room* moves to the matrix spec-IP to check the EPP feature, and the notional subject *Robin* stays in its base position, but its [uNOM] feature can be checked long-distance by establishing the AGREE(Infl, Robin) relation. Then (35) is a licit structure, predicting that (32a) is grammatical. This conflicts with CL's intuitions, so some other machinery must be invoked in order to rule out a derivation resulting in (34).

In a review of this article, Julie Doner suggested the following two ways to rule out (35): (i) the non-finite IP counts as an intervener to case licensing, or (ii) little *v* is a phase boundary; this adds an extra phase boundary (main clause *v*) that case-checking must cross. I have found that evidence from *there*-insertion in raising constructions shows that suggestion (i) cannot be true, but (ii) is plausible. To see that (i) cannot be true, consider (36a), which gets the structure (36b).

(36)   a. There appears to be a man in the room.
       b. [$_{IP}$ There$_{[\varnothing]}$ [Infl$_{[EPP, NOM]}$ [appears [$_{IP}$ to$_{Infl}$ be [a man in the room]$_{[uNOM]}$]]]]

Assuming that *there* lacks phi/case-features (Chomsky 1995: 66), Infl must agree with the notional subject [*a man in the room*] so that all uninterpretable features are checked. So we must allow the AGREE relation to cross the non-finite IP, *contra* suggestion (i). Again, there is evidence of this long-distance agreement via subject-verb agreement.

(37)   * There appear to be a man in the room.

Suggestion (ii) is compatible with (36a), and other data from *there*-insertion may actually support it. If we assume that copular constructions do not project a *v*P and do not constitute a phase, then the necessary AGREE relations can be established in (36b) to license case. This assumption predicts a contrast between sentences with verbs that project *v*Ps and those that don't in raising contexts with *there*-insertion. This contrast is borne out: (38b) is not an acceptable paraphrase of (38a), contrasting with the acceptable (36a).

(38)   a. A man appears to walk into the room.
       b. * There appears to walk a man into the room.

The ungrammaticality of (38b) would be explained along the lines of suggestion (ii) as follows: *walk* projects a *v*P that dominates the notional subject [*a man*]. Case-assignment between the notional subject and the matrix IP is blocked since *v*P is a phase boundary.

Interestingly, (39) is an acceptable paraphrase of (38a).

(39)   There appears to be a man walking into the room.

We would be able to explain the grammaticality of (39) by saying that the notional subject [*a man*] is not within the *v*P phase boundary projected by *walk*, so case-checking isn't blocked. One way to do this would be to place the notional subject in the specifier of *v*P, as in (40).

(40)   [$_{IP}$ There [Infl appears [$_{IP}$ to$_{Infl}$ be [$_{vP}$ [a man] [v [$_{VP}$ walking into the room]]]]]]

According to the PIC (given in fn. 9(i)), only the phase head (here, *v*) and its complement are inaccessible to higher operations, but the specifier is still accessible. Then the relation AGREE(Infl$_{Matrix}$, spec-VP) is not blocked by the PIC, and (39/40) comes out as grammatical.

If this suggestion is right, then we have an explanation of CL's intuitions on LI in raising constructions that affords new explanations of the behaviour of *there*-insertion in raising as well. My contributions to this issue are just hasty speculations, and should not be taken to be serious proposals. Further research into raising and its interaction with *there*-insertion and locative inversion might be worthwhile to see if these speculations pan out.

4.2   Unergative verbs

Culicover and Levine (2001: 293) claim that LI is not permitted with unergative verbs, but HI is acceptable with unergatives. They claim that *sleep* is an unergative verb, and that this explains the pattern in (36), in which we see that LocT is also acceptable with the unergative.

(41)   a. * In the room slept Robin.   [LI, CL: 293]
       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.   [HI, CL: 293]
       c. In the room, Robin slept.   [LocT]

However, according to my judgements and those of my consultants, other instances of LI with unergatives are acceptable, such as (37).[14]

(42)   Into the room ran Robin.

Then CL's claim is false: LI is actually permitted with unergative verbs. To explain why (35a) is unacceptable, we do not need to appeal to unergativity; instead, it falls out from the argument-adjunct asymmetry we found in section 3.6. In (35a), *in the room* is not an argument to *sleep*, but in (36), *into the room* is clearly the goal argument to *run*. Then (35a) is an instance of LI of an adjunct, already predicted to be ungrammatical by the account in section 3.6.

5   Conclusion

We began with three kinds of locative preposing: two kinds of inversion that Culicover and Levine (2001) discovered [HI, LI] and locative topicalization [LocT]. I gave a proposal which reduced HI to other syntactic operations: topicalization and heavy NP-shift. The distinction between LocT and LI was proposed to be an A–A' distinction: the locative PP in LocT (and, therefore, HI) participates in a single A'-movement step, but the PP in LI participates first in an A-movement step, followed by a short A'-movement step, so that they all end up in spec-CP. We found that six different syntactic environments support the empirical generalizations that this theory gives, and found that it is easy to account for them with this theory combined with assumptions that are well-established in syntactic theory. Two problematic tests were reviewed: one (raising) had disputed acceptability judgements — on one set of judgements there is no problem, but on the other (CL's) a complete account could not be given — the other test (unergatives) was found to be spurious, and easily accounted for with machinery that was previously used.

The main contribution of this paper is the claim that the difference between topicalization and inversion is really just a difference between A- and A'-movement. Secondarily, I have argued that there is

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[14] September Cowley (p.c.) points out that LI with *run* sounds particularly good in a context like (i).

(i)   There I was, sitting in the office minding my own business, when, all of a sudden, into the room runs Robin!

nothing special about heavy inversion: it is just locative topicalization where heavy NP-shift has taken place. This suggests an obvious pathway for future research: investigate whether other species of preposing pattern in the same way.

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